**Regularity of Antenatal Care Based on Mother's Education, Pregnancy Status, and Gravida Status**

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**Abstract**: Antenatal care (ANC) is crucial in reducing maternal morbidity and mortality. ANC is a screening process for possible risk pregnancies, so pregnant mothers with risk factors could be treated quickly. However, low utilization of health services can cut off the importance of prenatal care that should be carried out ongoing not to harm the mother and her baby. This study was conducted to identify the effect of maternal education, pregnancy, and gravida status on the regularity of ANC. This research was a quantitative study with a cross-sectional design. The population in this study were pregnant women who had previously performed antenatal care, and the sampling technique was purposive sampling—data analysis using chi-square. The results showed that 39.6% of respondents are primary graduate, 11.3% has unplanned pregnancies, and 58.5% have multigravida. There was no significant relationship between maternal education and the regularity of ANC (ρ=0.36), but there is a significant relationship between pregnancy (ρ=0.02) and gravida status (ρ=0.04) with the regularity of ANC. There is a need for health education related to the importance of family planning for those going to get married.

**Keywords**: Antenatal care, maternal education, pregnancy status, and gravida status

1. **Introduction**

Globally it is estimated that out of 210 million women who become pregnant. Eight million of them experience life-threatening complications every year. Every minute some women die due to complications of pregnancy and childbirth, which means that 1400 women die every day. In addition, out of half a million women who die from complications of pregnancy and childbirth every year, 99% of them occur in developing countries such as sub-Saharan Africa and Asia. In developing countries, the risk of death is 200 times higher than in developed countries. The cause of death in developing countries is the lack of availability of services and the lack of utilization of existing health facilities.[1]

Globally, maternal mortality should be reduced to 70 per 100 thousand live births in 2030. The maternal mortality rate in Indonesia alone in 2017 was 117/100000 live births. [2] The maternal mortality rate in Central Java Province in 2019 was 76.9/100000 live births, while in Tegal Regency, it was 12/100000 live births. [3]

Indonesia has implemented various efforts to accelerate the reduction of maternal mortality. One of them is by providing guarantees that every mother can access quality health services such as childbirth. [4] ANC is crucial to reduce maternal morbidity and mortality directly. ANC is considered a screening process for possible risk pregnancies so that mothers with high-risk pregnancies are treated quickly, but low utilization of health services can cut off the importance of prenatal care that should be carried out on an ongoing basis so that it does not harm both the mother and her baby.[5]

Globally, in 2006-2014, only 64% of pregnant women had routine antenatal check-ups following WHO recommendation.[6] ANC visits are influenced by several factors: mother's education, place of residence, gestational age, gravida, parity, pregnancy status (planned/unplanned), and number of living children.[1]

Pregnant women in the Philippines who live in rural areas are more likely to have regular antenatal checkups, while pregnant women in Indonesia who live in urban areas are more likely to have regular antenatal checkups.[7] Based on this description, research related to the influence of maternal education, pregnancy status, and gravida status needs to be carried out, especially in rural areas.

1. **Methods**

This study was a quantitative study with an observational research design using a cross-sectional by measuring or observing at the same time. The population in this study were pregnant women in the first, second and third trimesters who had ANC. The sampling technique used was purposive sampling. The independent variables in this study consisted of maternal education, the status of pregnancy, and gravida status, while ANC was the dependent variable. This study used primary data from Dukuhwaru Health Center, Tegal Regency. The data collection was carried out by filling out a questionnaire on google form from 6 to 13 July 2021. The collected data was analyzed using Chi-Square.

1. **Results and Discussion**

**Table 1** Characteristics of Respondents

|  |  |  |
| --- | --- | --- |
| **Variables** | **F** | **%** |
| **Mother's Education**   1. Primary Education 2. Secondary Education 3. Higher Education | 21  16  16 | 39.6%  30.2%  30.2% |
| **Pregnancy Status**   1. Unplanned pregnancies 2. Planned pregnancies | 6  47 | 11.3%  88.7% |
| **Gravida Status**   1. Primigravida 2. Multigravida | 22  51 | 41.5%  58.5% |

The results showed that most mothers (39.6%) have a primary education background. Primary education is a basic education taken from elementary school to junior high school. The respondents' current pregnancies are 88.7% planned pregnancies, but 11.3% of mothers have unplanned pregnancies. 58.5% of respondents are at their second pregnancy or more, known as multigravida.

**Table 2** Regularity of antenatal care Based on Mother's Education, Pregnancy Status, and Gravida Status.

| **Variables** | **Antenatal care** | | **General** | **ρ-value** |
| --- | --- | --- | --- | --- |
| **Irregular** | **Regular** |
| **Mother's Education**   1. Primary Education 2. Secondary Education 3. Higher Education | 5 (23.8%)  3 (18.7%)  1 (6.3%) | 16 (76.2%)  13 (81.3%)  15 (93.7%) | 21 (100%)  16 (100%)  16 (100%) | 0.36 |
| **Pregnancy Status**   1. Unplanned pregnancies 2. Planned pregnancies | 3 (50%)  6 (12.8%) | 3 (50%)  41 (87.2%) | 6 (100%)  47 (100%) | 0.02 |
| **Gravida Status**   1. Primigravida 2. Multigravida | 1 (4.5%)  8 (25.8%) | 21 (95.5%)  23 (74.2%) | 22 (100%)  31 (100%) | 0.04 |

The relationship test on mother education obtained a P-value of 0.36, which means that there is no significant relationship between mothers who have primary education or higher education with the regularity of antenatal care. Most mothers with higher education and primary education carried out regular ANC. A previous study stated that the education level of pregnant women had no significant effect on adherence to antenatal visits. It is possible because other factors influence mothers, such as cultural factors, family economic status, husband's education, and family support.[8]

When viewed in more detail, Mother's education shows that respondents with elementary education are nine people, junior high school is 12 people, high school is 16 people, and advanced education after high school is as many as 16 people. In 2008 the Indonesian government issued a 9-year compulsory education rule.[9] The existence of regulations related to compulsory education impacts the education of citizens in Indonesia, which is getting better. This improvement in education impacts pregnant women's knowledge about the importance of regular prenatal checkups, and those who already have good knowledge about the importance of regular antenatal care participate in sharing information. Furthermore, the experience of women with primary education through friendship circles and pregnancy classes impacted the absence of influence of maternal education with antenatal care regularity. The results of this study are in line with research at the Balla Health Center, Mamasa Regency, which stated that there was no relationship between maternal education and antenatal care visits.[10]

A study conducted in Ethiopia found that women who had primary education tended not to carry out antenatal care and tended to be late for antenatal care.[11] Similar findings at Dayanand Medical College and Hospital, Ludhiana, Punjab, India, where mothers with low education were associated with lower antenatal care utilization.[12] This is because women with higher education have broad access to information, can make their own decisions regarding health, can change views regarding the importance of carrying out routine and timely antenatal care, so that education for women is considered important to achieve sustainable development goals related to maternal and child health. Furthermore, it can reduce infant mortality by implementing effective maternal health services.[11][12]

Pregnancy status on the regularity of antenatal care in this study obtained a value of ρ = 0.02which means there is a significant relationship between pregnancy status and the regularity of antenatal care. 87.2% of respondents with planned pregnancies had regular ANC, while 50% of mothers with unplanned pregnancies did not. A study conducted in South Africa also found that more women carried out regular and timely pregnancy checks with planned pregnancies than women with unplanned pregnancies.[13] In a planned pregnancy, the mother-to-be tends to be happy with her pregnancy, so she is more motivated to have regular and timely antenatal care, while in an unwanted pregnancy, the mother may find out her pregnancy too late, could not accept her pregnancy, and not ready for another pregnancy. So that there is a tendency to delay, be reluctant to carry out a pregnancy test, even to the point of neglecting the pregnancy.[14] This finding was also found in Southern Ethiopia, where 69% of mothers with unplanned pregnancies were reluctant to have antenatal care and were four times more likely to experience late antenatal care.[15]

A study in the district of Tanzania showed that nearly half of the women there had an unplanned pregnancy two years after the previous pregnancy. Delays and irregularities in antenatal care occurred in women with unplanned pregnancies, and the cases were higher in the second and third trimesters. Lack of family support for pregnant women without planning is suspected to be a contributing factor, so there is a possibility of being late in recognizing the risks or danger signs that pregnant women may experience.[16]

The p-value of the gravida status of the respondents in this study was 0.04which means there is a significant relationship between gravida status and the regularity of antenatal care. Most respondents with primigravida in this study had regular ANC but not multigravida mothers. A previous study in Bhutan found that there was a relationship between gravida status and antenatal care. In multigravida, mothers are more likely to be late and not routinely carrying out antenatal care. Pregnant women with multigravida tended to feel more experienced, so they were reluctant to perform ANC. Lack of support from family and environment was another factor influencing mothers' making ANC visits.[17] The same finding in South Africa also stated that 85.4% more primigravida mothers had routine ANC.[15] Primiparous mothers tend to be more interested in having a pregnancy check-up because it is their first time getting pregnant and want to monitor their pregnancy's progress optimally.

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1. **Conclusion**

Most respondents have a primary education background, planned pregnancy status, and multigravida. The regularity of antenatal care in this study was influenced by pregnancy and gravida. There is no relationship between the regularity of antenatal care with maternal education. Implication for midwifery practice is that midwives need to prepare teenage mothers by giving premarital counseling and family planning.

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