

Preeclampsia Tree Educational Model for Pregnant Women as an Effort to Change Preeclampsia Prevention Behavior

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Abstract:- Preeclampsia is a leading cause of maternal mortality and morbidity worldwide. The high incidence of preeclampsia is due to the low prevention behavior of preeclampsia. The preeclampsia tree education model is expected to improve preeclampsia prevention behavior. Produce a proper preeclampsia tree education model and its effective application for the prevention of preeclampsia. This type of research is Research and Development. Test model validation by obstetricians and gynecologists, material experts, media experts and linguists. The model application test used a quasy experiment design (pre-test and post-test with control group design). The research subjects were 64 pregnant women who were divided into intervention and control groups. The independent variable is the educational model of the preeclampsia tree and the dependent variable is the knowledge, attitudes and behavior of village health worker and pregnant women. Data analysis used paired t-test, Wilcoxon test, independent t-test and Mann Whitney test. The results of material validation obtained a mean of 90 (very feasible) p-value 0.001, the model test obtained a mean of 87.6 (very feasible) p-value 0.012 (p < 0.05). The unpaired data test (post-test) on the knowledge of pregnant women obtained p-value 0.000 (p < 0.005), attitude p-value 0.000 (p < 0.05), and behavior p-value 0.000 (p < 0.05). The preeclampsia tree education model is feasible as a model and guideline and its application is 10 times for pregnant women have a better effectiveness on the knowledge, attitudes and behavior of preeclampsia prevention than the control group.

Keywords:- Preeclampsia Tree Education, Prevention of Preeclampsia.

I. INTRODUCTION

Preeclampsia is a complication in pregnancy with clinical symptoms of proteinuria and blood pressure $\geq 140 / 90$ mmHg that appear at more than 20 weeks of gestation.[1-3] Based on the findings of the World Health Organization (WHO), the impact caused by preeclampsia is the same in various countries, namely that for mothers and babies born.[4]

Mothers with preeclampsia can experience pulmonary edema, kidney failure, disseminated intraventricular coagulation (DIC), stroke to cardiac arrest, while babies born can experience hemolysis, elevated liver enzymes, and low

platelets (HELLP syndrome), distress syndrome, birth weight. low (LBW), neonatorum asphyxia and congenital abnormalities.[4-5]

Four million pregnant women experience preeclampsia each year and as many as 50,000 to 70,000 women died from this preeclampsia and as many as 500,000 babies died from preeclampsia.[6] WHO data show that incidence rates preeclampsia is higher in developing countries than developed countries.[7] The prevalence of preeclampsia in developed countries is 1.3% - 6% per year while in developing countries it is 1.8% - 18%.[8] The incidence of preeclampsia in Indonesia reaches 128,273 / year or around 5.3% .^[9] Efforts made to prevent preeclampsia and eclampsia at the world level are based on WHO recommendations, namely provision of calcium intake from early pregnancy, administration of anti-hypertensive drugs to pregnant women with chronic hypertension, low-dose aspirin to prevent preeclampsia and in women at high risk of preeclampsia, giving magnesium sulfate in pregnant women with preeclampsia to prevent eclampsia, mothers who are pregnant at gestational age between 34 - 36 weeks are terminated if the hypertension cannot be controlled and there is an increase in maternal organ dysfunction and fetal distress with a high success rate of 90%.[10]

Preeclampsia prevention efforts in Indonesia are not fully in accordance with WHO recommendations due to the lack of readiness of facilities and infrastructure in each region.[11] As a solution, prevention efforts are carried out by caring for the class of pregnant women as a means of education that is able to increase knowledge, change attitudes and skills of mothers in dealing with complications. one of them is preeclampsia. So far, the methods used in the implementation of classes for pregnant women are lectures, questions and answers, brainstorming demonstrations and practices with the media used are maternal and child health books (KIA), flip charts and leaflets.[12]

The high incidence of preeclampsia in Indonesia proves that the implementation of classes for pregnant women has not been maximized to improve maternal behavior in preventing preeclampsia. Some of the factors that cause low behavior in preventing preeclampsia are incompetent facilitators, incomplete methods of conveying material and aids or media.[13-14]

There is a need for education to pregnant women in improving preeclampsia prevention behavior. Low knowledge can result in low skills of mothers in preventing preeclampsia. The choice of the gamification method was chosen because it has advantages including increasing motivation, interest and creativity.[15] Based on the results of the research that the use of the gamification method in learning can improve health behavior.[16]

Gamification is the use of the game concept in a non-gaming environment. The concept of gamification is widely used in various fields such as business, health and education.[17] The use of game thinking, game elements, and game frameworks aims to motivate users, solve problems, improve experiences and encourage desired behavior to be better.[18] Advantage of the method Gamification which can increase motivation, interest and creativity.[15]

II. MATERIALS AND METHODS

This type of research is Research and Development (R&D). Model validation tests were carried out by obstetricians and gynecologists, material experts, media and language experts. The model application test used a quasy experiment design (pre-test and post-test with control group design). The research subjects were 64 pregnant women who

were divided into the intervention group and the control group. The independent variable is the educational model of the preeclampsia tree and the dependent variable is the knowledge, attitudes and behavior of cadres and pregnant women. Data analysis used paired t-test, Wilcoxon test, independent t-test and Mann Whitney test.

III. RESULTS

A. Data collection

Based on the result of interviews and literature studies, it can be concluded that the provision of innovative education can improve maternal knowledge, attitude and behavior towards preeclampsia prevention.

B. Desin and build

The result of data collection are then used to design a model of the preeclampsia tree. The result of learning information required educational media to prevent preeclampsia in pregnant woman. So the researchers made an educational model for preeclampsia trees as an effort to increase the knowledge, attitudes and behavior of pregnant women to prevent preeclampsia.

C. Expert Validation

No	Expert	Score	Average	Category	p-value
1	Obstetricians and Gynecologists	8	90	Very worthy	0,001
2	Material Experts	10			
3	Linguists	9			

Table 1: Preeclampsia Tree Education Statistic Test Validation

From The Expert
*Interclass correlation coefficient

The result of the validation of the preeclampsia tree media resulted in an average value of 90 with a very feasible category an a p-value 0,001 which means that the preeclampsia tree media is relevant relevant as an increase the knowledge, attitudes and behavior of pregnant women to prevent preeclampsia.

D. Model test

Variables	Normality test	
	p-value	
	Intervention (n=32)	Control (n=32)
Knowledge (pre-test)	0,000	0,000
Knowledge (post-test)	0,001	0,009
Attitude (pre-test)	0,000	0,000
Attitude (post-test)	0,080	0,097
Behavior (pre-test)	0,001	0,001
Behavior (post-test)	0,005	0,004

Table 2:- Data Normality Test of Pregnant Women
*Shapiro Wilk

Base on Table 2 data normality tests for the knowledge, attitude and behavior of pregnant woman shows that the p-value <0,05 so that it can be concluded that the data are normally distributed then using parametric test.

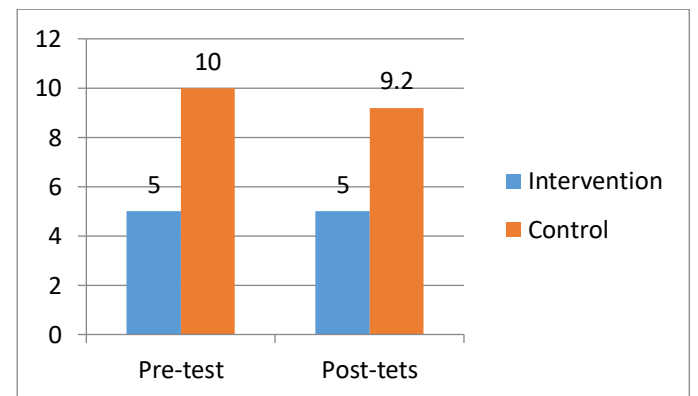


Fig: 1-The Average Value of Knowledge of Pregnant Women Pre-test and Post-test

Based on figure 1, the knowledge of pregnant women in the intervention group had a better increase than the control as evidenced by the mean value of pregnant women from 5.0

to 10.0 compared to the control group having a mean value of 5.0 to 9.2.

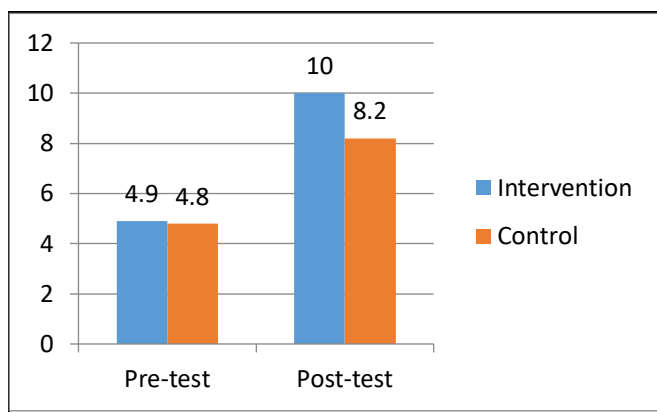


Fig: 2-The Average Value of Attitude of Pregnant Women Pre-test and Post-test

Based on figure 2, the attitude of pregnant women in the intervention group had a better increase than the control as evidenced by the mean value of pregnant women from 4.9 to 10.0 compared to the control group having a mean value of 4.8 to 8.2.

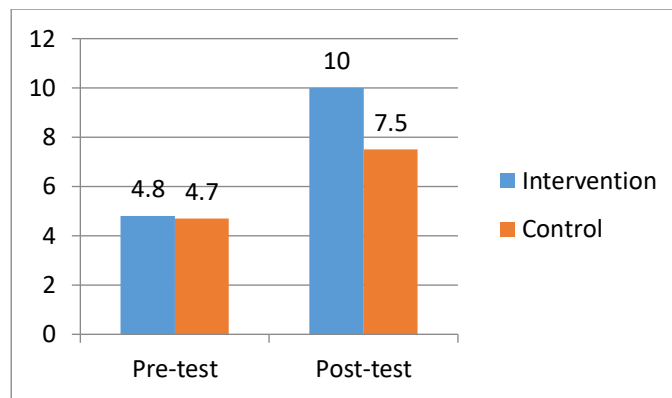


Fig: 3-The Average Value of Behavior of Pregnant Women Pre-test and Post-test

Based on figure 3, the behavior of pregnant women in the intervention group had a better increase than the control as evidenced by the mean value of pregnant women from 4.8 to 10.0 compared to the control group having a mean value of 4.7 to 7.5.

	Mean±SD Pre-test	Mean±SD Post-test	p-value*	Post-test Delta
Knowledge				
Intervention	50,4±7,34	90,78±2,79	0,043	39,84±5,45
Control	50,31±9,99	85,84±2,33	0,042	35,53±8,62
Attitude				
Intervention	49,69±6,95	88,22±2,50	0,043	38,53±5,81
Control	48,44±9,54	76,28±5,44	0,043	27,84±8,99
Behavior				
Intervention	48,12±8,59	90,41±2,77	0,043	42,28±6,90
Control	47,19±10,24	75,41±3,71	0,042	28,22±9,57

Table:3- The Effectiveness Test of The Knowledge of The Attitudes and Behavior of Pregnant Women in The Intervention and Control Group

*Wilcoxon sign tets

Based on the table: 3, the results of the pairwise data effectiveness test show the p-value is 0.043, meaning that there is a significant difference before and after the application of the preeclampsia tree education model. The p-value of the control group was 0.042, meaning that the use of booklets was effective in increasing maternal knowledge.

Based on the test results, having paired data shows that the p-value of the intervention group is 0.043, meaning that there are significant differences in attitudes before and after the application of the preeclampsia tree education model. The p-value of the control group was 0.043, meaning that the use of booklet media was effective in the attitudes of pregnant women.

Based on the results of the pairwise effectiveness test, it shows that the p-value of the intervention group is 0.043, meaning that there are significant differences in behavior before and after the application of the preeclampsia tree education model. The p-value of the control group is 0.042,

which means that the use of booklet media is effective on the behavior of pregnant women.

D. Model Result

The preeclampsia tree education model is a preeclampsia prevention learning concept for pregnant women. This model is an innovative learning method in order to increase knowledge, change the attitudes and behavior of pregnant women towards the prevention of preeclampsia. This educational model is designed using the concept of gamification-based learning.

The preeclampsia tree media is made and adapted to the needs of pregnant women. The preeclampsia tree media is made of luster material measuring 150 cm x 150 cm with a full color design, the luster material has a soft texture and is easy to fold .. In the quiz items, solutions, signs, symptoms and The root of the problem is made using sterophome as a base material which is coated with luster, after being coated with luster, each item is given a mahnet on the back of the

sterofome and the main media to make it easier for participants to post answers.



Fig: 3-Preeclampsia Tree Education

IV. DISSCUSION

A. Knowledge

Increasing the knowledge of pregnant women on the prevention of preeclampsia using the preeclampsia tree education model can be said to be successful because there is a significant increase in the knowledge score. Galuh (2018) in his research stated that health education about preeclampsia was able to increase the knowledge of pregnant women about preeclampsia.[19] A study conducted by Fondjo (2019) found that the distribution of cards with numbers in which contained material about the symptoms of preeclampsia and its effects due to preeclampsia Pregnant women are considered to contribute to increasing knowledge about preeclampsia and mothers being able to detect symptoms of preeclampsia early.[20]

Another study conducted by Wallis (2013) and Tsigas (2011) found that increasing patient knowledge about preeclampsia was shown to increase the number of reports of signs and symptoms of preeclampsia experienced by pregnant women, this could make it easier for medical personnel to direct timely care and health impacts. This is in line with the research of You (2012) that a large number of preeclampsia symptoms and serious complications caused by preeclampsia can be overcome through improving patient education about preeclampsia.[21] Based on the research of Johnson (2016) and King (2013) that the gamification method in health education can increase knowledge and health welfare.[22,23]

B. Attitude

Education that is carried out repeatedly with a frequency of ten times and consistently using the preeclampsia tree game method can be said to have succeeded in changing the attitudes of pregnant women towards preeclampsia prevention. Based on the results of the pairwise data effectiveness test, it shows that the p-value of the intervention group is 0.043 ($p < 0.05$) which means that

there are significant differences in attitudes before and after the application of the Preeclampsia Tree Education model. The p-value of the control group was 0.043 ($p < 0.05$), meaning that the use of booklet media was effective in the attitudes of pregnant women.

Changes in the attitudes of pregnant women are due to the fact that mothers receive education using the preeclampsia tree game repeatedly with a frequency of ten meetings and the material given focuses on preventing preeclampsia. In line with the research of Linggardini (2016) and Wilkinson (2017) that the provision of education about preeclampsia to pregnant women repeatedly / continuously is effective in increasing knowledge, changing attitudes and skills of mothers. Graph gamification increases knowledge and attitudes about preeclampsia better than other educational media.[24]

Ogunyemi et al (2012) in their study analyzed 25 cases of eclampsia in the United States and found that 72% of cases could be prevented with health education to patients after they reported preeclampsia symptoms. and reporting of preeclampsia symptoms.[25]

C. Behavior

Action is an effort to make an attitude into real action. An uncertain attitude is manifested in an action / practice because in an effort to make it happen, supporting factors are needed.[26] Based on the results of the paired data effectiveness test, it shows that the p-value of the intervention group is 0.043 ($p < 0.05$) meaning that there are significant differences in actions before and after the application of the Preeclampsia Tree Education model. The p-value of the control group was 0.042 ($p < 0.05$), meaning that the use of booklet media was effective in the actions of pregnant women.

The increase in the actions of pregnant women in preventing preeclampsia is because mothers get education using preeclampsia tree media with a frequency of ten meetings until there is a change in behavior in preventing preeclampsia. Increased knowledge of preeclampsia is closely related in reducing the prevalence, complications and deaths associated with preeclampsia.84 Studies conducted by Nagwa (2019) and Ouasmani (2018) found that most women who experience preeclampsia have insufficient knowledge about preeclampsia.[27,28] Use of interesting methods in providing preeclampsia education can increase knowledge so that it has an impact on maternal actions in reducing preeclampsia-related mortality.[20]

V. CONCLUSION

The application of the preeclampsia tree education model is relevant as a model and guideline as well as its effective application as a behavior change for prevention of preeclampsia.

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