ORIGINAL ARTICLE

Integrated Antenatal Care For Maternal Complications Management In Central Lampung Indonesia

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ABSTRACT

Introduction: Important factors in the implementation of the integrated antenatal care program are patient satisfaction and the decrease in complications among women. In 2012, the MMR or Maternal Mortality Rate was 359/100,000 live births and in 2015 it was 305/100,000 live births. Objective: This study aims to determine the effectiveness of integrated antenatal care program in order to decrease the number of complications related to pregnancy and child-birth and improve patient satisfaction among pregnant women in the Community Health Centers in Central Lampung of Indonesia. **Methods:** The current study was made in a quantitative manner by involving a control group. The population was selected from 4 Community health centers (CHCs) with a total of 585 pregnant women and 105 of them were appropriate to be chosen as the study samples based on inclusion as well as exclusion criteria. Data collecting instrument consisted of a validated questionnaire which was distributed to the respondents. The variables in this study were integrated antenatal care, patient satisfaction and maternal complication. Data were analyzed using t-test EM. **Results:** The study findings revealed a significant difference between the intervention group and the control group, both regarding maternal complication and patient satisfaction. Furthermore, there was a correlation between integrated antenatal care program and demographic factors including age and education. There was no correlation between parity and integrated antenatal care program. The strongest effect on patient satisfaction was indicated by responsiveness of 6.643, followed by reliability of 5.373 and empathy of 2.745. In contrast, tangible and assurance indicators had a weak effect on satisfaction. **Conclusion:** Integrated antenatal care was effective to decrease maternal complication and improve patient satisfaction.

Keywords: Integrated Antenatal Care, Maternal Complications, Patient Satisfaction

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INTRODUCTION

In 2015, there were approximately 303.000 maternal deaths due to pregnancy-related complications. In addition, there were 2.6 million stillborn babies, wherein half of cases occurred in the third trimester. Most of maternal deaths are due to maternal complications and childbirth. In fact, adverse outcomes can be prevented through the implementation of good and proper health care regarding pregnancy and childbirth. Pregnancy complications and the detection can be performed by conducting intensive monitoring during antenatal care visits. Antenatal Care (ANC) is a kind of service provided for pregnant women in order to prevent adverse effects during the pregnancy and childbirth periods. ANC becomes one of the four pillars in the concept of Safe Motherhood Initiative. The goal of ANC is to support the best outcomes of women and the babies (1).

One of efforts to reduce maternal mortality rate is integrated antenatal care program. It is an approved and quality antenatal service provided to all pregnant women on a regular basis. Health development should concern maternal and infant mortality, which needed attention with various health service programs to overcome this health hazard, one of which is integrated antenatal care program. Implementing continuous and appropriate evidence-based practices integrated in ANC that can surely improve maternal and fetal health. In light of continuum of care, antenatal care (ANC) is a vehicle to bring and run critical healthcare functions which involve health promotion, prevention, as well as disease screening and diagnosis. Furthermore, it is an opportunity to develop a good communication to provide a support for women, families and communities regarding the crucial events in their lives. Every pregnancy is has risk anticipation for every woman, and maternal complications can be detected through regular visits (2).

Health efforts to women are important to conduct since the health degree of a country is assessed based

on maternal mortality and morbidity. Maternal health is a national problem that needs to be given top priority, because it greatly determines the quality of human resources for future generations (3). The World Health Organization (WHO, 2016) has recommended a minimum target of four focused ANC visits during pregnancy (4). One of the government efforts to improve the women welfare is antenatal care services. Services in the first ANC visit (V1) until the fourth ANC visit (V4) is a strategy which is an effort by healthcare providers to reduce missed opportunities among pregnant women that implicate the maternal mortality rate (MMR) in Indonesia. Services should be performed according to the standard operational of the antenatal care program implementation so that women can be served optimally. The indicator used to describe pregnant women access to antenatal care service is the coverage of V1 contact and V4 contact with midwife as many as four times in accordance with the standard.

The standard service time must be guaranteed for the safety of pregnant women as well as the fetuses. Such standard can be made in the form of early detection of maternal risk factors, early prevention and early treatment of pregnancy complications. Regular and comprehensive ANC is expected to detect abnormalities and risks that may exist during pregnancy so that such conditions can be handled precisely and properly as soon as possible (3).

An important aspect in quality of care and healthcare delivery is consumer satisfaction which reflects the patients view towards different domains of health care, namely the technical, organizational and interpersonal aspects. The World Health Organization (WHO) recommends monitoring and evaluation towards maternal satisfaction with public healthcare services which aims to improve the quality and efficiency of healthcare during the pregnancy period (5). International literature revealed that satisfaction with different aspects of antenatal care provided, could improve health outcomes, relationship with the healthcare workers, the implementation of continuity of care, as well as adherence to treatment. Therefore, healthcare providers must be able to provide the most effective and efficient services in a professional manner (6).

MATERIALS AND METHODS

This was a quasi-experimental study. This study examined the nonequivalent control group, which observed intervention in one group, and one was selected as control group, then posttest was conducted in one intervention or treatment group and the support group or the control group. The current study was conducted in Lampung which showed a high maternal mortality and high maternal morbidity rates to improve the quality of life of women. The number of samples used in this study was 100 pregnant women selected using convenience

sampling method. To avoid drop out or a lack of sample size, 5% was added to total sample involved, so that the final number of samples was 105 pregnant woman. This study was approved from the research committee of Politeknik Kesehatan Jakarta I with reference no 1432/YEPK/II/2018 dated 5th February 2018.

RESULTS

Maternal Complication
Table I shows the list of pregnancy complications. The difference test (t-test) of maternal complication in the intervention group and the control group showed that the mean value of the control group that received routine service care was 0.83 (1.172), while the mean value of the intervention group that received integrated antenatal care was 0.37 (0.886). There was a significant difference with the p value =0.024.

Patient Satisfaction
Presentation of the level of patient satisfaction among pregnant women who received integrated antenatal care program can be seen in Table II. The difference test (t-test) of patient satisfaction between the intervention group and the control group showed that the mean value of the control group was 0.47 (0.50), while the mean value of the intervention group was 0.23 (0.42). There was a significant difference with p value= 0.009. The findings revealed that the satisfaction level among women in the integrated ANC group were higher than those in the control group.

Reliability Test
Reliability test was done to check the validity of the instruments used as a means of collecting data. To test the reliability of a questionnaire used Cronbach's Alpha reliability coefficient formula (Arikunto, 2013) (7).

$$\alpha = \frac{n}{n-1} \left(1 - \frac{\Sigma Vi}{Vt}\right)$$

Where:
α = coefficient of alpha
n = Number of items
ΣVi = Total variance item
Vt = total Variants
According to Arikunto (2013), an instrument is declared reliable if α> 0.60.

Validity Test
Validity test is done to check whether the test actually measures the significance of the work, and whether test is able to express the exact characteristics or conditions of the object being observed (8). Internal validity is indicated if the measurement results are consistent with the overall test results. Therefore, the internal validity of the item is reflected in the correlation coefficient between item scores and the total score of the test. If the item correlation coefficient showed a positive and significant total test score, then the item was valid based

Table I: Maternal complications among pregnant women

Maternal complication	Integrated ANC	%	Routine Service	%	Total
Normal	43	82	34	64.2	77
Bleeding	3	5.8	1	1.9	4
Hypertension	2	3.8	11	20.8	13
PRM	4	7.7	7	13.2	11
Total (*N=105*)	52		53		105

Table II: Presentation of the level of patient satisfaction among pregnant women who received integrated antenatal care program

Factor	Satisfied	%	Not satisfied	%	Total
Tangibles	92	87.6	13	12.4	105
Empathy	97	92.4	8	7.6	105
Reliability	93	88.6	12	11.4	105
Responsiveness	93	88.6	12	11.4	105
Assurance	87	82.9	18	17.1	105

on the size of its internal validity with α= 0.05 (8). Calculation was performed using the Pearson Product Moment formula (7).

$$rxy = \frac{N\sum y - (\sum x)(\sum y)}{\sqrt{N\sum x^2 - (\sum x)2(N\sum y2 - (\sum y)2)}}$$

Where:

rxy: Pearson correlation coefficient of item X with variable Y
N: Number of respondents
ΣX: Total score of X
ΣY: Total score of Y

DISCUSSION

Maternal complications among pregnant women

The study findings showed that 82% women in the intervention group had normal pregnancy and 64.2% (lower) in the control group had normal pregnancy. There were a lower number of women in the intervention group with hypertension and Premature Rupture Membrane (PRM) compared to the control group. These results are supported by several studies. Maternal complications can arise during the process of pregnancy, delivery and childbirth. Antenatal care aims to perform early detection of any rise in blood pressure during pregnancy, screening for preeclampsia, and taking appropriate action in referral preparation. A study conducted by Das and Biswas (2015) found that women with an inadequate number of antenatal care visits experienced a significantly higher risk of eclampsia, post-partum hemorrhage (PPH), and intensive care unit

admission compared with those who had an adequate number of ANC visits (9). In a more detailed study, women with an inadequate number of visits had a 53-fold risk of a poor fetal outcome and a 12-fold risk of a poor maternal outcome. In addition, there was a significantly higher risk of neonatal mortality compared to women with an adequate number of ANC visits (10). The effort to decrease maternal mortality rate is a global concern. Efforts to decrease maternal mortality rate are the responsibility of the community and government since women's health is very decisive on children's health and this is also the reflection of quality of health of a country.

High-risk pregnancy can be prevented by monitoring pregnancy through early detection of high-risk pregnant women or obstetric complications that should be more focused on conditions that cause maternal death. Antenatal visit needs to be performed regularly, so that the signs of danger/complications can be detected early. Accordingly, preparation for labor can be arranged beforehand. Therefore, pregnant women are recommended to carry out regular and standard antenatal examinations at least 4 times during pregnancy. Regarding maternal mortality, a previous study found that women who were irregular in pregnancy check-up were at 4.57 times greater risk for maternal deaths compared to women with regular antenatal care visit (4 or more times) (11). Women with pregnancy complications were at risk of dying 12,198 times higher than women who did not experience pregnancy complications. Furthermore, women who experienced labor complications were at 9.94 times more likely to die than women without labor complications (12).

It was generally believed that maternal mortality can be due to compliance of visits and history of complications. Compliance with ANC visits is a standard of service during pregnancy wherein pregnant women and mothers are required to come according to scheduled visits. Compliance with ANC visits is related to service quality and several other factors which may cause pregnant women to be reluctant to visit midwife. Maternal mortality is a direct result of complications during pregnancy, labor and childbirth. Hypertension or preeclampsia during pregnancy contributes to maternal mortality. This can be prevented if women have the desire to get information and health services during pregnancy.

Level of satisfaction of the respondents

The study findings indicated a higher number of women, satisfied with integrated care antenatal care service compared to the number of women not satisfied. Satisfaction is one indicator of the assessment of a service received. Based on the preliminary study, it was found that the level of patient satisfaction with health services in the CHC were affected by several determinants, namely, tangibles, reliability, responsiveness, assurance, and

empathy aspects. Satisfaction is the level of expectation desired by someone to get service in accordance with expectations to get a complete service. A patient with a high level of satisfaction with nursing services always shows a positive attitude towards the work of nurses. Conversely, those who were dissatisfied will show a negative attitude towards the nursing profession (13).

Patient satisfaction towards the healthcare should be evaluated to assess the quality of care. Satisfaction shown by pregnant women can be interpreted as the realization of quality services provided by the healthcare workers. An optimum ANC can be achieved through good relations and communication. In this case, pregnant women need more attention during the antenatal period, especially in the rural health units. Evidence revealed that unsatisfactory care to the patients was ineffective since it was correlated with poor understanding towards medical information, noncompliance with instructions for treatment, and delay in searching for further care (14).

Completeness of physical examination during ANC and the competence of providers are the supportive factors for satisfaction. Midwives have a new role regarding their responsibility in providing ANC in various setting. Their role will motivate healthcare workers to be more careful in implementing approach toward physical aspect of routine healthcare. A key strategy for improving maternal and infant outcomes is increasing in the rate of integrated and continuous antenatal care. Moreover, a higher rate of prenatal care was related to more appropriate rate of pediatric care(15).

The multivariable analysis was conducted through binary logistic regression, and three variables were found: ANC performed by a skilled healthcare provider, the wealth index, and the plan for possible complications performed by the women. Those proxies showed a significant correlation with the action of seeking assistance from a skilled healthcare provider. Wealthy women in the second quintile were 2.5 times more likely to seek a skilled healthcare provider to treat the obstetrics complication being faced, compared to women in the lowest quintile (OR = 2.5, 95% CI; 1.3, 4.6). Women being assisted by a skilled healthcare provider during ANC were nearly two times more likely to seek a skilled healthcare provider to treat the obstetric complication being faced, compared to others women who did not perform ANC (OR = 1.7, 95% CI; 1.1, 2.7). Furthermore, women who had a plan for possible complications were 2.5 times more likely to seek a skilled healthcare provider to treat the obstetric complication being faced, compared with women who did not have a plan (OR = 2.5, 1.6, 3.9) (16).

Correlation between demographic data and patient satisfaction
Based on the results of SEM analysis, it was obtained

a CR value of >1.9 and a p value of <0.05. Thus, it can be concluded tangible indicators, empathy, responsiveness, assurances and reliability affect patient satisfaction. The strongest effect was indicated by the responsiveness of 6.643 then followed by reliability (5.373), empathy (2.745). On the contrary tangibles and assurance indicators showed a weak effect on satisfaction. Demographic factors of sex, age, social status, and education indicated a significant correlation with patient satisfaction (9). It is widely known that at the age of <20 years, the physical condition especially the reproductive organs are not fully developed to experience pregnancy and childbirth. In addition, the psychological condition is not ready as well. On the other hand, pregnancy at the age of >35 years is related with a high risk of experience congenital abnormalities as well as complications regarding pregnancy and childbirth (17).

A study conducted by Kriswiatiny & Fitriyani, (2015) found 113 preeclampsia cases according to age, wherein 52 of them had no risk and 61 of them had a risk. In conclusion, there was a significant correlation between age and preeclampsia. Based on this OR value showed that age <20 years or >35 years was at risk leading to 4.1 times higher risk for the incidence of preeclampsia (18). Too young age at first pregnancy is known to increase the incidence of PE associated with suboptimal organ function or degeneration of reproductive function. It was shown that 96.2% of PE occurred in women who had no history of preeclampsia and PE could be prevented with regular antenatal care. Antenatal care can help to effectively avoid the development of preeclampsia and detect early diagnoses of preeclampsia to reduce the complications of preeclampsia.

Several previous studies found that the age of a pregnant woman also affected the adherence of antenatal care visits. Pregnant women of reproductive age with high education were very enthusiastic and vigilant about their pregnancies so that they would feel the need to carry out a pregnancy check-up. However, there were also pregnant women in the non-reproductive age group who tended to be reluctant to seek health services during pregnancy.

CONCLUSION

The strength of the patient satisfaction was indicated by responsiveness, reliability and empathy. In contrast, tangible and assurance indicators had a weak effect on satisfaction. Integrated antenatal care was effective to decrease maternal complication and improve patient satisfaction. Good ANC is associated with the woman and her family giving formal health system, increases the chance of using a skilled healthcare provider at birth and contributes to good health through the life cycle. Inadequate care during this time breaks a critical link in the continuum of care and affects both women and

the infant.

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