

Nutritional Education Regarding Ante Natal Care: Improving Knowledge, Attitudes, and Behaviors of Health Cadres

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Abstract

Background: Health cadres have a significant role in helping improve the health of pregnant women. Therefore, providing education supported by comprehensive tools to increase cadres' competence and knowledge of ante natal care (ANC) for pregnant women is a strategic action. The aim of the study was to analyze the effect of conducting nutrition education using "Bumil-Kit" media as a comprehensive tools on knowledge, attitudes, and behavior of the cadres in performing ANC.

Method: The quasi-experimental research with one group pre and posttest design was used to analyze 40 cadres as subject working in the area of Lebdosari Community Health Center. Cadres were trained by the nutrition workers the procedures for using "Bumil-Kit/Pregnant Mother-kit" consisting of weight scales, mid-upper arm circumference (MUAC) ribbon, microtoise, ANC books, chart of pregnancy growth, and booklets as well as conducting ANC. Knowledge, attitudes, and behaviors were measured before and after a given intervention using a structured questionnaire and data gathered were analyzed using Wilcoxon Signed Rank Test.

Result: The results showed that most cadres (45%) had 6-20 years of working experience. There was an effect of nutritional education on knowledge ($p = 0.001$), attitudes ($p = 0.001$), and behavior ($p = 0.038$) regarding ANC. The increased score of knowledge, attitudes, and behaviors before and after intervention was 7.15%, 6.53%, and 6.43%.

Conclusion: Providing nutrition education using "Bumil-Kit" media as a comprehensive tool increases knowledge, attitudes, and behavior of health cadres regarding ANC.

Keywords: Knowledge, attitude, behavior, health cadres.

Introduction

Maternal mortality is one of the health problems having been considered a major concern by a country, as most of the maternal mortalities is caused by labor and other factors during pregnancy. According to a survey

conducted by Indonesian Basic Health Research, the maternal mortality rate (MMR) in Indonesia fell from 359 per 100,000 live births in 2012 to 305 per 100,000 live births in 2015. Despite the decline, the figure is still relatively high compared to that in other countries in Asia. Even when compared to one of the Sustainable Development Goals (SDG's) targets in 2030, reducing MMR to 70 per 100,000 live births, the gap is still high and therefore more comprehensive efforts are extremely in need. Compared to MDG's target in 2015, which failed to be accomplished, the current target, 102 per 100,000 live births, is still low.¹

Ante natal care (ANC) has been implemented as a strategy in reducing MMR in several countries, including

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Indonesia.² ANC service is an integrated program by which pregnant women will receive comprehensive services related to pregnancy care, prevention of babies' low birth weight (LBW), and high-risk prevention for pregnant women; thus, this program provide a positive impact on maternal and fetal health.³ To achieve these objectives, cooperation among stakeholders, one of which is health cadres, is required. However, the cadres have to have a certain competence to implement the program. Therefore, cadres' competence associated with ANC needs to be improved by providing them nutritional education related subject. In addition, to support the effectiveness of the education, a comprehensive media supporting training, such the "Bumil-Kit", is needed. The objective of this study was to analyze the effectiveness of nutritional education using "Bumil-Kit" media as a comprehensive tool on the knowledge, attitudes, and behavior of the health cadres regarding ANC of the pregnant women.

Method

The quasi-experimental research with one group pre and post test design was used to analyze 40 cadres as subject working under the administration of Lebdosari Community Health Center. The subjects were given an intervention in the form of nutritional education using "Bumil-Kit" media as a comprehensive tool in ante natal care (ANC). The "Bumil-Kit" consisted of weight scales, mid-upper arm circumference (MUAC) ribbon, microtoise, ANC books, growth chart of pregnancy, and booklets about how to use "Bumil-Kit", Pregnant Mothers Health and Prevention of Low Birth Weight (LBW), Exclusive Breastfeeding Management, and the Role of Husband in the Health of Pregnant Women and Prevention of LBW.

The concept of nutritional education was in the form of socialization and training provided by the Nutrition Workers conducted in Lebdosari Community Health Center for one day. The variables of knowledge, attitude, and behavior regarding ANC of the subjects were measured before and after intervention using a structured questionnaire. Data were analyzed using univariate and bivariate. Univariate is used to determine the characteristics of the subject, while bivariate is used to analyze the impact of providing nutrition education on the subject's knowledge, attitudes, and behaviors regarding ANC. Bivariate data analysis in this study was Wilcoxon Signed Rank-Test. Subjects' participation was voluntary proven by signing of informed consent;

in addition, all research data collected was confidential. This research has passed the ethical review from the Health Research Ethics Commission of the Faculty of Public Health, Diponegoro University with Ethical Clearance Number: 224/EA/KEPK-FKM/2018.

Results and Discussion

Subject Characteristics: Most of the subjects were cadres having long working experiences, possessing high school education (SMA), and belonging to productive age.

Table 1: Frequency Distribution of Age, Last Education, and Working Experience of Cadre

Variable	n	%
Age		
a. 20 years–35 years		
b. 36 years–50 th	1	3.5
c. More than 50 years	24	59.0
Last Education	15	37.5
a. Elementary School	0	0
b. Junior High School	9	22.5
c. Senior High School	20	50.0
d. Vocational High School	7	17.5
e. Diploma1	1	2.5
f. Diploma 3	2	5.0
g. Under graduate	1	2.5
Working Experience of Cadre	16	40.0
a. 1–5 years	18	45.0
b. 6–20 years	6	15.0
c. More than 20 years		

Table 1 shows that the subjects of the research belong to age ranging from 36-50 years (59%) are higher than those over 50 years (37.5%), and most of them completed senior high school and only a small percentage completed tertiary education either diploma 1 (2.5%), diploma 3 (5.0%), or undergraduate (2.5%). The working experience of the subjects as cadres is relatively long; 6-20 years (45%), 1-5 years (40%), and more than 20 years (15%).

Health cadres in *Posyandu* are a group of people who voluntarily participate in *Posyandu* activities and have a very important role, one of which is as a motivator of the community in achieving good health status. As *Posyandu* has become a pillar in improving public health through sociocultural approach, the active role of health cadres determines *Posyandu* activities and health programs within the region to be better. In *Posyandu*, the role of health cadres is not only taking

care of toddlers, but also assisting pregnant women in doing ANC compliance.⁴

The result of the analysis showed that as most of the subjects had relatively long work experiences, they had to have a good related competence, yet needed to be updated all the time including increasing knowledge related nutrition. Knowledge is the basic capital in health assisting activities in the community, so providing education is very important.⁵ A study in Sidoarjo showed that the activeness of cadres can be identified from their knowledge related competence under which status health programs in the community including *Posyandu* depend on.⁶ In this study, the intervention for cadres applied was nutrition education consisting of counseling and practice using media "*Bumil-Kit*" in order to increase cadres' knowledge and competence in ANC.

Effect of Nutrition Education on Knowledge, Attitudes, and Behavior: Cadres' knowledge was measured using a structured questionnaire containing questions regarding pregnancy care, LBW prevention, and high risk prevention for pregnant women. Questionnaires observing pregnancy care covered the number of pregnant women having checked during pregnancy, taking pills containing Fe, recommended and not recommended intake for pregnant women, immunization, smoking history and cigarette smoke exposure, and breast care during pregnancy. Meanwhile, LBW prevention, a component in the knowledge questionnaire, covered LBW definitions and cut-off points, age affecting the occurrence of LBW, factors influencing and preventing LBW. In addition to the two components, other components included in the questionnaire observing knowledge were of high-risk prevention for pregnant women consisting of marriage and pregnancy age, interval and number of pregnancies, signs and symptoms of high-risk pregnant women, and smoking habits as well as drug consumption.

Moreover, the attitude of the cadres in relation to ANC was measured using a structured questionnaire consisted of questions observing pregnancy care, LBW prevention, and high-risk prevention of pregnant women. The pregnancy care component contained questions asking cadres' perceptions about the number of examinations pregnant women had in the first trimester (<20 weeks), recommended and not recommended foods

for pregnant women, and activities that might or might not be carried out by pregnant women. In the LBW prevention component, the questionnaire contained questions asking cadres' perceptions about the efforts that should be taken in preventing LBW including examining toxoplasmosis, recommendations for family planning, monitoring the history of pregnant women, and intake and things or activities recommended for mothers during pregnancy. The component of high risk prevention for pregnant women contained questions about maternal perceptions related to encouragement or advice to have health checked when an abnormality occurred during pregnancy, advice to avoid pregnancy at a young age (less than 20 years) and to deliver at home, monitor maternal pregnant conditions during pregnancy, dan suggestions for joining pregnancy exercises.

Similar to knowledge and attitude variables, the behavioral variable also consisted of three question components, namely pregnancy care, LBW prevention, and high risk prevention for pregnant women. The pregnancy care component contained some questions about actions taken by cadres in providing advice to pregnant women to do consultation regarding pregnancy issues, helping organize classes of pregnant women, suggesting to do stimulation for the fetus in the womb, and suggesting what to be done during pregnancy, such as suggestions regarding food intake, lifestyle, and body position when resting.

The LBW prevention component contained several questions regarding recommendations for ANC treatment, attending counseling activities on pregnancy health conducted by health workers, and suggesting intake that may be consumed as well as activities that may be done by pregnant women. Meanwhile, the pregnancy risk prevention component contained several questions regarding cadre actions in giving advice to pregnant women to have health checked at least four times during pregnancy, Tetanus Toxoid (TT) immunization, regular exercise, as well as giving advice on intake and activities that should be consumed and carried out by pregnant women.

The results of the analysis of the effect of providing nutrition education regarding ANC care to health cadres can be seen in Table 2.

Table 2: Effect of Nutrition Education on Knowledge, Attitudes, and Behaviors of Health Cadres regarding ANC Care for Pregnant Women

Variable	Mean ± SD		p ^a
	Pre-test	Post-test	
Knowledge	38.74 ± 2,86	41.51 ± 2,05	0.001*
Attitude	38.26 ± 2,65	40,76 ± 1,64	0.001*
Behavior	38.85 ± 9,90	41.35 ± 5,28	0.038*

^aWilcoxon Signed Rank Test, *Intervention significantly influences the three variables (p <0.05)

The results of the analysis showed that nutrition education regarding ANC of pregnant women affected cadres' knowledge, attitudes, and behavior (p <0.05). The increased score of knowledge, attitudes, and behavior was 7.15%, 6.53%, and 6.43%, respectively. Meanwhile, the purpose of the intervention in the form of socialization and practice using “*Bumil-Kit*” media was to make the content of the material taught easy to understand and apply by cadres. This result of this study was in line with the one of a study in Egypt by providing health education for one month to patients with kidney failure and having hemodialysis treatment showed that health education succeeded in increasing knowledge and compliance in relation to fluids and limited sodium consumption.⁷

Other research results in several cities in Europe showed that providing nutrition education can reduce weight loss and improve cognitive function in Alzheimer's patients. The nutrition education conducted in nine sessions and consisted of socialization and practice was given to caregivers of Alzheimer's patients.⁸ However, a study in Iran showed that nutrition education for four weeks to patients with kidney failure with hemodialysis treatment increases the score of knowledge, but do not change the practice of food selection, as other factors may influence behavior; it takes a long time for nutritional education to affect the patient's food selection behavior.⁷

Furthermore, the results of the interview after being educated was that all cadres (100%) had a good understanding of the consumption of milk, Fe tablets, no smoking or exposure to cigarette smoke, and prevention of anemia and hypertension in pregnant women, while only a few cadres (62.5%) knew the definition of ANC. Cadres also had a good perception related to ANC examinations in the first trimester, monitoring case history of the pregnant women, pregnant women should

consume high protein, and assisting pregnant women when experiencing hyperemesis during pregnancy. Meanwhile, the majority (75%) of cadres did not have a good understanding of family planning and childbirth in health facilities. In this study, cadres did not only have knowledge and understanding related to ANC, but also had taken several actions in the context of giving advice to pregnant women regarding balanced nutrition intake, physical activity, and personal hygiene.

Conclusion

Ante natal care (ANC) is one of the strategies or efforts in overcoming maternal mortality that need intense support from related stakeholders one of which is health cadres. For this reason, nutrition education assisting ANC pregnant women using media “*Bumil-Kit*” as a comprehensive tool is very important for cadres, as this education has proven to have a significant effect on knowledge, attitudes, and behavior of the cadres.

Conflict of Interest: The authors hereby declare that they have no conflict of interest within this research.

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