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The effect of developed nurani module in preconception class to pregnancy planning quality

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Abstract

Unplanning pregnancy is a complex condition that could lead to maternal and infant death. Thus, an education to increase couples' knowledge regarding pregnancy is sufficient. This study aims to evaluate the effectiveness of developed conscience module in the preconception class for Prospective Quality Assurance for the quality of pregnancy planning for childbearing age couples. This was a quasi-experiment study with control group design method. The study was conducted for eight months started instrument trial, module training and design the intervention model. 150 couples from two different regions in Indonesia were assigned as intervention and 150 another couples as control group. The difference before and after intervention was analyze using dependent t-test. After the provision of NURANI module through preconception class, the number of respondents who have a quality pregnancy planning more than 13 indicators were increase up to 100%. There was a significant difference (p <0.005)

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between the average score of knowledge before and after given preconception class using NURANI module. This study implies the continuance of this module for more preconception class in Indonesia.

Keywords: Developed Nurani Module, Preconception Class, Pregnancy Planning, Quality.

El efecto del módulo nurani desarrollado en la clase de preconcepción para la calidad de la planificación del embarazo

Resumen

El embarazo no planificado es una condición compleja que podría conducir a la muerte materna e infantil. Por lo tanto, una educación para aumentar el conocimiento de las parejas sobre el embarazo es suficiente. Este estudio tiene como objetivo evaluar la efectividad del módulo de conciencia desarrollado en la clase previa a la concepción para el Aseguramiento prospectivo de la calidad para la calidad de la planificación del embarazo para las parejas en edad fértil. Este fue un estudio de cuasi-experimento con el método de diseño del grupo de control. El estudio se realizó durante ocho meses, comenzó la prueba instrumental, la capacitación de módulos y el diseño del modelo de intervención. 150 parejas de dos regiones diferentes en Indonesia fueron asignadas como intervención y otras 150 parejas como grupo de control. La diferencia antes y después de la intervención se analizó utilizando la prueba t dependiente. Después de la provisión del módulo NURANI a través de la clase de preconcepción, el número de encuestados que tienen un embarazo de calidad que planifica más de 13 indicadores aumentó hasta el 100%. Hubo una diferencia significativa ($p < 0.005$) entre el puntaje promedio de conocimiento antes y después de la clase previa a la concepción usando el módulo NURANI. Este estudio implica la continuación de este módulo para más clases de preconcepción en Indonesia.

Palabras clave: Módulo Nurani desarrollado, clase de preconcepción, planificación del embarazo, calidad.

1. INTRODUCTION

Every year, it is estimated that of out 5 million pregnancies per year, two mothers died within one hour due to pregnancy and childbirth complication. The data showed 15,000–17,000 mothers die from childbirth (Indonesian Ministry of Health, 2015). In 2013, The Indonesia Basic Health Research result revealed the Indonesia's Maternal Mortality Rate (MMR) was still 359 per 100,000 live births and Infant Mortality Rate (IMR) was 32 per 1000 live births. The Sustainable Development Goals' (SDGs) target for the MMR in Indonesia was 70 per 100,000 live births by 2030 (WHO, 2015). Since Indonesian's MMR were still higher compared to the SDGs, an innovative program should be developed to accelerate the decline in MMR and IMR in Indonesia.

High prevalence of maternal mortality rate in Indonesia are not only caused by direct causes such as bleeding, infection, or preeclampsia. There are other indirect factors that contribute greatly to increase the risk of maternal death. The health status of childbearing age women affects their health condition during pregnancy and childbirth. The type of food taken, the level of education, values and attitudes adopted, the health system that is available and accessible, the economic situation and the quality of sexual relations, all influence women to carry out their reproductive period (JOHNSON AND

MARTIN, 2018)[3]. One of the highest causes of maternal mortality was the higher rates of unwanted pregnancy.

Cases of unwanted pregnancy and mistimed pregnancy can be categorized in unmet need cases. The impact of unplanned pregnancy in addition to the impact on pregnancy is also on the unpreparedness of mothers to get pregnant and can even lead to the decision to abort unsafe abortion[4]. The condition of unsafe abortion will be very close to the incidence of morbidity and maternal mortality which is currently still very high in Indonesia.

Currently, the program developed by the government is still related to the handling of mothers after the childbirth. The government has not yet explored pregnancy planning programs especially for couples who are going to get married, especially in relation to pregnancy planning programs. One of the government programs namely preconception classes is regulated by the Ministry of Religion in the Regulation of the Director General of Islamic Community Guidance No. DJ. II / 542 of 2013 was a program to provide knowledge, understanding, skills and awareness raising to married age adolescents about family life (Indonesia Ministry of Religion, 2013). Based on our analysis, the largest proportion of the curriculum in preconception class was still focuses on providing knowledge related to how to foster family life in accordance with religious demands and the provisions of community life. Based on this background, theoretically the preconception class training model can be developed in increasing partner knowledge in planning a healthy pregnancy as an initial step towards the better quality of first 1000 days of life.

Therefore, this research focuses on the implementation of the NURANI module developed by midwives which is integrated in the preconception class. To our knowledge, no similar studies have been conducted in Indonesia. The purpose of this study is to get an overview of the use of the conscience module in the preconception class for Prospective Quality Assurance for the quality of pregnancy planning for childbearing age couples.

2. MATERIALS AND METHODS

This was a quasi-experiment study with control group design method. Overall, this study conducted for 8 months, started from instrument trial, module training and design the intervention model. Implementation of NURANI module took two months and last one month was used to evaluate and revise the post-experiment training model. The consort diagram below shows the flow of intervention study.

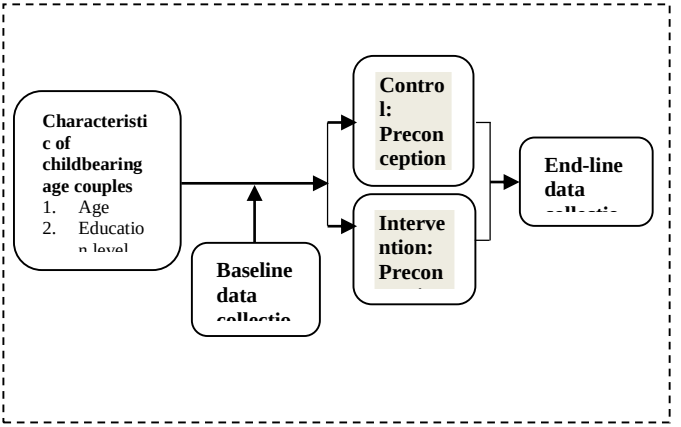

Figure 1: CONSORT diagram of the study

The study was done in Jakarta and West Java Province, Indonesia. Population was couple of childbearing age that are going to marry between April – May 2016. Sample size was calculate using this formula:

$$N_1=N_2= 2 \left\{ \frac{(Z\alpha + Z\beta)S^2}{X_1 - X_2} \right\}$$

$$N_1 = N_2 = \frac{2[(1{,}64 + 1{,}28)\ 69)]^2}{23} = 150 \text{ sample (6)}$$

(DAHLAN, 2009)

The sample distribution was as follows:

- 150 couples of childbearing age samples were taken in the municipality of East Jakarta (75 treatment samples and 75 controls)

- 150 couples of childbearing age samples were taken in the municipality of Bandung (75 treatment samples and 75 controls)

Sample was chosen based on inclusion and exclusion criteria. Inclusion criteria includes willing to take part in the research for 8 months, couples of childbearing ages who will get married in April - May 2016, couple was legally married of their own free will, couple with similar religion, have not been pregnant before the treatment is given, couple was plan to live in the same area as the preconception class where the conscience module is implemented after marriage. Exclusion criteria includes couples who have different religion, couples who got pregnant before marriage, couples who plan not to live in one area after marriage.

Univariate Analysis describes each variable measured in the study by looking at the distribution of data on all variables. Bivariate analysis was carried out to see the quality of pregnancy planning before and after providing information with a conscience module (dependent T test) and to see differences in the quality of pregnancy planning in the control group and the treatment group using the dependent T test. The study was ethically approved by the Institutional Review Board of Health Polytechnic Jakarta III. All respondents were given informed consent before the study begins.

3. RESULTS

Based on table 1, it can be seen that the majority of respondents (bride) aged ≥ 23 years (75%); the majority of respondents (groom)

were also aged ≥ 23 years as many as 94%. Regarding the education level, the majority of the education level of the bride and groom were both at the level of primary and secondary education (51.0% each). 76% of the respondents both bride and groom were known not having any risky behaviors. Unfortunately, most respondents showed that they have never been exposed to information about healthy pregnancy preparation (93.7%), but 92.3% of them were very supportive of preparing healthy pregnancies. Both bride and groom groups were mostly at low social economic status (< local minimum wage), 77.0% and 71.0%, respectively.

Table 1: Characteristic of childbearing age couples

Variable	n	%
Age of bride		
< 23 years	74	25.0
≥ 23 years	226	75.0
Age of groom		
< 23 years	17	6.0
≥ 23 years	283	94.0
Education level of bride		
Primary and secondary school	148	51.0
Higher education	152	49.0
Education level of groom		
Primary and secondary school	144	48.0
Higher education	156	52.0

Bride's economic level		
< Local minimum wage	163	54.3
≥ Local minimum wage	137	45.7
Groom's economic level		
< Local minimum wage	129	43.0
≥ Local minimum wage	171	57.0
Couples' risk behavior towards a healthy pregnancy		
Having	72	24.0
Not having	228	76.0
History of Information Exposure		
Never been exposed	294	98.0
Ever exposed	6	2.0
TOTAL	**300**	**100**

Based on healthy pregnancy planning quality indicators, we divided into two categories; ≤13 indicators and >13 indicators. Table 2 showed that the quality of healthy pregnancy planning before intervention. 96.0% of have the quality of healthy pregnancy planning less than 13 indicators, while only 4.0% who have the quality of plans more than 13 indicators. After the provision of NURANI module through preconception class, the number of respondents who have a quality pregnancy planning more than 13 indicators were increase up to 100%.

Table 2: Quality of pregnancy planning of childbearing age couple

Quality of Pregnancy Planning	**Pre-intervention**		**Post-Intervention**	
	n	**%**	**n**	**%**
1 – 13 indicators	144	96.0	0	0.0
>13 Indicators	6	4.0	150	100.0
TOTAL	**150**	**100.0**	**150**	**100.0**

Table 3: Difference of quality of pregnancy planning before and after intervention using NURANI module

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-post NURANI module intervention	14.66	2.19	.18	14.30	15.01	82.04	149	.000

Table 4: Difference of quality of pregnancy planning compared to control group

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI	
									Lower	Upper
Pregnancy Planning quality	Equal variances assumed	69.48	.000	13.86	298	.000	5.17	.373	4.43	5.90
	Equal variances			13.86	203.62	.000	5.17	.373	4.43	5.90

	not assumed									

Table 3 showed the effect of developed NURANI module in preconception class to pregnancy planning quality of childbearing age couple. The statistical analysis revealed that there was a significant difference (sig 2-tailed <0.005) between the average value of the quality of pregnancy planning before and after given preconception class using NURANI module. The average value of the number of healthy pregnancy preparation indicators undertaken by respondents after being given a provision of the NURANI module was higher than the value of the preconception class without NURANI module. The mean difference of pre and post NURANI module instruction was 14.660. Comparing to control group, childbearing aged couple who was given NURANI module showing a greater average score of pregnancy planning quality that was also significantly different. The mean difference was 5.167 (4.433 – 5.902) (Table 4).

The next two table presents the effect of developed NURANI module in preconception class to knowledge level of childbearing age couple. Compared to standard module, 90.7% of intervention group has good knowledge related to healthy pregnancy planning of the intervention group after given NURANI modules, while only 16.7% of control group (standard module) that has good knowledge (Table 5). Table 6 shows there was a significant difference (sig 2-tailed <0.005) between the average score of knowledge before and after given

preconception class using NURANI module. The mean difference of pre and post NURANI module instruction was 14.000 (12.565 – 15.435).

Table 5: Knowledge of healthy pregnancy of childbearing age couples after given standard module and NURANI module in preconception class

Knowledge level	Post-standard module intervention		Post-NURANI module intervention	
	n	%	n	%
Bad (score <75%)	125	83.3	14	9.3
Good (score >75%)	25	16.7	136	90.7
TOTAL	150	100	150	100

Table 6: Differences in knowledge of childbearing age couples before and after NURANI module intervention

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% CI				
					Lower	Upper			
Pair 1	Knowledge before-	14.00	7.23	.59	12.83	15.16	23.69	149	.000

	after NURANI intervention								

4. DISCUSSION

The results of this study found that 96.0% of the respondents were having <13 indicator of the quality of pregnancy planning before the NURANI module intervention and only 4.0% that have ≥13 indicators. After the provision of NURANI module, the number of respondents who have a quality pregnancy planning ≥13 indicators were increase to 100.0%. Thirteen indicators used was based on WHO standards. After performing statistical analysis, it can be seen that there was a significant difference between the average score of the quality of pregnancy planning for pre-and post-NURANI module intervention where the score of post intervention higher than pre-intervention. Compared to the control group module, the results of this study found a significant difference between the average quality of pregnancy planning of the group exposed to the NURANI module compared to the group who did not exposed. The average number of indicators for healthy pregnancy preparation by respondents in the intervention group was higher than the average number of indicators for healthy pregnancy preparation in the Control module.

The results of the study using NURANI module is in accordance with the results of the previous study that recommend a structured and

systematic effort in providing information about pregnancy preparation and planning (preconception preparation) through the use of communication technologies such as telephone and internet to guarantee the information delivered according to the right rules and guidelines. This research recommends the use of Search Engine Optimization (SEO). The use of social media is highly recommended to be formed in groups of prospective brides. Information that is read continuously by women in the mass media and social media groups greatly influences the perception and attitude of women in preparing and planning for pregnancy.

The number of couples of childbearing ages who prepare for pregnancy is smaller than couples of childbearing ages who do not have the readiness to face pregnancy, that situation should be a concern for the government and health workers because a healthy pregnancy requires physical and mental preparation of each partner. Planning a healthy pregnancy must be done before the pregnancy occurs. A well-planned pregnancy process will have a positive impact on the condition of the fetus and the physical and psychological adaptation of the woman and her partner. One of the things that need to be prepared in pregnancy was nutrition arrangement for pregnant women. Good nutrition also plays a role in the process of forming healthy sperm and egg cells. Good nutrition plays a role in preventing anemia during pregnancy, bleeding, preventing infection, and preventing pregnancy complications such as congenital abnormalities and others. In pregnancy preparation, it is also advisable to screen for diseases such as infectious diseases that have a risk of transmitting the

fetus such as hepatitis, HIV, Toxoplasma and Rubella), diseases that can be aggravated by pregnancy conditions such as diabetes mellitus, epilepsy, heart disease, lung disease, chronic hypertension (HENDERSON, 2005).

The study also revealed that intervention using NURANI module in preconception class able to increase the knowledge of childbearing age couples related to healthy pregnancy. There is a meaningful relationship between the level of knowledge about the importance of pregnancy preparedness and the level of couples' readiness to deal with pregnancy. The results of this study are in accordance with a study which states that the behavior of couples can be influenced by knowledge (TEMEL & SEVILAY, 2015). Thus, knowledge is important to achieve a healthy pregnancy planning. The knowledge is obtained from one's own experience or the experience of others (WILLIAMS, 2012). In this study, the level of childbearing age couples' knowledge about the importance of pregnancy readiness is in line with the couples' readiness in preparing for pregnancy. Childbearing age couple who have a good level of knowledge about pregnancy preparedness tend to do better pregnancy preparations than those who lack of good pregnancy knowledge. In this study, a good level of knowledge could make childbearing age couple to have a positive attitude towards the importance of pregnancy preparedness, and there are situations that support that attitude to be manifested in actions that refer to couples' knowledge about what couples should prepare for pregnancy.

This study results were successfully argued that NURANI module was able to increase the quality of pregnancy planning and knowledge level of childbearing age couples. The average score of healthy pregnancy preparation indicators by respondents in the intervention group was higher than the average score of control group. As well as higher percentage of respondents with good knowledge related to healthy pregnancy in NURANI module group compared to control group with standard module. Therefore, NURANI module should be continuously developed as a package module that can be given to each prospective couple in preconception class to enhance the quality of pregnancy planning and resulting in good pregnancy outcome. Also, the developed NURANI module is also able to support the 1000 days of life program to end malnutrition.

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