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Sociodemographic and Maternal Factors Associated With Birth Weight Among Married Women in Indonesia: Analysis of the 2017 IDHS

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ABSTRACT

Background: Low birth weight (LBW) remains a major public health problem. In Indonesia, socioeconomic inequality and disparities in maternal healthcare utilization may contribute to adverse birth outcomes, yet evidence among married women using nationally representative data remains limited. **Objective:** This study aimed to analyze factors associated with birth weight among married women in Indonesia. **Methods:** This study used a cross-sectional design with secondary data from the 2017 Indonesian Demographic and Health Survey (IDIR71FL). A total of 14,208 married women aged 15–49 years were included in the analysis. Weighted analysis was conducted prior to statistical testing to account for the complex survey design. Data were analyzed using chi-square tests and binary logistic regression analyses were performed to identify factors associated with birth weight. The results were presented as crude odds ratios (CORs) with 95% confidence intervals (CIs). **Results:** Maternal education, province, wealth index, multiple pregnancy, parity, and antenatal care (ANC) visits were significantly associated with birth weight. Mothers with diploma or university education were more likely to deliver infants with normal birth weight (COR=1.65; 95% CI: 1.33–2.04). Conversely, twin pregnancies (COR=0.04; 95% CI: 0.03–0.06), primiparity (COR=0.80; 95% CI: 0.70–0.92), and fewer than four ANC visits (COR=0.73; 95% CI: 0.59–0.91) were associated with lower odds of normal birth weight. **Conclusion:** Socioeconomic and maternal healthcare factors were significantly associated with birth weight among married women. Strengthening maternal education, improving economic support, and increasing access to adequate ANC services may contribute to reducing adverse birth outcomes in Indonesia.

Keywords: low birth weight; maternal health; antenatal care; married women; Indonesia

Background

Low birth weight (LBW), defined as a birth weight of less than 2,500 grams regardless of gestational age, remains a major global public health concern due to its strong association with neonatal morbidity, mortality, impaired cognitive development, and long-term chronic diseases (1)(2). Infants born with LBW are more vulnerable to infections, growth retardation, developmental disorders, and adverse health outcomes throughout the life course (3)(4). Moreover, LBW continues to affect millions of newborns worldwide, particularly in low- and middle-income countries where maternal nutritional problems and limited healthcare access remain prevalent. In Indonesia, LBW remains an important contributor to neonatal and under-five mortality despite improvements in maternal and child healthcare services (5)(6).

Previous studies have identified numerous factors associated with low birth weight (LBW), including maternal education, socioeconomic status, parity, maternal nutritional status, antenatal care utilization, environmental exposure, and multiple pregnancy. In addition, women with lower educational attainment, poor economic conditions, unemployment, and primiparity were more likely to deliver infants with LBW in Indonesia (7)(8). Furthermore, lower household economic status, urban residence, pregnancy complications, and multiple pregnancies have also been reported to significantly increase the risk of LBW among Indonesian mothers (9)(10).

Evidence from several countries further supports the multifactorial nature of low birth weight (LBW). Maternal education, wealth index, birth interval, and regional disparities were identified as significant factors associated with LBW in Afghanistan (11)(12). In addition, maternal occupation,

maternal nutritional status, pregnancy complications, and access to healthcare services were also recognized as important determinants of LBW in Ethiopia (13)(14). These findings suggest that LBW is influenced not only by biological factors but also by broader social and healthcare-related determinants.

Although several studies on low birth weight (LBW) have been conducted in Indonesia, important research gaps remain (15)(16). Previous studies generally focused on specific determinants, selected populations, or particular regions, which may limit the generalizability of the findings at the national level (17)(18). In addition, married women as a reproductive population have received limited attention despite the important influence of marital and reproductive characteristics on maternal and neonatal health outcomes (15). Furthermore, socioeconomic inequality, regional disparities, and maternal healthcare utilization across Indonesia have not been comprehensively explored using nationally representative data (8)(16). Previous studies have also primarily emphasized risk factors for LBW without adequately examining factors associated with normal birth weight as a protective outcome (18)(19). Therefore, evidence regarding the combined influence of maternal sociodemographic, reproductive, and healthcare utilization factors among married women in Indonesia remains limited (10)(15).

Therefore, this study aimed to analyze factors associated with birth weight among married women in Indonesia using nationally representative data from the 2017 Indonesian Demographic and Health Survey. This study specifically focused on married women, a population that has received limited attention in previous national studies on low birth weight (LBW) in Indonesia. In addition, multiple sociodemographic, maternal, reproductive, and healthcare-related factors were analyzed simultaneously to provide a more comprehensive understanding of birth weight outcomes. Furthermore, the use of weighted nationally representative IDHS data allowed the findings to better reflect population conditions in Indonesia. The findings of this study are expected to provide evidence-based information for policymakers and healthcare providers in developing targeted maternal and neonatal health interventions, particularly for populations at greater risk of adverse birth outcomes.

Methods

This study employed a cross-sectional design using secondary data obtained from the 2017 Indonesian Demographic and Health Survey. The IDHS is a nationally representative survey conducted to collect demographic and health-related information among Indonesian households, women, men, and children. The survey applied a stratified multistage sampling design to ensure national representativeness across provinces and urban–rural areas. The study utilized data from the 2017 IDHS conducted across all provinces in Indonesia. Data analysis for the present study was performed between 2025 and 2026. The dataset used in this study was obtained from the Demographic and Health Surveys (DHS) Program after receiving official permission for data access. The target population of this study consisted of married women aged 15–49 years included in the 2017 IDHS dataset. The analysis was restricted to women who had complete information regarding birth weight and other study variables. After data cleaning and eligibility selection, a total of 14,208 married women were included in the final analysis. Sampling procedures in the original IDHS survey used a two-stage stratified cluster sampling technique. To ensure that the findings represented the national population, weighting procedures were applied prior to statistical analysis using the sampling weight variable provided in the dataset (20)(21).

The dependent variable in this study was birth weight, categorized into low birth weight (LBW) and normal birth weight. LBW was defined as birth weight less than 2,500 grams, whereas normal birth weight referred to birth weight of at least 2,500 grams. Independent variables included maternal age group, education level, maternal occupation, province, place of residence, wealth index, child sex, multiple pregnancy status, maternal age at first birth, parity, antenatal care (ANC) visits, place of delivery, and iron supplementation during pregnancy.

All variables analyzed in this study were derived from the women's recode dataset (IDIR71FL) of the 2017 IDHS. Data were collected in the original survey through standardized face-to-face interviews using structured questionnaires administered by trained interviewers. Birth weight information was obtained from maternal reports and health card records when available. Maternal sociodemographic characteristics, reproductive history, antenatal care utilization, place of delivery, and iron supplementation data were collected through self-reported responses during the interview process. Wealth index classification in the IDHS was constructed using household asset ownership and housing characteristics

through principal component analysis conducted by the DHS Program.

Data analysis was conducted using IBM SPSS Statistics. Prior to analysis, sample weighting was applied to account for the complex sampling design and to produce nationally representative estimates. Descriptive statistics were used to summarize respondent characteristics and were presented as frequencies and percentages. Bivariate analysis using the chi-square test was performed to examine associations between independent variables and birth weight outcomes. Variables with statistical relevance were subsequently included in binary logistic regression analysis to identify factors associated with normal birth weight. The results were presented as crude odds ratios (CORs) with 95% confidence intervals (CIs). Statistical significance was determined at $p < 0.05$.

Results

Table 1. Sociodemographic, Maternal, and Child Characteristics of Respondents in Indonesia Based on the 2017 Indonesian Demographic and Health Survey (IDHS)

Variable	Frequency (n)	Percent (%)
Age Group (Years)		
15–19	339	2.4
20–24	2,207	15.5
25–29	3,579	25.2
30–34	3,751	26.2
35–39	2,840	20.0
40–44	1,235	8.7
45–49	257	1.8
Education Level		
Elementary	3,615	25.4
Secondary/high	8,065	56.8
Dipl./university	2,528	17.8
Maternal Occupation		
Yes	7,525	53.0
No	6,883	47.0
Province		
Jawa–Bali	4,630	32.6
Sumatra	3,676	25.9
Others	5,902	41.5
Place of Residence		
Urban	7,086	49.9
Rural	7,122	50.1
Wealth Index		
Poorest	3,558	25.0
Poorer	2,830	19.9
Middle	2,720	19.1
Richer	2,616	18.4
Richest	2,484	17.5
Sex of Child		
Male	7,340	51.7
Female	6,868	48.3
Multiple Pregnancy		

Variable	Frequency (n)	Percent (%)
Twins	114	0.8
Single	14,094	99.2
Maternal Age 1st Birth		
<35years	14,036	98.8
≥35years	172	1.2
Parity		
Primiparous	4,346	30.6
Multiparous	9,862	69.4
ANC Visits		
<4times	1,224	8.6
≥4times	12,984	91.4
Place of Delivery		
Health facilities	10,929	76.9
Elsewhere	3,278	23.1
Iron Intake		
Incomplete	1,604	11.3
Complete	12,604	88.7
Birth Weight		
Low Birth Weight	936	6.6
Normal Birth Weight	13,272	93.4

Table 1 summarizes the sociodemographic, maternal, and child characteristics of the 14,208 respondents included in this study. The largest proportion of mothers was aged 30–34 years (26.2%), followed by those aged 25–29 years (25.2%) and 35–39 years (20.0%), while respondents aged 15–19 years represented the smallest age group (2.4%). More than half of the respondents had attained secondary or higher education (56.8%), whereas 25.4% completed elementary education and 17.8% had diploma or university-level education. Maternal employment was relatively evenly distributed, with 53.0% of mothers being employed. Geographically, respondents were predominantly located in regions outside Java–Bali and Sumatra (41.5%), followed by Java–Bali (32.6%) and Sumatra (25.9%). The proportion of participants residing in urban and rural areas was nearly identical, accounting for 49.9% and 50.1%, respectively. Across wealth categories, the highest proportion belonged to the poorest quintile (25.0%), while the richest quintile comprised 17.5% of respondents. The remaining wealth groups showed relatively similar distributions, ranging from 18.4% to 19.9%.

Male children slightly predominated in the sample (51.7%). Almost all mothers experienced singleton pregnancies (99.2%), and only 0.8% reported multiple pregnancies. In addition, first childbirth before the age of 35 years was reported by 98.8% of respondents. Most mothers were multiparous (69.4%), and the majority attended at least four antenatal care visits during pregnancy (91.4%). Delivery in health facilities was also commonly reported, accounting for 76.9% of all births. Regarding maternal health practices and neonatal outcomes, complete iron supplementation during pregnancy was reported by 88.7% of mothers. Furthermore, most infants were born with normal birth weight (93.4%), whereas low birth weight was identified in 6.6% of births.

Table 2. Bivariate Analysis of Sociodemographic, Maternal, and Child Factors Associated with Birth Weight Among Children in Indonesia Based on the 2017 Indonesian Demographic and Health Survey (IDHS)

Variable	Birth Weight		p-value
	LBW	Normal	

	N (%)		
Age Group (Years)			0.018
15–19	33(0.2)	306(2.2)	
20–24	157(1.1)	2,050(14.4)	
25–29	237(1.7)	3,342(23.5)	
30–34	207(1.5)	3,544(24.9)	
35–39	192(1.4)	2,648(18.6)	
40–44	89(0.6)	1,146(8.1)	
45–49	21(0.1)	236(1.7)	
Education Level			<0.001
Elementary	293(2.1)	3,322(23.4)	
Secondary/high	515(3.6)	7,550(53.1)	
Dipl./university	128(0.9)	2,400(16.9)	
Maternal Occupation			0.038
Yes	469(3.3)	7,056(49.7)	
No	467(3.3)	6,219(43.8)	
Province			<0.001
Jawa–Bali	290(2.0)	4,340(30.5)	
Sumatra	206(1.4)	3,470(24.4)	
Others	440(3.1)	5,462(38.4)	
Place of Residence			0.455
Urban	469(3.3)	6,617(46.6)	
Rural	467(3.3)	6,655(46.8)	
Wealth Index			<0.001
Poorest	280(2.0)	3,278(23.1)	
Poorer	198(1.4)	2,632(18.5)	
Middle	172(1.2)	2,548(17.9)	
Richer	159(1.1)	2,457(17.3)	
Richest	127(0.9)	2,357(16.6)	
Sex of Child			0.029
Male	455(3.2)	6,885(48.5)	
Female	481(3.4)	6,387(45)	
Multiple Pregnancy			<0.001
Twins	68(0.5)	46(0.3)	
Single	868(6.1)	13,226(93.1)	
Maternal Age 1st Birth			0.162
<35years	921(6.5)	13,115(92.3)	
≥35years	15(0.1)	157(1.1)	
Parity			<0.001
Primiparous	328(2.3)	4,018(28.3)	
Multiparous	608(4.3)	9,254(65.1)	
ANC Visits			0.003
<4times	104(0.7)	1,120(7.9)	
≥4times	832(5.9)	12,152(85.5)	
Place of Delivery			0.050
Health facilities	741(5.2)	10,188(71.7)	
Elsewhere	195(1.4)	3,083(21.7)	

Iron Intake			0.036
Incomplete	123(0.9)	1,481(10.4)	
Complete	813(5.7)	11,791(83)	

Note: LBW = Low Birth Weight; p-values were obtained using the chi-square test. Statistical significance was set at $p < 0.05$.

Table 2 presents the bivariate analysis examining the association between respondents' characteristics and birth weight outcomes. The analysis revealed that several sociodemographic, maternal, and pregnancy-related factors were significantly associated with low birth weight (LBW). Maternal age group was significantly associated with birth weight ($p = 0.018$). The proportion of LBW was highest among mothers aged 25–29 years (1.7%), followed by those aged 30–34 years (1.5%) and 35–39 years (1.4%). Conversely, mothers aged 45–49 years showed the lowest proportion of LBW cases (0.1%). A significant association was also identified between maternal education and birth weight ($p < 0.001$). Mothers with secondary or higher education accounted for the largest proportion of LBW cases (3.6%), while those with diploma or university education had the lowest proportion (0.9%). In addition, maternal occupation was significantly related to birth weight outcomes ($p = 0.038$), although the distribution of LBW between employed and unemployed mothers was relatively comparable. Regional variation demonstrated a statistically significant relationship with birth weight ($p < 0.001$). Respondents residing in provinces outside Java–Bali and Sumatra contributed the highest proportion of LBW cases (3.1%), whereas the lowest proportion was observed among mothers living in Sumatra (1.4%). However, no significant association was found between place of residence and birth weight ($p = 0.455$), indicating that the prevalence of LBW was relatively similar between urban and rural areas. Wealth index was significantly associated with birth weight ($p < 0.001$). The proportion of LBW was highest among respondents in the poorest wealth quintile (2.0%) and gradually declined across higher socioeconomic groups, with the lowest proportion identified among the richest households (0.9%).

Child sex showed a significant association with birth weight ($p = 0.029$). Female infants had a slightly higher proportion of LBW (3.4%) compared with male infants (3.2%). Pregnancy type was also strongly associated with birth weight outcomes ($p < 0.001$), with twin pregnancies demonstrating a markedly greater proportion of LBW compared with singleton pregnancies. No statistically significant association was observed between maternal age at first birth and birth weight ($p = 0.162$). In contrast, parity demonstrated a significant relationship with LBW occurrence ($p < 0.001$), where multiparous mothers contributed a higher proportion of LBW cases (4.3%) than primiparous mothers (2.3%). Antenatal care (ANC) visits were significantly associated with birth weight ($p = 0.003$). Mothers who attended fewer than four ANC visits showed a greater proportion of adverse birth outcomes compared with those who completed at least four visits. Place of delivery also demonstrated a borderline significant association with birth weight ($p = 0.050$). Furthermore, iron supplementation during pregnancy was significantly associated with birth weight outcomes ($p = 0.036$).

Table 3. Binary Logistic Regression Analysis of Factors Associated with Normal Birth Weight Among Children in Indonesia Based on the 2017 Indonesian Demographic and Health Survey (IDHS)

Variables	Model 1
	COR (95% CI)
Age Group (Years)	
15–19	0.82(0.46–1.46)
20–24	1.16(0.72–1.86)
25–29	1.25(0.78–1.98)
30–34	1.52(0.95–2.43)
35–39	1.22(0.76–1.96)
40–44	1.14(0.69–1.88)
45–49	Reference
Education Level	

Elementary	Reference
Secondary/high	1.29(1.11-1.50)***
Dipl./university	1.65(1.33-2.04)***
Maternal Occupation	
Yes	1.13(0.99-1.29)
No	Reference
Province	
Jawa-Bali	Reference
Sumatra	1.12(0.93-1.35)
Others	0.82(0.71-0.96)*
Place of Residence	
Urban	Reference
Rural	1.01(0.88-1.15)
Wealth Index	
Poorest	0.63(0.50-0.78)***
Poorer	0.71(0.56-0.90)**
Middle	0.79(0.63-1.01)
Richer	0.83(0.65-1.05)
Richest	Reference
Sex of Child	
Male	1.14(0.99-1.30)
Female	Reference
Multiple Pregnancy	
Twins	0.04(0.03-0.06)***
Single	Reference
Maternal Age 1st Birth	
<35years	Reference
≥35years	0.73(0.43-1.25)
Parity	
Primiparous	0.80(0.70-0.92)**
Multiparous	Reference
ANC Visits	
<4times	0.73(0.59-0.91)**
≥4times	Reference
Place of Delivery	
Health facilities	0.87(0.73-1.02)
Elsewhere	Reference
Iron Intake	
Incomplete	0.83(0.68-1.01)
Complete	Reference

Note: COR = Crude Odds Ratio; CI = Confidence Interval; Reference = reference category. *p<0.05; **p<0.01; ***p<0.001. Binary logistic regression analysis was performed to identify factors associated with normal birth weight among married women in Indonesia.

Table 3 presents the binary logistic regression analysis examining factors associated with normal birth weight among children in Indonesia. The analysis demonstrated that maternal education, province, wealth index, multiple pregnancy, parity, and antenatal care (ANC) visits were significantly associated with birth weight outcomes. Maternal education showed a positive association with normal birth weight.

Compared with mothers who had elementary education, those with secondary or higher education were 1.29 times more likely to have infants with normal birth weight (COR=1.29; 95% CI: 1.11–1.50). Similarly, mothers with diploma or university education had a 1.65-fold higher likelihood of delivering infants with normal birth weight (COR=1.65; 95% CI: 1.33–2.04). These findings indicate that higher educational attainment may contribute to better maternal health knowledge and pregnancy care practices. Regional variation was also associated with birth weight outcomes. Mothers residing in provinces outside Java–Bali demonstrated a lower likelihood of having normal birth weight infants compared with those living in Java–Bali (COR=0.82; 95% CI: 0.71–0.96). In contrast, residence in Sumatra was not significantly associated with birth weight. Socioeconomic status demonstrated a significant relationship with birth weight. Compared with respondents in the richest wealth quintile, mothers from the poorest households were less likely to have infants with normal birth weight (COR=0.63; 95% CI: 0.50–0.78). Similar patterns were observed among poorer households (COR=0.71; 95% CI: 0.56–0.90). Although mothers in the middle and richer wealth categories also showed lower odds of normal birth weight, these associations were not statistically significant.

Multiple pregnancy emerged as the strongest factor associated with birth weight. Twin pregnancies were substantially less likely to result in normal birth weight compared with singleton pregnancies (COR=0.04; 95% CI: 0.03–0.06), indicating a markedly increased risk of adverse neonatal outcomes among multiple gestations. Parity was significantly associated with birth weight outcomes. Primiparous mothers had lower odds of delivering infants with normal birth weight compared with multiparous mothers (COR=0.80; 95% CI: 0.70–0.92). In addition, mothers who attended fewer than four ANC visits were less likely to have infants with normal birth weight than those completing at least four visits during pregnancy (COR=0.73; 95% CI: 0.59–0.91). Several variables were not significantly associated with birth weight in the regression analysis, including maternal age group, maternal occupation, place of residence, child sex, maternal age at first birth, place of delivery, and iron supplementation during pregnancy, as indicated by confidence intervals crossing unity.

Discussion

The present study identified maternal education, wealth index, regional disparities, multiple pregnancy, parity, and antenatal care (ANC) visits as significant factors associated with birth weight among married women in Indonesia. These findings indicate that both socioeconomic and maternal healthcare factors play important roles in determining neonatal outcomes (22). In particular, mothers with higher educational attainment were more likely to deliver infants with normal birth weight compared with mothers who had elementary education. Higher educational status may improve maternal health literacy, nutritional knowledge, healthcare-seeking behavior, and awareness of pregnancy complications, thereby supporting healthier pregnancy practices. In contrast, women with lower educational attainment were more likely to deliver infants with low birth weight (LBW) in Indonesia (8)(23). Moreover, low maternal education has also been identified as an important predictor of adverse birth outcomes, including prematurity and LBW (5)(24). Overall, these findings highlight the important role of maternal education in improving fetal growth and pregnancy outcomes.

The findings also revealed that mothers from lower wealth quintiles had lower odds of delivering infants with normal birth weight compared with mothers from the richest households. Economic limitations may reduce household food security, maternal nutritional intake, and access to quality prenatal healthcare services. Furthermore, poor socioeconomic conditions are frequently associated with maternal undernutrition and inadequate pregnancy monitoring, both of which may contribute to impaired fetal growth. In Indonesia, lower economic status has been reported to significantly increase the risk of low birth weight (LBW) among mothers (8)(19)(25)(26). Similarly, women from the poorest households in Afghanistan were found to have substantially higher odds of delivering infants with LBW compared with women from wealthier households (11)(27).

Regional variation was significantly associated with birth weight outcomes in this study. Mothers living outside the Java–Bali region were less likely to deliver infants with normal birth weight compared with those residing in the Java–Bali region. These disparities may reflect the unequal distribution of healthcare facilities, maternal nutrition programs, transportation access, and socioeconomic development across Indonesian regions. Moreover, geographic inequality in maternal and neonatal healthcare services

remains a major challenge in many developing countries. In Indonesia, disparities in place of residence and regional socioeconomic conditions have also been reported to contribute to variations in the prevalence of low birth weight (LBW) (8)(17). Similarly, certain regions in Afghanistan were found to have significantly higher risks of LBW due to unequal access to healthcare services and maternal support systems (11)(28).

Multiple pregnancy was identified as the strongest factor associated with birth weight in the present study. Mothers with twin pregnancies were substantially less likely to deliver infants with normal birth weight compared with those with singleton pregnancies. This condition may occur because multiple gestations increase fetal nutritional demands and are frequently associated with preterm birth and intrauterine growth restriction. Consequently, these physiological complications may compromise fetal development and increase the likelihood of low birth weight (LBW). In Indonesia, multiple pregnancy has also been identified as a strong determinant of LBW (19)(28). Similarly, twin pregnancies were reported to significantly increase the risk of LBW among women in Burundi (19)(28).

Parity was another factor significantly associated with birth weight outcomes in this study. Primiparous mothers had lower odds of delivering infants with normal birth weight compared with multiparous mothers. This finding may be related to limited maternal experience during first pregnancies, particularly regarding nutrition, pregnancy care, and recognition of obstetric danger signs. Furthermore, physiological adaptation during the first pregnancy may also influence placental development and fetal growth. In Indonesia, primiparous women were found to have a higher likelihood of delivering infants with low birth weight (LBW) (8)(18). Similarly, higher parity has also been associated with improved birth weight outcomes in several previous studies (28)(29).

Adequate ANC utilization was significantly associated with normal birth weight in this study. Mothers who attended fewer than four ANC visits had lower odds of delivering infants with normal birth weight compared with those who received adequate ANC services. ANC plays an important role in monitoring fetal growth, detecting pregnancy complications, providing nutritional counseling, and ensuring timely medical interventions during pregnancy. Furthermore, inadequate ANC attendance may delay the identification and management of maternal complications that contribute to low birth weight (LBW). In Indonesia, adequate antenatal care (ANC) visits have been reported to significantly improve survival outcomes among children with LBW (15)(16)(30). Similarly, inadequate maternal healthcare during pregnancy has also been associated with adverse birth outcomes, including LBW (14)(15)(31).

Although maternal occupation, maternal age at first birth, place of residence, place of delivery, and iron supplementation were not statistically significant in the regression analysis, these variables remain clinically relevant in maternal and child health research. Previous studies have demonstrated that maternal nutritional status, environmental exposure, and healthcare accessibility may indirectly influence fetal growth and neonatal outcomes. Furthermore, environmental exposure during pregnancy has been reported to increase the risk of low birth weight (LBW), particularly among vulnerable mothers (4)(32). In addition, prenatal exposure to particulate matter air pollution has also been associated with reduced birth weight and adverse neonatal outcomes (33)(34).

The findings of this study have important implications for maternal and neonatal health policies in Indonesia. Interventions aimed at reducing LBW should prioritize improving maternal education, strengthening household economic conditions, expanding equitable access to maternal healthcare services, and increasing ANC coverage, particularly among socially vulnerable populations and women with multiple pregnancies. Community-based maternal nutrition and pregnancy monitoring programs may also help reduce regional disparities and improve neonatal health outcomes nationwide.

Several limitations should be considered in interpreting the findings of this study. First, the cross-sectional nature of the study limits causal interpretation between the independent variables and birth weight outcomes. Second, the use of secondary data from the 2017 IDHS may introduce recall bias, particularly for self-reported maternal information. Third, several important clinical variables, such as maternal body mass index, gestational age, smoking exposure, and maternal pregnancy complications, were not available in the dataset. Nevertheless, this study utilized nationally representative data with a large sample size, allowing the findings to provide robust evidence regarding factors associated with birth weight among married women in Indonesia.

Conclusions and Recommendations

This study identified several factors associated with birth weight among married women in Indonesia, including maternal education, wealth index, regional disparities, multiple pregnancy, parity, and antenatal care (ANC) visits. Mothers with higher educational attainment and better socioeconomic status were more likely to deliver infants with normal birth weight, whereas multiple pregnancy, primiparity, and inadequate ANC utilization were associated with lower odds of normal birth weight. These findings indicate that both socioeconomic and maternal healthcare factors play important roles in determining neonatal outcomes in Indonesia. Efforts to reduce low birth weight in Indonesia should focus on improving maternal education, strengthening economic support for vulnerable families, and increasing access to quality antenatal care services, particularly among women with high-risk pregnancies. Healthcare providers should enhance early pregnancy monitoring and maternal nutrition counseling to improve fetal growth and birth outcomes. Future studies are recommended to include additional clinical variables, such as maternal nutritional status, pregnancy complications, and gestational age, to provide a more comprehensive understanding of factors associated with birth weight in Indonesia.

Ethical Consideration and Competing Interest

The study utilized publicly available secondary data from the 2017 IDHS. Ethical approval for the original IDHS survey was obtained from The Institutional Review Board (IRB) through the ICF IRB Review Board (FWA00000845). Permission to access and use the dataset for this study was obtained from the DHS Program. There are no conflicts of interest in the writing or publication of this article.

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