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Correlation Between Standardized Antenatal Care With Preeclampsia Among Pregnant Women In Indonesia: Data Analysis Of Indonesian Demographic And Health Surveys 2017

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Abstract— Background: Preeclampsia is still the main cause of maternal death in Indonesia. Pregnancy care, commonly called Antenatal Care (ANC) is a strategic effort to detect preeclampsia symptoms early, for that ANC must be carried out according to standards. Antenatal care standard consisted of measurements: weight, height, blood pressure, arm circumference, symphysis-fundal height, fetal presentation and fetal heart rate, tetanus toxoid immunization, blood supplement tablets, laboratory tests, case management and interview sessions (counseling), shortened to 10T. Objective: This study measured proportion of antenatal care were in accordance with the standards, how many were diagnosed with preeclampsia and whether standard of antenatal care associated with preeclampsia. **Methods:** This study used data fromAnalysis of Indonesian Demographic And Health Surveys (IDHS) 2017. The subjects in this study were women who gave birth last live birth in the 5 years prior to the survey, with 15.021 respondents. Data analysis used multiple logistic regression. **Results:** 21.5% of pregnant women who received antenatal care according to the standards and 3% who detected preeclampsia. Implement antenatal care standards could detect preeclampsia better than antenatal care unstandardized with an OR of 1.8 (CI= 1.5-2.2).

Keywords: Antenatal Care Standard, Preeclampsia, IDHS 2017

1. Introduction

Antenatal care was a service provided by health workers during pregnancy. Antenatal examination must be given according to standards, this was regulated by the policy contained in the Minister of Health Regulation Number 43 of 2016 concerning Minimum Service Standards in the Health Sector which explained that the quality standard of antenatal care must fulfill 10T, every time pregnant women visited health facilities they must measure their weight. height, blood pressure, arm circumference, symphysis-fundal height, fetal presentation and fetal heart rate, tetanus toxoid immunization, blood supplement tablets, laboratory tests, case management and interview sessions (counseling).[1]

The purpose of antenatal care for pregnant women monitored and supported maternal health then detected pregnant women who was normal or have problems, which were carried out comprehensively and integrated.[2]Antenatal Care was also the supervision of pregnant women regularly and specifically with the aimed of preparing physically and mentally as well as saving mothers and children in pregnancy, childbirth and the postpartum period.[3]

Preeclampsia is one of the main causes of maternal death in Indonesia. Until now, preeclampsia is still a midwifery problem that has not been completely solved.[4]Preeclampsia was incidence varies in each country. In developed countries the incidence of preeclampsia ranged from 1.3%-6% while in developing countries 1.8%-18%. The incidence of preeclampsia in Indonesia was around 5.3%.[5]

Preeclampsia could be detected by implement antenatal care standard, this was supported by the results of research which explained pregnant women who received antenatal care according standard could detect preeclampsia by 7.9 times compared to pregnant women who received antenatal care unstandared.[6]

Another study explained that there was a relationship between standardized antenatal examinations and the detection of preeclampsia. Pregnant women who received standard antenatal examinations could detect preeclampsia 9.6 times compared to pregnant women who received non-standard antenatal examinations.[7]

What did the 2017 IDHS data occur as described above, therefore the researcher examined how many proportions of antenatal examinations were in accordance with the standards, how many were diagnosed with preeclampsia and whether standard antenatal examinations were related to preeclampsia.

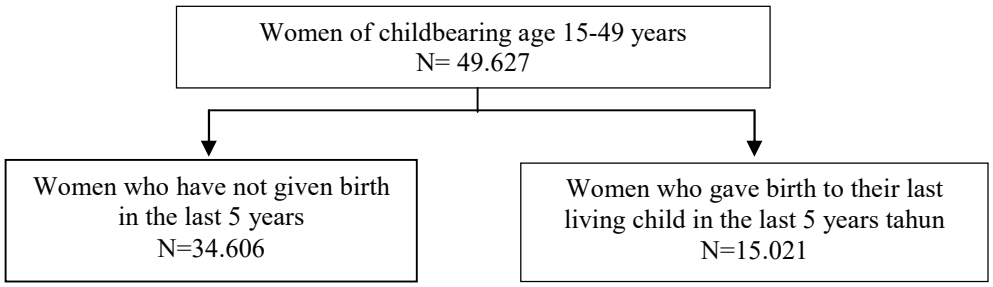
2. Methods

This study used the 2017 IDHS data source. The subjects in this study were women aged 15-49 years who gave birth last live birth in the 5 years prior to the survey with 15,021 respondents. The IDHS data did not use pregnant women as respondents but women who gave birth to the last live birth in the 5 years prior to the survey. These respondents were asked for a history of pregnancy and examination obtained during pregnancy, as described in the chart 1.

The variable for the completeness of the antenatal care was measured by examining the antenatal care received by the respondent (2017 IDHS Questionnaire, question No. 413). If the respondent answers all the questions "yes", then the examination said to be in accordance with the standard, if one of the questions was answered no, the antenatal care was not according to standards.

The preeclampsia variable was measured from the respondents' answers regarding the history of pregnancy complications that occurred in the last live birth of the child in the 5 years prior to the survey (2017 IDHS Questionnaire Question No. 413D). Another variable measured were characteristics of the respondents. In this study, the number of antenatal examinations according to standards will be calculated, how many preeclampsia findings will be associated with standardized antenatal examinations and their relationship with preeclampsia findings. To perform a cleaner analysis, multiple logistic regression analysis was performed.

Chart 1. Diagram of Subjects Selection



3. Results

3.1 Standardized Antenatal Care, Preeclampsia Detection and Characteristics of The Respondents.

Of the 15,021 subjects analyzed, table 1 explained about standardized antenatal care, from the available data it was found that only 21.5% of pregnant women who received antenatal care according standard. The results of the analysis described the findings of preeclampsia in women with the last live birth of a child in the 5 years prior to the survey. Of the questions about the symptoms that lead to preeclampsia, it was found that 3%.

The characteristics of the respondents found that most of the respondents were aged 20-35 years (72.2%), the most parity respondents were parity 2 (34.7%) and a small proportion of respondents had

higher education (14.7%). In the socio-economic variables found mostly with poor economy (81.2%) and lived in rural areas (51.5%).

Table 1. Distribution of Standardized Antenatal Care,Preeclampsiaand Characteristics of The Respondents.

Variable	Total	Percentage
Antenatal Care		
Unstandardized	11.792	78.5
Standardized	3.229	21.5
Preeclampsia		
No	14.570	97
Yes	451	3
Age		
20-35 years	10.848	72.2
< 20 dan > 35 years	4.173	32.1
Parity		
1	5.006	33.3
2	5.215	34.7
3+	4.800	32
Education		
No education and primary	4.063	27.1
Secondary	8.754	58.2
Higher	2.204	14.7
Socio-Economic		
Rich	2.836	18.8
Poor	12.186	81.2
Residence		
Urban	7.284	48.5
Rural	7.737	51.5
Total	**15.021**	**100**

3.2 Correlation between Standardized Antenatal Care,Age, Parity, Education, Socio-economic, Residence with Preeclampsia.

The results of the analysis in table 2explained the completeness of antenatal care standards capable of detecting preeclampsia in pregnancy as indicated by a p-value <0.005. In the characteristics of respondents, it was found that women aged 20-35 years and mothers who lived in rural areas had a lower risk of developing preeclampsia in pregnancy.

Table 2.Multivariate Analysis Standardized Antenatal Care, Age, Parity, Education, Socio-economicResidence with Preeclampsia.

Variable	Preeclampsia(%)		n	P Value	OR (95% CI)
	No	Yes			
Antenatal Care					
Unstandardized	97,5	2,5	11.792	**0,000**	1,0

Standardized	95,3	4,7	3.229		1,8 (1,5-2,2)
Age					
20-35 years	97,3	2,7	10.848	**0,011**	1,0
< 20 dan > 35 years	96,3	3,7	4.173		1,3 (1,1-1,7)
Parity					
1	96,8	3,2	5.006		1,0
2	97,4	2,6	5.215	0,043	0,8 (0,6-1,0)
3+	96,7	3,3	4.800	0,809	1,0 (0,7-1,2)
Education					
No education and primary	97,3	2,7	4.063	0,463	0,9 (0,8-1,2)
Secondary	96,9	3,1	8.754	0,376	0,8 (0,6-1,2)
Higher	96,7	3,3	2.204		1,0
Socio-Economic					
Rich	97,2	2,8	2.835	0,570	1,0
Poor	97.0	2,3	1.2186		1,1 (0,8-1,4)
Residence					
Urban	96,4	3,6	7.284	**0,003**	1,0
Rural	97,6	2,4	7.737		0,7 (0,6-0,9)

4. Discussion

4.1 Standardized Antenatal Care.

From the 2017 IDHS data, it was found that only 21.5% of mothers who received antenatal care according to the standards. This figure was still low when compared to the expected results for standardized antenatal care.

The government stipulated that the performance achievement for antenatal care according to standard must be 100%, both in terms of quantity (4 visits) and quality (services that fulfill the 10T standard).[8]The results of the study found antenatal care according standard has still not reached the target set.

Previous research conducted in 2018 found that only 18.8% of midwives performed completely and correctly all components of antenatal care according to standards.[9]The results of another study conducted in 2019 showed the percentage for the implementation of antenatal care according to standards only reached 36.62%.[10]

Another study in 2016 showed that the implementation of antenatal care was unstandardized. Observations found that midwives in providing antenatal care were more often focused and emphasized on physical examination only (weight, blood pressure, symphysis-fundal height, fetal position with the Leopold maneuver, and fetal heart rate, so that other elements of service were often overlooked.[11]

The results of previous studies also explained several factors that influence the behavior of health workers in providing antenatal care according to standards, namely the availability of human resources, completeness of facilities and infrastructure, documentation form, visit time for pregnant women, and financing policies.[12]Other studies explained the factors influence the implementation of antenatal care according to standards including education, knowledge, age and years of service. The existence of guidelines was also very important as a standard of antenatal care that was useful in applying the norms and levels of work needed to achieve the goal.[13]

4.2 Preeclampsia Detection.

Based on the 2017 IDHS data, the cases of preeclampsia is 3%. Basic health research data in 2018 found respondents' answers based on questions about symptoms that lead to preeclampsia were found to be 2.7%.[14]

The incidence of preeclampsia was estimated at 3-10% of all pregnancies. Preeclampsia was a complication of pregnancy that has a triad of symptoms, namely: hypertension, proteinuria and edema.

These symptoms occured in pregnant women, in childbirth and in the puerperium, the triad of preeclampsia could also be accompanied by convulsions to coma..[15]

Screening for early detection of preeclampsia in pregnant women was carried out by anamnesis to ask for the main complaint or current complaints, then asked all past and present medical history including gynecological and obstetric checkup. A complete examination was an examination carried out to review whether the physical condition of pregnant women has problems or not and was carried out comprehensively or completely and carried out head to toe and necessary supporting checkup, such as laboratories.[16]

Early detection of preeclampsia in pregnant women in antenatal care activities was one of the standards of midwifery services (SPK), namely by measuring blood pressure, laboratory and physical checkup.[7]In the early management of preeclampsia, health workers found early any increase in blood pressure in pregnancy and recognize other signs and symptoms of preeclampsia, and took appropriate action and refer it.[17]

4.3Correlation between Standardized Antenatal Care with Preeclampsia.

Based on the 2017 IDHS data, it explained that the completeness of antenatal care according to standard could detect preeclampsia by 1.8 times compared to antenatal examinations that are not in accordance with the standards.

The results of this study were similar with previous studies which explained that midwives who performed ANC according to standards have an effect of 1.3 times on the detection of complications, namely preeclampsia.[12]This study was also in line with other studies which explained that there was a significant relation between antenatal examinations and the detection of preeclampsia (OR= 3,2 CI= 1,2-8,7).[18]

Another study explained that standardized antenatal examination was a protective factor against the incidence of preeclampsia (OR=0,1 CI= 0,0-0,3).[19]Another study showed that 87.7% of women who received standard ANC examinations would avoid complications, namely preeclampsia.[20]

To improve the quality of antenatal care, health workers not only pay attention to the frequency of antenatal care visits but also have to carried out antenatal examination according to standards. Existing studies explained that the weak relationship between antenatal examinations and detection of preeclampsia was due to lack of attention to the content and quality of antenatal examinations.

Antenatal examination according to standards could detect preeclampsia appropriately so that it could plan the actions and referrals needed by pregnant women. In this analysis, other variables besides the main variable were considered as confounding variables, so they would be overcome by conducting multivariate analysis.

5. Conclusion.

The results of this study found pregnant women who received complete antenatal care according to standard were 21.5% and who detected preeclampsia were 3%. Antenatal examinations were in accordance with standards could detect preeclampsia better than antenatal examinations that were unstandardized with an OR of 1.8 (CI= 1,5-2,2).

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