Social Capital and Antenatal Care: A Multilevel Analysis of Antenatal Care Visit Among Pregnant Women in Kuningan, West Java, Indonesia

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ABSTRACT

Background: Antenatal care (ANC) services are activities and or a series of activities that are carried out from the occurrence of the conception period until before the start of the comprehensive and quality delivery process provided to all pregnant women. This study aims to analyze the relationship between education, family income, social capital of pregnant women, and posyandu strata with the use of ANC in posyandu.

Subjects and Method: The study is an observational study using a cross-sectional design. This study was conducted in Kuningan Regency, West Java with a population of all pregnant women, from May to June 2024. A sample of 201 pregnant women >6 months was randomly selected. The dependent variable is the use of ANC in posyandu. The independent variables in this study were maternal education, family income, social capital and posyandu strata. Data collection was carried out by interviews with respondents and assisted by questionnaires and analyzed by square test and multilevel multiple logistic regression model.

Results: ANC visit among pregnant women in posyandu increased with high maternal education (OR= 2.78; 95% CI= 1.25 to 6.18; p= 0.012), high family income (OR= 2.19; 95% CI= 1.05 to 4.57; p= 0.036) and strong social capital (OR = 4.43; 95% CI = 2.22 to 8.86; p <0.001). Multilevel analysis showed a strong contextual influence of posyandu (ICC 18.6%; p = 0.008).

Conclusion: The use of ANC for pregnant women in posyandu increased with high maternal education, high family income and strong social capital. Multilevel analysis shows strong contextual influence of posyandu.

Keywords: antenatal care, social capital, integrated health post

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BACKGROUND

In Indonesia, maternal and neonatal mortality are still major challenges. In 2022, the maternal mortality rate in Indonesia was around 183 per 100 thousand births. The results of the 2013 and 2018 Basic Health Research (Riskesdas) showed an increase in the coverage of maternal health indicators

from 70% in 2013 to 74.1% in 2018 (Mulati, 2023).

Regulation of the Minister of Health of the Republic of Indonesia Number 13 of 2022 concerning Amendments to the Regulation of the Minister of Health Number 21 of 2020 concerning the Strategic Plan of the Ministry of Health for 2020-2024 (World Health Organization, 2016).

Many factors have resulted in a decrease in maternity visits, including social conditions, social capital, experiences, traditions and culture. A previous study conducted by Zhou et al., (2017) found that social capital such as community trust, social networks, reciprocity and social participation, affect the condition of pregnant women. Based on the description above and the consideration of the urgency of pregnant women's health and antenatal services in posyandu to related determinants, the researcher is interested in conducting a study with the title "Multilevel Analysis: The Influence of Social Capital on the Use of Antenatal Services for Pregnant Women in Kuningan Regency".

SUBJECTS AND METHOD

1. Study Design
This study was conducted uses an observational approach method with a cross-sectional study design. The study was conducted in Kuningan Regency, West Java, Indonesia, from May to June 2024.

2. Population and Sample
The population of respondents in this study is all pregnant women recorded at posyandu in Kuningan Regency, West Java, Indonesia, which totals 842 samples of 201 pregnant women >6 months were selected by random sampling.

3. Study Variables
The independent variables in this study consist of education, family income, social capital and posyandu strata. Meanwhile, the

bound variable in this study is the use of ANC in posyandu.

4. Operational Definition of Variables
Education is the level of formal education that is taken until proof of graduation is obtained. Measured using a questionnaire instrument. Category-scale data with code 0 = low; 1 = high.

Family income is income as a result of the economic process or family economic resources received within a period of one month. Measured using a questionnaire instrument. Category-scale data with code 0 = low; 1 = height.

Social capital is the resources that exist in the community as organizational characteristics such as networks, norms and social beliefs that facilitate coordination and cooperation with the aim of mutual benefit both individually and in the community. Measured using a questionnaire instrument. Categoryscale data with code 0=weak; 1=strong.

The use of ANC is defined as the obedient of pregnant women to carry out the recommendations of health workers to carry out pregnancy examinations according to standards during pregnancy. Data was obtained from the records of visits of pregnant women using ANC to the posyandu. Continuous data and created categories with code 0 =< 3 times; 1 = ≥ 3 times.

5. Data Collection Techniques
The data collection technique was carried out by direct interview method using a questionnaire tool with Likert scale measurement.

6. Data Analysis
Complete data will be analyzed univariate, bivariate and multivariate. Bivariate analysis uses chi square test and multivariate analysis uses logistic regression test.

7. Study Ethics
This study has passed the study protocol review process and obtained a Certificate of

Ethics Gradation from LPPM STIKes Kuningan with No: 113/EP/STIKKU/2024.

RESULTS

1. Characteristics samples

The results in table 1 show the distribution of respondents, most of the respondents have higher education (70.15%), have a family income greater than the MSEs of Kuningan Regency (54.73%) and have strong social capital (51.74%). The variable of ANC use in posyandu, pregnant women who use ANC in posyandu ≥3 times (51.74%) more than pregnant women who only use it <3 times (48.26%).

Table 1. Characteristics of Study Respondents

Variable	Frequency (N)	Percentage (%)
Education		
Low	60	29.85
High	141	70.15
Family income		
Low (<income wage)	91	45.27
High (≥ income wage)	110	54.73
Social Capital		
Weak	99	49.25
Strong	102	50.75
The use of ANC in Posyandu		
Infrequently (< 3 times)	97	48.26
Routine (≥ 3 times)	104	51.74

2. Bivariate Analysis

Table 2. Results of the chi square test on education, family income, social capital with the use of ANC in Posyandu

Independent variables	Use of ANC				OR (CI (5%)	p
	<3 times		≥ 3 times			
	n=97	%	n=104	%		
Education					2.40 (1.29 - 4.47)	0.006
Low	38	63.33	22	36.67		
High	59	41.84	82	58.16		
Family Income					3.49 (1.95 - 6.26)	<0.001
Low (<income wage)	59	64.84	32	35.16		
High (≥income wage)	38	34.55	72	65.45		
Social Capital					4.18 (2.32 - 7.53)	<0.001
Weak	65	65.66	34	34.34		
Strong	32	31.37	70	68.63		

Bivariate analysis in this study using the chi square test in table 2 can be seen that all variables have a positive and significant relationship, a correlation value between education and the use of ANC is obtained of p=0.006; family income with the use of ANC of p<0.001; and social capital with the use of ANC of p<0.001.

3. Multivariate Analysis

Table 3 shows a multilevel dual logistical analysis of the influence of maternal education, family income and social capital on the use of ANC complete by taking into account the contextual influence of posyandu.

This table shows that there is a positive of ANC use (OR= 2.78; 95% CI= 1.25 to 6.18; p= 0.012); there was a positive influence of family income on the completeness of ANC use (OR= 2.19; 95% CI= 1.05 to 4.57; p= 0.036); there was a positive influence of social capital on the completeness of the use of ANC (OR= 4.43; 95% CI= 2.22 to 8.86; p <0.001).

influence of education on the completeness

Table 3 also shows that there is a considerable contextual influence of posyandu on the use of ANC (ICC = 18.6% >8-10%). The Likelihood Ratio test (LR test) shows that the multilevel multiple logistic regression analysis model is significantly different from the ordinary multiple regression analysis model (p=0.008).

Table 3. Results of multilevel multilevel logistic regression analysis of education, family income and social capital on the use of ANC in posyandu

Independent Variable	OR	CI 95%		p
		Lower limit	Upper limit	
Fixed Effect				
Latest Education	2.78	1.25	6.18	0.012
Family Income	2.19	1.05	4.57	0.036
Social Capital	4.43	2.22	8.86	<0.001
Random effect				
Posyandu				
Var (konstanta)	0.75	0.20	2.84	
N Observation = 201				
N group= 26				
Likelihood Ratio Test (LR) p=0.008				
Inter-Class Correlation (ICC)=18.6%				

DISCUSSION

1. Education and ANC visit

Education can describe knowledge. The results of this study show that there is a positive influence between pregnant women's education on the use of ANC in Posyandu. Pregnant women with low education had a 2.78 times higher risk of not using ANC in posyandu compared to pregnant women with higher education (OR = 2.78; 95% CI = 2.22 to 8.86; p <0.001).

Knowledge of pregnancy regarding danger signs, women's empowerment status, household size, functional status of community clinics including ANC services is indispensable for the health of the mother and the fetus she is carrying (Hossain et al., 2024). Education is considered to be one of the factors that has a significant impact on receiving the required number of ANC services. Previous studies have also documented that women's educational status has a strong influence on receiving ANC services (Gedef et al., 2024).

This study is in line with a study conducted in the Netherlands that found a significant positive relationship between women's education and the number of ANC visits and other services covered as ANC services (Edeo et al., 2023). An increase in the number of ANC services can increase knowledge of hazard signs and vice versa. The results of another study conducted in Bangladesh showed that along with the improvement of maternal education, the use of ANC services also increased with a significance value of (OR= 4.33; 95% CI= 1.99 to 8.98; p<0.001) (Hidayah and Tistanti 2017).

2. Family Income and ANC visit

Income is one of the factors associated with the use of ANC services, where those who earn below Rp. 2,000,000 do not use ANC services compared to those who earn more than Rp. 2,000,000. The results of this study show that there is a positive influence between the family income of pregnant women on the use of ANC in Posyandu. Pregnant women with low family income had a 2.19 times higher risk of not using ANC in posyandu compared to pregnant women with high family income (OR = 2.19; 95% CI = 1.05 to 4.57; p = 0.036).

The results of this study are in line with a study conducted in Bangladesh showing that low-income families are unable to spend significantly on health services and access to care (including ANC services) from the government or private clinics with P< 0.001 OR = 2,761 (95% CI : 1,983 - 5,982) (Yang et al., 2023). It was found in another study that in low-income countries where low-income pregnant women tend to pay less attention to their pregnancies than pregnant women with high incomes (Parvin et al., 2022). Family income will affect the quality of life of the family such as adequate nutrition, sanitation and the use of health-related services.

3. Social Capital and ANC Visit

This study examines the factors that explain the use of pregnancy health services at various levels of community-based or community-based health facilities in Kuningan Regency, West Java Indonesia focusing on social capital, considering the geography of Kuningan Regency, West Java Indonesia is a rural area where many people migrate to big cities. The results of this study show that there is a positive influence between the social beliefs of pregnant women on the use of ANC in Posyandu. Pregnant women with low social trust had a 4.43 times higher risk of not using ANC at posyandu compared to pregnant women with high social trust (OR= 4.43; 95% CI = 2.22 to 8.86; p <0.001).

Another finding from a study conducted by Agampodi et al., (2019) found that respondents with low social capital were more likely to use lower ANC services. In accordance with a study in Ethiopia investigating the use of prenatal care services in fragile social environments, it was found that 323 (64.0%) participants had received lower ANC services (Gedef et al. 2024). The results of this study are in line with a study conducted by Nguyen et al. (2023) in Bhutan which found that individual social capital is positively related to the use of pregnancy health services (p<0.001 OR = 5.87 CI 95%: 1.88-8.98). The same was found in the Dickey et al. (2022) study which showed that social capital had a positive effect on the use of ANC in young women in the prefecture. In addition, the involvement of religious leaders, health workers, soldiers and community leaders can increase the use of ANC services.

Women who receive health information from people they trust are more likely to access and use health services (Merriel et al., 2021). Media access helps to encourage pregnant women to receive and seek ANC services by providing the necessary health awareness knowledge and programs (Alemu et al., 2024). In addition, the professional status of mothers is very influential in improving social networks. Mothers who have a profession or work make it possible to interact and socialize with others thereby increasing women's social values (Negash et al., 2022).

CONFLICT OF INTEREST
There is no conflict of interest in this study.

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