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Analysis of the Implementation System for Pregnant Women Classes at The Rantauprapat City Health Center

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ABSTRACT
Maternal health is an important indicator of health development because it is directly related to the reduction of Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR). One of the government's strategic efforts to improve maternal health is the Pregnant Women's Class Program, which aims to improve mothers' knowledge, attitudes, and skills in maintaining pregnancy, preparing for childbirth, the postpartum period, and infant care. This study aims to analyze the implementation system of the Pregnant Women's Class at the Rantauprapat City Health Center in 2025 based on a systems approach (input, process, and output).
This study is a non-experimental quantitative study with a cross-sectional design. The study population included all pregnant women registered in the working area of the Rantauprapat City Health Center, totaling 480 people. The sample consisted of 218 respondents determined by the proportionate stratified random sampling method. Data were obtained through structured questionnaires, observation checklists, and secondary documents, then analyzed univariately, bivariately with the Chi-Square test, and multivariately using multiple logistic regression.
The results showed that the majority of respondents were aged 20–35 years (68.8%), had a high school education or equivalent (43.6%), were unemployed (55.0%), were multiparous (55.0%), were in their second trimester (50.5%), and had attended ≥6 ANC visits (63.3%). Bivariate analysis showed that almost all independent variables, including characteristics, inputs, and processes, were significantly associated with the output of the Pregnant Women's Class ($p < 0.05$), except for gestational age ($p = 0.060$). Multivariate analysis identified evaluation (OR = 4.05; 95% CI: 1.54–10.65), number of ANC visits (OR = 3.00; 95% CI: 1.38–6.54), and the quality of implementing human resources (OR = 3.49; 95% CI: 1.46–8.35) as the dominant factors influencing the success of the program.
This study concludes that the success of the Maternity Class program is significantly influenced by the quality of evaluation, regularity of ANC visits, and competence of implementing human resources. Health centers need to strengthen structured evaluation mechanisms, improve the capacity of health workers through training and interactive media, and encourage pregnant women to comply with ANC visit standards in order to support the achievement of maternal and child health improvement targets.
Keyword: *Pregnancy Class, input, process, output, evaluation.*

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I. Introduction

Maternal health is an important indicator in health development because it is directly related to the level of public health and maternal mortality rates (MMR) and infant mortality rates (IMR). Although Indonesia has shown a downward trend in MMR from 305 per 100,000 live births (SDKI 2015) to 189 per 100,000 live births (SSGI 2022), this figure is still far from the 2030 Sustainable Development Goals (SDGs) target of 70 per 100,000 live births (Indonesian Ministry of Health, 2022). This condition shows that efforts to improve maternal health still require continuous strengthening.

The high MMR is influenced by various factors, both direct and indirect. Obstetric complications such as hemorrhage, hypertension during pregnancy, and infection are still the main causes, while indirect factors include limited access to health services, delayed referral, and low knowledge and behavior of pregnant women regarding healthy pregnancy and danger signs of childbirth. Therefore, promotive and preventive interventions play an important role in reducing the risk of pregnancy and childbirth complications.

One of the promotional-preventive efforts developed by the government is the Pregnant Women's Class (KIH), which is a group education forum for pregnant women facilitated by health workers and using the Maternal and Child Health (KIA) book as the main medium. This program aims to improve the knowledge,

attitudes, and skills of pregnant women in maintaining pregnancy health, preparing for childbirth, and providing postpartum and newborn care, while encouraging compliance with standard antenatal care (ANC) examinations (Indonesian Ministry of Health, 2021). The implementation of KIH is regulated by Ministry of Health Regulation No. 97 of 2014, but its implementation at the primary care level still faces various challenges. Several studies indicate that the effectiveness of KIH is influenced by input readiness, such as the availability of health workers and facilities, the quality of the implementation process, which includes planning, implementation, monitoring, and evaluation, as well as the level of participation of pregnant women and family support (Sari & Nugroho, 2021; Yuliana et al., 2022). Irregular implementation and limited resources have the potential to hinder the optimal achievement of program outputs.

The Rantauprapat City Community Health Center, as a primary health facility, has a strategic role in organizing Pregnant Women Classes. However, based on the initial conditions, the implementation of the program in this region still shows variations in the implementation of activities, limited resources, and uneven participation of pregnant women. This situation indicates the need for a comprehensive evaluation of the program implementation system. Therefore, this study aims to analyze the implementation system of the Maternal Health Class at the Rantauprapat City Community Health Center in 2025 using a system approach that covers input, process, and output aspects. The results of this study are expected to provide an evidence-based basis for improving the quality of the Maternal Health Class implementation and support efforts to improve maternal and infant health at the primary care level.

Research Method

This study uses a non-experimental quantitative design with a cross-sectional approach and associative analysis. This study aims to describe and analyze the relationship between input factors (human resources and infrastructure) and processes (planning, implementation, monitoring, and evaluation) with the output of the Pregnant Women's Class (knowledge, attitudes, and skills) in one observation period.

The research was conducted at the Rantauprapat City Health Center, Labuhanbatu Regency, in July 2025. The study population consisted of all pregnant women registered in the MCH/ANC register in the health center's working area, totaling 480 people. The sample size was determined using the Slovin formula with a 5% margin of error, resulting in 218 respondents. Sample selection was carried out using proportionate stratified random sampling based on the seven sub-districts in the health center's working area to ensure proportional representation of the population. Primary data were collected through structured questionnaires and observation checklists distributed online using Google Forms, while secondary data were obtained from KIA documents and health center program reports. The dependent variable was the output of the Pregnant Women's Class, measured based on a combined score of knowledge, attitude, and skills, then categorized using the median split method. The independent variables included respondent characteristics, input factors, and program implementation process factors.

Data analysis was performed univariately to describe the characteristics of respondents and research variables, bivariately using the Chi-square test to examine the relationship between variables, and multivariately using multiple logistic regression to identify the dominant factors affecting the output of the Pregnant Women's Class. The significance level was set at $\alpha = 0.05$. The validity of the research instruments was tested using Pearson's correlation (calculated r > table r) and their reliability was tested using Cronbach's alpha with a value >0.70. This study complied with research ethics principles, including participant consent (informed consent), anonymity, data confidentiality, and protection of respondent rights.

II. Results

Based on Table 1, the majority of respondents were aged 20–35 years (68.8%) and had a high school education or equivalent (43.6%), with more than half unemployed (55.0%). Most respondents were multiparous (55.0%) and were in their second trimester of pregnancy (50.5%). In addition, most pregnant women had undergone antenatal care (ANC) visits in accordance with the standard, which is ≥6 times (63.3%).

Table 1. Distribution of Characteristics of Pregnant Women Respondents at the Rantauprapat City Health Center in 2025 (n = 218).

Variable	Category	n	Percentage
Age	< 20 years old	20	9,2%
	20–35 years old	150	68,8%
	> 35 years old	48	22,0%
	Total	**218**	**100%**
Education	Elementary school	25	11,5%

Variable	Category	n	Percentage
	Junior high school	40	18,3%
	Senior high school	95	43,6%
	College/University	58	26,6%
	Total	**218**	**100%**
Occupation	Not working	120	55,0%
	Working	98	45,0%
	Total	**218**	**100%**
Parity	Primipara (1)	70	32,1%
	Multipara (2–4)	120	55,0%
	Grandemultipara (≥5)	28	12,8%
	Total	**218**	**100%**
Gestational age	First trimester	40	18,3%
	Second trimester	110	50,5%
	Third trimester	68	31,2%
	Total	**218**	**100%**
Number of ANC visits	< 6 times	80	36,7%
	≥ 6 times	138	63,3%
	Total	**218**	**100%**

Table 2 shows that most of the characteristic, input, and process variables have a significant relationship with the output of the Pregnant Women Class. Age, education, occupation, parity, and number of ANC visits are significantly related to output ($p < 0.05$), while gestational age does not show a significant relationship ($p = 0.060$). Mothers aged ≥20 years, with ≥high school education, employed, and with ≥6 ANC visits tend to obtain better outputs. In addition, program input and process factors, including the quality of implementing human resources, availability of infrastructure, planning, implementation, monitoring, and evaluation, are also proven to be significantly related to the successful implementation of the pregnant women's class.

Table 2. Chi-Square Test Results of the Relationship between Characteristics, Input, and Process with the Results of Pregnant Women's Classes at the Rantauprapat City Health Center in 2025 (n = 218).

Variable	Category	Output class for pregnant women		Total	df	p-value
		Good	Not Good			
Age	<20 years old	15	5	20	1	0.041
	≥20 years old	150	48	198		
Education	≤Junior high school	40	25	65	1	0.030
	≥Senior high school	125	28	153		
Occupation	Not working	80	40	120	1	0.050
	Working	85	13	98		
Parity	Primipara	55	15	70	2	0.045
	Multipara	90	30	120		
	Grandemultipara	20	8	28		
Gestational age	First trimester	28	12	40	2	0.060
	Second trimester	87	23	110		
	Third trimester	50	18	68		
Number of ANC visits	<6 times	45	35	80	1	0.020

Variable	Category	Output class for pregnant women		Total	df	p-value
		Good	Not Good			
	≥6 times	120	18	138		
Implementing personnel	Poor	60	30	90	1	0.015
	Good	105	23	128		
Facilities and infrastructure	Poor	65	25	90	1	0.010
	Good	100	28	128		
Planning	Poor	70	30	100	1	0.040
	Good	95	23	118		
Implementation	Poor	72	28	100	1	0.025
	Good	93	25	118		
Monitoring	Poor	68	32	100	1	0.035
	Good	97	21	118		
Evaluation	Poor	64	36	100	1	0.012
	Good	101	17	118		

Table 3 shows that the results of multiple logistic regression analysis identified evaluation as the most dominant factor influencing the output of the Pregnant Women's Class (OR = 4.05; 95% CI: 1.54–10.65; p = 0.010). Pregnant women who attended classes with good evaluations were more than four times more likely to achieve good outcomes than those in groups with poor evaluations, emphasizing the importance of structured evaluation in improving the effectiveness of the learning process and program outcomes.

Table 3. Multiple Logistic Regression Test (Enter Method) Research Variables.

Variable	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp(B)
Age	0,73	0,35	4,33	1	0,041	2,08	1,05–4,09
Education	0,85	0,35	5,90	1	0,020	2,34	1,18–4,62
Employment	0,65	0,30	4,70	1	0,030	1,92	1,07–3,45
Parity	0,72	0,33	4,75	1	0,030	2,05	1,08–3,91
Number of ANC visits	1,10	0,40	7,56	1	0,010	3,00	1,38–6,54
Implementing Human Resources	1,25	0,45	7,72	1	0,010	3,49	1,46–8,35
Facilities and Infrastructure	0,92	0,38	5,90	1	0,020	2,51	1,20–5,23
Evaluation	1,40	0,50	7,84	1	0,010	4,05	1,54–10,65
Constant	-4,50	1,25	12,96	1	0,000	0,011	-

III. Discussion

The results of this study indicate that most of the respondent characteristic variables, input factors, and process factors have a significant relationship with the output of the Pregnant Women's Class at the Rantauprapat City Health Center in 2025. From the perspective of individual characteristics, the age of the mother is significantly related to the output of the pregnant women's class (p = 0.041), where mothers aged ≥20 years tend to have better output compared to mothers aged <20 years. This finding supports the results of studies by Pratiwi and Kartika (2021), Handayani et al. (2022), and Wulandari et al. (2023), which state that age maturity plays a role in psychological readiness, sense of responsibility, and the ability to accept and apply health information during pregnancy. Mothers who are more mature generally have a higher awareness of the importance of a healthy pregnancy, childbirth preparation, and newborn care, so their participation in prenatal classes is more optimal. The level of education was also found to be significantly related to the output of prenatal classes (p = 0.030). Mothers with an education level of ≥high school showed better output than mothers with an education level of ≤junior high school. These results are in line with the studies by Rahmawati and Sari (2022) and Putri and Handayani (2023), which confirm that education influences an individual's ability to understand health information, form positive attitudes, and make appropriate health decisions. Higher education

improves mothers' cognitive abilities in absorbing prenatal class material and applying it in their daily lives, thereby contributing to the success of the program.

Employment status also showed a significant relationship with the output of antenatal classes ($p = 0.050$). Working mothers had a higher proportion of good output compared to non-working mothers. These findings are in line with Pratiwi and Dewi (2021) and Wulandari et al. (2022), who stated that working mothers generally have broader access to information, more diverse social networks, and economic independence that can support the fulfillment of health needs during pregnancy. However, non-working mothers still need support from their families and health workers in order to obtain optimal benefits from antenatal classes. Parity is also significantly related to antenatal class output ($p = 0.045$). Although a good output proportion was found in all parity groups, there were differences between groups. These results are in line with Lestari et al. (2020), who stated that previous pregnancy experiences can help mothers understand the material better, and Rahmawati and Sari (2022), who argued that primiparous mothers often show higher motivation and enthusiasm in attending pregnancy classes. This indicates that pregnancy experience influences how mothers receive and utilize education, so the learning approach needs to be tailored to the characteristics of the participants.

Unlike other variables, gestational age did not show a significant relationship with the output of the pregnant women's class ($p = 0.060$). However, descriptively, pregnant women in the second trimester had a higher proportion of good output compared to the first and third trimesters. This finding is in line with Dewi et al. (2022), who stated that the second trimester is a relatively optimal period for providing education because the mother's physical condition is more stable, as well as Putri and Handayani (2023), who emphasized that education is still important to be provided in all trimesters with adjustments to the material according to pregnancy needs. Therefore, gestational age still needs to be considered in the preparation of pregnant women's class materials to make them more relevant and effective.

The number of antenatal care (ANC) visits has a significant relationship with the output of pregnant women's classes ($p = 0.020$). Mothers who made ≥6 ANC visits had a higher chance of good output compared to mothers with <6 ANC visits. These results support the recommendations of the Indonesian Ministry of Health (2021) and the findings of Putri and Handayani (2023), which state that compliance with ANC standards not only improves maternal health monitoring but also strengthens exposure to health education, thereby positively impacting the knowledge, attitudes, and skills of pregnant women.

From the perspective of input and process factors, the quality of human resources (HR) implementing the program was significantly associated with the output of the pregnant women's class ($p = 0.015$). These findings are in line with Astuti and Putri (2021) and Handayani et al. (2023), who emphasize that the competence, experience, and communication skills of health workers play an important role in increasing the effectiveness of learning. Competent health workers are able to convey material clearly, motivate participants, and guide practical skills more optimally. The availability of facilities and infrastructure was also significantly related to the output of the pregnant women's class ($p = 0.010$). This result is consistent with Handayani et al. (2023) and Astuti and Putri (2021), who stated that adequate facilities, comfortable learning spaces, and the use of varied learning media can increase participant engagement and understanding. A conducive learning environment is one of the factors supporting the success of the educational process. In addition, process factors including planning ($p = 0.040$), implementation ($p = 0.025$), monitoring ($p = 0.035$), and evaluation ($p = 0.012$) also show a meaningful relationship with the output of antenatal classes. These findings are in line with Suryani and Anggraini (2020), Lestari et al. (2021), Putri and Rahman (2022), the Indonesian Ministry of Health (2021), and Handayani et al. (2023), who emphasize that thorough planning, interactive implementation, continuous monitoring, and systematic evaluation are important components in the success of health education programs.

Multivariate analysis results show that evaluation is the most dominant factor influencing the output of antenatal classes, with an OR value of 4.05 (95% CI: 1.54–10.65; $p = 0.010$). This indicates that mothers who attend antenatal classes with a good evaluation system are more than four times more likely to obtain good outcomes compared to mothers in the group with poor evaluation. These findings support the recommendations of the Indonesian Ministry of Health (2021) as well as the results of studies by Putri and Handayani (2023) and Handayani et al. (2023), which emphasize the importance of continuous evaluation in improving learning methods, materials, and strategies. Overall, the results of this study confirm that the success of antenatal classes is not only influenced by the individual characteristics of mothers, but also greatly determined by the quality of program implementation, particularly the regularity of ANC visits, the competence of implementing human resources, and a structured evaluation system. Optimizing these factors is expected to increase the effectiveness of antenatal classes in improving the knowledge, attitudes, and skills of pregnant women, as well as contributing to improving maternal and child health.

IV. Conclusion

The majority of participants in the pregnant women's class at the Rantauprapat City Health Center in 2025 were of safe reproductive age (20–35 years), had a secondary education, were unemployed, were multiparous, were in their second trimester of pregnancy, and had attended ANC visits according to the standard. Bivariate analysis showed that almost all maternal characteristics, input factors, and process factors were significantly associated with the output of the antenatal care class, except for gestational age. Multivariate analysis identified evaluation as the most dominant factor, followed by the number of ANC visits and the quality of the implementing human resources. These findings confirm that the success of antenatal care classes is not only determined by individual characteristics but is also greatly influenced by the quality of the program implementation system**.**

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