

THE EFFECTIVENESS OF FAMILY EMPOWERMENT MODEL ON THE HEALTH STATUS OF PREGNANT MOTHERS

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Abstract

One of the reasons for the inability of families to carry out early detection and care for high-risk pregnancies is the lack of optimal education and assistance by health workers, which can have an impact on the health status of mothers and their babies. This study aims to analyze the effectiveness of the family empowerment model on the health status of pregnant women.

This study uses a quasi-experimental method with a cross-sectional study approach, intervention model of family empowerment on the health status of pregnant women. Sampling used the probability sampling method with simple random sampling, the number of samples was 60 pregnant women consisting of 30 interventions and 30 controls. The independent variable is the intervention model of family empowerment, while the dependent variable is maternal health status. The data collection instrument used a questionnaire. The research data were analyzed using the Mann Withney statistical test which showed that systole ($p = 0.820$), diastole ($p = 0.665$), ROT ($p = 0.937$), MAP (0.777), BMI status ($p = 0.045$), Hb levels (0.006), and GDA ($p=0.006$). This means that the family empowerment model is effective in improving the health status of pregnant women, especially BMI, Hb levels, and GDA.

After being given the intervention of the family empowerment model, almost all of the respondents both experienced an increase in family involvement in intensive care for pregnant women so that they could prevent pregnancy complications.

Keywords: family empowerment, pregnancy, health status, pregnant women.

INTRODUCTION

The family is the closest person to pregnant women who can assist in recognizing any signs of danger or problems experienced, so that they can provide support and provide care during pregnancy (Chou et al., 2018). The problem is that the family does not yet have sufficient ability to recognize the existence of a high-risk pregnancy, which is one of the causes of delays in early detection of high-risk pregnancy and the possibility of pregnancy complications (Lee, Ayers, & Holden, 2016; Badakhsh, Hastings- Tolsma, Firouzkohi, Amirshahi, & Hashemi, 2020).

Based on data on pregnant women who experienced obstetric complications in the city of Surabaya from 2018-2020 there was an increase, from 19.9 to 20%.

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One of the reasons for the inability of families to carry out early detection and care for high-risk pregnancies is the lack of optimal education and assistance by health workers (Schmuke, 2019) which can have an impact on increasing the dangers of pregnancy that affect the health status of mothers and their babies (Ali et al., 2020).). In addition, it also results in low utilization of health care facilities (Shojaeian et al., 2020), delays in conducting examinations to health workers which end in complications and death of both mother and fetus (Joyce et al., 2018). The purpose of this study was to develop a model of family empowerment (Family Empowerment) on maternal health status.

The program that has been implemented by the Province of East Java, especially in the city of Surabaya, has carried out several efforts including optimizing the use of the MCH book (Maternal and Child Health), the Maternal and Child Health Planning Program (P4K) with stickers in all Puskesmas, Basic Emergency Obstetrics and Neonatal Services. (PONED)/Comprehensive Emergency Obstetrics and Neonatal Services (PONEK), as well as the existence of Poskeskel which functions as a place to assist pregnant women and their families in conducting prenatal checkups and providing counseling and counseling if pregnant women experience complaints, especially regarding the presence or absence of a high risk of pregnancy (Soedirham & Mochny, 2012).

Based on this phenomenon, the researchers are interested in developing a model of family empowerment on the health status of pregnant women. The development of the family empowerment model is expected to increase the ability of families in early detection of high-risk pregnancies so as to improve the health status of pregnant women.

Method

This type of research is a quasi-experimental research. The purpose of this study was to conduct a model simulation to test the effectiveness of the family empowerment model. Quasy experimental research was conducted with pretest and posttest after the model was tested. There are 2 groups that will be involved in this study, namely the treatment group and the control group. The population of pregnant women in the working area of the Wonokromo Health

Center is 128 pregnant women. Then categorized into a homogeneous sample obtained 70 people. With the criteria of pregnant women who have entered the second trimester during the data collection period, pregnant women who live in their area of residence for at least 3 months, planning to give birth in the area of their current residence. And after calculating the sample obtained by 60 people. The sample size of the second phase of the research for each group was 30 respondents from the intervention group and 30 respondents from the control group by random sampling. The research data were analyzed using the Mann Withney statistical test which showed that systole ($p = 0.820$), diastole ($p = 0.665$), ROT ($p = 0.937$), MAP (0.777), BMI status ($p = 0.045$), Hb levels (0.006), and GDA ($p=0.006$). This means that the family empowerment model is effective in improving the health status of pregnant women, especially BMI, Hb levels, and GDA.

Instrument and Procedures

The health status of pregnant women was measured before and after the intervention, including systole, diastole, ROT, MAP, BMI, HB levels, and GDA. The family empowerment intervention was carried out by home visits which were carried out as many as 8 sessions for 8 weeks with a duration of $\pm 60 - 120$ minutes through home visits. The methods used are lectures, discussions (questions and answers), demonstrations and contextual counseling and adult learning with an active learning process using interactive learning media, through bookled media, learning modules, KSPR scores, DRISK applications, and MCH books. At the end of each meeting, the researcher asked the respondents again about the material that had been presented. After the last intervention, the researcher will then conduct a post-test in the treatment group and the control group by asking the family to fill out a questionnaire on the ability to detect high-risk pregnancies and measure the health status of pregnant women. The collected data is then analyzed. After taking the post-test data, it is to fulfill the principle of fairness in research ethics. Then the researcher will also provide the same intervention to the control group as given to the treatment group. This research has been through an ethical test published by the Faculty of Nursing Universitas Airlangga with No. Certificate :1752-KEPK.

Results

Table 1. Distribusi karakteristik responden

Characteristics	Category	Control		Intervention		P-Value
Husband's Age	17–25 years old	12	40,0	9	30,0	0,589
	26–45 years old	18	60,0	21	70,0	
Husband's Education	Base	8	26,7	4	13,3	0,420
	Intermediate	18	60,0	22	73,3	
	High	4	13,3	4	13,3	

Characteristics	Category	Control	Intervention	P-Value		
Husband's Job	Factory workers	0	0,0	1	3,3	0,100
	Gojek drivers	0	0,0	2	6,7	
	Trader	12	40,0	9	30,0	
	Nurse	0	0,0	1	3,3	
	Security guard	0	0,0	3	10,0	
	Government employees	1	3,3	0	0,0	
	Private	16	53,3	11	36,7	
	Self-employed	0	0,0	3	10,0	
	Doesn't work	1	3,3	0	0	
Pregnant women age	17–25 years old	16	53,3	17	56,7	1,000
	26–45 years old	14	46,7	13	43,3	
Pregnant women education	Base	8	26,7	6	20,0	0,621
	Intermediat	20	66,7	20	66,7	
	High	2	6,7	4	13,3	
Pregnant women job	Teacher	0	0,0	1	3,3	0,181
	Trader	3	10,0	3	10,0	
	Nurse	0	0,0	1	3,3	
	Private	4	13,3	11	36,7	
	Doesn't work	22	73,3	13	43,3	
	Self-employed	1	3,3	1	3,3	
Parity	1,00	15	50,0	17	56,7	0,951
	2,00	10	33,3	8	26,7	
	3,00	4	13,3	4	13,3	
	4,00	1	3,3	1	3,3	

Based on the data presented in Table 1, it is known that the majority of husbands in the control group are 26–45 years old, have secondary education, work in the private sector, while most wives are 17–25 years old, have secondary education, do not work, and have a third pregnancy. 1. The result of the average KSPR score is 5.20 with a standard deviation of 5.18885 and has the lowest score of 2 while the highest is 18.

In the intervention group, most of the husbands were aged

26–45 years, with the latest secondary education, working in the private sector, while the wives were mostly 17–25 years old, with secondary education, not working, and the 1st pregnancy. The result of the average KSPR score is 3.60 with a standard deviation of 3.08053 and has the lowest value of 2 while the highest is 14. Furthermore, from the different test, it is known that the p-value above 0.05 indicates that there is no difference in the characteristics of the respondents between the treatment groups. with the control group.

Table 2 Results of Analysis of Differences in Health Status of Pregnant Women in Control and Intervention Groups

Indikator	Test	Group	\bar{x}	SD	Δ	Statistics	Sig.
Sistole	Pretest	Control	106,0000	15,22249	4,000	-1,150 ^b	0,250
		Intervention	110,0000	13,64576			
	Posttest	Control	109,0000	16,88705	-2,333	-0,227 ^b	0,820
		Intervention	106,6667	11,24441			
Diastole	Pretest	Control	70,0000	10,50451	2,333	-0,958 ^b	0,338
		Intervention	72,3333	10,06302			
	Posttest	Control	71,0000	11,55198	-0,333	-0,433 ^b	0,665
		Intervention	70,6667	6,39684			
ROT	Pretest	Control	5,5000	6,74025	2,000	-1,672 ^b	0,095
		Intervention	7,5000	5,98129			
	Posttest	Control	7,5000	8,17376	-1,833	-0,079 ^b	0,937
		Intervention	5,6667	4,68551			
MAP	Pretest	Control	81,8767	11,73123	3,000	-1,070 ^b	0,285
		Intervention	84,8767	10,92522			
	Posttest	Control	83,6567	12,84388	-0,993	-0,283 ^b	0,777
		Intervention	82,6633	7,18742			

IMT	Pretest	Control	24,5267	3,63469	-1,580	-1,826 ^b	0,068
		Intervention	22,9467	2,95912			
	Posttest	Control	26,0700	3,70714	-1,740	-2,004 ^b	0,045
		Intervention	24,3300	2,87476			
Hb	Pretest	Control	11,3300	,88830	0,033	-0,481 ^b	0,630
		Intervention	11,3633	1,28854			
	Posttest	Control	11,1767	,91677	0,663	-2,731 ^b	0,006
		Intervention	11,8400	,91636			
GDA	Pretest	Control	110,2333	9,68356	-1,733	0,774 ^a	0,442
		Intervention	108,5000	7,51894			
	Posttest	Control	107,1000	7,47571	5,033	-2,748 ^b	0,006
		Intervention	112,1333	6,98142			

Table 2 Based on the table above shows that after being given treatment, there was a significant difference in the indicators of BMI, Hb, GDA. Indicated by a significance value $< \alpha$ (5% or 0.05). The average value of Hb and GDA in the treatment group at the time of the posttest was greater than the control group, indicating that the Family Empowerment Model was significantly more effective in increasing the Hb and GDA of pregnant women compared to conventional treatment. Then the average BMI of the treatment group at the time of the posttest was smaller than the control group, indicating that the Family Empowerment Model was significantly more effective in reducing the BMI of pregnant women compared to conventional treatment.

Discussion

Family empowerment is one strategy that can be done to increase knowledge and skills (Woodall et al., 2010). According to the concept of the family health model (FHM) family empowerment can help to adapt, accommodate, and use family resources (Kaakinen & Denham, 2015). The support obtained from the family is very important in recognizing the symptoms and responses felt by pregnant women (Zand et al., 2017), can reduce anxiety and complications in pregnancy (Abdollahpour et al., 2015), including in making decisions to seek delivery assistance, and management of obstetric complications (Alemayehu & Meskele, 2017). The results showed that the family empowerment model (Family Empowerment) in early detection of high-risk pregnancies has an influence on the health status of pregnant women, including BMI (Body Mass Index), fetal position, Hb levels, and GDA (Random Blood Sugar).

The results of statistical tests after being given treatment, there was a significant difference in the BMI indicator with a significance value of $< \alpha$ (5% or 0.05) indicating that the Family Empowerment Model was significantly more effective in reducing the BMI of pregnant women compared to giving the treatment significantly. conventional. Body Mass Index (BMI) or Body Mass Index (BMI) is a simple tool or method to monitor the nutritional status of adults,

especially those related to underweight and overweight during pregnancy. Body mass index (BMI) is a value taken from the calculation of the quotient between body weight (BB) in kilograms and the square of height (TB) in meters (Marasing et al., 2021). Pregnant women who are overweight during pregnancy can increase the risk of complications during pregnancy and during delivery, such as gestational hypertension (high blood pressure during pregnancy), gestational diabetes, large babies (macrosomia), and cesarean delivery. Pregnant women who are underweight during pregnancy can increase the risk of premature birth (birth before 37 weeks of gestation) and low birth weight (LBW). Thus the close relationship between BMI and the incidence of preeclampsia, so that routine BMI examination is absolutely necessary. Routine and periodic examinations are expected to be used as a source of data in determining the condition of pregnant women from time to time. Thus, if symptoms or complications occur that can endanger the health of pregnant women and their babies, they can be treated early (Jeong et al., 2022).

The results showed that in general the Hb levels of pregnant women in the treatment group experienced an increase in the average Hb value, while the control group experienced a decrease. Furthermore, it is known that the distribution of the Hb status of pregnant women in the treatment group has increased under normal conditions (80%) previously (66.7%). Then the control group is known to remain in normal conditions as much as 60% both pre and post. This shows that the anemia status of the treatment group has normal conditions or leads to a better condition than the control group. It is also proven, especially in pregnant women who have an abnormal BMI, there is a significant difference in the value of the Hb indicator. The results of statistical test analysis on the Hb indicator obtained a significance value of $< \alpha$ (5% or 0.05). Therefore, it can be stated that there is a significant difference in the Hb indicator. Or in other words, there is a significant effect of giving treatment to the family empowerment model (Family Empowerment) on the Hb of pregnant women.

Hemoglobin is a parameter that is widely used to determine the prevalence of anemia. Anemia is a medical condition in which the number of red blood cells or hemoglobin is less

than normal. Pregnant women are said to be anemic if the hemoglobin (Hb) level is <11 g/dl. Most women experience anemia during pregnancy, both in developed and developing countries. The World Health Organization (WHO) estimates that 35-75% of pregnant women in developing countries and 18% of pregnant women in developed countries are anemic (Astuti, 2018). Hb that is less than the normal limit or anemia often occurs due to iron deficiency, because in pregnant women there is a twofold increase in iron requirements due to an increase in blood volume without expansion of plasma volume, to meet the needs of the mother (prevent blood loss during childbirth) and growth fetus. Ironically, it is estimated that under 50% of mothers do not have sufficient iron stores during pregnancy, so the risk of iron deficiency or anemia increases with pregnancy (Darmawati et al., 2022).

The results showed that the average random blood sugar (GDA) of pregnant women in the treatment group was known to have increased pre to post conditions. The results of the statistical test analysis on the GDA indicator yielded a significance value of $< \alpha$ (5% or 0.05). Therefore, it can be stated that there is a significant difference. Thus, there is a significant effect of giving treatment to the family empowerment model on the GDA of pregnant women. The type of examination used in this study is a random blood glucose level test or random blood sugar. This test can be done anytime and anywhere, so it is usually done for people with diabetes as controls. This test measures blood glucose levels which can be done without taking into account after eating or before eating.

The impact caused by pregnant women who have diabetes mellitus, also known as gestational diabetes mellitus, is a high risk of excess weight gain, the occurrence of preeclampsia, eclampsia, cesarean section, and cardiovascular complications to maternal death. After delivery occurs, the patient is at risk of continuing to develop type 2 diabetes or recurrent gestational diabetes in the future. Meanwhile, babies born to mothers with gestational diabetes are at high risk for macrosomia, birth trauma. In addition, babies are at high risk for developing hypoglycemia, hypocalcemia, hyperbilirubinemia, respiratory distress syndrome, polystaemia, obesity and type 2 diabetes mellitus. Pregnant women with GDM almost never give complaints, so screening is necessary (American Diabetes Association (ADA), 2020). Early detection of pregnant women can help improve the welfare of mothers both during pregnancy and after pregnancy. This is one of the work programs of the American Diabetes Association (ADA) which urges every health service place, especially for antenatal care, to screen pregnant women as early as possible to prevent complications that may occur during the delivery process later.

Conclusions

The family empowerment model is effective in improving

the health status of pregnant women, especially BMI, Hb levels, and GDA. After being given the intervention of the family empowerment model, almost all of the respondents both experienced an increase in family involvement in intensive care for pregnant women so that they could prevent pregnancy complications.

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