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The Relationship Between Antenatal Class Participation with Antenatal Care (ANC) Compliance At The Puri Mojokerto Community Health Center

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ABSTRACT

Antenatal Care (ANC) is an important service to ensure a safe pregnancy, but compliance with ANC visits remains a challenge. Antenatal class as a prenatal education program are expected to increase ANC compliance by improving mothers' knowledge and preparedness. An observational analytical study with a cross-sectional design was conducted on pregnant women registered at the Puri Mojokerto Community Health Center during the study period. The population consisted of all pregnant women in their third trimester during the data collection period. Total sampling was used, resulting in a sample of 43 respondents. Data were obtained secondarily from medical records, KIA books, and antenatal class attendance records. A total of 58% of respondents attended pregnancy class and 65% of respondents were compliant with ANC (at least 4 visits). ANC compliance was higher in the group that attended antenatal class (80%) than in those who did not attend (50%). The Chi-Square test showed a significant relationship between participation in antenatal class and ANC compliance (p=0.013). These results indicate a significant relationship between participation in antenatal classes and ANC compliance among pregnant women. Strengthening and expanding the implementation of antenatal class has the potential to increase ANC compliance as part of efforts to improve maternal and child health.

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1. INTRODUCTION

Maternal and child health is one of the top priorities in global health development, especially in developing countries such as Indonesia. Antenatal Care (ANC) serves as a fundamental element to ensure safe pregnancies, forming the cornerstone of maternal and child health. According to the World Health Organization (WHO), ANC standards necessitate at least four visits during pregnancy, encompassing routine examinations, health education, and early detection of complications (1). Global and national data indicate that inadequate ANC adherence contributes

significantly to elevated Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR). A 2022 WHO report highlights that approximately 295,000 women perish annually due to pregnancy and childbirth-related complications, with the majority of these cases being preventable through timely ANC (2). The Indonesian Ministry of Health's 2023 report reveals that merely 73% of pregnant women adhere to ANC standards, with this figure declining to 60% in rural regions (3). This low adherence correlates with an MMR of 305 per 100,000 live births and an IMR of 24 per 1,000 live births (4).

ANC compliance in Indonesia remains comparatively low. Key impediments to adherence include insufficient knowledge regarding the significance of ANC, geographical obstacles, transportation expenses, and cultural stigmas. Prior research in Semarang City demonstrated that only 65% of pregnant women adhered to scheduled ANC visits, primarily due to a lack of comprehension of ANC benefits and familial economic priorities (5). Prenatal education programs, such as antenatal class, address topics including nutrition, pregnancy risks, and childbirth preparation, and are regarded as a viable strategy to enhance ANC compliance. Existing studies reveal inconsistent associations between participation in these classes and improved compliance. Another study by Nguyen et al. (6) in Vietnam conducted in urban conducted in urban settings with advanced technological access, found that prenatal education interventions boosted ANC compliance from 60% to 85%, contrasting with Indonesia where most classes are conducted face-to-face at health centers or community venues. Additional data indicate that participation in prenatal classes increases ANC adherence by 2.3 times, albeit influenced by factors such as family support and proximity to healthcare facilities. In Indonesia, inadequate integration of antenatal class with routine ANC systems poses a distinct challenge, resulting in a disconnect between acquired knowledge and behavioral outcomes. The 2022 Riskesdas data show that 40% of pregnant women are unaware of the correct ANC schedule (3). Research in East Java indicates that pregnant women who do not attend classes face a 1.5 fold higher risk of non compliance with ANC (7).

Participation in antenatal class, a form of prenatal health education, is considered an effective intervention to bolster ANC compliance. These classes typically cover education on nutrition, pregnancy warning signs, childbirth readiness, and the importance of regular ANC visits (8–10). Despite widespread implementation across regions, the nexus between class participation and ANC compliance remains incompletely elucidated, especially in the Indonesian context. A primary issue is the disparity between knowledge imparted in classes and actual ANC compliance behaviors, shaped by social, economic, and healthcare accessibility determinants. Globally a positive correlation exists between prenatal education and ANC adherence, yet knowledge deficits persist in developing countries like Indonesia. Such gaps could be addressed through the provision of antenatal class, particularly in rural areas. This research, research aims to inform enhancements in maternal health programs, alleviate economic burdens from pregnancy complications, and advance Sustainable Development Goals (SDGs) focused on reducing maternal mortality

2. METHOD

This study uses an observational analytical design with a cross-sectional approach. This methodology was selected to examine the association between independent variables (participation in antenatal class) and dependent variables (ANC adherence) at a specific point in time, without any intervention, aligning with guidelines for epidemiological studies in maternal health (11). This method proves efficacious for assessing the link between prenatal education involvement and health behaviors, as demonstrated in comparable research by Nguyen et al. (6) and Rahman et al. (12), which identified a notable correlation between prenatal education and ANC via cross-sectional analysis.

The study population comprises all third-trimester pregnant women (gestational age 28-40 weeks) registered at the Puri Health Center in Mojokerto Regency, East Java, Indonesia, during the data collection period from September to November 2025. A total sampling technique was was applied, wherein all population members meeting the inclusion criteria were included as samples (13). Inclusion criteria encompass third-trimester pregnant women aged 18-40 years, possessing complete medical records, and lacking severe pregnancy complications necessitating hospitalization. Exclusion criteria include pregnant women with a history of chronic illnesses or

those lacking class attendance data. The total sampling ensures comprehensive representativeness and mitigates selection bias, particularly in smaller sample sizes (14).

Data were sourced from health center medical records and attendance logs for antenatal class, integrated with the Maternal and Child Health Book (KIA). Medical records or KIA books facilitate the identification of third-trimester pregnant women and ANC visit details (frequency, examination type, and dates). Attendance in antenatal class (yes/no, frequency) is derived from health center records integrated with the KIA Book, which documents routine ANC visits. Cross-validation between medical records and KIA Books was conducted to minimize inaccuracies. This procedure mirrors that employed by Rahman et al. (12) in secondary health data analysis, guaranteeing data precision without direct subject intervention. Data analysis was performed using SPSS software. Descriptive analysis was utilized to characterize sample attributes (frequency, percentage, mean). Given that both Since both primary variables are categorical (participation: nominal; adherence: nominal), the chi-square test was deemed appropriate to evaluate the relationship between independent and dependent variables.

3. RESULTS AND DISCUSSION

This study encompassed 43 third-trimester pregnant women at the Puri Health Center in Mojokerto Regency, Indonesia, derived through total sampling of medical records from the health center spanning September to November 2025.

Table 1. Characteristics of Respondents

Variable	Category	n	%
Age	20-35 years old	25	58,1
	<20 or >35 years old	18	41,9
Education	High School and below	26	60,5
	>High School	17	39,5
Family Income	<IDR 3,000,000,-/month	28	65,1
	>IDR 3,000,000,-/month	15	34,9
Gravida	Primigravida	30	69,8
	Multigravida	13	30,2

Source: Personal data

Among the sample, 58% were aged 20-35 years, 60% possessed a high school education or lower, 65% hailed from families with a monthly income below Rp 3,000,000, and 70% were primigravida. The distribution of participation in antenatal class indicated that 58% had attended prenatal classes. Data were gathered from medical records and attendance logs integrated with the Maternal and Child Health Book (KIA), achieving 100% completeness with no missing values.

Table 2. Cross-tabulation of Antenatal Class Participation with ANC Frequency of Visits

Pregnant Woman Class	≥4 Visits n (%)	<4 Visits n (%)	Total n (%)	Red ± SD
Follow	20 (80,0)	5 (20,0)	25 (100)	5.5 ± 0.5
Not following	8 (44,4)	10 (55,6)	18 (100)	3.3 ± 1.0
Total	28 (65,1)	15 (34,9)	43 (100)	

Source: Personal data

Cross-tabulation revealed that respondents who participated in antenatal class exhibited higher ANC compliance at 80%, in contrast to 50% among non-participants. The mean frequency of ANC visits was 5.5 times (SD = 0.5) in the attending group, compared to 3.3 times (SD = 1.0) in the non-attending group. ANC compliance was defined by a minimum of four visits per WHO standards. This association is underpinned by a theoretical framework wherein antenatal class enhance awareness of pregnancy risks, such as preeclampsia or anemia, thereby fostering preventive actions via regular ANC (15). Increase of visit contributes to 35% more effective early complication detection (1). This aligns with the Health Belief Model (HBM) by Rosenstock (1974), as referenced in recent studies like Nguyen et al. (6), where prenatal education shifts perceived susceptibility into action-oriented motivation, mitigating barriers like cultural stigma or economic priorities.

Table 3. Statistical Test Results

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.110	1	.013
Continuity Correction	4.458	1	.035
Lokelihood Ratio	6.454	1	.011
Linear-by-Linear Association	5.968	1	.015
N of Valid Cases	43		

Source: Personal data

The results of statistical testing employing the Chi-Square (Pearson) method demonstrated a significant association between participation in antenatal class and ANC compliance. The proportion of ANC-compliant respondents in the class-attending group was 80.0%, surpassing the 44.4% in the non-attending group. With chi-square assumptions met (no cells with expected counts < 5; minimum expected = 6.28), the Pearson Chi-Square test yielded with p = 0.013 (< 0.05), leading to rejection of the null hypothesis. Consequently, participation in antenatal class is significantly linked to enhanced ANC compliance.

These outcomes correspond with WHO guidelines, which stress that ANC quality encompasses not only clinical services but also timely, relevant information and emotional support for a positive pregnancy experience (16). Strong emotional support from families and healthcare providers can amplify positive pregnancy experiences, bolstering maternal engagement in antenatal care (17). The 2016 WHO ANC model positions counseling and education as core elements that promote maternal involvement, enhance risk comprehension, and facilitate informed decision-making in maternal health (18). Indonesia integrated antenatal service guidelines similarly underscore the necessity for comprehensive, high-quality ANC, targeting a minimum of six contacts inclusive of counseling components (19). Thus, antenatal class may be viewed as a mechanism to fortify informational and supportive aspects of maternal services, theoretically elevating maternal adherence to standardized ANC visits.

Sari et al. (5) documented a 25% rise in ANC adherence via general prenatal education (p = 0.02), though without specifying antenatal class. This study provides stronger quantitative evidence, suggesting that participation in antenatal class is more efficacious due to incorporated practical elements like breathing exercises and labor simulations, thereby augmenting ANC compliance through heightened maternal knowledge and readiness. A prior study in Bandung noted 50% class participation, with a 75% knowledge score among attendees (p < 0.05), yet did not assess ANC compliance impacts (20).

Research in East Java indicated a 1.5 times elevated risk of non-compliance among mothers not attending classes, aligning with our findings of a 36% compliance increase through participation. Non compliance with ANC correlates with persistently high maternal mortality rates in East Java, reaching 320 per 100,000 live births (7). Classes enhance maternal health literacy (encompassing knowledge, perceived benefits, and self-efficacy), thereby diminishing cognitive barriers (e.g., the notion that ANC is requisite only for symptomatic cases). Additionally, classes broaden social support and positive norms (e.g., exposure to peer experiences and reinforcement from health workers), which sustain routine visitation habits (21,22). This aligns with studies connecting cognitive factors like knowledge of warning signs to ANC compliance, where elevated knowledge correlates with improved adherence (23).

The results of this study show that mothers who attend classes have a much higher chance of compliance than those who do not attend classes. Finding indicate that class-attending mothers have markedly greater compliance odds, positioning antenatal class as a potential intervention for boosting ANC adherence (24). Such classes also foster maternal awareness of prenatal health check importance, yielding positive outcomes for maternal and infant well being (25). This resonates with international literature on antenatal education, which reports enhancements in adherence to prenatal practices and pregnancy experiences, albeit with variable outcomes across studies (26). In policy terms, heightened ANC compliance aids early risk detection, elevates pregnancy monitoring quality, and advances national guideline standards for maternal services (19). Consequently, expanding coverage and quality of antenatal class merits consideration as a promotive-preventive strategy, particularly for groups facing informational access barriers or visitation obstacles.

Theoretically, these findings bolster the Health Belief Model and Social Cognitive Theory, wherein antenatal class, through modeling and self-efficacy, enhance behavioral control (14). Practically, they endorse the 2023 Indonesian Ministry of Health policy to extend antenatal class to 80% of health centers, potentially reducing maternal mortality by 20–30% per WHO 2024 projections (3). The program is low cost effective and efficacious in rural settings, supporting SDG 3.1 by curtailing infant mortality from 24 per 1,000 live births (20). However, limitations warrant attention: the cross-sectional design constrains causal interpretations, as inherently health-conscious mothers may be predisposed to both class attendance and ANC adherence. A modest sample size may compromise estimate precision. Future research employing longitudinal or quasi-experimental designs, with confounding factor controls (e.g., service access, parity, family support, employment, facility distance), is advised to fortify causal inferences.

4. CONCLUSION

The analytical outcomes reveal a significant association between participation in antenatal class and adherence to antenatal care (ANC) visits. Respondents who attended these classes demonstrated a greater proportion of ANC compliance compared to those who did not, with this relationship statistically substantiated by the Pearson Chi-Square test ($p = 0.013 < 0.05$). Furthermore, the effect measure indicates that class participation correlates with enhanced likelihood of ANC compliance, underscoring the role of antenatal class as an educational initiative with potential to promote regular ANC attendance. Therefore, it can be inferred that participation in antenatal class is linked to improved ANC compliance among the study's respondents. Nevertheless, showing to the observational nature of the study design, these findings illustrate a correlation and do not yet permit conclusions regarding a complete causal relationship.

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