

Attitudes of Anemic Primigravid Women Toward the Risks of Preterm Birth and Low Birth Weight at the Independent Midwifery Practice of Solikah, S.ST., Tulungagung RegencyFriska Oktaviana¹¹STIKes Utama Abdi Husada Tulungagung, Indonesia**ABSTRACT**

Anemia during pregnancy remains a major public health concern, particularly among primigravidae. This quantitative descriptive study aimed to describe the distribution of maternal attitudes toward the risks of low birth weight (LBW) and preterm birth among anemic primigravida pregnant women. A descriptive design was employed without evaluating determinants, associations, or causal mechanisms. Data were collected at the Independent Midwifery Practice (TPMB) of Solikah, S.ST, in Tulungagung Regency. Using an accidental sampling approach, 30 anemic primigravida pregnant women in their second and third trimesters were enrolled based on confirmed hemoglobin screening ($Hb < 11.0$ g/dL). Data were collected using a validated 15-item Likert-scale questionnaire assessing perceptions of the risks of LBW and preterm birth ($r = 0.509$ – 0.767 ; Cronbach's $\alpha = 0.868$). Scores were standardized into T-scores and categorized using a cut-off value of 50. Data were analyzed descriptively using frequency distributions and percentages. The results showed that 16 respondents (53.3%) had negative attitudes (T-score < 50), whereas 14 respondents (46.7%) had positive attitudes (T-score ≥ 50) toward anemia-related pregnancy risks. Because cognitive variables were not measured, these findings describe only the observed distribution of maternal attitudes within the sampled facility and should not be interpreted as indicators of maternal knowledge, awareness, or understanding. This study received ethical approval from the Health Research Ethics Committee (No. 135/KEPK-STIKesHAH/EC/I.DIII/2025).

Keywords: anemia, attitude, low birth weight, preterm birth, primigravid women

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INTRODUCTION

Anemia is a condition characterized by a reduction in red blood cell mass or total hemoglobin (Hb) below normal levels. In pregnant women, an Hb level below 11.0 g/dL is classified as anemia (Ministry of Health of the Republic of Indonesia, 2024). Anemia frequently occurs during pregnancy due to hemodilution—a physiological process that typically begins in the second trimester and is marked by a 30–40% increase in blood volume (Herlina, 2025).

Globally, the World Health Organization (World Health Organization, 2025) reported that the prevalence of anemia among pregnant women aged 15–49 years was 35.5% in 2023, with the South-East Asia Region recording a prevalence of 35.2% among pregnant women screened. At the national level in Indonesia, the 2023 Indonesian Health Survey (SKI) documented that 27.7% of pregnant women experienced anemia based on population-based hemoglobin testing (Ministry of Health of the Republic of Indonesia, 2023). In East Java Province, the provincial health profile reported an anemia prevalence of 43.5% among pregnant women receiving antenatal care. At the regency level, administrative health report data from Tulungagung Regency indicated that among pregnant women undergoing routine hemoglobin screening during antenatal care visits in 2023, 83.0% were identified with anemia (Hb < 11.0 g/dL) (East Java Provincial Health Office, 2024). Tulungagung Regency recorded 330 infants born with low birth weight (LBW) out of 13,219 live births (2.50%) in 2022. Occurrences of preterm birth were reported as a distinct clinical outcome in separate regional health surveillance records (Ministry of Health of the Republic of Indonesia, 2024).

Anemia is reported to be more prevalent among primigravid women (44.6%) than among multigravid women (12.8%), a disparity that may be influenced, among other factors, by limited experience and lower baseline health awareness during a first pregnancy (Balcha et al., 2023). Iron deficiency in pregnant women can trigger severe complications, including increased risks of miscarriage, preterm birth, fetal growth restriction, and heightened susceptibility to infection (Georgieff, 2021). Furthermore, anemia is associated with adverse outcomes such as preterm labor, low birth weight (LBW), antepartum and postpartum hemorrhage, as well as maternal and neonatal mortality (Litaqia & Mulat, 2025).

A pregnant woman's attitude toward anemia plays a critical role in her compliance with iron supplementation and healthy lifestyle practices during pregnancy. Women with positive attitudes are more likely to attend antenatal care (ANC) visits regularly and adhere to prescribed iron supplementation (Devi et al., 2021). However, while the general relationship between health attitudes and ANC compliance is recognized, limited empirical evidence exists regarding how anemic primigravid women specifically perceive the dual risks of low birth weight (LBW) and preterm birth within primary midwifery care settings. Given the high local prevalence of anemia, a descriptive study is needed to establish baseline data on these attitudes, which is critical for tailoring targeted, site-specific antenatal counseling. Therefore, this study aimed to describe the attitudes of anemic primigravid women toward the risks of low birth weight and preterm birth at the Independent Midwifery Practice of Solikah, S.ST., Tulungagung Regency.

METHODS

This study utilized a quantitative descriptive design aimed strictly at describing the distribution of positive and negative attitudes toward the risks of low birth weight (LBW) and preterm birth among anemic primigravid women in their second and third trimesters. In accordance with the descriptive nature of this design, no inferential analyses were performed to evaluate factors associated with maternal attitudes or to explain causal mechanisms underlying these attitudes.

The target population comprised all second- and third-trimester primigravid women attending antenatal care (ANC) visits at the Independent Midwifery Practice of Solikah, S.ST., Tulungagung Regency. Data collection was conducted over a 5-day period from May 6 to May 10, 2025, which was strategically selected to coincide with the facility's scheduled peak ANC service days based on historical practice records. During this period, a total of 35 primigravid women attended ANC services. Using an accidental sampling approach, all 35 attendees were screened for eligibility. Five women were excluded (three did not meet the anemia criterion upon testing and two declined participation), yielding a final sample of 30 eligible respondents who met

the inclusion criteria: primigravid women in their second or third trimester with confirmed anemia (Hb < 11.0 g/dL). With 30 participants enrolled out of 35 attendees, the study achieved an 85.7% response rate, representing the complete eligible cohort available during this designated service window. Due to the non-probability accidental sampling technique used, an inherent risk of selection bias exists, and the external validity of these findings is limited to this specific facility cohort.

Hemoglobin (Hb) levels were measured at the point of care during the ANC visit using a standardized digital capillary blood hemoglobinometer (Nesco Multi-Check/EasyTouch GHb). Blood samples were obtained by finger prick using sterile, single-use lancets by a trained midwife following standard infection-control protocols. Quality control and device calibration were verified daily using test strips from a single lot before screening. In accordance with the Ministry of Health of the Republic of Indonesia guidelines, anemia was defined as a hemoglobin concentration of <11.0 g/dL, regardless of trimester, because the study setting is located at a low altitude (<100 meters above sea level). Anemia severity was categorized as mild (Hb 10.0–10.9 g/dL) or moderate (Hb 7.0–9.9 g/dL).

Data were collected using a structured attitude questionnaire adapted from established maternal health literature, with permission for adaptation obtained before use. The questionnaire comprised 15 items divided into two domains: perceptions of low birth weight (LBW) risks (7 items) and perceptions of preterm birth risks (8 items). The instrument consisted of eight favorable and seven unfavorable statements evaluated using a 4-point Likert scale (strongly agree, agree, disagree, and strongly disagree). Favorable items were scored from 4 (strongly agree) to 1 (strongly disagree), whereas unfavorable items were reverse-scored from 1 (strongly agree) to 4 (strongly disagree), yielding a total possible raw score ranging from 15 to 60.

Prior to the primary data collection, the questionnaire was pilot-tested on 10 primigravid women with similar characteristics at a neighboring health facility. Item validity was evaluated using Pearson's product-moment correlation coefficient (r), retaining items with $r_{\text{calculated}} > r_{\text{table}}$ (0.632, $\alpha = 0.05$). Of the initial 18 items tested, 15 were retained ($r = 0.509\text{--}0.767$), while three invalid items were discarded. The internal consistency reliability of the final 15-item questionnaire yielded a Cronbach's alpha of 0.868, indicating high reliability.

To standardize individual score distributions, raw scores were converted into T-scores using Azwar's formula $T = 50 + 10[(X - \bar{X})/s]$ where X represents the respondent's raw score, $\bar{X}$ represents the sample mean raw score, and s represents the standard deviation of the raw scores. The cutoff value of 50 referred to each respondent's individual T-score, with T-scores ≥ 50 classified as a positive attitude and T-scores < 50 classified as a negative attitude. Data were summarized descriptively using frequencies and percentages.

Ethical approval for this study was granted by the Health Research Ethics Committee of STIKES Hutama Abdi Husada Tulungagung (No. 135/KEPK-STIKesHAH/EC/I.DIII/2025) on June 5, 2025. Written informed consent was obtained from all participants before enrollment. Voluntary participation, anonymity, data confidentiality, beneficence, and non-maleficence were maintained throughout the study.

RESULTS

Table 1. Frequency Distribution of Respondents by Age

No	Age Category	Frequency (n)	Percentage (%)
1	< 20 years	1	3.3%
2	20–35 years	29	96.7%
3	> 35 years	0	0%
Total		30	100%

Table 1 shows that the vast majority of respondents (96.7%) were aged 20–35 years. Only one respondent (3.3%) was under 20 years of age, and no respondents were over 35 years of age.

Table 2. Frequency Distribution of Respondents by Last Education

No	Last Education	Frequency (n)	Percentage (%)
1	Senior High School	28	93.3%
2	Higher Education	2	6.7%
Total		30	100%

As shown in Table 2, nearly all respondents (93.3%) had completed senior high school as their highest level of education, while only 2 respondents (6.7%) had pursued higher education.

Table 3. Frequency Distribution of Respondents by Occupation

No	Occupation	Frequency (n)	Percentage (%)
1	Housewife / Unemployed	15	50.0%
2	Self-employed	13	43.3%
3	Private Employee	2	6.7%
Total		30	100%

Table 3 shows that half of the respondents (50%) were housewives or unemployed, followed by self-employed respondents (43.3%), and private employees (6.7%).

Table 4.
Frequency Distribution of Attitudes of Primigravida Pregnant Women with Anemia

No	Attitude Category	Frequency (n)	Percentage (%)
1	Positive	14	46.7%
2	Negative	16	53.3%
Total		30	100%

Table 4.4 reveals that out of 30 respondents, 16 (53.3%) demonstrated negative attitudes and 14 (46.7%) demonstrated positive attitudes toward the risks of LBW and preterm birth associated with anemia during pregnancy. Regarding clinical characteristics, all respondents were in their second or third trimester (n = 30, [100%]). The mean hemoglobin level among

participants was 9.8 ± 0.6 g/dL, with the majority exhibiting mild anemia (Hb 10.0–10.9 g/dL; $n = 20$, [66.7%]) and moderate anemia (Hb 7.0–9.9 g/dL; $n = 10$, [33.3%]).

DISCUSSION

The findings of this study indicate that, among 30 primigravida pregnant women with anemia, 16 respondents (53.3%) had negative attitudes toward the risks of low birth weight (LBW) and preterm birth, while 14 respondents (46.7%) demonstrated positive attitudes. This reflects a relatively balanced distribution between negative and positive attitudes within the sample, with a difference of only two respondents. According to the ABC model of attitude, attitude is defined as a learned predisposition to respond consistently in a favorable or unfavorable manner toward a specific object—in this case, the perceived risks of LBW and preterm birth. The assessment of these cognitive and affective components provides a baseline description of maternal attitudes. Because knowledge and awareness were not measured separately, the observed difference in attitude categories should be interpreted descriptively as reflecting variation in individual perceptions of risk rather than differences in maternal health knowledge or awareness (Bench-Capon & Dunne, 2007; Herlina, 2025).

From a demographic perspective, most respondents (96.7%) were between 20 and 35 years of age (Rahmawati et al., 2024). Because no inferential statistical analysis was performed to examine the relationship between maternal age and attitudes, this finding is presented solely to describe the characteristics of the study population. Similar demographic patterns have been reported in previous studies involving primigravida women in primary healthcare settings, where participants were predominantly within the optimal reproductive age range.

Regarding educational background, 93.3% of respondents had completed senior high school. Educational attainment is commonly reported as a demographic characteristic in maternal health research (Mbowe et al., 2025). In the present study, education is described only as a baseline characteristic. No statistical analysis was conducted to determine whether educational level was associated with maternal attitudes toward the risks of LBW and preterm birth.

With respect to occupation, half of the respondents (50.0%) were housewives, while the remainder were employed in various occupations (Firizkia & Dewi, 2025). Occupational status is reported solely to describe the socioeconomic profile of the study participants. Because inferential analyses were beyond the scope of this descriptive study, no conclusions can be drawn regarding the influence of occupation on maternal attitudes.

Anemia during pregnancy remains an important public health concern because it is associated with adverse maternal and neonatal outcomes, including preterm birth and low birth weight (Litaqia & Mulat, 2025). Appropriate management includes consuming iron-rich foods, increasing vitamin C intake to enhance iron absorption, and avoiding substances such as tea and coffee around mealtimes that may inhibit iron absorption (Diana et al., 2019). In addition, regular antenatal care (ANC), adherence to iron supplementation, and continuous monitoring by midwives remain essential components of maternal healthcare services (Antarsih & Siregar, 2025).

This study has several limitations. First, it employed a quantitative descriptive design conducted at a single primary healthcare facility with a relatively small sample size ($n = 30$) recruited through accidental sampling during a five-day data collection period, which limits the generalizability of the findings. Second, data were collected using self-administered questionnaires and may therefore be subject to response bias. Finally, because no inferential statistical analyses were performed, this study cannot identify factors associated with maternal attitudes or determine causal relationships.

CONCLUSION

This study found that among 30 primigravida pregnant women in the second and third trimesters with anemia at TPMB Solikah, S.ST, Tulungagung Regency, 53.3% (n = 16) exhibited negative attitudes and 46.7% (n = 14) exhibited positive attitudes toward the risks of low birth weight (LBW) and preterm birth associated with anemia. Because this study evaluated attitude strictly through a closed-ended questionnaire, these findings report only the observed proportions of maternal dispositions and do not infer levels of maternal awareness or health understanding. Furthermore, these results are descriptive in nature and are strictly limited to the specific cohort of ANC attendees sampled at this facility during the study period.

RECOMMENDATION

Healthcare providers, particularly midwives providing antenatal care, are encouraged to strengthen health education and counseling regarding the risks of anemia during pregnancy, including its association with low birth weight (LBW) and preterm birth. Future studies are recommended to involve larger and more diverse populations across multiple healthcare facilities and to employ analytical study designs to identify factors associated with maternal attitudes. The use of validated instruments together with behavioral and clinical outcome measures is also recommended to provide a more comprehensive understanding of maternal attitudes toward anemia during pregnancy.

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