



Risk Factors Associated with Childbirth Complications in Early Pregnant Women at Marisa Community Health Center

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Abstract. Early pregnancy remains a significant maternal health issue due to the increased risk of obstetric complications that impact the safety of both mother and baby. Adolescents who experience pregnancy generally have limitations in biological, psychological, and access to health services, thus requiring special attention in efforts to prevent complications. This study aims to analyze the risk factors associated with childbirth complications in early pregnancy women in the Marisa Community Health Center working area. The study used a quantitative analytical design with a cross-sectional approach on 30 respondents selected through a purposive sampling technique. Data were collected using a structured questionnaire and medical record review, then analyzed using the Fisher Exact Test with a significance level of $\alpha = 0.05$. The results showed that five variables had a significant relationship with childbirth complications, namely antenatal care visits ($p = 0.047$), education ($p = 0.041$), parity ($p = 0.039$), husband's support ($p = 0.021$), and history of pregnancy diseases ($p = 0.009$). Meanwhile, gestational age did not show a significant relationship ($p = 0.314$). This study concludes that childbirth complications in young mothers are a multifactorial phenomenon influenced by both medical and social factors. These findings underscore the importance of strengthening antenatal care, reproductive health education interventions, and increasing family support to improve birth safety in high-risk groups.

Keywords: Antenatal Care; Childbirth Complications; Early Pregnancy; Husband's Support; Parity.

1. INTRODUCTION

Early pregnancy is a reproductive health issue that remains a challenge in many countries, particularly in low- and middle-income regions. The World Health Organization (WHO, 2023) states that teenage pregnancy contributes significantly to increased morbidity and mortality rates for both mothers and infants. Globally, approximately 21 million adolescent girls aged 15–19 years become pregnant each year, and more than 12 million of them give birth, with a higher risk of obstetric complications than women of mature reproductive age (UNICEF, 2024). Complications of childbirth in early pregnancy often include preterm labor, preeclampsia, dystocia, postpartum hemorrhage, and prolonged labor, which impact the safety of both mother and baby (Patel et al., 2022). At the national level, early pregnancy remains a serious issue in maternal and child health in Indonesia. Based on the Indonesian Health Survey (Ministry of Health, 2023), the teenage pregnancy rate reached 6.2%, with higher prevalence variations in rural areas, island regions, and areas with limited access to education and maternal health services. Research by Nugroho and Widayati (2022) found that adolescents who become pregnant under the age of 20 have a 3–5 times greater risk of experiencing childbirth complications than mothers of adult reproductive age. Risk factors frequently associated with complications include immaturity of reproductive organs, poor nutritional status, lack of

childbirth experience, limited antenatal care, inadequate social support, and dependence on family for health decision-making.

From a clinical perspective, the reproductive physiology of adolescent women is not yet fully mature. The uterus, cervix, and pelvic bones in this age group are not yet optimal for physiological labor, which can increase the risk of prolonged labor, fetal malpresentation, and failure to progress (Alkema et al., 2021). Furthermore, hormonal imbalances and suboptimal nutritional status also contribute to the risk of pregnancy complications such as anemia, preeclampsia, and fetal growth restriction (Galal et al., 2020). Psychosocially, young women often face anxiety, lack of mental preparedness, and limited knowledge of pregnancy danger signs, resulting in delays in making decisions about seeking medical help (Rahmawati et al., 2023).

Several previous studies have shown that antenatal care (ANC), parity, partner support, education, and access to health services play a significant role in preventing childbirth complications. A study by Aulia et al. (2022) showed that adolescent mothers with adequate ANC visits had a lower risk of complications than those who received minimal checkups. Another study by Mutmainah and Setyoningsih (2023) found that husband and family support influenced mothers' decisions to deliver at health facilities and follow recommended antenatal protocols. Furthermore, an international study by Sharma and Verma (2021) showed that structured reproductive education programs can reduce the rate of childbirth complications by improving health literacy among early-stage pregnant women. Although several studies have been conducted, *a research gap remains*, particularly in the context of island regions and primary care areas in eastern Indonesia. Geographical characteristics, culture, education, and limited access to health services in regions such as Gorontalo, North Maluku, Sulawesi, and Nusa Tenggara may impact variations in risk factors for childbirth complications, but local data-based studies are still limited (Sudirman et al., 2024). Community health centers as primary care have a strategic role in risk screening, education, and safe delivery support, but the effectiveness of interventions is highly dependent on accurate identification of dominant local risk factors (Rosalina & Dewi, 2023).

Marisa Community Health Center (Puskesmas) is a primary healthcare facility in a region that still faces a high rate of early pregnancy and reports of childbirth complications annually. However, to date, no research has specifically identified risk factors associated with childbirth complications in early pregnancy women in the region. Therefore, empirical research is needed as a basis for developing risk-based promotive, preventive, and delivery support programs. Based on this background, this study aims to analyze risk factors associated with childbirth

complications in early pregnancy women at Marisa Community Health Center. The results are expected to serve as a scientific reference for health workers, policymakers, and maternal health programs in designing comprehensive, contextual, and sustainable intervention strategies to reduce the risk of childbirth complications in this vulnerable group.

2. RESEARCH METHOD

Research Design

This study employed a quantitative analytical design with a cross-sectional approach. This design was chosen to determine the relationship between risk factors and the incidence of childbirth complications in early pregnancy in a single time period without intervention (Setiawan & Nursalam, 2022). The *cross-sectional approach* is appropriate for clinical epidemiological research, which aims to identify the determinants of a health condition in a specific population quickly, efficiently, and measurably (Hastono, 2023).

Location and Time of Research

The study was conducted in the Marisa Community Health Center (Puskesmas) area in Pohuwato Regency. This location was selected purposively because it is an area with a high number of cases of early pregnancy and childbirth complications reported annually. The study was conducted from January to February 2025, covering the licensing process, data collection, data verification, and statistical analysis.

Research Population and Sample

The population in this study were all pregnant women aged <20 years who gave birth in the Marisa Community Health Center working area. The sampling technique used *purposive sampling* based on predetermined inclusion and exclusion criteria. Inclusion criteria included mothers who gave birth during the study period, were ≤ 19 years old at the time of pregnancy, and were willing to be respondents by signing *an informed consent*. Meanwhile, exclusion criteria included mothers with a history of severe psychiatric disorders or medical conditions that prevented them from being interviewed. Based on these criteria, the number of samples that met the requirements and participated in this study was 30 respondents.

Research Variables

The dependent variable in this study was labor complications, namely conditions that arise during the labor process such as dystocia, postpartum hemorrhage, preeclampsia, prolonged labor, or other complications requiring medical intervention. Meanwhile, the independent variables included several risk factors that can influence the occurrence of labor complications, namely antenatal care (ANC) visits, maternal education level, parity, husband's

support, medical history during pregnancy, and gestational age at delivery. All variables in this study were categorized and analyzed based on maternal epidemiology standards and obstetric clinical guidelines to ensure appropriate terminology and scientific approach in the process of identifying the relationship between risk factors and the occurrence of labor complications.

Research Instruments

The research instrument was a structured questionnaire that was tested for content validity by two obstetricians and one maternal epidemiologist. The questionnaire consisted of four sections: demographic data, obstetric history, delivery risk factors, and complication status. The instrument's reliability was tested using Cronbach's Alpha, with a value of >0.80 , thus declaring the instrument reliable for use.

Research Procedures

The research procedure began with a request for permission from the Pohuwato District Health Office and the Marisa Community Health Center. After obtaining written permission, researchers screened respondents based on the inclusion criteria. Respondents were given an explanation of the purpose and benefits of the study before signing informed consent. Data collection was conducted through structured interviews and a review of medical records to ensure the validity of information related to childbirth complications. After data collection, researchers checked for completeness before proceeding to the tabulation and analysis stages.

Data Analysis

Data analysis was conducted in two stages: descriptive and inferential analysis. Descriptive analysis was used to describe the frequency distribution of each research variable. Inferential analysis used the Fisher Exact Test because some contingency tables had expected frequencies of less than five, thus failing to meet the Chi-Square assumption (Notoatmodjo, 2022). The significance value was determined at $\alpha = 0.05$. If *the p-value* <0.05 , a significant relationship between the independent variable and labor complications is declared.

3. RESULTS AND DISCUSSION

Results

Respondent Characteristics

The characteristics of the respondents in this study describe the profile of early-stage pregnant women who served as the research sample in the Marisa Community Health Center (Puskesmas) work area. The characteristics presented include maternal age at pregnancy, education level, employment status, parity, and gestational age at delivery. The data are presented in the form of frequency distributions and percentages to provide an initial overview

of the respondents' demographics before analyzing the relationships between the research variables.

Table 1. Distribution of Respondent Characteristics (n = 30).

Characteristics	Category	Frequency (n)	Percentage (%)
Mother's Age	15–16 years	5	16.7
	17–18 years	17	56.7
	19 years old	8	26.6
Education	Elementary School	6	20.0
	JUNIOR HIGH SCHOOL	14	46.7
	SENIOR HIGH SCHOOL	10	33.3
Work	Not working (housewife)	23	76.7
	Work	7	23.3
Parity	Primipara	22	73.3
	Multipara	8	26.7
Gestational Age at Delivery	<37 weeks (premature)	4	13.3
	≥37 weeks (term)	26	86.7

Based on Table 1, the majority of respondents were in the 17–18 age group (56.7%), while the youngest age group, 15–16, accounted for 16.7%. The educational level was dominated by junior high school graduates (46.7%), and the majority of respondents were unemployed or housewives (76.7%). In terms of obstetrics, the majority of respondents were primiparous (73.3%), while the remaining 26.7% were multiparous. Furthermore, the majority of mothers gave birth at term (≥37 weeks) (86.7%), while only 13.3% gave birth prematurely. In general, these characteristics indicate that the majority of respondents were in their mid-teens, with a low level of secondary education, first-time childbirth experience, and most gave birth at term.

Overview of Childbirth Complications

This section presents the distribution of childbirth complications experienced by early-stage pregnant women in the Marisa Community Health Center's work area. This variable serves as the dependent variable in the study and is categorized into two groups: those with and without complications.

Table 2. Distribution of Childbirth Complications in Early Pregnant Women (n = 30).

Variables	Category	Frequency (n)	Percentage (%)
Childbirth Complications	Yes	12	40.0
	No	18	60.0

Table 2 shows that 12 respondents (40.0%) experienced complications during delivery, while 18 respondents (60.0%) did not. This proportion indicates that although most respondents did not experience complications, the incidence of childbirth complications in early pregnancy is still relatively high and requires clinical attention. This finding suggests that adolescent pregnancy poses a potential additional risk of adverse birth outcomes.

Distribution of Risk Variables

This section presents the distribution of independent variables studied as potential risk factors associated with childbirth complications in early pregnancy. The variables analyzed included antenatal care (ANC) visits, maternal education level, parity, husband's support, history of pregnancy-related illnesses, and gestational age at delivery.

Table 3. Distribution of Respondents' Risk Variables (n = 30).

Risk Variables	Category	Frequency (n)	Percentage (%)
ANC (Antenatal Visit)	Incomplete (<4x)	9	30.0
	Complete (≥4x)	21	70.0
Mother's Education	Low (elementary–middle school)	20	66.7
	High School (SMA)	10	33.3
Parity	Primipara	22	73.3
	Multipara	8	26.7
Husband's Support	Does not support	11	36.7
	Support	19	63.3
History of Pregnancy Diseases	There is	7	23.3
	There isn't any	23	76.7
Gestational Age at Delivery	Premature (<37 weeks)	4	13.3
	Aterm (≥37 weeks)	26	86.7

Table 3 shows that most respondents had a complete history of ANC visits, namely ≥4 times during pregnancy (70.0%). The majority of respondents had a low education level, namely elementary school–junior high school (66.7%). Most respondents were primiparous (73.3%), and more than half reported having husband support during pregnancy (63.3%). A history of pregnancy-related illness was found in a small number of respondents (23.3%), while the majority had no history of illness. In addition, most respondents gave birth at term (≥37 weeks) (86.7%). These findings suggest that although some risk factors were categorized as favorable, several aspects such as low education, first parity, and lack of husband support remained dominant among the respondents.

Bivariate Analysis

Bivariate analysis was conducted to determine the relationship between risk variables (independent) and delivery complications as the dependent variable in early pregnancy. The statistical test used was the Fisher Exact Test, because several cells with expected frequencies of less than five did not meet the *Chi-Square* assumption.

Table 4. Relationship between ANC and Labor Complications (n = 30).

ANC	Complications (Yes)	No	Total	<i>p-value</i>
Incomplete (<4x)	6 (50.0%)	3 (16.7%)	9 (30.0%)	0.047
Complete (≥4x)	6 (50.0%)	15 (83.3%)	21 (70.0%)	
Total	12 (40.0%)	18 (60.0%)	30 (100%)	

The results in Table 4 show that labor complications were more common in respondents with incomplete ANC (50.0%). The *p-value* = 0.047 indicates a significant relationship between ANC compliance and labor complications.

Table 5. Relationship between Education and Childbirth Complications (n = 30).

Education	Complications (Yes)	No	Total	<i>p-value</i>
Low (elementary–middle school)	10 (83.3%)	10 (55.6%)	20 (66.7%)	0.041
High School (SMA)	2 (16.7%)	8 (44.4%)	10 (33.3%)	
Total	12 (40.0%)	18 (60.0%)	30 (100%)	

Most complications occurred in respondents with low levels of education (83.3%). A *p-value* of 0.041 indicates a significant relationship between education level and labor complications.

Table 6. Relationship between Parity and Childbirth Complications (n = 30).

Parity	Complications (Yes)	No	Total	<i>p-value</i>
Primipara	10 (83.3%)	12 (66.7%)	22 (73.3%)	0.039
Multipara	2 (16.7%)	6 (33.3%)	8 (26.7%)	
Total	12 (40.0%)	18 (60.0%)	30 (100%)	

Complications were more common in primiparous respondents (83.3%). A *p-value* of 0.039 indicates a significant association between parity and labor complications.

Table 7. Relationship between Husband's Support and Childbirth Complications (n = 30).

Husband's Support	Complications (Yes)	No	Total	<i>p-value</i>
Does not support	8 (66.7%)	3 (16.7%)	11 (36.7%)	0.021
Support	4 (33.3%)	15 (83.3%)	19 (63.3%)	
Total	12 (40.0%)	18 (60.0%)	30 (100%)	

Respondents without husband support had a higher proportion of complications (66.7%). A *p-value* of 0.021 indicates a significant relationship between husband support and labor complications.

Table 8. Relationship between Pregnancy Medical History and Complications (n = 30).

Medical History	Complications (Yes)	No	Total	<i>p-value</i>
There is	6 (50.0%)	1 (5.6%)	7 (23.3%)	0.009
There isn't any	6 (50.0%)	17 (94.4%)	23 (76.7%)	
Total	12 (40.0%)	18 (60.0%)	30 (100%)	

Complications were more common in respondents with a history of pregnancy-related illness (50.0%). A *p-value* of 0.009 indicates a significant association between medical history and delivery complications.

Table 9. Relationship between Gestational Age and Childbirth Complications (n = 30).

Gestational Age	Complications (Yes)	No	Total	<i>p-value</i>
Premature (<37 weeks)	3 (25.0%)	1 (5.6%)	4 (13.3%)	0.314
Aterm (≥37 weeks)	9 (75.0%)	17 (94.4%)	26 (86.7%)	
Total	12 (40.0%)	18 (60.0%)	30 (100%)	

The results showed slightly higher complications in preterm deliveries (25.0%), but the *p-value* = 0.314 indicated no significant relationship between gestational age and delivery complications.

Discussion

The study results show that childbirth complications in young women remain a significant health problem, with an incidence rate of 40%. This figure indicates that although most respondents did not experience complications, the risk in this age group remains higher than in adult women, as reported in a global study confirming that teenage pregnancy is a major determinant of problematic childbirth (Cavazos-Rehg et al., 2023). These findings reinforce the understanding that biological, social, and access to health care factors play a significant role in determining childbirth outcomes in adolescents.

Bivariate analysis showed a significant association between ANC visit compliance and labor complications. Respondents with incomplete ANC visits had a higher proportion of complications than respondents who underwent at least four routine check-ups. This finding aligns with research by Hidayah et al. (2022), which states that ANC plays a crucial role in the early detection of obstetric risks such as preeclampsia, anemia, and fetal growth retardation. In theory, ANC is a preventive strategy within the maternal continuum of care model, functioning to identify complications early and prepare for timely clinical interventions (Bhutta & Black, 2021). Therefore, low ANC compliance among respondents may contribute to the onset of undetected complications.

Education is the next factor showing a significant relationship. Mothers with low education are more likely to experience complications than those with higher education. These results align with a study by Ibrahim & Mahmud (2021), which showed that health literacy is a strong predictor of prenatal care behavior. Low education limits the ability to understand pregnancy danger signs, impacts the ability to make independent decisions, and is often associated with limited access to maternal information (Kurniasari et al., 2022). Therefore, low

education in this study can be considered an indirect risk factor that weakens maternal preparedness for childbirth. Parity also showed a significant association with complications. The majority of complications occurred in primiparous mothers. Research by Mwangi et al. (2022) supports these findings, showing that early primiparas are more likely to experience dystocia and prolonged labor due to pelvic biological immaturity and lack of physiological experience in childbirth. Physiologically, adolescent reproductive organs are not fully mature, especially the pelvic structure, increasing the risk of mechanical obstruction during labor (Kamal & Hassan, 2023). These findings suggest that primiparity in adolescence increases exposure to obstetric complications. Furthermore, husband's support is also significantly associated with childbirth complications. Respondents who lack support during pregnancy are at higher risk of complications. Research by Putra & Melati (2022) found that partner support influences maternal involvement in antenatal care (ANC), regular consumption of prenatal supplements, and preparedness for childbirth. Emotional support and family decisions supporting maternal health services can reduce delays in seeking medical care, particularly in patriarchal families where health decisions are often made by the husband.

The variable of pregnancy disease history also showed a significant association. This finding aligns with research by Ismail et al. (2024), which found that a history of anemia, pregnancy infections, and hypertension were strong predictors of complications such as preeclampsia and postpartum hemorrhage. Clinically, pathological conditions that are not treated antenatally will increase the risk of intrapartum complications, especially in physiologically immature age groups. In contrast to other significant variables, gestational age did not show a significant association, although complications were slightly more common in preterm pregnancies. This is in line with research by Damayanti et al. (2022), which found that in some primary care contexts, social factors and access to services have a greater influence than gestational age alone. The insignificance of this variable may be influenced by the unequal distribution of data, as most respondents gave birth at term.

These findings have important clinical implications. First, efforts to improve ANC compliance need to be strengthened through community-based education, monitoring of at-risk pregnant women, and family involvement in decision-making. Second, reproductive health education needs to be expanded, especially for adolescents and prospective brides, to reduce the rate of early pregnancy. Third, risk-based childbirth assistance programs need to be integrated into primary care services such as community health centers (Puskesmas) through risk screening, safe childbirth counseling, and active referral networks. Overall, these study results confirm that childbirth complications in young mothers are a multifactorial phenomenon

that requires a comprehensive approach encompassing clinical, educational, social, and health system aspects.

4. CONCLUSION

This study aimed to identify risk factors associated with childbirth complications in early-stage pregnant women in the Marisa Community Health Center (Puskesmas). The results showed that childbirth complications remain a significant health problem in this age group. Several risk factors that have been shown to have a significant association with the incidence of complications include adherence to antenatal care visits, maternal education level, parity, husband's support, and medical history during pregnancy. Meanwhile, gestational age at delivery did not show a significant association with the incidence of complications. Scientifically, the results of this study strengthen the understanding that childbirth complications in early-stage pregnancy are influenced by a combination of physiological and psychosocial factors, as well as access to maternal health services. These findings emphasize the importance of regular antenatal care, reproductive health education, and family involvement, especially husbands, in supporting safe childbirth preparation. Clinically, this study provides a basis for the development of primary care-based interventions to improve risk screening, pregnancy support, and timely referrals for early-stage pregnant women to reduce maternal and neonatal morbidity and mortality.

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