

The Effect of Health Education with Videos and Flash Cards on Knowledge and Skills of Fetal Stimulation in Pregnant Women

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ABSTRACT

One of the integrated antenatal services is health counseling about stimulation so that pregnancy and babies born are healthy and smart. Health education is communication designed to increase knowledge, skills so that it can improve health. The purpose of this study was to determine the effect of health education with video and flashcard media on the level of knowledge and skills of pregnant women to stimulate. This research was conducted in February – July 2021 at the Jaten I Health Center in the Work Area of the Karanganyar District Health Office. This type of quasi-experimental research. The sampling technique was purposive with a total of 15 per group. Data analysis with multiple linear regression (ANACOVA). The knowledge score of the experimental group was 5.15 points higher than that of the control group ($b = 5.51$; 95% CI; 4.34 to 5.96; $p < 0.001$). Adjusted $R^2 = 89.8\%$. And the experimental group had skills 11.82 points higher than the control group ($b = 11.82$; 95% CI; 8.04 to 15.60; $p < 0.001$). Adjusted $R^2 = 59.9\%$ by controlling for formal education level and scores before treatment. The conclusion is that there is an effect of early stimulation of fetal growth and development on the knowledge and skills of pregnant women to stimulate the fetus

INTRODUCTION

Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 97 of 2014 states that integrated antenatal care is a comprehensive and quality health service that is carried out, one of which is through the provision of health services and counseling including stimulation and nutrition so that pregnancy

takes place healthy and the fetus is born healthy and smart (Kemenkes RI, 2014).

The needs of children that must be prepared by parents include physical and psychological needs. To fulfill this, parents must start early by providing education given since in the womb because it is important for fetal growth and development, not starting from birth. Since 10 weeks of gestation, the

fetus can absorb language by developing hearing and understanding of sounds outside the womb either from the mother or other people and music or other sound sources (Suciati, 2015). Fetal development begins with touch and begins to develop taste, hearing, smell and vision (WHO, 2018).

The period from pregnancy to the first three years of a child's life is the period of greatest environmental influence and is the basis for determining health, well-being, learning and productivity. Therefore, education or health promotion regarding child development must begin during pregnancy because pregnant women and families need support, knowledge, and time to provide care that can improve the integral development of children (Lancet, 2016).

Health education is a communication designed as a learning experience to increase knowledge, life skills that are conducive to individual and community health, foster motivation, and self-confidence needed to take action to improve health (WHO, 1998).

Health education is a systematic social education activity that allows individuals to consciously adopt healthy behaviors and lifestyles to eliminate or reduce risk factors that affect health, prevent disease, improve health and quality of life from social activities (Wang and Fang, 2020).

Health education is an opportunity for individuals and communities to acquire the information or skills needed to make health decisions or change health behaviors (Al-Hashem, 2016).

Flashcards used as health education media that display original, attractive, concise and easy-to-remember images can simplify the process of receiving knowledge. According to the results of health education research with flashcard media statistically significantly can increase knowledge (Maslakah and Setiyaningrum, 2017).

Video is the most dynamic and realistic means of delivering information. According to the research results, videos and leaflets have the same level of effectiveness in increasing mother's knowledge (Ermiati *et al.*, 2017).

Based on the above background there has been no research on "The Effect of Health Education with Video and Flash Cards on Knowledge and Skills of Fetal Stimulation in Pregnant Women" so researchers are interested in conducting this research.

The purpose of this study was to describe the effect of health education with videos and flash cards on knowledge and skills of early stimulation of fetal growth and development in pregnant women. Thus, the results of this study are expected to provide ISSN 1858-3385, E-ISSN 2549-7006 **185**

evidence-based development as well as methods and media for health education in midwifery care for pregnant women and midwifery care for neonates, infants and toddlers. Especially in the need for early stimulation of child growth and development starting in the womb in order to improve the health of mothers and children

METHODS AND MATERIALS

This research was carried out in February – July 2021, taking place at the Jaten I Health Center in the Karanganyar Regency Health Office with prior approval of ethical clearance from the ethics committee of Kusuma Husada University Surakarta with the number 015/UKH.L.02/EC/1X/2020 on September 4, 2020. This type of research is quasi-experimental using before and after with control experimental design. In this design, the subjects were divided into 2 groups randomly using a single blind technique. One group as the experimental group was given treatment in the form of fetal stimulation in the form of a package containing videos and flash cards of 25 exercises with the implementation of 1 stimulation exercise per day and the other group as a control group in the form of lectures. Both groups received standard midwifery care services for pregnant women from the Puskesmas. A pretest was carried

out before treatment and a post test was carried out after treatment.

The instrument for collecting data has been tested for validity and reliability for knowledge using a questionnaire by means of respondents choosing one of the two alternative answers to statement items that are considered correct, while the instrument for measuring fetal stimulation skills in pregnant women uses a checklist with the assessment criteria, namely 0: no done, 1: done but not quite right, 2: done right. The higher the score produced, the higher the knowledge and skills of pregnant women to stimulate the fetus.

The variables in this study were as follows: Independent variable: Provision of fetal stimulation health education. The dependent variable: knowledge and skills of pregnant women in stimulating the fetus. Covariate Variables: level of formal education and scores before treatment.

Target population of pregnant women. Meanwhile, the source population of pregnant women in Central Java. The sampling technique in this study was purposively at the Jaten I Health Center in the Work Area of the Karanganyar District Health Office. The sample size is estimated according to the design of the data analysis to be carried out, namely a multivariate analysis involving one independent variable. In

Multivariate analysis it takes 15-20 subjects per independent variable. In this study, the number of samples used was 15 research subjects for each group, then the sample was selected using simple random sampling. To define experiments and controls. Inclusion Criteria: Pregnant women with gestational age > 24 weeks. Age of pregnant women 20-35 years. Able to understand Indonesian. willing to be a respondent. Able to move actively, see and hear. Exclusion Criteria: Pregnant women with hearing aids. Pregnant women in the research process experienced health problems.

Univariate analysis. In this study, the characteristics of the continuous data sample are described in terms of n, Mean, and SD. The characteristics of the categorical data dependent sample are described in n and percent. The initial stage of statistical testing was carried out by testing the normality of the data with the Shapiro Wilk test. Bivariate analysis with independent – t test. Multivariate analysis with multiple linear regression analysis (ANACOVA).

RESULTS AND DISCUSSION

Table 1. Characteristics of subjects by level of formal education

Formal education level	Control group		Experimental group	
	n	%	n	%
< senior high school	5	33	2	13
≥ senior high school	10	77	13	87
Total	15	100	15	100

Table 2. The results of the independent t-test statistical test on the knowledge of the control and experimental groups

Skill variable	Groups	N	Mean	Std deviation	T	P
pretest	Control	15	13.33	1.496	-1.72	0,096
	Experimental	15	14.33	1.676		
posttest	Control	15	13.60	1.595	-10.73	< 0,001
	Experimental	15	19.27	1.280		
Difference	Control	15	0.27	0.458	-9.58	< 0,001
	Experimental	15	4.93	1.831		

Based on table 1, most of the subjects from the experimental group and the control group had a formal education level more than the same as high school.

Table 2. Shows the results of independent t-test statistical tests for knowledge after treatment, p value < 0.001 (p < 0.05) and t count -10.73 (t count < t

table) and the difference between scores before and after treatment p value < 0.001 ($p < 0.05$) and t count -9.58 (t count $< t$ table), so there is a statistically significant difference in mean between the control group compared to the experimental group. The experimental group after treatment had

a higher mean value of 19.27 compared to the mean of the control group, which was 13.60. The difference between the scores before and after the experimental group treatment had a higher mean value of 4.93 compared to the mean of the control group, which was 0.27.

Table 3. Results of multiple linear regression analysis (ANACOVA) on knowledge

Variable	Regression Coefficient B	Confidence Interval 95%		P
		Lower Bound	Upper Bound	
Constant	5.846	3.420	10.273	$< 0,001$
Pretest	0.411	0.138	0.683	0.006
Level of education	1.595	0.469	2.722	0.007
Treatment	5.149	4.339	5.960	$< 0,001$

N = 30
Adjusted R² = 89.8%
P < 0,001

Based on Table 3. shows the results of multiple linear regression analysis (ANACOVA) that the statistically significant difference in influence between the control group and the experiment on knowledge after treatment after controlling for formal education level and knowledge scores before treatment. The experimental group had knowledge 5.15 points higher than the control group ($b = 5.51$; 95% CI; 4.34 to 5.96; $p < 0.001$). Adjusted $R^2 = 89.8\%$ means that the variables of health education with the lecture method and the provision of stimulation packages by controlling the level of formal education

and knowledge before treatment together are able to explain the variation of knowledge for 89.8%.

The results of this study are supported by other researchers that increasing knowledge in the intervention group in the form of health education is given to respondents once in the first week using audiovisual media in the form of a 6-minute video and an explanation of booklets for 30 minutes and participants are given the opportunity to read for 20 minutes. with the results of respondents' knowledge being greater than the control group in the form of videos only (Silalahi *et al.*, 2018). Health education contributes

to knowledge and behavior (Wang *et al.*, 2018)

According to the results of previous relevant studies, the experimental group respondents who received health education with booklets had higher knowledge than the control group (without treatment) (Apriani, 2015). Other studies also support the results of this study that there is an effect of health education with flashcard media on knowledge of pregnant women (Nurdiyan and Maria, 2019) ; (Rachmawati *et al.*, 2020).

The results of this study are in accordance with the theory that knowledge is the result of knowing and this occurs after people have sensed a certain object. Sensing occurs through the human senses, namely sight, sense of hearing, sense of smell, sense of taste and sense of touch. Most of human knowledge is obtained through the eyes and ears. Knowledge or cognitive is a very important domain for the formation of one's actions. Behavior that is based on knowledge will be more lasting than behavior that is not based on knowledge (Notoatmodjo, 2014).

Table 4. The results of independent t-test statistical tests on skill in the control and experimental groups

Skill variable	Groups	N	Mean	Std deviation	T	P
pretest	Control	15	21.00	2.299	0.093	0,927
	Experimental	15	20.93	1.580		
posttest	Control	15	47.27	3.712	-6.996	< 0,001
	Experimental	15	59.27	5.509		
difference	Control	15	26.27	4.590	-6.685	< 0,001
	Experimental	15	38.33	50273		

Table 4. Shows the results of independent t-test statistics for skills after treatment, p value < 0.001 (p < 0.05) and t count -6.996 (t count < t table) and the difference between scores before and after treatment, p value < 0.001 (p < 0.05) and t count -6.685 (t count < t table), so there is a statistically significant difference in mean between the control group compared

to the experimental group. The experimental group after treatment had a higher mean value of 59.27 compared to the mean of the control group, which was 47.27. The difference between the scores before and after the experimental group treatment had a higher mean value of 38.33 compared to the mean of the control group, which was 26.27.

Table 5. Results of multiple linear regression analysis (ANACOVA) on skills

Variable	Regression Coefficient B	Confidence Interval 95%		P
		Lower Bound	Batas Atas	
constant	44.510	23.090	65.930	< 0,001
Pretest	0.101	0.975	1.178	0.848
Level of education	0.940	-4.049	5.930	0.702
Treatment	11.819	8.039	15.599	< 0,001

N = 30
Adjusted R² = 59,9%
P < 0,001

Based on Table 5. shows the results of multiple linear regression analysis (ANACOVA) that the statistically significant difference in the effect between the control group and the experiment on skills after treatment after controlling for formal education level and skill scores before treatment. The experimental group had 11.82 points higher skill than the control group (b = 11.82; 95% CI; 8.04 to 15.60; p < 0.001). Adjusted R2 = 59.9% means that the variables of health education with the lecture method and stimulation package by controlling the level of formal education and skill scores before treatment together are able to explain variations in the skills of pregnant women to stimulate the fetus by 59.9%.

The results of other researchers previously obtained the results of health education interventions with lecture, discussion and demonstration methods using power point media and booklets to

effectively increase knowledge, attitudes and skills (Mardhiah, 2015), so the results of this study were used as the basis for strengthening effective health education media to improve health education. Skills.

The results of this study are also supported by the results of other studies that health education through audiovisual media (video) on skills gets the results of increasing skills in the treatment group, previously 12 (66.67%) respondents were in the sufficient category, 6 (33.33%) respondents included in the inadequate category and after being given health education, 18 (100%) respondents entered the adequate category with a p value of 0.00 (Cahya *et al.*, 2014). The results of this study are also supported by the results of other studies that there is an effect of health education through flashcards on toilet training skills in mentally retarded children (Mukarommah *et al.*, 2018).

Many factors can affect the relationship between mother and fetus that determine the relationship between mother and baby during pregnancy, such as education level, length of pregnancy, socioeconomic level, relationship between parents, illegal substances, maternal age, mental health of the mother (Česnaite *et al.*, 2019) (Lindroos *et al.*, 2015)

Training pregnant women in the form of health education to stimulate their fetuses is a strategy to share knowledge about the sensory abilities of the fetus and to foster bonding and child development from the time they are in the womb (Gaúcha, 2021).

The fetus since in the womb begins to feel interaction with its parents and tactile and auditory sensitivity such as touch and sound can support child development (Marx and Nagy, 2015).

This study supports the direction of (Kemenkes RI, 2019), that the most important period in the prenatal period is the first trimester of pregnancy. In this period the fetal brain growth is very sensitive to the influence of the fetal environment. So that the fetus in the womb grows and develops into a healthy child. So during the intra uterine period, a mother is expected to give early stimulation to the fetus.

CONCLUSIONS

There was an effect of health education with videos and flashcards on the knowledge and skills of pregnant women in performing fetal stimulation ($p < 0.001$) by controlling for the level of formal education and before treatment.

SUGGESTIONS

Health workers, especially midwives: are expected to be taken into consideration in providing midwifery care to pregnant women, especially regarding fetal stimulation by pregnant women so that they can increase self-empowerment for pregnant women and the health of mothers and children both physically and psychologically.

Future researchers are expected to provide evidence-based development as well as health education methods and media in midwifery care for pregnant women and midwifery care for pregnant women, neonates, infants and toddlers. Especially on the need for fetal stimulation in order to improve maternal and child health, by adding other variables that have not been studied.

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