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# Midwifery Perspectives on Maternal Nutritional Barriers in Stunting-Prone Areas: A Qualitative Thematic Analysis

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**ABSTRACT**

Inadequate maternal nutrition during pregnancy directly triggers chronic malnutrition and stunting, severely impacting fetal development and long-term cognitive growth. This study aims to explore the socioeconomic and cultural barriers to adequate nutritional intake among pregnant women in stunting-prone urban areas and to identify integrated solutions. A convergent parallel mixed-methods design was conducted in Cirebon City, Indonesia. Quantitative data from 42 pregnant women selected via purposive sampling a sample size adequate for thematic saturation in this localized context were collected via questionnaires and analyzed using descriptive statistics. Concurrently, qualitative insights were gathered through semi-structured in-depth interviews and analyzed using inductive thematic analysis. Economic constraints emerged as the primary barrier, with 64.3% of families living below the regional minimum wage. Cultural traditions, including specific food taboos and early marriage, further compromised dietary quality. While maternal nutritional awareness was moderate (71.4%), the quality of counselling provided by local health workers remained suboptimal and irregular. Maternal malnutrition in stunting-prone urban areas is deeply rooted in structural economic limitations and reinforced by cultural practices. Addressing this requires localized policy interventions that combine economic safety nets with culturally tailored nutritional education from healthcare providers.

## INTRODUCTION

Maternal nutritional intake during pregnancy is a critical determinant of fetal development, birth outcomes, and long-term child health. Chronic maternal malnutrition during gestation directly triggers intrauterine growth restriction (IUGR), which is a primary precursor to child stunting. Stunting permanently impairs physical growth, undermines cognitive capabilities, and severely diminishes future economic productivity.(Ramlan et al., 2025) While global frameworks emphasize multi-sectoral collaborations across health, education, and agriculture to optimize resources. (Mulyani et al., 2025), sub-national implementations often fail due to localized bottlenecks. To dissect these complex, multi-layered impediments to maternal nutrition in high-prevalence areas without falling into overly descriptive narratives, a structured analytical lens is required.

This study applies the Social Determinants of Health (SDOH) framework to systematically evaluate how structural and intermediary factors intersect to restrict nutritional compliance among

pregnant women. Under the SDOH lens, maternal health outcomes are not merely products of individual choices, but are heavily shaped by the socioeconomic status, physical environment, and cultural contexts in which women live. While standalone studies on these variables in Lower- and Middle-Income Countries (LMICs) are abundant, existing literature focuses predominantly on isolated rural populations where physical absence of healthcare facilities is the primary barrier. There is a profound shortage of evidence exploring the "urban-peripheral nutritional paradox" a condition where high physical proximity to healthcare infrastructure in urban hubs fails to translate into nutritional compliance due to underlying structural-cultural intersections.

At the structural level of the SDOH framework, economic constraints and educational disparities act as fundamental barriers to dietary quality. Lower family income restricts direct purchasing power, forcing pregnant women to substitute micronutrient-dense foods with low-cost, energy-dense, but nutrient-poor staples. (Ramlan et al., 2025) (Murphy et al., 2022) . These socioeconomic deficits also induce maternal psychological distress, which further alters healthy dietary patterns (Mulyani et al., 2025). Globally, this economic vulnerability manifests as severe micronutrient deficiencies and gestational anemia, even in newly industrialized economies (Cheng et al., 2023). Although higher maternal formal education typically improves baseline nutritional knowledge and compliance (Ruggieri et al., 2022), empirical evidence demonstrates that structured, direct educational interventions can significantly bridge this gap and improve nutritional awareness, regardless of the mother's initial educational background (Mayasari et al., 2023).

At the intermediary level, the SDOH framework highlights how physical access to healthcare services and proximal socio-cultural environments directly govern maternal behaviors. In developing regions across sub-Saharan Africa, long travel distances, poor service coverage, and high financial costs heavily compromise the quality and utilization of prenatal counseling and micro-nutrient supplementation (Papežová et al., 2023) (Fallah et al., 2013) (Sanogo et al., 2020) . Furthermore, individual nutritional intake is deeply embedded within community food preferences and social networks. In many traditional societies, dietary habits are tightly regulated by familial hierarchies, where spouses and mothers-in-law exert substantial control over food allocation, taboo food restrictions, and maternal health-seeking behaviors (Brals et al., 2019) (Yao & Agadjanian, 2018) (Mariana Morgado, João Botelho, Vanessa Machado & Proença, 2024)

A critical research gap remains regarding how these structural and intermediary determinants interact in rapidly shifting urban-peripheral contexts. Most existing studies treat economic and cultural factors as separate, parallel variables. This research addresses this limitation by examining how modern urban economic pressures (such as living below the regional minimum wage in a cash-dependent urban economy) converge with rigid, ancestral cultural food taboos and high rates of early marriage.

Cirebon City, Indonesia, presents a critical and unique case study for this paradox. As a rapidly developing urbanized hub with accessible healthcare infrastructure, specific urban-peripheral sub-districts continue to suffer from persistent stunting clusters. Therefore, this study aims to fill this empirical gap by conducting a convergent parallel mixed-methods analysis to explore the operational intersections of socioeconomic barriers and cultural traditions among pregnant women in the stunting-prone urban-peripheral landscape of Cirebon City. By doing so, this research provides the localized, actionable data necessary to transition from generic national guidelines to culturally tailored, interprofessional nutritional interventions at the community level.

Research can make a significant contribution in understanding the obstacles in fulfilling the nutritional intake of pregnant women and overcoming or finding solutions to solve problems about the causes of lack of nutritional intake of pregnant women in areas experiencing stunting crises, so that it can make a real contribution to efforts to improve the health of pregnant women and children, as well as reduce the prevalence of stunting in affected areas.

## MATERIALS AND METHODS

### Research Design

This study employed a convergent parallel mixed-methods design. This approach was selected to obtain a comprehensive understanding of the research problem by converging both quantitative descriptive data and qualitative exploratory data simultaneously. Quantitative data were utilized to capture the demographic characteristics and descriptive percentages of barriers to nutritional intake, while qualitative data explored the depth of pregnant women's experiences, socio-cultural factors, and structural obstacles in a high-stunting region.

Research Setting and Context

The study was conducted from January to July 2025 in Kalijaga Village, Harjamukti District, Cirebon City, Indonesia. This location was selected purposively based on official data from the local health office, which designated it as the area with the second-highest prevalence of stunting cases in the region. The selection critically considered geographical access to primary healthcare services, low socioeconomic profiles, and environmental vulnerability factors that directly or indirectly influence the nutritional status of pregnant women.

Participants and Sampling Strategy

A two-stage sampling strategy was implemented to maintain methodological coherence:

1. Purposive Sampling: Used to establish strict participant inclusion criteria. The criteria required participants to be: (a) pregnant women in their second or third trimester, (b) residing

permanently in Kalijaga Village, (c) having no chronic or systemic diseases that could alter dietary requirements or pregnancy outcomes, and (d) willing to participate voluntarily.

2. Snowball Sampling: To achieve the final sample size amid potential field accessibility constraints, initial informants meeting the criteria helped recruit subsequent participants.

The final sample size consisted of 42 participants ($N = 42$). For the qualitative component, data collection was ceased at this point as data saturation was achieved by the $35^{th}$ to $38^{th}$ interview, where no new themes, codes, or insights regarding nutritional barriers emerged during the concurrent thematic analysis.

**Research Instruments and Rigor**

Data were gathered using two primary instrument blocks:

- Quantitative Instrument: A structured questionnaire addressing structural barriers to nutritional intake and demographic variables. To ensure validity and reliability, the questionnaire underwent expert face validity by two senior public health nutritionists and a pilot test on 10 pregnant women outside the study area, yielding a Cronbach's alpha of $0.82$ (indicating good internal consistency).
- Qualitative Instrument: A semi-structured in-depth interview guide focusing on: (a) understanding nutritional needs, (b) socio-economic and cultural consumption patterns, and (c) institutional barriers to healthcare programs.

To ensure qualitative trustworthiness (rigor), member-checking was conducted with selected participants to confirm transcript accuracy, and peer debriefing was performed among the research team.

**Data Collection Procedure**

Data collection was executed concurrently during the field phase. Participants first completed the short quantitative questionnaire (approx. 15 minutes) and then immediately proceeded to the semi-structured in-depth interview (approx. 45–60 minutes). Interviews were audio-recorded with explicit permission, conducted in a private setting (the participant's home or a private room at the integrated health post/*Posyandu*), and supplemented by field notes to capture contextual environmental nuances.

**Data Analysis and Integration**

Quantitative and qualitative datasets were analyzed separately and integrated during the final synthesis:

- Quantitative Analysis: Demographic and questionnaire data were analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations) via SPSS version 26.

- Qualitative Analysis: Audio recordings were transcribed verbatim and analyzed using inductive thematic analysis following Braun and Clarke's six-step framework: (1) data familiarization, (2) initial code generation, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the final report. Coding and visual word-cloud mapping were managed using NVivo 12 software. Data triangulation was achieved by cross-verifying interview transcripts with quantitative questionnaire trends and field observational notes.
- Integration: The results were merged using a joint-display approach, mapping descriptive statistical figures alongside direct qualitative quotes to offer a theoretically grounded analysis of maternal nutrition barriers.

**Ethical Considerations**

This study was approved by the Institutional Review Board / Health Research Ethics Committee of Poltekkes Kemenkes Tasikmalaya (Protocol Number: No.DP.04.03/F.XVIII.20/KEPK/1069/2025). Prior to data collection, all participants were given extensive verbal and written explanations regarding the study's aims, risks, and benefits. Written informed consent was obtained from all participants. Anonymity and confidentiality were strictly maintained by assigning alphanumeric codes (e.g., P1, P2) to replace personal identifiers.

## RESULTS

**Quantitative Results: Demographic and Obstacle Profiles**

The quantitative strand captured the demographic characteristics, economic profiles, and perceived nutritional barriers of the 42 pregnant women surveyed. The data are presented systematically in Table 1.

**Table 1. Demographic and Socioeconomic Characteristics of Respondents (N = 42)**

| NO | Characteristic | | Quantity | Presentase |
|---|---|---|---|---|
| 1. | Maternal Age | < 20 | 0 | 0 |
| | | 20-35 | 35 | 83% |
| | | >35 | 7 | 17% |
| 2. | Educational Attainment | Lower (Elementary to Junior High School) | 13 | 30,9% |
| | | Secondary (Senior High School) | 28 | 66,7% |
| | | Higher (Diploma / Bachelor's Degree) | 1 | 2,4% |
| 3. | Parity Status (Gravida) | Primipara | 16 | 38,09% |
| | | Multipara | 22 | 52,38% |
| | | Grandemultipara | 4 | 9,53% |
| 4 | Monthly Household Income | Low (< 1,000,000 IDR) | 1 | 2,4% |

| | | | | |
|---|---|---|---|---|
| | | Moderate (1,000,000 – 3,000,000 IDR) | 38 | 90.48% |
| | | High (> 3,000,000 IDR) | 3 | 7,1% |
| 5 | Stunting Risk Status (Geographical Baseline) | At Risk (Residing in high-prevalence zone) | 9 | 21,4% |
| | | Low Risk | 33 | 78,6% |
| 6 | Perceived Barriers to Nutritional Intake | Present | 15 | 35,7% |
| | | Absent | 27 | 64,3% |

As indicated in Table 1, the majority of the respondents fell within the safe reproductive age matrix of 20–35 years (83.3%) and held a secondary education degree (66.6%). In terms of parity, more than half were multiparous (52.4%). Crucially, economic indicators revealed that 90.5% of the households subsisted on a moderate-to-low income ranging between 1 to 3 million IDR monthly. While 64.3% of the respondents initially reported no explicit barriers in the structured questionnaire, further cross-verification showed that 78.6% of the sample lived within designated high-risk stunting pockets, and 35.7% acknowledged direct obstacles in securing adequate daily nutrition.

**Qualitative Results: Thematic Analysis of Nutritional Barriers**

To contextualize the quantitative baseline, an inductive thematic analysis was performed on the data collected from the in-depth interviews. The structural weights of these nutritional obstacles are visualized through a thematic word-cloud (Figure 1) and a consolidated barrier distribution framework (Figure 2).


Figure 1 Figure World Cloud Nutritional intake barriers according to pregnant women

From the picture above, according to the results of an in-depth interview conducted with pregnant women, it can be seen that 50% said that the lack of nutritional intake of pregnant women was due to lack of daily food consumption, especially protein, other obstacles were economic factors,

the influence of tradition, not liking meat and fish, never attending health education meetings, lack of vegetable consumption, incomplete daily menu and drinking milk. (Figure 2).

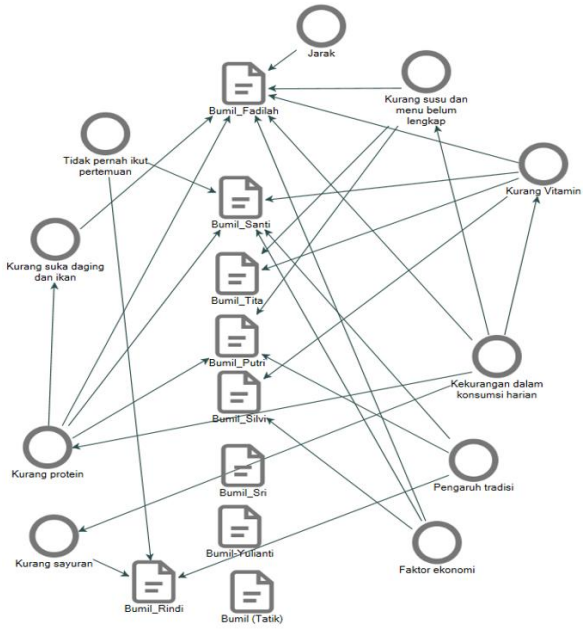


Figure 2. Figure Obstacles to meeting nutritional needs according to pregnant women

The qualitative analysis yielded two predominant core themes that characterize the breakdown of adequate maternal nutrition in the target area: Theme 1: Economic Hardships and Dietary Compression. The descriptive distribution in Figure 2 demonstrates that 50% of the qualitative narratives centered on the insufficient volume and quality of daily food consumption. Informants explicitly linked the lack of animal-based protein intake (such as meat and fish) to purchasing power constraints dictated by the household income profile (90.5% in the 1–3 million IDR tier). "We know that fish and meat are good for the baby, but with our current daily income, we have to prioritize filling foods like rice and simple side dishes. Buying fish or milk regularly is beyond our daily budget." (Participant 12, Multiparous) Theme 2: Socio-Cultural Restrictions and Dietary Taboos (Food Abstinence) Beyond economic limitations, the qualitative data revealed deep-seated traditional practices that restrict pregnant women from consuming vital nutrients. The interviews indicated that cultural myths create artificial food avoidance patterns, particularly concerning seafood and specific proteins, due to fear of pregnancy complications. “My mother and neighbors told me to avoid certain types of fish because they say it makes the delivery difficult or causes the baby to smell bad. So, even when we can afford it, I choose to avoid it to respect our family traditions." (Participant 07, Primiparous). Furthermore, the qualitative transcripts highlighted secondary themes, including a systemic lack of attendance at local health education sessions, poor individual preference for

vegetables, and irregular milk consumption, which further compounded the structural nutritional deficits.

There is a need for training, online learning, and educational applications about the health of pregnant women, with a focus on nutrition. Pregnant women prefer interactive and engaging learning methods such as role-playing, learning simulations, peer teaching, and lectures/seminars. They also like interactive books and videos as teaching materials (Putri et al., 2020). Various technological interventions, including mobile apps, online learning, social media, and telemedicine, have been shown to improve nutritional literacy and prevent anaemia in pregnant women significantly. Telemedicine, in particular, has a significant impact due to direct interaction with healthcare workers. Pregnant women are increasingly using mobile phone apps to obtain, store, and share health information, although awareness and usability of these apps need to be improved (Octovia et al., 2017). You are still in a young marriage, so you are not ready to be a mother. Early marriage, defined as marriages that occur before the age of 18, is still an important issue around the world, especially in poor and rural areas in underdeveloped and developing countries. This practice has profound implications for young brides, especially regarding their readiness to become mothers. Young brides are more likely to experience complications during pregnancy and childbirth due to their physiological immaturity. This includes high maternal and infant mortality rates, premature births, and the birth of babies with low birth weights.(Adedokun et al., 2017)(Santhya, 2011).

Long-term effects of socioeconomic factors, our findings suggest that young maternal age and limited household income limit nutritional intake. This condition can have long-term health implications for both mother and child, according to concerns raised in previous research. Socio-economic factors greatly affect the nutritional intake needs of pregnant women. The impact of socio-economic determination and the uniqueness of local culture is understood so that it does not harm the health and nutrition of pregnant women. Effective interventions in improving the nutrition of pregnant women start from understanding and education, as well as knowledge about the health of pregnant women. The economic impact (such as a pandemic or natural disaster) on maternal nutrition needs to be well-documented. Policies in handling socio-economic and nutritional issues for pregnant women need to be reviewed to assess their effectiveness in dealing with nutritional problems.

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## DISCUSSION

### The Interplay of Economic Hardships and Maternal Nutrition: An SDoH Perspective

The empirical findings of this study demonstrate a critical convergence between low household income and structural barriers to maternal nutrition. Quantitatively, 90.5% of the respondents subsisted on a monthly income of 1-3 million IDR. Qualitatively, this economic constraint directly translates into "dietary compression," where families systematically deprioritize high-quality animal proteins (meat and fish) due to purchasing power deficits.When analyzed through the lens of the Social Determinants of Health (SDoH) framework, these findings illustrate how structural determinants (socioeconomic status and income distribution) dictate the intermediary determinants of health, specifically material circumstances like food availability and individual consumption behaviors. Rather than a simple lack of nutritional literacy, the inadequate intake observed in Kalijaga Village is a direct manifestation of economic rationing. Our findings contrast sharply with broad, macroeconomic reports that often generalize maternal undernutrition as a purely educational deficit. While secondary education was high among our respondents (66.6%), it failed to buffer the negative impacts of low

income. This creates a critical contradiction to traditional assumptions: knowledge of nutrition does not automatically translate into nutritional compliance when financial access is blocked. This aligns with localized micro-studies in developing contexts, which argue that financial barriers persistently override health literacy in low-resource settings.

**Socio-Cultural Frameworks and the Persistence of Food Abstinence**

A compelling finding from the thematic analysis is the stubborn persistence of food taboos (food abstinence), particularly regarding seafood and essential proteins, driven by family traditions. This qualitative nuance explains why 64.3% of respondents initially stated in the quantitative survey that they faced "no barriers" they do not perceive deep-seated cultural norms as structural obstacles, but rather as protective maternal behaviors.This phenomenon can be critically interpreted using the Health Belief Model (HBM), specifically the balance between Perceived Barriers and Perceived Susceptibility. For these pregnant women, the "perceived barrier" of breaking a social taboo (e.g., fear of difficult delivery or social disapproval from elders) is psychologically heavier than the "perceived susceptibility" to abstract long-term risks like stunting. The local culture acts as a powerful intermediary determinant that modifies health behaviors independently of economic status.Therefore, interventions cannot merely rely on standard clinical counseling. In traditional settings, the decision-making matrix regarding maternal diet is heavily decentralized, moving away from the pregnant woman herself and shifting toward maternal grandmothers, mother-in-laws, and traditional birth attendants.

**Operational Policy Recommendations and Actionable Interventions**

To translate these socio-economic and cultural insights into practice, the following multi-sectoral, actionable strategies are proposed for local health offices and public health policymakers:Integrated Social Safety Nets with Nutrition Post (Posyandu): Rather than isolated nutrition counseling, local governments must pair stunting prevention programs with conditional cash transfers or direct protein subsidies (e.g., voucher systems for local fish and eggs) specifically targeted at the 90.5 low-to-moderate income pregnant women identified in this study. Decentralized Culturally-Tailored Advocacy: Health education must pivot from individual counseling to community-based peer teaching that actively includes family gatekeepers (husbands and grandmothers). Nutrition campaigns must explicitly address and debunk local seafood myths by involving trusted community and religious leaders to reshape the cultural narrative around food taboos. Operationalizing Home Food Security: Utilizing the high stunting-risk geographical baseline of Kalijaga Village, the local agricultural and health sectors should co-launch micro-interventions, such as biofortified home gardening and small-scale poultry farming collectives, to bypass market-price dependencies for essential nutrients.

### Strengths and Limitations of the Study

This study possesses distinct methodological strengths and limitations that warrant careful academic reflection. A primary strength is its convergent mixed-methods design, which allowed the quantitative income baseline to be critically explained by the qualitative narratives of cultural taboos, capturing nuances that a single approach would miss.However, several limitations must be acknowledged:Sampling and Selection Bias: The use of snowball sampling within a final sample size of N = 42 limits the statistical generalizability of the quantitative data to broader provincial or national populations. The sample may over-represent women within the same immediate social networks.Self-Reported Data Constraints: The qualitative data heavily relied on self-reported dietary habits, which are susceptible to social desirability bias, where participants might overreport "healthy behaviors" or underreport traditional practices to please the interviewers. Methodological Rigor: The lack of long-term longitudinal monitoring prevents this study from establishing direct causal linkages between the identified barriers and actual infant birth weights or long-term stunting outcomes. Future research should utilize explanatory sequential designs with larger, randomly selected cohorts across diverse cultural contexts in Indonesia.Theoretical benefits: Scientific development, especially in the fields of public health, nutrition, and stunting policy. Practical benefits: Helping health workers (midwives, nutritionists, cadres) in understanding the factors that inhibit the nutritional intake of pregnant women, so that they can provide more targeted interventions. It is the basis for policy recommendations or programs to improve nutrition interventions for pregnant women in stunting prevention.

## CONCLUSION

This study successfully elucidates the critical socioeconomic and socio-cultural barriers that impede adequate maternal nutrition in a high-prevalence stunting district. By synthesizing both quantitative profiles and qualitative narratives, this research concludes that maternal nutritional deficits are driven by a two-fold structural breakdown:

Economic-Driven Dietary Compression: Low household purchasing power acts as the primary structural barrier, forcing pregnant women to deprioritize essential animal-based proteins in favor of low-cost, calorie-dense foods. This financial constraint effectively overrides formal educational attainment, rendering standard health literacy insufficient on its own.

Socio-Cultural Dietary Restraints: Deep-seated family traditions and traditional food taboos (food abstinence) create a psychological barrier that restricts the consumption of vital nutrients, particularly seafood. These cultural myths are reinforced by family elders and are often not perceived by the mothers as health risks, thereby bypassing standard clinical advice.

Ultimately, preventing stunting at the maternal level requires shifting the paradigm from basic individual nutrition education toward addressing localized economic access and modifying generational cultural behaviors.

**Recommendations and Intervention Strategy**

To operationalize these findings into actionable public health frameworks, a multi-pronged "Income-Culture-Community" (ICC) intervention strategy is recommended:

For Clinical and Community Midwives: Healthcare workers must expand nutrition counseling beyond the individual pregnant woman to actively involve key family gatekeepers—specifically husbands and maternal grandmothers. Antenatal care (ANC) educational designs should pivot toward interactive, culturally-sensitive dialogue to systematically dismantle local food taboos.

For Public Health Nutritionists and Cadres: Local health posts (Posyandu) should integrate dietary counseling with immediate material solutions. This includes establishing community-led protein cooperatives, urban home-gardening initiatives, and distributing targeted, direct protein vouchers (e.g., for local fish and eggs) to vulnerable households.

For Local Policymakers (Dinas Kesehatan): Stunting prevention policies must move away from isolated health interventions and converge with social safety net programs. Policymakers should design conditional cash transfers specifically earmarked for maternal nutritional support in designated high-risk stunting zones to directly alleviate the economic barriers identified in this study.

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