KESANS: International Journal of Health and Science
2808-7178 / 2808-7380
http://kesans.rifainstitute.com/index.php/kesans/index

Association Between Nutrition Knowledge and Maternal Nutritional Status Among Pregnant Women in Neglawangi Village, Bandung Regency, 2025: A Cross-Sectional Study

[1]Ika Khairunnisa*, [2]Tri Arini Puspa Wati Manik, [3]Filla Alfazriani Darson, [4]Nely Bonita

[1]Bachelor of Midwifery Program, Sekolah Tinggi Kesehatan Indonesia Wirautama, Bandung, West Java, Indonesia*; email: khairunnisaika0410@gmail.com
[2]Bachelor of Midwifery Program, Sekolah Tinggi Kesehatan Indonesia Wirautama, Bandung, West Java, Indonesia; email: puspamanik123@gmail.com
[3]Bachelor of Midwifery Program, Sekolah Tinggi Kesehatan Indonesia Wirautama, Bandung, West Java, Indonesia; email: Fillaalfazriani@gmail.com
[4]Bachelor of Midwifery Program, Sekolah Tinggi Kesehatan Indonesia Wirautama, Bandung, West Java, Indonesia; email: nelybonita93@gmail.com
*Correspondence

Article Information
Submitted: **04 February 2026**
Accepted: **21 April 2026**
Publish: **25 April 2026**

Keyword: Pregnancy; Nutrition Knowledge; Maternal Nutritional Status; Mid-upper Arm Circumference; Chronic Energy Deficiency;

Abstract

Introduction: *Maternal nutritional status during pregnancy is essential for maternal health and fetal growth; inadequate intake may lead to chronic energy deficiency and adverse outcomes.* ***Objective:*** *To determine the association between pregnant women's nutrition knowledge and maternal nutritional status in Neglawangi Village, Kertasari District, Bandung Regency.* ***Method:*** *A quantitative cross-sectional study was conducted in August 2025 among all pregnant women in the village (total sampling; n = 35). Nutrition knowledge was measured using a structured questionnaire, and nutritional status was assessed using mid-upper arm circumference to classify chronic energy deficiency risk. Data were analyzed using univariate frequency distributions and a chi-square test at a 0.05 significance level.* ***Result and Discussion:*** *Most participants had a moderate level of knowledge (13/35; 37.1%), while more than half were classified as having chronic energy deficiency risk (18/35; 51.4%). Statistical testing showed a significant association between knowledge level and maternal nutritional status (p value = 0.016), indicating that knowledge is related to nutritional status in this setting.* ***Conclusions:*** *Pregnant women's nutrition knowledge was significantly associated with maternal nutritional status, with a high proportion of chronic energy deficiency risk observed in the study population.*

How to Cite **Ika Khairunnisa, Tri Arini Puspa Wati Manik, Filla Alfazriani Darson, Nely Bonita/Association Between Nutrition Knowledge and Maternal Nutritional Status Among Pregnant Women in Neglawangi Village, Bandung Regency, 2025: A Cross-Sectional Study/Vol. 5, No. 7, 2026**
DOI https://doi.org/10.54543/kesans.v5i7.579
e-ISSN/p-ISSN **2808-7178 / 2808-7380**
Published by **CV. Rifainstitut/KESANS: International Journal of Health and Science**

Association Between Nutrition Knowledge and Maternal Nutritional Status Among Pregnant Women in Neglawangi Village, Bandung Regency, 2025: A Cross-Sectional Study

Introduction

Maternal nutritional status during pregnancy is a critical determinant of maternal health and fetal growth because energy and nutrient requirements increase to support maternal–placental tissue development and fetal growth (Murniasih, Pramadhani, & Sapani, 2025); (Handayani, Gunarmi, & Agusman, 2022). Inadequate nutritional intake during pregnancy contributes to adverse birth outcomes, including low birth weight (LBW) and preterm birth (Nasriyah & Ediyono, 2023); (Adhisty, 2025). Globally, in 2020 an estimated 14.7% of infants were born with LBW, indicating a persistent public health problem closely linked to long-term maternal undernutrition and the quality of antenatal care (UNICEF, 2023; World Health Organization, n.d.). UNICEF also reported that the number of pregnant and breastfeeding women affected by acute malnutrition increased from 5.5 million to 6.9 million (a 25% rise) since 2020 in the most crisis-affected settings, underscoring the continuing vulnerability of maternal nutrition worldwide (UNICEF, 2023).

In Indonesia, maternal undernutrition remains a major concern, one manifestation of which is chronic energy deficiency (CED) during pregnancy (Kementerian Kesehatan Republik Indonesia, 2021). CED risk among pregnant women is commonly assessed using mid-upper arm circumference (MUAC), with MUAC < 23.5 cm widely applied in Indonesia as a cutoff for CED risk (Riskesdas, 2020). According to Riskesdas (2020), the prevalence of CED risk among pregnant women aged 15–49 years remains substantial at 18.3%. Local reports further suggest variability in burden and program achievement at the provincial and district levels, indicating the continued need for effective promotive and preventive strategies in specific communities (Kementerian Kesehatan Republik Indonesia, 2022).

Preventing CED and improving maternal nutrition require interventions that extend beyond food availability and service access to address cognitive and behavioral determinants (Dungi et al., 2025); (Wathon, 2025); (Sutiyono, Makmun, & Kumalasari, 2025). WHO antenatal care recommendations emphasize the importance of effective communication and nutrition counseling during ANC visits to support healthy dietary practices and adequate nutrient intake (World Health Organization, 2023). In this context, maternal knowledge is a key foundation for behavior change because it influences how individuals interpret health information, make dietary decisions, and practice healthy eating during pregnancy (Retnaningtyas, Kartikawati, & Nilawati, 2022); (Prajayanti & Baroroh, 2023); (Kuswanti & Azzahra, 2022). Evidence also suggests that nutrition education can improve nutrition knowledge and in some settings, attitudes and practices, supporting the positioning of knowledge as an important target for maternal nutrition interventions (Wulandari, Sulistyaningtyas, & Jaya, 2021); (Melati & Afifah, 2021)

Several Indonesian studies conducted in health facilities and community settings have reported associations between maternal knowledge and nutritional status. Studies by Elisa (2017), and Andi (2021) consistently indicate that maternal knowledge is related to nutritional status among pregnant women. However, an important evidence gap remains in specific local contexts particularly areas characterized by limited food and health service access, distinct socio-economic conditions, and geographic barriers which may modify the relationship between knowledge and nutritional status (Nuraeni et al., 2021). Therefore, findings from other regions may not fully represent communities with different constraints on dietary adequacy and nutrition-related practices.

Neglawangi Village, Kertasari Subdistrict, Bandung District, is one such area where preliminary observations indicated CED among pregnant women. An interview with the village midwife reported that 7 out of 10 pregnant women experienced CED, and one contributing factor identified was the long distance from households to the market, which may limit access to and consumption of nutritionally balanced foods (Paramita, 2019). No similar study had previously been conducted in Neglawangi Village focusing specifically on pregnant women's nutrition knowledge in relation to nutritional status. These conditions highlight the need for locally grounded evidence to inform targeted nutrition education and community-based strategies (Kurniasih et al., 2020).

In addition to generating local evidence, the interpretation of CED risk in Neglawangi Village requires attention to practical constraints and locally feasible solutions. In geographically constrained settings, nutrition counseling may be more effective when it translates recommendations into affordable daily menus based on locally available ingredients, including feasible sources of protein and energy from household food stocks rather than relying on market-purchased items. Community-based actions such as small household or communal nutrition gardens can also strengthen access to vegetables and micronutrient-rich foods, while reinforcing regular consumption through behavior change support. At the service level, strengthening supplementary feeding (PMT) for pregnant women at risk and improving referral pathways for CED/SEZ risk identification can support early action and continuity of care, particularly when combined with ANC counseling and community follow-up mechanisms

Accordingly, this study aimed to analyze the relationship between pregnant women's nutrition knowledge and maternal nutritional status in Neglawangi Village, Kertasari Subdistrict, Bandung District, with nutritional status assessed using MUAC (CED risk cutoff < 23.5 cm). Specifically, the objectives were to: (1) describe the distribution of pregnant women's nutrition knowledge levels, (2) describe the distribution of maternal nutritional status based on MUAC, and (3) examine the association between nutrition knowledge and nutritional status among pregnant women in the study area. The findings are expected to provide evidence for strengthening nutrition education within ANC and community services and for planning interventions that consider local barriers to food access

Method

This study employed a quantitative approach with a cross-sectional design, in which exposure (maternal knowledge) and outcome (nutritional status) were assessed simultaneously at one point in time. The research was conducted in Neglawangi Village, Kertasari District, Bandung Regency, during August 2025. The target population comprised all pregnant women (trimester I–III) in Neglawangi Village (N = 35), and total sampling was applied so that the entire population was included as the study sample (Arikunto, 2019). Maternal knowledge regarding nutritional status was measured using a structured questionnaire developed to represent the study sub-variables instrument testing retained 34 valid items from 50, with high internal consistency (Cronbach's alpha = 0.876). Nutritional status was assessed using mid-upper arm circumference (MUAC/LILA) categories (KEK vs non-KEK) based on the standard cutoff of < 23.5 cm. Data were analyzed using univariate frequency distributions and bivariate chi-square tests with a significance level of $\alpha = 0.05$, performed in SPSS

Result and Discussion

1. Result

Scientific finding 1 (knowledge profile): Most respondents had moderate (sufficient) nutrition knowledge (37.1%), while "good" and "poor" knowledge were equal (31.4% each)

Table 1
Distribution of pregnant women's nutrition knowledge (n = 35)

Knowledge level	n	%
Good	11	31.4
Moderate/Sufficient	13	37.1
Poor	11	31.4
Total	**35**	**100**

Source: Primary Data, 2025.

Scientific finding 2 (nutritional status): Slightly more than half of respondents were classified as CED/KEK based on MUAC/LiLA (51.4%), indicating a substantial local burden of maternal undernutrition.

Table 2
Nutritional status based on MUAC/LiLA (n = 35)

MUAC/LiLA category	n	%
CED/KEK	18	51.4
Non-CED/Non-KEK	17	48.6
Total	**35**	**100**

Source: Primary Data, 2025.

Scientific finding 3 (hypothesis testing): There was a statistically significant association between knowledge level and maternal nutritional status (chi-square $p = 0.016$, $\alpha = 0.05$). This result supports the study hypothesis that maternal knowledge is related to nutritional status.

Table 3
Association between knowledge level and nutritional status (chi-square test)

Knowledge level	CED/KEK n (%)	Non-CED/Non-KEK n (%)	Total n (%)	p-value
Good	6 (17.1)	5 (14.3)	11 (31.4)	
Moderate/Sufficient	10 (28.6)	3 (8.6)	13 (37.1)	**0.016**
Poor	2 (5.7)	9 (25.7)	11 (31.4)	
Total	**18 (51.4)**	**17 (48.6)**	**35 (100)**	

Source: Primary Data, 2025.

2. Discussion

Distribution of knowledge: why "moderate" dominates

The dominance of "moderate" knowledge suggests that respondents have obtained some information about pregnancy nutrition (e.g., balanced diet, impacts of deficiency, food safety), but knowledge may still be incomplete or uneven across subtopics (Sinaga, 2021). From a health-behavior perspective, "knowledge" is commonly understood as the outcome of sensory experience and information exposure, which then shapes cognitive readiness for action (Notoatmodjo, 2018, 2019). This aligns with prior Indonesian studies

showing a sizeable proportion of pregnant women having adequate but not optimal knowledge (Saifuddin, 2016).

Critical note: Knowledge is necessary but often not sufficient to produce nutritional improvement especially when enabling resources (food access, income) are constrained (Syah, 2015). The present study highlights contextual determinants such as market distance and household income as plausible influences on knowledge acquisition and nutrition practice (Ibnu, 2020; Nuraeni et al., 2021).

High CED/KEK prevalence: plausible mechanisms in this setting

More than half of respondents being categorized as CED/KEK (MUAC/LiLA-based) indicates that undernutrition is likely driven by structural barriers that limit diet quality and intake adequacy (Prawirohardjo, 2014). The long distance to the market in Neglawangi has been identified as a practical barrier that can restrict access to diverse foods, particularly animal-source foods and micronutrient-rich options (Paramita, 2019). This is consistent with nutrition theory that dietary quality depends not only on knowledge, but also on food availability, affordability, and physical access (Dartiwen, 2019; Situmorang et al., 2021). Comparatively, previous studies have reported similar findings where most respondents also had poor nutritional status during pregnancy, suggesting that maternal undernutrition remains common in similar service contexts (Rintho, 2022; Yuliani et al., 2021).

Knowledge–nutrition link: interpreting the significant association (p = 0.016)

The chi-square test indicates a meaningful relationship between knowledge level and nutritional status in this population ($p = 0.016$). This finding is directionally consistent with previous studies reporting that knowledge is related to nutritional status among pregnant women (Andi, 2021; Elisa, 2017).

However, the pattern across categories is not purely linear. In Table 3, the "moderate" knowledge group shows the largest share of CED/KEK (10/13), while the "poor" knowledge group shows a higher proportion of non-CED (9/11). Scientifically, this can occur when:

- Confounding/enabling factors dominate behavior: Even with knowledge, inadequate income and limited food access can prevent dietary improvement (Ibnu, 2020; Nuraeni et al., 2021).
- Knowledge–practice gap: Respondents may know recommendations but fail to translate them into consistent intake due to nausea, appetite changes, household food allocation, or reliance on staple-dominant diets (Paramita, 2019).
- Experience-based adaptation: Some women with lower measured knowledge may still maintain better MUAC because of prior pregnancy experience, supportive households, or better baseline nutritional reserves factors not directly measured in this study.

Key insight: The significant p-value supports the hypothesis that knowledge and nutritional status are related, but the observed distribution suggests the relationship is embedded in broader social and access conditions meaning knowledge interventions alone may not be enough without addressing food access constraints (Pakpahan et al., 2021).

Explaining "good knowledge but CED/KEK"

Some women had good knowledge yet poor nutritional status, plausibly due to market distance and limited household income, which constrain the ability to obtain balanced diets (Ibnu, 2020; Paramita, 2019). This finding highlights an important program implication: counseling and education should be paired with strategies that improve access (e.g., community food support, locally available nutrient-dense food packages, strengthened supplementation adherence), so knowledge can be enacted (Kurniasih et al., 2020; World Health Organization, 2023).

Conclusion

In Neglawangi Village (n = 35), most pregnant women had moderate/sufficient nutrition knowledge (13 respondents; 37.1%), and more than half were classified as having chronic energy deficiency (CED/KEK) based on MUAC/LiLA (18 respondents; 51.4%). The chi-square test showed a significant association between maternal knowledge and nutritional status ($p = 0.016 < 0.05$), indicating that maternal knowledge is related to the nutritional status of pregnant women in this study setting.

Reference

Adhisty, Yulia. (2025). Penyuluhan Nutrisi Seimbang Bagi Ibu Hamil Risiko Tinggi. *Jurnal Pengabdian Kepada Masyarakat Mulia Madani Yogyakarta*, *3*(1), 49–55.

Dungi, Yusran, Abdul, Fazriatunnisa, Lesawengen, Angela Putri, Latif, Kharisma Suratininggrah, Gaib, Srihapsin, Mamengko, Veny Veify, Ali, Melda Miranti S., & Mashudi, Imam. (2025). Edukasi dan Pemberian Makanan Bergizi sebagai Strategi Pencegahan Stunting di Desa Bilungala Utara. *Room of Civil Society Development*, *4*(5), 826–838.

Handayani, Sri, Gunarmi, Gunarmi, & Agusman, Fery. (2022). HUBUNGAN KADAR HAEMOGLOBIN, STATUS GIZI DAN JARAK KEHAMILAN PADA IBU HAMIL DENGAN KEJADIAN STUNTING. *Jurnal Kebidanan*, 190–202.

Kuswanti, Ina, & Azzahra, Salsabila Khairani. (2022). Hubungan pengetahuan ibu tentang pemenuhan gizi seimbang dengan perilaku pencegahan stunting pada balita. *Jurnal Kebidanan Indonesia*, *13*(1).

Melati, Ika Putri, & Afifah, Choirul Anna Nur. (2021). Edukasi gizi pencegahan stunting berbasis WhatsApp group untuk meningkatkan pengetahuan dan sikap ibu hamil. *Jurnal Pangan Kesehatan Dan Gizi Universitas Binawan*, *1*(2), 61–69.

Murniasih, Elvi, Pramadhani, Wulan, & Sapani, Rizki. (2025). Studi Retrospektif: Status Gizi Ibu Hamil Trimester Tiga dengan Berat Badan Lahir Bayi. *Jurnal Skolastik Keperawatan*, *11*(02), 1–5.

Nasriyah, Nasriyah, & Ediyono, Suryo. (2023). Dampak kurangnya nutrisi pada ibu hamil terhadap risiko stunting pada bayi yang dilahirkan. *Jurnal Ilmu Keperawatan Dan Kebidanan*, *14*(1), 161–170.

Prajayanti, Hilda, & Baroroh, Ida. (2023). Pengetahuan ibu hamil tentang pentingnya gizi pada masa kehamilan. *Jurnal Kesehatan Mercusuar*, *6*(1), 1–7.

Retnaningtyas, Erma, Kartikawati, Erni, & Nilawati, Desi. (2022). *Upaya peningkatan pengetahuan ibu hamil melalui edukasi mengenai kebutuhan nutrisi ibu hamil*.

Saifuddin, A. B. (2016). *Ilmu kebidanan Sarwono Prawirohardjo*. Jakarta: PT Bina Pustaka.

Sutiyono, Sutiyono, Makmun, Muhammad, & Kumalasari, Nurya. (2025). Strategi Pencegahan Stunting Dengan Intervensi Kebijakan Publik Dan Intervensi Gizi: Systematic Literature Review. *Indonesian Journal of Health Community*, *6*(2), 33–42.

Wathon, A. (2025). Edukasi gizi seimbang: Pencegahan stunting dan peningkatan kesehatan ibu hamil di banaran. *Nafi': Jurnal Pengabdian Masyarakat*, *2*(2), 216–238.

Wulandari, Ratna Feti, Sulistyaningtyas, Luluk, & Jaya, Susanti Tria. (2021). Pendidikan kesehatan untuk meningkatkan gizi ibu hamil. *Journal of Community Engagement in Health*, *4*(1), 155–161.

Kementerian Kesehatan Republik Indonesia. (2021). *Profil Kesehatan Indonesia Tahun 2020*. Kementerian Kesehatan Republik Indonesia.

Kementerian Kesehatan Republik Indonesia. (2020). Profil Kesehatan Indonesia Tahun 2020. (Diambil 10 Januari 2025).

Kementerian Kesehatan Republik Indonesia. (2022). Sehat Negeriku. (Diambil 10 Januari 2025).

UNICEF. (2023). Low birthweight. *UNICEF Data*.
World Health Organization. (2023). *WHO recommendations on antenatal care for a positive pregnancy experience*. World Health Organization.
World Health Organization. (n.d.). Low birth weight. *WHO Nutrition Landscape Information System (NLiS)*.