

Stunting Prevention Policy Among Pregnant Workers: Content Policy Analysis in Indonesia

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Abstract

Aims: This study aims to analyze the extent to which national and regional stunting prevention policies in Indonesia, particularly in Karawang Regency, accommodate the needs of pregnant women working in industrial sectors. It examines whether current policy content effectively addresses occupational vulnerabilities and supports the first 1,000 Days of Life initiative.

Methods: A qualitative content analysis approach was employed using document analysis guided by the Ready, Extract, Analyze, and Distill (READ) method. Four policy documents were examined: Presidential Regulation No. 72 of 2021 and three regional policies in Karawang after 2021. Dunn's Public Policy Analysis framework was used in this study.

Results: The findings reveal seven themes of policy focus: government support, community empowerment, access to quality maternal healthcare, health human resource development, optimization of community health cadres, integration of data and information systems, and strengthening research and innovation. While pregnant women were identified as the target group, none of the policies explicitly included pregnant workers as a distinct subpopulation. The interventions mentioned in the policies are community-based and have a high risk of inaccessibility to industrial workers.

Conclusion: Stunting prevention policies in the Karawang Regency have yet to operationalize an inclusive, context-sensitive approach for pregnant workers. The revised policies must align with international maternity protection standards and adopt workplace-based intervention models.

Keywords: maternal health, occupational health, pregnancy complications, public policy, stunting prevention

Introduction

Since 2018, the West Java Provincial Government has designated Karawang Regency as a pilot project for stunting prevention efforts. Karawang is home to four of the largest industrial zones in Indonesia. In 2022, data showed that 392,079 women in the Karawang Regency were actively employed, primarily as laborers in urban industries. This phenomenon poses a dual threat to the prevention of stunting during pregnancy. Social dynamics have shifted, dividing women's roles across several critical domains, including health status, pregnancy conditions, employment obligations, and economic responsibilities within the household (Dilshod Ochilovich, 2019; Kozina et al., 2021). In addition, the threat of stunting continues to intensify in industrial cities because of changes in social interactions, lifestyles, awareness, and personal priorities, making pregnant women highly vulnerable (Grübler, 2010). In addition, research over the past 10 years has revealed that pregnant workers across various industrial sectors are continuously exposed to a range of workplace risks, including biological exposure (Izadi et al., 2024; Szczesna et al., 2019), physical (Francis et al., 2021; Rahman & Martiana, 2020; Sejbaek et al., 2025; Selander et al., 2019; Suzumori et al., 2020; Tartaglia et al., 2025), chemical (Birks et al., 2016; Izadi et al., 2024; Szczesna et al., 2019), radiation (Seung- et al., 2023; Xavier et al., 2019), infectious (Seung- et al., 2023; Xavier et al., 2019), psychological (Admas et al., 2025; Corchero-Falcón et al., 2023; Weis et al., 2020), socio-economic (Hanprasertpong & Hanprasertpong, 2015; Mangla, 2022), biomechanical (Francis et al., 2021; Tartaglia et al., 2025), and organizational governance hazards (Hanprasertpong & Hanprasertpong, 2015; Pilarz & Pac, 2024; van Beukering et al., 2022).

Policy reinforcement began in early 2019 through the issuance of Karawang Regent Regulation No. 33 of 2019, which prioritizes pregnant women in stunting prevention programs. This regulation mandates actions to prevent and control stunting by ensuring that pregnant women remain healthy and can deliver healthy infants. This aligns with findings from Rafique and Afzal (2023) dan Christian (2014), who state that babies born with low birth weight (LBW < 2500 grams) and those born prematurely (< 37 weeks of gestation) are at a significantly higher risk of stunting and neonatal mortality. In 2021, Presidential Regulation No. 72 of 2021 identified pregnant women as one of the priority target groups in efforts to accelerate the reduction of stunting cases (Ministry of State Secretariat of the Republic of Indonesia, 2021). The government realizes that healthy pregnancies play an important role in preventing new cases of stunting in Indonesia; thus, providing interventions in the first 1,000 days of life can be a meaningful foundation for preventing and overcoming stunting (Puspita et al., 2022; The Indonesia Ministry of Health, 2018). Several strategies have been implemented, including supplementary feeding, iron and folic acid supplementation, maintenance of adequate iodine intake, administration of deworming medication, and protection of pregnant women from malaria. Despite various efforts, the Karawang Regency still reports around 2,000 new stunting cases annually and shows the slowest reduction rate compared to other industrial cities. From the maternal health perspective, 2022 data points from the official regent report of Karawang Regency indicate a high rate of pregnancy complications in Karawang Regency. Of the 41,424 pregnant women, 8,285 experienced obstetric complications. The prevalence of chronic energy deficiency (CED) among pregnant women has continued to increase, with 2,859 cases recorded. Although 99% of pregnant women received the standard 90 tablets of iron supplements in 2021, 4,188 were still diagnosed with anemia. Moreover, preeclampsia and eclampsia remain the most common complications after anemia, affecting 1,338 pregnant women in Karawang

in 2021. These maternal health challenges have impacted neonatal outcomes and contributed to increased neonatal mortality rates. The neonatal mortality rate in Karawang has increased from 136 per 1,000 live births in 2020 to 160 per 1,000 births in 2021 and further to 178 per 1,000 live births in 2022. Additionally, the incidence of low birth weight (LBW) has also risen annually from 2.5 per 1,000 live births in 2019, to 2.6 in 2020, and then 2.8 in 2021. These conditions raise a critical question: Have stunting prevention policies in the Karawang Regency adequately addressed the needs of pregnant workers in industrial cities?

Nurva and Maharani (2023) conducted a policy analysis on stunting prevention; however, this study focused on the implementation aspect. Another study by Partadisastra and Octaria (2023) concentrated on comparing national and regional stunting policies. While national policies generally target pregnant women, there is a lack of specific focus on pregnant women working in industrial settings. This group faces unique occupational, environmental, and social challenges that are not adequately addressed by current stunting prevention strategies. This study offers a novel perspective by focusing on policy content analysis rather than implementation using Dunn's public policy framework. Unlike previous studies that emphasize healthcare delivery or program evaluation, this study critically examined whether existing policies are responsive to the real-life conditions of pregnant industrial workers. These findings have meaningful implications for both scientific development and the nursing profession. Scientifically, this study advances discourse on the occupational determinants of maternal health in public policy. It emphasizes the importance of policy literacy, intersectoral advocacy, and workplace-based maternal care, encouraging nurses to play a more strategic role in shaping maternal health policies in industrial regions.

Based on this premise, it is essential to conduct policy content analysis focused on preventing stunting among pregnant workers in Indonesia. This study is essential because it addresses a critical gap in public policy: the lack of responsiveness to the specific needs of pregnant workers in industrial areas, a group at heightened risk of pregnancy complications, and child stunting. Although many national strategies address maternal health in general, they often overlook occupational risk factors and workplace-related barriers to care. Moreover, this study seeks to bridge the gaps identified in previous research and offers new insights in terms of content, methodology, and knowledge. The primary objective was to assess whether current national policies have been appropriately designed to support the effective implementation of stunting prevention programs for pregnant workers.

Methods

This study employed qualitative content analysis methodology. Document study is a methodical approach that aims to document analysis, which entails the examination and assessment of documents (Dalglish et al., 2020). Content analysis in this study was conducted using a qualitative document analysis approach to examine national, regional, and institutional policy documents related to stunting prevention during pregnancy. This article conducts a comprehensive analysis of stunting preventive strategies used in Indonesia, specifically addressing Presidential Regulation No. 72 of 2021, concerning the acceleration of stunting prevalence reduction. The READ approach (Dalglish et al., 2020) was employed to examine policy content. It comprises:

1. Ready your materials: Preparing the relevant materials,

2. Extract data: Extracting data systematically,
3. Analyse: Conducting data analysis, and
4. Distilling your findings: Refining and summarizing the findings.

The inclusion criteria for the evaluated policies encompassed all policies related to stunting in the Karawang Regency in Indonesia, including Presidential Regulation No. 72 of 2021 and subsequent policies issued thereafter. Policy documents that could not be accessed in full due to limitations in information, confidentiality, or other administrative constraints were excluded from the scope of this study and omitted from the analysis. This study was approved by the Health Research Ethics Committee of the Institute of Health Science, Ganesha Husada, Kediri. After undergoing various stages of ethical review, the study was deemed ethically feasible as evidenced by the issuance of Ethical Approval Letter No. 29/SGH.KEPK/IX/2024.

Results

Ready Your Materials

At this stage, the process of identifying the policies to be analyzed was conducted through online searches utilizing various sources. To prepare the policy documents, the process began by identifying policies to be analyzed through online searches using various sources or websites. The initial step involved keyword searching for policy documents using the Google search engine, and the first keyword was "kebijakan stunting di Kabupaten Karawang" (stunting policies in Karawang Regency). Further document searches were conducted using official government websites such as <https://peraturan.bpk.go.id> and <https://jdih.setneg.go.id>. These searches revealed one national policy of president regulation and three policy documents produced by the Karawang Regency Government (Table 1).

Table 1. Identified Policy Documents

No	Policy	Institution	Year	Source	Page
P ₁	Presidential Regulation of the Republic of Indonesia No. 72 of 2021 on the Acceleration of Stunting Reduction	The President of the Republic of Indonesia	2021	https://peraturan.bpk.go.id/Details/174964/perpres-no-72-tahun-2021	75
P ₂	Karawang Regency Regional Regulation Number 8 of 2024 on Stunting Prevention and Mitigation	Karawang Regency Local Government	2024	https://jdih.karawangkab.go.id/document/peraturan-daerah/1653	27
P ₃	Karawang Regent Regulation Number 27 of 2022 on the Role of Villages in Stunting Prevention and Management	Karawang Regency Local Government	2022	https://jdih.karawangkab.go.id/document/peraturan-bupati/1115	11
P ₄	Karawang Regent Decree Number 131 of 2024 on the Foster Fathers for Stunted Children Program in Karawang Regency	Karawang Regency Local Government	2024	https://jdih.karawangkab.go.id/document/keputusan-bupati/1931	9

Table 1 presents a list of policy documents identified and reviewed in the context of preventing and mitigating stunting in Indonesia, focusing on the Karawang Regency. Each policy is categorized by its issuing institution, year of enactment, official source link, and specific page analyzed. These policies range from national-level regulations to regional and local government decrees, reflecting a multilevel governance approach. Presidential Regulation No. 72 of 2021 serves as the overarching national framework, while regional regulations and regent-level policies in Karawang provide localized implementation guidelines and innovations, including village empowerment and the *Bapak Asuh Anak Stunting* program.

Extract Data

Following the identification of the policy documents to be analyzed, the next stage involves data extraction. Data extraction was conducted to assess the coherence between national policies and their implementation at the district level. The initial step in this process consists of a thorough reading of policy documents. After document close reading, the extraction process produced 76 codes, which were then grouped into 18 code categories. This was followed by the formulation of themes to capture the thematic focus of both national- and district-level policies concerning stunting prevention during pregnancy. Seven main themes were identified through this categorization, each representing a key aspect of policy efforts aimed at reducing the risk of stunting during the prenatal period (Table 2).

Table 2. The Thematic Focus of National and District Level Stunting Policies

Theme	Category	Code
1. Government Support	1.1. Massive Stunting Reduction Campaign	1.1.1. Increasing public awareness and behaviour change regarding the importance of stunting prevention through massive outreach or campaign activities.
		1.1.2. Mobilizing stakeholder participation and concern in a planned and coordinated manner to address the nutritional needs of fetuses and infants during the first 1,000 days of life.
		1.1.3. Conducting stunting awareness campaigns across various media platforms.
		1.1.4. Providing awards to communities that are actively involved in stunting prevention and mitigation.
		1.1.5. Promoting fish consumption among the public as part of the accelerated stunting reduction efforts.
		1.1.6. Signing integrity pacts between village governments, communities, and stakeholders related to the acceleration of stunting reduction.
		1.1.7. Village governments optimizing programs and development activities to support the implementation of accelerated

Theme	Category	Code
		stunting reduction.
		1.1.8. Campaigning for increased animal protein intake among pregnant women, exclusive breastfeeding, and complementary feeding for infants and toddlers.
1.2. Stunting Prioritization	Budget	1.2.1. Strengthening planning and budgeting processes.
penurunan stunting		1.2.2. Setting budget priorities for the implementation of specific and sensitive nutrition intervention activities.
		1.2.3. Providing operational support for <i>posyandu</i> (integrated health posts) to assist with regular health check-ups for pregnant and/or postpartum mothers.
		1.2.4. Allocating funds for the implementation of the Jampersal (Maternity Insurance) Program.
1.3. Universal Coverage	Health	1.3.1. Providing access to the national health insurance scheme
1.4. Cross-sectoral Coordination		1.4.1. Convergence, coordination, and consolidation of national, regional, and community programs.
		1.4.2. Strengthening the commitment of district governments and the capacity of local agencies and stakeholders to plan and implement integrated and convergent stunting reduction interventions.
		1.4.3. Establishing synergistic collaboration between district governments and universities to develop locally specific models for stunting reduction, strengthen surveillance for monitoring and evaluation, and support evidence-based policy.
		1.4.4. Signing integrity pacts by district governments, communities, and stakeholders.
		1.4.5. Enhancing leadership commitment and vision at ministries/agencies, provincial governments, district/city governments, and village governments.
		1.4.6. Planning, implementing, monitoring, and evaluating stunting prevention and reduction efforts by involving cross-sectoral programs and community empowerment.

Theme	Category	Code
		1.4.7. Delivering maternal health services through integrated cross-program efforts as part of stunting reduction initiatives.
2. Community Empowerment	2.1. Women's and Community Empowerment	2.1.1. Providing access to child protection and women's empowerment.
		2.1.2. Enhancing individuals' ability to recognize their health conditions.
	2.2. Family Welfare Empowerment	2.2.1. Improving food security at the community, family, and individual levels.
		2.2.2. Enhancing the socio-economic status of families.
	2.3. Quality Family Development	2.3.1. Improving the quality of family life preparation.
		2.3.2. Conducting behaviour change communication interventions for individuals, communities, and families.
		2.3.3. Enhancing family capacity to recognize, assess, and take independent action in response to health or nutrition problems.
		2.3.4. Improving family capacity to utilize and access available health services.
	2.4. Healthy Community Movement	2.4.1. Providing access to safe drinking water.
		2.4.2. Providing access to proper sanitation.
		2.4.3. Promoting physical activity.
		2.4.4. Improving healthy lifestyle behaviors.
		2.4.5. Providing healthy food and accelerating nutritional improvement.
		2.4.6. Enhancing disease prevention and early detection.
		2.4.7. Improving environmental quality.
2.5. Optimization of Community Cadres	2.4.8. Increasing health education.	
	2.5.1. Village governments facilitate the formation of Human Development Cadres (KPM) from local community members, particularly those concerned with human development in the village.	
3. Access to Quality Maternal Healthcare	3.1. Comorbidity Prevention in Pregnancy	3.1.1. Addressing iodine deficiency.
		3.1.2. Implementing deworming programs.
		3.1.3. Providing protection against infectious diseases.
		3.1.4. Preventing recurrent infections.
		3.1.5. Protecting pregnant women from malaria.

Theme	Category	Code
		3.1.6. Conducting tuberculosis (TB) screening during each ANC visit through symptom-based interviews (anamnesis).
		3.1.7. Ensuring pregnant women have at least one dental consultation in the first trimester (K1) for oral health education, screening, and appropriate management recommendations in the second trimester.
3.2. Improved Access to Quality Maternal Services		3.2.1. Improving access to and quality of healthcare services.
		3.2.2. Providing integrated antenatal care services.
		3.2.3. Ensuring antenatal services meet the "10 T" quality standards.
		3.2.4. Improving maternal and infant health.
		3.2.5. Hospitals implementing the 24/7 Emergency Obstetric and Neonatal Care (PONEK) program.
		3.2.6. Providing mental health services for mothers.
		3.2.7. Ensuring the availability of supporting diagnostic services for pregnant women (laboratory and ultrasound).
		3.2.8. Community health centers (<i>puskesmas</i>) providing services for antenatal care, childbirth, postpartum care, and newborn health.
3.3. Iron and Micronutrient Supplementation		3.3.1. Addressing iron and folic acid deficiencies.
		3.3.2. Micronutrient supplementation and fortification.
3.4. Maternal Nutrition Quality Assurance		3.4.1. Ensuring adequate nutritional intake.
		3.4.2. Providing supplementary food and growth support for pregnant women to address chronic energy deficiency and anemia.
		3.4.3. Providing access to fortified staple foods such as salt, wheat flour, and cooking oil.
		3.4.4. Conducting food quality and safety monitoring.
		3.4.5. Increasing public access to nutritious food and promoting food security.

Theme	Category	Code
	3.5. Maternal Health and Education	3.5.1. Providing health and pregnancy counseling. 3.5.2. Conducting pregnancy classes. 3.5.3. Implementing early childhood family development programs.
4. Health Human Resource Development	4.1. Health Workforce Capacity Building	4.1.1. Training on monitoring the health development of pregnant and/or breastfeeding mothers. 4.1.2. Enhancing the knowledge, understanding, and skills of nutrition officers and the community in quality stunting prevention and management. 4.1.3. Utilization of ultrasound devices for antenatal care by general practitioners in primary healthcare settings. 4.1.4. Provision of clinical services for stunting management.
5. Optimization of Community Health Cadres	5.1. Optimization of Community Cadres	5.1.1. Village governments facilitate the formation of Human Development Cadres (KPM) from community members, especially those concerned with human development in the village.
6. Integration of Data and Information Systems	6.1. Integrated Data and Information Systems	6.1.1. Strengthening and developing systems, data, information, research, and innovation. 6.1.2. Providing data on families at risk of stunting. 6.1.3. Conducting surveillance of families at risk of stunting. 6.1.4. Accelerating the updating of the integrated social welfare data, based on verification and validation conducted by local governments, to determine Jampersal program participants as recipients of the Health Insurance Contribution Assistance (PBI) on a regular basis. 6.1.5. Recording and reporting nutrition-related cases through the ePPGBM application (Community-Based Nutrition Recording and Reporting Application). Recording and reporting stunting prevention and reduction services, both manually and electronically.
7. Strengthening Research and Innovation	7.1. Stunting-related Research and Innovation	7.1.1. Strengthening and developing systems, data, information, research, and innovation. 7.1.2. Establishing synergistic collaboration between district

Theme	Category	Code
		<p>governments and universities in developing locally specific stunting reduction models, strengthening surveillance for monitoring and evaluation, and reinforcing evidence-based policy.</p> <p>7.1.3. District governments conducting research and development to determine appropriate interventions for stunting prevention and mitigation.</p>

Analyze

Following the data extraction phase, the next step involved conducting policy document analysis. At this stage, a thorough content review was carried out on three key local policy documents related to stunting prevention in the Karawang Regency: (1) Karawang Regent Regulation Number 27 of 2022 on the Role of Villages in Stunting Prevention and Management, (2) Karawang Regency Regional Regulation Number 8 of 2024 on Stunting Prevention and Mitigation, and (3) Karawang Regent Decree Number 100.3.3.2/Kep.131-Huk/2024 on the Foster Fathers for Stunted Children Program in Karawang Regency. The content of these documents was analyzed to answer a series of evaluative questions using a policy analysis instrument adapted from Dunn (2017). The selection of this analytical instrument was based on its suitability for conducting a multidisciplinary policy analysis and because it offers a comprehensive and systematic approach to examining the policy process, which is particularly useful for evaluating complex social programs, such as stunting prevention. Referring to Dunn’s (2017) framework, five evaluation criteria were used to measure policy effectiveness objectively and systematically: (1) Policy problems, (2) Expected Policy Outcomes, (3) Preferred Policy Alternatives, (4) Observed Policy Outcomes, and (5) Policy Performance. These five criteria were operationalized into guiding questions tailored to the specific policy problem under investigation (Table 3). Both prospective and retrospective approaches were employed; prospective analysis was used to assess the expected policy outcomes, while retrospective analysis was used to evaluate the observed outcomes (Dunn, 2017).

Tabel 3. Policy Analysis Using Dunn’s Public Policy Analysis Framework

Criteria	Aim	Question	Content Analysis Result
<i>Policy Problems</i>	<i>Problem Structuring</i>	As an industrial city, has the stunting prevention policy in Karawang Regency accommodated the specific needs of stunting prevention for pregnant workers?	<p>Since the issuance of Presidential Regulation No. 72 of 2021 on the Acceleration of Stunting Reduction at the national level, Karawang Regency has enacted three regional policies: (1) Karawang Regent Regulation No. 27 of 2022 concerning the Role of Villages in Stunting Prevention and Management, (2) Karawang Regional Regulation No. 8 of 2024 on Stunting Prevention and Mitigation, and (3) Karawang Regent Decree No. 100.3.3.2/Kep.131-Huk/2024 on the Foster Father Program for Stunted Children in Karawang Regency.</p> <p>In general, these policies have identified pregnant women as a priority target group for stunting prevention. However, none of the three policies explicitly or specifically regulate the inclusion of pregnant workers as a distinct sub-target for stunting prevention efforts. This indicates a policy gap in addressing the unique vulnerabilities faced by pregnant women in the industrial workforce.</p>

Criteria	Aim	Question	Content Analysis Result
<i>Expected Policy Outcomes</i>		What are the expected outcomes of policies designed to prevent stunting during pregnancy among pregnant workers in industrial cities?	<ol style="list-style-type: none"> 1. Improved Maternal Health Outcomes Ensuring that pregnant workers have access to timely antenatal care, iron and folic acid supplementation, and workplace health services to reduce the incidence of maternal anemia, pregnancy complications, and poor weight gain during pregnancy. 2. Reduction in Low Birth Weight and Preterm Birth Policies are expected to support healthier pregnancies through proper nutrition and health monitoring, thereby decreasing the prevalence of low birth weight (LBW) and preterm deliveries, both of which are known risk factors for stunting. 3. Enhanced Fetal Growth and Development By promoting a supportive work and health environment, these policies aim to ensure adequate oxygen and nutrient supply to the fetus, improving fetal growth trajectories and preventing intrauterine growth restriction (IUGR). 4. Increased Compliance with First 1,000 Days Interventions Pregnant workers are expected to benefit from integrated services that continue postnatally, improving child feeding practices, early childhood development, and reducing the long-term risk of stunting. 5. Policy Equity and Inclusion These policies are designed to ensure that pregnant women in the formal and informal industrial sectors are not excluded from maternal-child health programs, promoting equity in health access regardless of employment status. 6. Long-Term Economic and Social Gains Ultimately, preventing stunting among children born to pregnant workers contributes to a healthier future workforce, reduced healthcare costs, and improved economic productivity at both household and national levels.

Forecasting

Criteria	Aim	Question	Content Analysis Result
<i>Preffered Policy</i>		What policies should be developed to enable stunting prevention from the pregnancy period, specifically targeting pregnant workers in industrial cities?	<p>Stunting prevention policies that are adjusted to the conditions and needs of pregnant women workers in Karawang Regency, referring to:</p> <p>A. International Labour Standard C183 – Maternity Protection Convention, 2000 (No. 183)</p> <p>Article 3 Each Member State, after consultation with representative organizations of employers and workers, shall adopt appropriate measures to ensure that pregnant or breastfeeding women are not obliged to perform work that has been determined by the competent authority as potentially harmful to the health of the mother or child, or that poses a significant risk based on a risk assessment.</p> <p>Article 4</p> <ol style="list-style-type: none"> 1. On the basis of a medical certificate or other valid certification under national law and practice, indicating the expected date of childbirth, a woman covered by this Convention is entitled to a maternity leave of not less than 14 weeks. 2. The duration of maternity leave shall be determined by each Member State in a declaration accompanying the ratification of this Convention. 3. Each Member State may later submit an additional declaration to the Director-General of the International Labour Office to extend the duration of maternity leave. 4. With due regard to the protection of the health of the mother and child, maternity leave shall include at least six weeks of compulsory postnatal leave, unless otherwise agreed at the national level by the government and the representative organizations of employers and workers. 5. The prenatal leave period shall be extended by the duration between the expected and actual date of childbirth, without reducing the compulsory postnatal leave. <p>Article 5 Upon medical certification, additional leave shall be granted before or after maternity leave in the event of illness, complications, or risks arising from pregnancy or childbirth. The type and maximum duration of such leave may be determined under national laws and practices.</p>

Prescription

Criteria	Aim	Question	Content Analysis Result
<i>Observed Policy</i>	<i>Monitoring</i>	Can stunting prevention during pregnancy among workers reduce the incidence of infants born at risk of stunting in Karawang Regency?	Yes, stunting prevention beginning from the pregnancy period particularly among working mothers holds significant potential to reduce the incidence of infants born at risk of stunting in Karawang Regency. This assertion is supported by empirical studies demonstrating that the low coverage of prenatal interventions among working women meaningfully contributes to the risk of infants being born with poor nutritional status, low birth weight (LBW), and suboptimal body length early indicators of stunting vulnerability (Mireku et al., 2020).
<i>Policy Performance</i>		How is the performance of stunting prevention policies during pregnancy implemented in Karawang Regency?	<p>- High Nutritional Risk and Limited Educational Access Among Pregnant Workers</p> <ul style="list-style-type: none"> - The 2024 SSGI Survey recorded that out of 107,805 working pregnant women in West Java, 66% had never attended antenatal education classes. This finding indicates that the majority of working mothers lack exposure to essential health education, including pregnancy nutrition, obstetric danger signs, and the importance of iron tablet (Fe) supplementation. - Additionally, 32.2% of 16,596 pregnant women in West Java did not consume iron tablets according to the recommended standard, increasing the risk of anemia and chronic energy deficiency (CED) both of which are highly correlated with low birth weight (LBW) and childhood stunting. - The 2024 SSGI survey also reported a 0.4% increase in stunting prevalence in Karawang Regency, rising from 14.0% in 2022 to 14.4% in 2024, signaling an urgent need for targeted interventions among vulnerable groups, particularly working pregnant women.
	<i>Evaluation</i>		

Distil Your Findings

There are four policies related to stunting prevention during pregnancy published at the national and district level, all of which are accessible online, the 4 policies resulted 7 program focus on stunting prevention. However, based on policy content analysis using Dunn's Public Policy Analysis framework, several key findings indicate substantial weaknesses in stunting prevention policies during pregnancy, both at the national level and in the Karawang Regency as an industrial area. Although both national and local regulations recognize the importance of preventing stunting during the prenatal period and identifying pregnant women as a priority group, no policy explicitly addresses the specific needs of pregnant workers in industrial zones. At the district level, despite having the authority to formulate more inclusive and context-specific policies, local governments have not developed policies or programs that reflect the unique vulnerabilities of their industrial workforce. Overall, there is a notable absence of industry-sensitive maternal health interventions in both policy content and program implementation in Karawang. Current policy performance remains weak in terms of reaching and mitigating stunting risks during pregnancy among working women. To address these gaps, new policy recommendations that are more inclusive and adaptive are urgently required. These policies should draw upon international standards for maternity protection (ILO Convention C183) and adopt intervention models from countries that have successfully integrated maternal health strategies within the industrial sectors.

Discussion

The Ready Your Materials stage shows that since 2021, the Indonesian government has shown its seriousness in accelerating the reduction of stunting by issuing Presidential Regulation Number 72 of 2021; to support this policy at the district level, the Regent of Karawang Regency in 2022 issued Regent Regulation Number 27 of 2022 to optimize the role of villages in preventing and handling stunting, which was then followed by the issuance of policies related to foster fathers of stunted children and prevention and handling of stunting in 2024. The policy timeline indicates that the Karawang Regency Government has demonstrated a relatively responsive stance in following the 2021 Presidential Regulation on the acceleration of stunting reduction. This was initiated by strengthening village-level roles across Karawang to implement structured stunting prevention efforts. In addition, the local government introduced an innovative program known as the "Foster Father for Stunted Children" initiative. However, despite the relevance of these efforts to the substance of the 2021 Presidential Regulation, a formal and comprehensive local regulation on stunting prevention and management was issued by the Karawang Regent in 2024.

Data extraction from the policies showed that the content of stunting reduction policies during pregnancy can be implemented through various strategies, including government support, community empowerment, provision of quality maternal health services, strengthening of health workforce capacity, optimization of health cadres' roles, integration of data and information systems, and enhancement of research and innovation. Despite being an industrial city, the Karawang Regency has not directed any specific policy focus toward workplace-based stunting prevention in industrial settings. None of the existing local regulations or programs explicitly address the unique needs of pregnant workers or implement interventions in factories or workplace environments.

In the analysis stage using Dunn's Public Policy Analysis framework (Dunn, 2017), one of the key findings is the absence of clauses explicitly addressing pregnant industrial workers in both national and district-level policies. This policy gap has significant implications for pregnancy outcomes in working mothers. While national and regional policies have the potential to reduce the incidence of babies at risk of stunting, current community-based approaches may inadvertently exclude pregnant workers from targeted stunting interventions. Consequently, this group is at a higher risk of giving birth to stunted children because of a lack of exposure to workplace-based maternal health initiatives. International standards, such as the ILO Maternity Protection Convention and best practices from countries, can serve as references for local policymakers in the Karawang Regency.

For example, in Germany, the Mutterschutzgesetz (Maternity Protection Act) requires companies to provide time and facilities for pregnant workers to attend medical appointments without losing their salary rights, as well as allowing for parental leave for up to three years (Amantea et al., 2025). In France, pregnant women are entitled to 16 weeks of maternity leave, six weeks before childbirth, and ten weeks later (Amantea et al., 2025). Meanwhile, in Japan, companies are obligated to provide maternity leave and support workplace-based health services in collaboration with local healthcare facilities (Ministry of Health, Labour and Welfare of Japan, 2010). The International Labour Organisation (ILO) also says in Maternity Protection Convention No. 183 that governments and employers should ensure that pregnant women can get good healthcare at work that does not discriminate against them. Another example from ASEAN countries is that companies in Vietnam's industrial zones must have health officers and clinics that work with government health centers to ensure that minimal criteria for prenatal care (ANC) are met (Hanh, 2024). The Expanded Maternity Leave Law in the Philippines provides 105 days of maternity leave to all workers, including informal and independent workers. This also ensures that maternal healthcare services are available to everyone (Maramag et al., 2023).

These models emphasize the importance of legally mandated maternal protection in the workplace, including access to antenatal care, nutritional support, adjusted workloads, and protection from occupational risk. It is critical that local governments and companies in Karawang recognize that pregnancy complications when left unaddressed can contribute to the birth of children at risk of stunting, posing a serious threat to long-term national development. Preventive efforts can only be successful with the strengthening of inclusive policies, implementation of cross-program and cross-sectoral collaboration, and consistent monitoring and evaluation of workplace-based maternal health interventions.

Overall, the issue of stunting prevention during pregnancy among pregnant workers in industrial cities such as Karawang has not been adequately addressed by either national or district-level policies. Both national and local policies have yet to adopt an inclusive approach that facilitates stunting prevention efforts targeting pregnant women in industrial workplace environments, such as those in the Karawang Regency. Existing programs remain predominantly community-based and do not sufficiently incorporate workplace-centered interventions for this vulnerable group.

Limitations

This study had several limitations that should be acknowledged. First, the research focused solely on policy content analysis and did not evaluate the implementation

process or actual health outcomes of the target population. As such, the direct causal impact of existing policies on stunting prevalence among pregnant workers cannot be determined. Second, the scope is geographically limited to the Karawang Regency, which, while representative of an industrial region in Indonesia, may not reflect the policy landscape or maternal health conditions in other regions or countries with different socioeconomic and healthcare infrastructures. Third, the study primarily analyzed formal policy documents and did not incorporate qualitative insights from frontline healthcare providers, employers, or pregnant workers themselves, which could provide a richer understanding of policy relevance, accessibility, and effectiveness.

Contribution to global nursing practice

This study contributes to global nursing practice by emphasizing that the role of nurses extends beyond community-based programs to include the workplace environment of pregnant women. Pregnant workers are often exposed to various occupational risks that place them in vulnerable positions and increase their likelihood of giving birth to stunted children. Therefore, nurses at the global level must advocate governments to address this issue while also promoting the development of occupational maternal health as a scientific discipline through research and innovation.

Conclusion

National and local stunting prevention policies have incorporated both specific and sensitive nutritional interventions, including those targeting pregnancy. However, the analysis reveals that policy substance has not yet been fully responsive to the working conditions of pregnant women in industrial environments. There is no explicit formulation regarding the reproductive health rights of female workers, protection during pregnancy within the industrial sector, or mechanisms for engaging companies in supporting the First 1,000 Days of Life programs. The policy remains universal in nature and has not yet reached vulnerable groups, such as pregnant workers, through a need-based, context-sensitive approach. Therefore, the inclusion of maternal health services within the workplace must be implemented across all companies, particularly in Karawang Regency. Companies must demonstrate a strong and serious commitment to the early prevention of stunting in alignment with the government's agenda. To ensure effective implementation, this strategy must be formalized through legally binding regulations and supported by a strong legal framework. This eliminates any justification for companies to neglect or disregard their obligations to comply with the programme.

Author Contribution

AN designed the study, collected and analyzed the data, and wrote the manuscript. DA contributed to the study design and interpretation of the results. SY assisted with the literature review and provided critical revisions to the manuscript. RN designed the study and assisted with literature review.

Conflict of interest

The authors declare no conflicts of interest associated with this study.

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