

Factors Associated with Pregnant Women's Behavior in Preventing Low Birth Weight in the Working Area of Bareng Community Health Center, Malang City

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Published: August, 2026

ABSTRACT

Low Birth Weight (LBW) remains a major neonatal health problem, with a prevalence of 9.2% in the working area of the Bareng Community Health Center in Malang City, the highest compared to other sub-districts. The aim of this study was to identify factors related to pregnant women's behavior in preventing low birth weight (LBW). This study used a quantitative descriptive design with a Cross-Sectional approach. The population in this study was all pregnant women in The working area of the Bareng Community Health Center in Malang City. The sampling technique using total sampling and collected as many as 45 respondents. Data were collected using questionnaires and MCH books, then analyzed bivariately using the chi-square test. The results showed a significant relationship between education factors and the behavior of pregnant women in preventing low birth weight ($p\text{-value} = 0.018$). The higher the education level of pregnant women, the better their behavior in preventing low birth weight (LBW). Efforts to improve LBW prevention behavior can be carried out through ongoing education, increased access to ANC checkups, and family and community involvement in supporting pregnant women.

Keywords: low birth weight; pregnant women's behavior; education; family support; ANC visits

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INTRODUCTION

Low birth weight (LBW) is a neonatal health problem that contributes to high infant mortality rates, especially in the first month of life. Babies with a history of LBW are not only at high risk of mortality, but also face long-term morbidity challenges, such as growth disorders, susceptibility to infection, and an increased risk of degenerative diseases in adulthood. (1) Birth weight is considered a vital indicator in predicting infant survival, given its role as a major risk factor for perinatal mortality. (2)

Globally, the prevalence of LBW remains high. According to UNICEF in 2020, approximately 19.8 million babies or 14.7% of total births worldwide experienced LBW, with a higher incidence in countries with low socioeconomic status such as Indonesia. In Indonesia, data from the 2018 Basic Health Research (Riskesdas) recorded an LBW prevalence of 6.2%. Furthermore, data from the Indonesian Ministry of Health in 2020 showed that LBW contributed to 35.5% of neonatal deaths in Indonesia.

Looking at the health profile of East Java in 2023, the incidence of LBW was 4.7%. Of the 38 districts/cities in East Java, Malang City ranks 28th with an LBW incidence of 4.3% out of 501 live births. (3) Although not the highest, this figure still shows a significant level and requires special attention. Based on data from the Malang City Health Office in 2022, the *Bareng* Community Health

Center had the highest prevalence of LBW among the 5 sub-districts and 16 other community health centers in Malang City, reaching 9.2%, with a morbidity rate also classified as high at 35 cases (39,3%). (4)

The incidence of LBW is influenced by various factors, including maternal factors and pregnancy factors which indirectly reflect the mother's behavior during gestation. (5) Fetal health is highly dependent on the mother's behavior during pregnancy. If the mother's behavior is poor, the risk of complications and low birth weight will increase. (6) This is in line with research by Rina Sulastri and Lia Kurniasari which shows that mothers who give birth to LBW babies tend to have negative behaviors based on a lack of knowledge and attitudes during pregnancy. (7)

The urgency of preventing LBW is evident from preliminary study data at the Bareng Community Health Center. In 2024, the recorded incidence of LBW was 8.1% (36 out of 445 live births), a figure that remains above the national ideal limit ($<7\%$). This high prevalence indicates that existing prevention efforts are not yet fully effective. Although numerous studies have investigated the causes of LBW, research specifically addressing factors related to maternal behavior in prevention efforts remains limited. Therefore, this study is crucial to identify the determinants of such behavior in order to formulate appropriate intervention strategies within the Bareng Community Health Center catchment area.

METHOD

This study is a quantitative descriptive study with a cross-sectional approach conducted in the working area of the Bareng Community Health Center in Malang City from June to July 2025 to analyze factors related to BBLR prevention behavior. The study population included all pregnant women in the area, with a total sampling technique used to obtain 45 respondents who met the inclusion criteria, namely pregnant women in their second and third trimesters who had a maternal and child health (KIA) book and were willing to participate. This study only had one variable, namely factors related to pregnant women's behavior in preventing LBW, and its sub-variables included education, economic status, family support, social norms, and ANC visits. Data were collected through primary data using a structured questionnaire that had been tested for validity and reliability, as well as secondary data from KIA cards, then analyzed univariately and bivariately using the Chi Square statistical test after undergoing an ethical review process (ethical clearance) from the Health Research Ethics Committee of the Malang Ministry of Health Polytechnic and the signing of informed consent by the respondents.

FINDING AND DISCUSSION

Result

This study was conducted on 45 pregnant women in the working area of the Bareng Community Health Center in Malang City who entered their second and third trimesters in June-July.

Univariate Analysis

Table 1. Analysis of Characteristics of Pregnant Women in the Working Area of Bareng Community Health Center, Malang City, in June-July 2025

Characteristics	f	(%)
Respondents' Age		
< 20 years old	1	2,2
20 – 35 years old	40	88,9
> 35 years old	4	8,9
Total	45	100
Respondent's Gestational Age		
Second trimester	31	68,9
Third trimester	14	31,1
Total	45	100

Respondent's Parity		
Primipara	20	44,4
Multipara	25	55,6
Total	45	100

Table 1 shows that the majority of respondents were aged 20-35 years, namely 40 people (88.9%), while in the age group <20 years only 1 person was found (2.2%). Based on gestational age, the majority of respondents were pregnant women in the second trimester, namely 31 people (68.9%). Meanwhile, in the parity category, the majority of respondents were multiparous, namely 25 respondents (55.6%).

Overview of Factors Related to the Behavior of Pregnant Women in Preventing Low Birth Weight

Table 2. Overview of Factors Related to the Behavior of Pregnant Women in Preventing Low Birth Weight in the Working Area of the Bareng Community Health Center in Malang City in June-July 2025

Factors Associated with Pregnant Women's Behavior in Preventing Low Birth Weight	f	(%)
Education		
Elementary school	3	6,7
Junior high school	6	13,3
Senior high school	20	44,4
College	16	35,6
Total	45	100
Economic Status		
Lower Class	24	53,3
Middle Class	7	15,6
Upper Class	14	31,1
Total	45	100
Family Support		
Good	39	86,7
Adequate	6	13,3
Total	45	100
Social Norms		
Supportive	45	100
Total	45	100
ANC Visits		
Regular	37	82,2
Irregular	8	17,8
Total	45	100
Behavior of Pregnant Women in Preventing Low Birth Weight		
Good	25	55,6
Not Enough	20	44,4
Total	45	100

Based on Table 2, the results show that the most common educational level among respondents was high school/vocational school, with 20 respondents (44.4%), while 3 respondents (6.7%) had an elementary school education. In terms of economic status, the majority belonged to the lower-income group 24 respondents (53.3%). Regarding family support, 39 respondents (86.7%)

received good support, while only 6 respondents (13,3%) received adequate support. Notably, all respondents (100%) lived within supportive community norms. All respondents had 100% supportive community norms. The majority of respondents had made regular ANC visits, totaling 37 (82.2%). Regarding the behavior of pregnant women in preventing LBW, the majority of respondents had good behavior, totaling 25 respondents (55.6%).

Cross-tabulation of Factors related to pregnant women's behavior in preventing low birth weight

Table 3. Cross-tabulation Results of Factors Related to Pregnant Women's Behavior in Preventing Low Birth Weight in the Working Area of the Bareng Community Health Center, Malang City, in June-July 2025

Factors That Influence Behavior	Behavior of Pregnant Women in Preventing Low Birth Weight				Total	P-Value	OR
	Good		Less				
	f	%	f	%			
Education Factors							
Elementary School	0	0	3	100	3	0,018	0,272 (0,106-0,699)
Junior High School	1	16,7	5	83,3	6		
Senior High School	12	60	8	40	20		
College	12	75	4	25	16		
Total	25	55,6	20	44,4	45		
Economic Status							
Lower Class	11	45,8	13	54,2	24	0,308	
Middle Class	4	57,1	3	42,9	7		
Upper Class	10	71,4	4	28,6	14		
Total	25	55,6	20	44,4	45		
Family Support							
Good	23	59,0	16	41,0	39	0,383	
Fair	2	33,3	4	66,7	6		
Total	25	55,6	20	44,4	45		
Social Norms							
Supportive	25	55,6	20	44,4	45	N/A	
Total	25	55,6	20	44,4	45		
ANC Visits							
Regular	23	62,2	14	37,8	37	0,113	
Irregular	2	25	6	75	8		
Total	25	55,6	20	44,4	45		

Based on Table 3, the results of the chi-square analysis show that of the five factors, the education factor has a P-value of 0.018, meaning that at an alpha of 5% there is a significant relationship between the education factor and the behavior of pregnant women in preventing LBW. Meanwhile, the economic status, family support, social norms, and ANC visits factors have a P-value > 0.05, meaning that there is no significant relationship with pregnant women's behavior in preventing LBW. Then, from the results of the multiple logistic regression statistical test, an OR (Odd Ratio) value of 0.272 was obtained, which means that pregnant women with a high level of education are 0.272 times less likely to exhibit poor behavior in preventing LBW compared to pregnant women with low education.

Discussion

Based on an analysis of factors related to the behavior of pregnant women in preventing LBW in the working area of the Barend Community Health Center, it was found that education level is the main determinant that has a significant relationship with the behavior of pregnant women in preventing low birth weight (LBW). The results of the study prove that education level is directly proportional to the quality of preventive behavior; the higher the mother's education level, the better the preventive efforts made during pregnancy. This finding confirms that mothers with higher educational backgrounds have better health literacy, making them more proactive in seeking information, complying with nutritional recommendations, and practicing independent health management. This is in line with Putri's (2024) research, which concluded that maternal characteristics, particularly educational level, contribute significantly to shaping positive health behaviors. (5) In addition, Subekti & Barni (2023) also emphasize that the level of education of pregnant women has a very strong influence on the formation and strengthening of health behaviors. Pregnant women with good behaviors are most commonly found among those with higher education. Education can influence a person's behavior in terms of health behaviors. The ease with which a person can accept information can be seen from their level of education. The information in question can be obtained from health workers during ANC check-ups, pregnant women's classes, at health posts, or by reading KIA books. The knowledge gained will be more easily accepted and applied. (8) In line with this view, a recent study by Safitri et al. (2024) further strengthens this argument by finding a linear correlation between education level and maternal responsiveness, where educated mothers not only 'know' but are also able to translate that knowledge into concrete early preventive actions.

Unlike educational factors, economic status variables were not found to have a statistically significant relationship with BBLR prevention behaviors in this study, although descriptively there appeared to be a tendency for mothers from low economic groups to be more prone to less favorable behaviors. This finding contradicts several theories that place economics as an absolute factor in maternal nutrition fulfillment. This contrasts with the study by Sitorus et al. (2022), which found that socioeconomic status significantly affects a family's ability to provide quality nutrition to prevent LBW. (9) These results suggest that the health behaviors of pregnant women are not solely determined by financial capacity, even though economic limitations are often associated with barriers to accessing nutritious food and health services. Adequate education and access to health services can help overcome these barriers. Thus, preventive behaviors can be formed independently of economic status if supported by sufficient knowledge.

Similar to economic status, family support was also not found to have a significant relationship with mothers' behavior in preventing LBW in this study. Although health behavior theory often places social support as a reinforcing factor, in the context of this study, the relatively uniform existence of family support among respondents meant that this variable did not become a major differentiator in the quality of preventive behavior. In fact, according to Syafitri et al. (2023), optimal family support, both in the form of emotional attention and material assistance, should be a strong predictor that encourages mothers to adopt positive health behaviors. (10) This differs from other findings that highlight the crucial role of the family in pregnant women's compliance. Synergistic family involvement with healthcare providers is essential for creating an effective supportive ecosystem for pregnant women during gestation. (11) This phenomenon suggests that emotional or instrumental support from the family alone is insufficient without specific understanding of the medical or health actions pregnant women need to take to prevent LBW.

Furthermore, social norms also did not show a significant correlation with BBLR prevention behavior. This is likely due to the homogeneity of the data, in which social norms in the region tend to be uniformly supportive, making it difficult to statistically detect variations in their influence on individual behavior. The values and norms that apply in society are actually the basis for character building and social compliance, but their effectiveness is highly dependent on the internalization of the individual. (12) Alim's (2024) research also highlights that subjective norms, although influential, often work in tandem with personal knowledge and attitudes in determining compliance with health

recommendations. (13) Nevertheless, the role of the social environment cannot be simply ignored. Haque et al. (2024) argue that social norms still play a vital role as a frame of reference that guides individual compliance in practicing healthy behaviors such as timely antenatal visits. (14) Furthermore, Arwiyantasari et al. (2024) add that the success of long-term health behaviors is highly dependent on the consistency of supportive social norms, which ideally go hand in hand with medical interventions. One form of social and cultural values that still persists is the prohibition of consuming certain foods. These prohibitions are intended to protect pregnant women from potential complications during childbirth, but in reality, this practice can have adverse effects on the health of pregnant women and their fetuses, particularly due to limited nutritional intake during pregnancy. (15)

Another interesting finding was the absence of a significant relationship between the regularity of Antenatal Care (ANC) visits and BBLR prevention behavior. Theoretically, a high frequency of ANC visits should correlate with better health behavior due to exposure to information from health workers. As stated by Sipayung et al. (2024), pregnant women who make fewer than four ANC visits or do not attend regularly have a higher risk of giving birth to LBW babies than mothers who attend ANC visits as recommended, because the growth and development of the fetus is not optimally monitored. (6) However, the fact that regular visits do not guarantee good LBW prevention behavior indicates a gap between the quantity of visits and the quality of services received. Simply making routine visits does not necessarily guarantee that pregnant women will receive or absorb effective health education to change their behavior. Regular ANC visits need to be balanced with the quality of interaction and in-depth counseling in order to truly have an impact on improving mothers' preventive behavior against the risk of LBW.

CONCLUSIONS

Based on the results of the research that has been conducted, it can be concluded that maternal educational level of pregnant women is a major determinant that has a significant relationship with LBW prevention behavior. Mothers with higher educational backgrounds demonstrate a better ability to absorb health information, so they tend to be more proactive and disciplined in implementing preventive measures during pregnancy. This confirms that health literacy built through formal education is an important foundation in shaping awareness and concrete actions to maintain fetal health.

On the other hand, factors such as economic status, family support, social norms, and Antenatal Care (ANC) visits were not found to have a significant relationship with preventive behavior in preventing LBW in the group studied. These findings indicate that financial capability, existing social support, or the high number of visits to health facilities do not necessarily guarantee the formation of optimal preventive behavior if not accompanied by adequate understanding.

As a recommendation, efforts to reduce the incidence of LBW should not only focus on accessibility to services or economic assistance alone, but should also emphasize intensive and targeted education strategies. Health workers are advised to improve the quality of Information, Education, and Communication (IEC) during ANC visits, ensuring that every pregnant woman fully understands the risks and comprehensive methods of preventing LBW. Additionally, for future researchers, it is recommended to explore further through qualitative approaches or to examine other variables such as the role of health workers and access to digital information to enrich perspectives on the determinants of LBW prevention.

Acknowledgement

The author would like to express profound gratitude to all parties who have supported and contributed to the completion of this research. Special thanks are extended to the Health Research Ethics Committee of the Malang Ministry of Health Polytechnic for reviewing and granting ethical clearance for this study. The author also deeply appreciates the Head and staff of the Bareng Community Health Center in Malang City, as well as the Malang City Health Office, for their permission, cooperation, and assistance in providing preliminary data and facilitating the data

collection process. Lastly, sincere gratitude is addressed to all the pregnant women in the working area of the Bareng Community Health Center who willingly participated as respondents and dedicated their time to this study.

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