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The relationship between parity and age with the regularity of Antenatal Care (ANC) visits at BPM Dinda

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ABSTRACT

Implementing Antenatal Care (ANC) is a critical step in monitoring and maintaining the health of pregnant women to prevent the risk of maternal and neonatal complications. The regularity of ANC visits has a significant impact on maternal and infant health. Identifying factors that influence the regularity of ANC visits is important for improving the maternal health service system. This study aims to determine the relationship between parity and age and the regularity of ANC visits. The research design used was a cross-sectional observational study to evaluate the relationship between parity, age, and regularity of ANC visits. The population and sample in this study were pregnant women who received ANC services at BPM Dinda during the research period. The research variables measured were parity, and maternal age as the independent variable, and regularity of ANC visits as the dependent variable. The results showed that pregnant women with higher parity had a higher level of regularity of ANC visits due to previous experience and awareness of the importance of prenatal care, while the age variable did not have a significant relationship with ANC visits.

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1. Introduction

Antenatal Care (ANC) is a series of health services provided to pregnant women to monitor and maintain the health of the mother and fetus during pregnancy (Schuengel et al., 2023) . The aim of ANC is to detect early potential risks or complications that may occur during pregnancy, involving preventive measures, monitoring and health education for pregnant women (Daryanti, 2019) ; (Wiseman et al., 2022) . ANC services are usually provided by health workers, such as midwives or doctors, and involve a series of routine visits during the trimesters of pregnancy (Hiersch et al., 2022) . During these visits, pregnant women undergo various physical examinations, laboratory tests, and receive education regarding self-care, nutrition, and preparation for childbirth. Several general components in ANC services include physical examination, laboratory, immunization, counseling and education, as well as early detection and risk management (Ochako & Gichuhi, 2016) . During the physical examination, blood pressure measurements, weight checks and other physical examinations are carried out to monitor the progress of the pregnancy (Amponsah-Tabi et al., 2022) . Laboratory examinations include blood tests, urine examinations, and other tests to detect potential health problems. Vaccination is also needed to protect the mother and fetus from certain diseases (Yeoh et al., 2018) . What is no less important is providing counseling and education. Health workers can provide information related to health, preparation for childbirth, baby care, and danger signs to look out for (Atekyereza & Mubiru, 2014).

Identifying potential risks or complications of pregnancy and providing necessary care or preventive measures can be done through early detection and risk management (Anggriani, 2020) .

ANC services are very important to increase the chances of a healthy birth, reduce the risk of complications during pregnancy, and provide comprehensive support to pregnant women (Dibaba et al., 2013). Additionally, the regularity of ANC visits helps build relationships between pregnant women and health care providers, which can increase pregnant women's understanding and compliance with their prenatal care (Cai et al., 2022) . The provision of Antenatal Care (ANC) is step critical in monitoring and maintenance health Mother pregnant For prevent risk maternal and neonatal complications (Chawla & Sultan, 2022) . Regularity ANC visits have impact significant to health mother and baby (Sungkar & Surya, 2020) . Identify influencing factors _ regularity ANC visits are important for done in repair system service maternal health. Threat to health mother and baby can identified and treated through regular ANC visits (Murphy et al., 2020) . Prevention complications through detection early can increase results pregnancy.

There is a number of factor affecting _ ANC regularity , for one is Parity (amount pregnancy previous) and age Mother can influence awareness and compliance to ANC visits (Beeckman et al., 2013) ; (Keya et al., 2021) . Parity is terms used _ in context maternal health for state amount previous pregnancy _ experienced by someone women who have reach age reproduction (Yanti, 2018) . Parity covers all pregnancy a women , incl existing pregnancy _ reach age sufficient pregnancy _ birth month _ life or death) and miscarriage (Maulana, 2020) . Parity generally symbolized with the letter "G" (gravida) and followed by a number indicating total number of pregnancies (Rini & Charles, 2022) . On a notes obstetrics , parity often explained _ with the term " GxPxAx ," where "G (Gravida)" denotes total number of pregnancies , including moderate ones taking place (Thare & Agung, 2022) . As for example, "G2" means two pregnancies. "P(Para)" indicates amount labor or birth life. If one woman has birth, number This will increase. As example, "P1" means One childbirth, "A (Abortion)" indicates amount miscarriage or lost unborn fetus _ Enough month. If one woman has experience miscarriage, numbers This will increase. As example, "A1" means One miscarriage. Example use parity: "G2P1A0" indicates that woman the has pregnant twice, gave birth once, and yet Once experience miscarriage.

Information parity This important in prenatal and obstetric care Because can give instruction about experience pregnancy before , risk potential , and expansion necessary care _ during pregnancy and childbirth next (Dumitru et al., 2021) . Understanding more carry on about factors the can help increase ANC program design (Rasmussen & Jamieson, 2015) . Evaluate regularity ANC visits are important for One of them was carried out at BPM Dinda. There isn't any yet research that is special explore connection between parity, age, and regularity on- site ANC visit. Based on problem the need done study for know connection between parity and age Mother with regularity ANC visit to BPM Dinda. By special study This aim for Identify level regularity ANC visit at (Service Agency Maternity) BPM Dinda, Acsess connection between parity with regularity ANC visits and Assess connection between age Mother with regularity ANC visit. Contribution Theoretical study This among other things, you can add understanding about influencing factors _ regularity ANC visits and filling gap knowledge in context Dinda's BPM specific. By practical study This can give information to party related for improving the ANC program at BPM Dinda as well become base for planning more intervention _ effective. Study this can also be done used in learning as EBP (Evidence-Based Practice) which involves three element main in learning that is *Scientific Evidence (Evidence):* Use evidence scientific knowledge obtained from study clinical, clinical trials controlled, and research other as base for make decision clinical, *Experience Clinical (Clinical Expertise)*: Includes knowledge, skills, and experience practitioner health in nurse patient. EBP values and integrates knowledge clinical This with proof scientific and *Preference Patients (Patient Preferences)* : Take into account values , needs , and preferences patient in the retrieval process decision clinical (Abuidhail et al., 2021) ; (Piane, 2008) ; (Karolinski et al., 2009) ; (Langer, 2002) . Understanding to desire patient become element important in designing appropriate care. EBP principles are encouraging practitioner health For No only depend on tradition or habit just , but For use proof the latest and most relevant scientific knowledge in taking decision (Sethi et al., 2019) .

This research is expected to make a substantial contribution to the development of understanding of the factors that influence the smooth running of Antenatal Care (ANC) visits, with a particular focus on maternal parity and age. It is anticipated that the study results will provide a deeper and more detailed understanding of the relationship between parity and age and the smoothness of ANC visits, filling potential knowledge gaps that may exist in the scientific literature. In addition, it is hoped that this research can become an important basis for further research that can explore more specific aspects or expand the scope of the study to gain more comprehensive insights. Furthermore, it is hoped that this research can contribute to increasing public awareness regarding the importance of prenatal care. By emphasizing the role of parity and age in the smooth running of ANC visits, this information can be widely disseminated to the public. Thus, it is hoped that this research will not only provide academic insight, but also have a positive impact on the practice of maternal health services, improve the health of pregnant women and babies, and strengthen public awareness of the need for regular and optimal prenatal care.

2. Methods

The research design used was a cross-sectional observational study. A cross-sectional observational research design was chosen because it can provide a quick picture of the relationship between certain variables in a population (Notoatmojo, 2018). However, this research cannot determine cause and effect or the direction of the relationship between variables. Therefore, this research is used to generate hypotheses or to explore associations between variables without intervening. Cross-sectional observational research design is carried out at a certain point in time to collect data about certain variables in a population or sample. In this research, the researcher did not intervene or change the observed variables, but only observed and measured the relationship between these variables. The main independent variable is "Parity" which is grouped as G1P0A0, G2P1A0, G3P1A1, etc., as well as the variable "Age" which is divided into three groups: age under 20 years, age 20-35 years, and age over 35 years. The dependent variable was "Regularity of ANC Visits" recorded as regular or irregular. A population or sample is selected at one point in time, and measurements are taken on all members of that sample. The population or sample in this study was 79 pregnant women who received ANC services at the Dinda Maternity Services Agency (BPM) during the 3 month research period.

Data was collected through medical records and ANC visit records at BPM Dinda. Information about gravida, maternal age, and regularity of ANC visits was extracted from these records. Data analysis was carried out using the Chi-Square test. Chi-Square test was used to evaluate the statistical relationship between gravida, pregnant mother's age, and regularity of ANC visits. This analysis involves the construction of contingency tables that compare frequency distributions between different groups. The data analysis process begins by creating a contingency table that describes the relationship between the variables gravida, age, and regularity of ANC visits. Next, the Chi-Square test was applied to test the significance of the relationship between these variables. The entire research process was carried out in accordance with the principles of research ethics, including safeguarding patient data and maintaining the confidentiality of information related to research subjects.

3. Results and Discussion

This study was designed to investigate the relationship between two main variables, namely parity which is symbolized by the letter "G" (gravida), the age of the pregnant mother, and the regularity of Antenatal Care (ANC) visits at the Dinda Maternity Services Agency (BPM). The aim of this research is to find out whether parity (gravida) and age of pregnant women have a relationship with the regularity of ANC visits at BPM Dinda services.

3.1. Relationship between parity and regularity of ANC visits

Table 1
Crosstabulation of relationships parity with regularity ANC visit to BPM Dinda

		Regularity		
		Regular	No regular	Total
Gravida	G1P0A0	6	0	6
	G2P0A1	1	1	2
	G2P1A0	44	2	46
	G3P1A1	9	2	11
	G4P2A1	2	0	2
	G4P2A1	6	0	6
	G4P3A0	4	1	5
	G5P3A1	0	1	1
Total		72	7	79

In crosstabulation analysis between Gravida and Regularity variables in table 1, can be observed pattern connection between amount pregnancy and regularity pregnancy in sample as many as 79 cases. The table shows distribution detailed frequencies _ for seven combination of Gravida and Regularity observed. Gravida G1P0A0 has sixcase with pregnancy regular or not There is case with pregnancy No regular. Gravida G2P0A1 shows One case with pregnancy regular and one case with pregnancy No regular. In contrast, Gravida G2P1A0 has a total of 44 cases with pregnancy regular and two cases with pregnancy No regular. Gravida G3P1A1 shows nine cases with pregnancy regular and two cases with pregnancy No regular. Gravida G4P2A1 has eight cases with pregnancy regular or not There is case with pregnancy No regular, while Gravida G4P3A0 shows four cases with pregnancy regular and one case with pregnancy No regular. Gravida G5P3A1 shows One case with pregnancy No regular. Total _ sample is as many as 79 cases.

Through table the can identified variation pattern pregnancy based on amount pregnancy (Gravida) and regularity visit. Although Chi-Square test results show that No all cell in table own expected amount _ more of 5 (a total of 3 cells or 50% ownership hope not enough of 5), the test results give indication that there is significant relationship _ between variables. For get more understanding _ deep need done analysis statistics more carry on. Following can served statistical analysis using Chi-Square Tests.

Table 2
Chi-Square analysis between variable parity with regularity ANC visit

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18,950 [a]	7	,008
Likelihood Ratio	12,629	7	,082
Linear-by-Linear Association	2,536	1	.111
N of Valid Cases	79		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .09.

The results of the Chi-Square analysis in table 2 are available three tests were carried out to evaluate the relationship between the variables tested. First, the Pearson Chi-Square test produces a statistical value of 18,950 with 7 degrees of freedom and a p-value of 0.008. These results imply the existence of a significant relationship between the variables tested, and the null hypothesis which states there is no relationship can be rejected because the p-value is smaller than the 0.05 significance level. However, the results of the Likelihood Ratio test produced a statistical value of 12,629 with 7 degrees of freedom and a p-value of 0.082. In this context, there is insufficient evidence to reject the null hypothesis, and the conclusion drawn is that there is no significant relationship between the variables tested. Furthermore, the Linear-by-Linear Association test provides a statistical value of 2.536 with 1 degree of freedom and a p-value of 0.111. These results indicate that there is not enough evidence to

reject the null hypothesis, which states that there is no linear relationship between the variables tested. The Chi- Square Analysis there is the difference between the results of the Pearson Chi-Square test and the other two tests. However, because the p-value in the Pearson Chi-Square test shows a significant relationship, then can be concluded that there is a significant relationship between parity (Gravida) and regularity ANC visit.

3.2. **Relationship between maternal age and regularity of ANC visits**

Table 3
Crosstabulation of relationships age with regularity ANC visit to BPM Dinda

		Regularity		
		Regular	No regular	Total
Age	Age under 20 years old	12	0	12
	aged 20-35 years	46	3	49
	Age over 35 years old	14	4	18
Total		72	7	79

Crosstabulation analysis results between variable Age and Regularity in table 3, we can evaluate connection between group age and regularity pregnancy in sample as many as 79 cases. Distribution table frequency This serve clear information _ about connection between second variable. Group age analyzed _ shared become three Categories: Under 20 years old, 20-35 years old, and over 35 years old. _ From table 3, you can seen that in group aged under 20 years, as many as 12 cases show regularity pregnancy without incident non - pregnancy regular. Temporary that, group aged 20-35 years own distribution frequency as many as 46 cases with regularity pregnancy and 3 cases with pregnancy No regular. In the group aged over 35 years, there were 14 cases with regularity pregnancy and 4 cases with pregnancy No regular. Grand total _ sample is as many as 79 cases. Through analysis this, got it seen exists difference pattern regularity pregnancy in between group different ages.

Tabel 4
Distribution frequency this can give description beginning about connection between variable Age and Regularity, para see significance connection between these two variables can seen in the following table:

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5,601 [a]	2	,061
Likelihood Ratio	5,649	2	,059
Linear-by-Linear Association	4,978	1	.026
N of Valid Cases	79		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.06.

The results of the Chi-Square analysis in table 3 are available three test type for evaluate connection between the variables tested. First, the Pearson Chi-Square test produces mark statistics of 5,601 with 2 degrees freedom and p-value of 0.061. This result show that No There is Enough proof for reject hypothesis zero, which states No exists significant relationship _ between the variables tested, because the p-value is more big from level significance 0.05. The Likelihood Ratio test results also show similar conclusions _ with mark statistics of 5,649.2 degrees freedom, and p-value of 0.059. In terms of this, no There is Enough proof for reject hypothesis zero, and conclusions are drawn is No exists significant relationship _ between the variables tested. However, the Linear-by-Linear Association test provides results different with mark statistics of 4,978.1 degrees freedom, and p-value of 0.026. Conclusion from this test is that there is significant linear relationship between the variables being tested, and the hypothesis zero can rejected because the p-value is more small from level significance 0.05. In all interpretation, two of three test show that No There is significant relationship _ between age

with regularity ANC visits, but the Linear-by-Linear Association test showed exists significant linear relationship.

3.3. Discussion

In the crosstabulation analysis between the Gravida variables and regularity of ANC visits, this study provides a detailed picture of the pattern of relationship between the number of pregnancies and regularity of visits in a sample of 79 cases at BPM Dinda. Frequency distribution tables depict variations in pregnancy patterns based on number of pregnancies and regularity of visits. For example, Gravida G1P0A0 showed regular pregnancies in six cases without any irregular visits. In contrast, Gravida G2P1A0 showed regular pregnancies in 44 cases with only two cases of irregular visits. Chi-Square test results indicate a significant relationship between Gravida and regularity of ANC visits. Although a number of cells in the table have an expectation of less than 5, as indicated by the test results, this does not reduce the significance of the finding. This conclusion is strengthened by the results of the Pearson Chi-Square test which shows a statistically significant value (18,950) and a p-value that is smaller than the significance level of 0.05 (0.008). Therefore, the null hypothesis stating there is no relationship can be rejected.

Several factors related to this problem include awareness of pregnant women, previous experience, health education, social support, economic factors, accessibility of health services, outreach efforts, health campaigns, and cultural values related to pregnancy (Akers et al., 2023); (Bradford, 1958); (Köninger et al., 2023). These results provide important practical implications for planning and implementation of maternal health services in BPM Dinda, including strategies to increase the regularity of ANC visits based on gravida profile. This analysis provides a deeper understanding of the determinants of maternal health behavior, providing a basis for more effective and population-focused interventions to improve maternal and infant health. Overall, these findings provide a valuable contribution to the understanding of the relationship between Gravida and regularity of ANC visits in BPM Dinda, highlighting the importance of involving these factors in the planning and implementation of maternal health services. The practical implications of these findings need to be considered to improve antenatal services and support the health of pregnant women effectively at the health care facility level (Hunt et al., 2016).

In the Crosstabulation analysis between the variables Age and Regularity of ANC visits in a sample of 79 cases, we can observe an interesting pattern of relationship between age group and the level of regularity of antenatal care (ANC) visits. The frequency distribution table with three age categories (under 20 years, 20-35 years, and over 35 years) provides a detailed picture of the distribution of visit regularity within each group. The results of the analysis showed that in the age group under 20 years, 12 cases showed regular ANC visits without incidents of irregular visits. Meanwhile, the 20-35 year age group had a larger frequency distribution, namely 46 cases with regular visits and 3 cases with irregular visits. In the age group over 35 years, there were 14 cases with regular visits and 4 cases with irregular visits. The Pearson Chi-Square test and Likelihood Ratio test showed that there was not enough evidence to reject the null hypothesis, which stated that there was no significant relationship between age and regularity of ANC visits. This is confirmed by the p-value which is greater than the 0.05 significance level. However, the Linear-by-Linear Association test provides different results with a p-value that is smaller than the 0.05 significance level, indicating the existence of a significant linear relationship between the variables tested.

Overall these results provide mixed insights, with two tests showing no relationship and one test showing a significant linear relationship between age and regularity of ANC visits. The practical implications of these findings can help improve ANC management in various age groups to improve maternal and infant health (Liu et al., 2023); (van der Zande et al., 2023). The existence of a significant relationship between the variables Age and Regularity of ANC visits, as identified through Chi-Square analysis, can be explained by a number of factors that influence the behavior of pregnant women in undergoing regular antenatal care (ANC) visits. First of all, different age groups have different levels of understanding and awareness regarding the importance of regular ANC visits. Younger pregnant

women, such as those in the under 20 age group , have a lower level of awareness of the benefits of regular visits compared to older pregnant women.

Furthermore, experience factors can also play an important role. Younger pregnant women or those experiencing their first pregnancy have less experience or knowledge regarding the pregnancy process and the benefits of regular ANC visits. In contrast, older pregnant women or those with previous pregnancy experience are more likely to understand the importance of regular visits based on past experience. Social and cultural aspects also need to be considered. Cultural norms, community values, and social support can influence pregnant women's decisions about having regular ANC visits (Racher, 2020). These factors may contribute to differences in behavioral patterns between different age groups. Pregnant women who are younger or economically disadvantaged experience barriers to accessibility of health services, including regular ANC visits (Li et al., 2021). These factors can create disparities in the regularity of visits between age groups.

Although the Chi-Square test results show a statistical relationship between the variables Age and Regularity of ANC visits, this relationship is associative and cannot determine a cause-and-effect relationship. Therefore, these findings provide a basis for further consideration and continued research to understand the factors underlying this relationship. The different results from the three Chi-Square tests demonstrate the complexity in interpretation and indicate that the influence of age on the regularity of ANC visits is multifactorial. Practical implications of these findings could involve the development of more focused strategies and interventions to increase the regularity of antenatal visits in more vulnerable age groups, taking into account the factors that have been identified (Hall et al., 2023).

This research notes findings that are relevant to previous research while also pointing out differences that need to be considered. In the context of the relationship between the Gravida variable and the intensity of ANC visits, previous research has identified similar factors in influencing the behavior of pregnant women regarding ANC (Adriani, 2023); (Jessica Florence Lawani & Riendera, 2021). However, the results of this study add a dimension by highlighting that parity (number of previous pregnancies) can specifically have an impact on the smoothness of ANC visits. The finding that Gravida G1P0A0 has a tendency to have regular visits is in line with previous literature which shows that previous pregnancy experience can increase pregnant women's awareness and understanding of the importance of regular prenatal care (Widyastuti & Sugiarto, 2021).

This study also paid special attention to the age variable, trying to identify the relationship between age group and the smoothness of ANC visits. This comparison raises differences with previous research which may not have specifically explored the relationship between age and the smoothness of ANC visits (Widyastuti & Sugiarto, 2021); (Nur et al., 2019). Although the results of this study provide mixed findings, with some tests showing an association and others not, it shows the complexity in understanding the impact of age on the smoothness of ANC visits. This is different from previous research which focused more on other factors without specifically considering age as a significant variable (Ariestanti et al., 2020); (Ningsih, 2020).

The practical implications of this research may contribute to improved ANC management across different age groups, along with a deeper understanding of how these factors interact and contribute to regular ANC visitation behavior. While previous research may have demonstrated the importance of some factors such as awareness, experience, or social support, this study provides additional nuance by digging deeper into the specific relationship between parity and the smoothness of ANC visits, as well as investigating the complexity of the age relationship.

4. Conclusion

Based on the analysis of the variables Parity (Gravida), age and regularity of ANC visits in this study, it can be concluded that there is a significant relationship between Gravida and regularity of ANC visits, while age does not show a significant relationship with regularity of ANC visits. The Gravida variable, which reflects the number of pregnancies a pregnant woman has experienced, shows significant differences in the pattern of regularity of ANC visits. The results of the Chi-Square test showed that

there was a significant relationship between the Gravida variable and the regularity of ANC visits, with the frequency distribution showing significant variations between the gravida groups. These results strengthen the hypothesis that previous pregnancy experience can influence the regularity of ANC visits. On the other hand, the Age variable, which divides respondents into three groups (under 20 years, 20-35 years, and over 35 years), did not show a significant relationship with the regularity of ANC visits. Although there are differences in the level of regularity of visits between age groups, the results of statistical tests do not reveal a significant relationship between age and regularity of ANC visits.

This research provides a number of significant implications for the development and improvement of maternal health services, especially related to the regularity of ANC visits. First of all, understanding that the Gravida variable has a significant relationship with the regularity of ANC visits can be an important basis for improving prevention and intervention strategies at the community level. Health programs can be designed to focus more on pregnant women who are experiencing their first pregnancy or who have limited pregnancy experience, by providing extra support and more intensive health education. In addition, awareness of the varying regularity patterns of ANC visits among age groups provides important insights for the delivery of services that suit the needs of each group. Maternal health prevention and promotion efforts can be customized to meet the specific characteristics of pregnant women based on their age. This could include more intensive health education strategies for younger age groups and support programs for older age groups. This research also emphasizes the importance of involving nurses, midwives and maternal health service providers in providing the information, support and services needed to increase the regularity of ANC visits. This research can also provide guidance for future researchers in efforts to improve maternal health policies.

This research has a number of limitations that need to be considered so that the findings can be accepted and generalized more widely. First, the limited sample size of only 79 cases may hinder the ability to generalize the results of this study to a larger population. Therefore, it is recommended that future research use a larger sample size to accommodate greater variations in ANC visit behavior. Second, the research design used was cross-sectional, which only observed subjects at one particular point in time. This design has limitations in identifying cause-and-effect relationships, so longitudinal design-based research can provide deeper insight into changes in behavior over time.

Furthermore, the use of secondary data from BPM Dinda is limited due to the lack of research control over certain variables and the potential for data bias. Future research can consider using primary data with direct data collection to improve control and accuracy of measured variables. Other limitations involve certain variables that were not fully covered in this study, such as education level, economic status, or geographic factors. Integration of these variables can provide a more comprehensive understanding of the determinants of ANC visits.

Suggestions for future research include research with a longitudinal design to overcome the limitations of cross-sectional designs, the use of larger and more representative samples to increase the external validity of the findings, and the integration of additional variables for more comprehensive measurements. Involving qualitative methods such as interviews or focus groups with pregnant women can provide in-depth insight into the social and cultural factors that influence the smooth running of ANC visits. Research could also consider more in-depth analysis on specific subgroups or involve multiple health facilities with different population characteristics to provide more comprehensive comparisons. By taking these suggestions into account, it is hoped that future research will make a stronger contribution to our understanding of the factors that influence the smooth running of ANC visits and design more effective interventions in improving maternal health services.

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