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Women's Double Burden and its Impact on Stunting: A Case Study in Sawa Erma District, Asmat Regency, South Papua

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Abstract: In 2022, the Ministry of Health of the Republic of Indonesia reported that Asmat Regency has the highest stunting prevalence in the country (54.5%). Stunting is primarily caused by chronic malnutrition, particularly during the first 1,000 days of life (1,000 HPK). However, in Asmat, this issue is not solely attributable to nutritional deficits but stems from a complex, cumulative double burden affecting pregnant and lactating women, which must be systematically addressed. This study aims to examine the nature of this double burden among women in Asmat and its impact on stunting incidence. A mixed-methods approach was employed, combining descriptive, qualitative, and quantitative research designs. Data were collected through structured questionnaires using a five-level Likert scale, administered to respondents selected proportionally across four villages with a 95% confidence level and 5% margin of error, based on Krejcie and Morgan's sample size table. To enrich findings, Focus Group Discussions (FGDs) were conducted with community members in each village, and in-depth interviews were held with key informants. Anthropometric measurements were used to assess maternal nutritional status. Results indicate a strong correlation between the double burden faced by women during the 1,000 HPK period, characterized by malnutrition or risk of malnutrition, and high stunting rates, particularly in Er, Sona, Agani, and Mumugu villages. The double burden includes: limited health knowledge and inadequate counseling; maternal undernutrition and unmet nutritional needs for fetuses and young children; heavy domestic workloads combined with income-generating activities outside the home; efforts to care for family members alongside exposure to intimate partner violence; and a desire for education constrained by limited opportunities.



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The complexity of factors contributing to stunting in Asmat calls for a comprehensive, multi-sectoral, and integrated response. Effective interventions must include sustained community mobilization, continuous mentoring, health education, and counseling provided by healthcare workers, especially for pregnant and lactating women, as preventive measures to improve maternal and child health outcomes in Asmat Regency.

Keywords: double burden; stunting; Asmat women.

女性的双重负担及其对发育迟缓的影响：以南巴布亚阿斯马特县萨瓦埃尔玛区为例

摘要：2022年，印度尼西亚共和国卫生部报告称，阿斯马特县的发育迟缓患病率在全国最高（54.5%）。发育迟缓主要由慢性营养不良引起，尤其是在出生后1000天（1000 HPK）内。然而，在阿斯马特，这一问题并非仅仅归咎于营养缺乏，而是由影响孕妇和哺乳期妇女的复杂、累积的双重负担所致，必须系统地加以解决。本研究旨在探讨阿斯马特妇女的这种双重负担的性质及其对发育迟缓发生率的影响。研究采用了描述性、定性和定量相结合的混合方法。数据通过结构化问卷收集，问卷使用五级李克特量表，根据 Krejcie 和 Morgan 的样本量表，按比例从四个村庄选出受访者，置信水平为95%，误差幅度为5%。为了丰富研究结果，我们与每个村庄的社区成员进行了焦点小组讨论（FGD），并与关键知情者进行了深入访谈。我们采用体格测量方法评估母亲的营养状况。结果表明，在1,000 HPK期间，妇女面临的双重负担（以营养不良或营养不良风险为特征）与高发育迟缓率之间存在很强的相关性，尤其是在 Er、Sona、Agani 和 Mumugu 村。双重负担包括：有限的健康知识和不充分的咨询；母亲营养不良以及胎儿和幼儿未满足的营养需求；繁重的家务劳动加上外出赚钱的活动；努力照顾家庭成员以及遭受亲密伴侣暴力；以及受教育机会有限而制约的求学愿望。导致阿斯马特地区发育迟缓的因素十分复杂，需要采取全面、多部门和综合的应对措施。有效的干预措施必须包括持续的社区动员、持续的指导、健康教育以及医护人员提供的咨询，特别是针对孕妇和哺乳期妇女，作为改善阿斯马特县孕产妇和儿童健康状况的预防措施。

关键词：双重负担；发育迟缓；阿斯马特妇女。

1. Introduction

Stunting is not an issue confined to a single country or limited to low-income and underdeveloped regions. It has emerged as a pressing global public health challenge, drawing increasing international attention. In 2023, approximately 160 million children worldwide were affected by stunting, and if current trends continue, this number is projected to rise by an additional 127 million by 2025 [1].

According to United Nations data from 2020, more than 149 million (equivalent to 22%) of children under five globally are impacted by stunting. Indonesia accounts for a significant share of this burden, with an estimated 6.3 million stunted children under the age of five [2].

Based on findings from the 2022 Indonesian Basic Health Research (Riset Kesehatan Dasar/RKD) and the

Indonesian Nutrition Status Survey (SSGI), Papua Province ranks among the highest in the nation, with a stunting prevalence of 34.6%, including newly established districts [3].

The prevalence of stunting in Papua is relatively widespread across districts. For example, in Merauke Regency in 2021, 1,200 children under five were affected by stunting [4]. Furthermore, data from the Papua Province Community-Based Nutrition Recording and Reporting electronic system (e-Catat KIB) in 2023 indicated that among 23,548 children assessed, 2,769 children under five were classified as stunted [5].

According to the Indonesian Ministry of Health, Asmat Regency recorded the highest stunting prevalence in Papua Province—54.5%—surpassing all other districts [6]. This alarming rate evokes collective memory of the extraordinary public health event (KLB)

due to severe malnutrition that occurred in Asmat during 2017–2018 [7]. As reported by the Ministry of Health's Crisis Center, this crisis resulted in the deaths of 72 children [3], [8], underscoring the persistent vulnerability of maternal and child health systems in the region.

The stunting prevalence described above exceeds the World Health Organization (WHO) threshold of 20%, and remains significantly higher than Indonesia's national targets of 17% set for 2013 and 14% for 2024 [6]. The persistently high rates in Papua, particularly in Asmat Regency, indicate a severe public health challenge that demands urgent and sustained intervention. Without effective action, this crisis threatens the physical and cognitive development of children, undermining the quality of future human capital and hindering equitable and sustainable development.

Addressing stunting is not merely a health priority but a multidimensional responsibility that involves ensuring the well-being and potential of future generations. However, reducing stunting prevalence is complex, as it is driven by a constellation of interrelated factors, including malnutrition, limited access to healthcare, gender inequality, and socioeconomic disparities, that must be systematically identified, analyzed, and addressed through integrated, multi-sectoral strategies.

The incidence of stunting is attributable to inadequate nutrition during fetal development and early childhood. According to [9], stunting is a condition of chronic malnutrition resulting from prolonged insufficient nutrient intake, leading to impaired growth in children, specifically, height-for-age below the standard for their age group. Stunting, also referred to as linear growth retardation, reflects broader developmental challenges in young children, including delays in fine and gross motor skills, social behavior, language acquisition, and cognitive development, which can affect learning outcomes [10].

This condition has long-term consequences that extend into adulthood, including reduced educational attainment, lower economic productivity, and limited participation in family and community life [11]. As noted by [12], stunting arises from a combination of biological and environmental factors. Furthermore, stunting is increasingly recognized as a violation of fundamental human rights, particularly the rights of the child, including the right to health, adequate nutrition, protection, education, an adequate standard of living, and overall well-being [13].

Findings from stunting studies conducted in various regions, including Asmat and Papua, reveal similarities in the following contributing factors:

1.1 Collaborative Governance

Stunting is a complex issue requiring coordinated action across multiple sectors and stakeholders. Studies

on the causes of stunting in the Papua region indicate that collaboration remains limited due to insufficient knowledge sharing and learning; weak accountability and transparency; inadequate capacity building; low community initiative and participation; and poor integration of programs and available resources [14]. In summary, there is still a lack of intersectoral cooperation and coordination in addressing stunting [15]. Such cooperation can be strengthened by engaging religious leaders and traditional authorities in mobilizing communities, particularly those affected by stunting [16].

1.2. Low Community Literacy

As good knowledge from the community and especially pregnant or lactating women about nutrition and stunting in children is essential for early prevention and effective intervention [17]. As shown by [15], low public awareness about stunting is associated with higher stunting rates in children, and vice versa. Similarly, [18] found in studies conducted in South Asia and Southeast Asia that a significant relationship exists between maternal illiteracy and the incidence of stunting in toddlers. According to [19], mothers' limited knowledge in preparing nutritious meals correlates with increased stunting prevalence. A mother's insufficient understanding of common illnesses, children's nutritional requirements, and proper hygiene practices (PHBS) indirectly contributes to stunting [20]. The findings of [21], which focused on young women and adolescents, indicate that the risk of stunting is influenced by restricted social participation and low literacy levels among adolescent girls; lack of empowerment for married adolescents; and absence of peer support groups where adolescent girls can discuss personal and social challenges. Furthermore, women's limited knowledge regarding optimal childbearing age affects their nutritional status before and during pregnancy, which in turn impacts fetal growth and increases the likelihood of stunting [22].

Limited knowledge among mothers of children under five regarding health and nutrition [23], as well as poor understanding of food management and household financial planning, contribute to weak prevention and reduction efforts against stunting [24].

1.3. Low Economic Level

Stunting is closely associated with the level of economic well-being of families and communities [15], food insecurity [25], nutritional adequacy, and adequate protein intake [42]. Another study [26] found that growth in the Gross Regional Domestic Product (GRDP) in the primary sector has a positive association with stunting, compared to the secondary and tertiary sectors. Nationally, stunting prevalence is linked to rising poverty rates and household economic conditions, as economic status correlates with access to nutritious

food and sufficient nutrition during the first 1,000 days of life [27]. The household economy is a key determinant of stunting in young children, as it influences the ability to purchase food and meet toddlers' nutritional requirements [28].

1.4. Weak Service Structure and System

Health services, particularly for pregnant women, infants, and breastfeeding mothers, are directly and indirectly linked to stunting. As found by [15], stunting incidence is influenced by the structure and delivery system of health services, including technical standard operating procedures (SOPs) for care provided to pregnant women, young children, and lactating mothers from early stages. This is exacerbated by limited access to health services [27]. Additional factors include cadres' knowledge and ability to prepare appropriate complementary foods for the first 1,000 days of life (1,000 HPK); insufficient nutrition counseling and stunting prevention education during pregnancy [29]; lack of mentoring and monitoring; incomplete and disorganized recording, documentation, and reporting of 1,000 HPK data by health officers; and limited availability of basic immunization services for all children [30]. These limitations are compounded by low motivation, weak initiative, and unprofessional conduct among health workers in supporting pregnant women to prevent stunting in newborns [31]. Therefore, it is highly recommended to enhance the capacity of health teams through training on early stunting detection and management [16].

1.5. Clean and Healthy Living Behavior (PHBS)

Several studies indicate that the lack of clean and healthy living behaviors (PHBS) is one of the factors contributing to stunting. According to [43], there is a positive correlation between stunting prevalence and unsafe drinking water, as well as the use of unclean cooking fuels. Consistent with these findings, other factors such as inadequate access to safe water, rural housing conditions, and poor sanitation have also been linked to stunting [25]. Furthermore, observational evidence shows that children affected by stunting often do not wash their hands before eating, fail to maintain short fingernails, and frequently play in unhygienic environments [20]. In Papua and West Papua, inadequate sanitation and unsafe drinking water have been identified as dominant contributors to stunting [44]. Therefore, promoting PHBS awareness as a preventive measure against stunting should begin within the family [45], as the household serves as the primary environment for early childhood growth and development.

1.6. Changes in Public Consumption Patterns

People's consumption patterns characterized by poor hygiene and low nutritional quality contribute to

stunting. Another study [19] on local food management for stunting prevention in Asmat found a shift in dietary habits, where individuals sell their fish catch and garden produce to purchase less nutritious foods. Cultural aspects of consumption, including food types, portion sizes, and meal frequency, can influence stunting prevalence [32]. As noted by [20], children affected by stunting often consume diets that do not align with balanced nutrition guidelines. Changes in consumption patterns and stunting rates are shaped by the local food system, socioeconomic conditions, and community knowledge [33].

1.7. Health Conditions of Pregnant Women, Fetuses, and Toddlers

A study conducted in Asmat found that stunting is associated with a lack of community initiative and low enthusiasm for participating in posyandu (integrated health post) activities and health counseling, as well as limited access to health services, often only sought when a child's condition becomes critical [19]. A literature review [25] identified contributing factors to stunting, including low birth weight, preterm birth, and inadequate antenatal care. Meanwhile, maternal conditions are highlighted as key factors [46], noting that breastfeeding mothers who work during their infant's 12–23 months of age often fail to provide exclusive breastfeeding or early initiation of breastfeeding (IMD), especially when infants are left in others' care. Additionally, studies by [12], [17], and [27] indicate that maternal malnutrition during early pregnancy, consumption of low-nutrient foods, and childhood infections due to specific diseases contribute to stunting. According to [47], anemia in pregnant women increases the risk of stunting. The dominant factors causing stunting among Indigenous Papuan populations (OAP) include inappropriate caregiving practices, insufficient energy and protein intake, and recurrent diarrhea. In summary, low birth weight (LBW) in infants is strongly associated with increased risk of stunting [34].

1.8. Environmental and Socio-Cultural Factors

The causes of stunting cannot be attributed solely to health and nutrition factors. In Papua, stunting is closely linked to geographical conditions, local social structures, cultural traditions, dietary practices, childcare norms, economic status, nutritional adequacy, access to health services, and household size, including extended family composition [35]. Furthermore, as noted by [48], the distance between health centers and district health offices hinders the effective implementation of the 1,000 HPK program. In certain communities, early marriage is associated with a 1.982-fold higher risk of child stunting compared to adult marriages, with odds ratios ranging from 1.243 to 3.168 [36], [37]. Similarly, younger maternal age at marriage

correlates with a higher likelihood of children being short and undernourished [38]. Additional contributing factors include husbands' prioritization of their own consumption of nutritious food; low household income; maternal helplessness; and perceptions of children as burdens rather than assets requiring investment in development [49].

1.9. Climate Change

Global warming and climate change indirectly impact various changes in public health conditions, especially stunting in children. In studies located in South Asia and Southeast Asia, it was found that climate change such as rising temperatures and changes in rainfall have a correlation with malnutrition and the incidence of stunting in children [39].

The various factors contributing to stunting, as described above, are complex and multidimensional; therefore, interventions to address them require a comprehensive and integrated approach across all sectors and stakeholders. This approach necessitates the involvement of government, communities, and all relevant actors. Solutions to combat stunting may include specific health sector interventions focused on the First 1,000 Days of Life (1,000 HPK) program, as well as nutrition-sensitive actions such as improving access to clean water and sanitation [40]. In general, socio-cultural and economic determinants, such as poverty, educational attainment, and household income, are fundamental underlying causes of stunting. Coordinated and integrated collaboration across sectors, from village and regional levels to the central government, must be strengthened. Since stunting occurs within families and communities, the response must also be community-based, involving participatory empowerment to enhance community capacity in mitigating stunting and other public health challenges.

The complexity of the factors contributing to stunting in Asmat cannot be separated from the local cultural context and the role of women. Understanding the position of Asmat women requires recognition of the patriarchal structure within Asmat society. In this context, men and women are assigned distinct social roles and statuses. Asmat men are associated with strength and authority, while women are often identified solely as mothers or caregivers (*mama*). Within this framework, women are perceived as subordinate, subjected to male dominance, and constrained by cultural norms that prioritize male authority [41].

Based on mythological narratives of the Asmat people, Asmat women are considered as housewives, child caregivers, and economic providers. Furthermore, the portrayal of Asmat women in the novel *Namaku Tewelawut* reflects their marginalization due to cultural constructions [40]. As marginalized figures, women are frequently viewed as: sexual objects or instruments of male gratification; seductresses; individuals left behind

in social development; second-class citizens; deprived of access to education; obedient and easily dominated; confined to domestic roles; and socially subordinated. This culturally constructed perception of women under patriarchal norms results in a double burden for Asmat women, particularly during pregnancy and lactation.

The term "double burden" refers to the disproportionate workload carried by one gender, particularly women, who simultaneously manage responsibilities in both domestic and public spheres. As highlighted by [50], this concept reflects the dual roles women often occupy, within the traditional domestic domain as wives, mothers, and household managers, and in transitional or public spaces as income earners, community members, and contributors to development.

In the context of Asmat, women engage continuously and tirelessly in both spheres: performing unpaid domestic and caregiving tasks while also participating in income-generating activities. Despite their critical contributions, they remain marginalized and vulnerable within a patriarchal social structure that limits their agency and recognition.

The high prevalence of stunting in Asmat Regency and the various factors contributing to it have been described. The most significant yet often overlooked factor is the maternal role as a primary caregiver and source of essential nutrients necessary for the physical and cognitive development of fetuses and infants. The condition of women, particularly pregnant and lactating mothers in Asmat, is deeply concerning: they face low literacy levels, malnutrition, and heavy workloads across both domestic and income-generating roles. Building on this context, the purpose of this study was to examine the double burden experienced by women in Asmat and its impact on stunting prevalence in the region.

2. Method

This study employs a descriptive qualitative method, with researchers actively participating in the social dynamics and daily lives of indigenous communities across four villages. Data sources include primary data collected through field research and secondary data obtained from a literature review. To explore the lived experiences of women, a structured questionnaire was administered, designed according to a five-level Likert scale: 1. Strongly Disagree; 2. Disagree; 3. Neutral; 4. Agree; 5. Strongly Agree. Respondent selection in the four villages was conducted proportionally, based on Krejcie and Morgan's sample size table, with a 95% confidence level and a 5% margin of error [51]. The sample included married and unmarried women, as well as married and unmarried men (youth), aged 15–45 years, representing the productive age group. To deepen understanding, focus group discussions (FGDs) were conducted on women's daily routines and their roles within domestic and community spaces. Additionally,

anthropometric measurements were taken from a subset of women to assess nutritional status. In-depth interviews were carried out with key informants, including traditional elders, indigenous women, youth representatives, village officials, and religious leaders, to gain deeper insights and clarify essential information.

3. Results and Discussion

3.1. The Reality of Asmat Women in Four Villages

3.1.1. Demographics and Respondents

The research was conducted in four villages within the Sawa Erma District of Asmat Regency: Er Village, Sona Village, Bu Village, and Mumugu Village. Demographically, all residents in these villages are indigenous Asmat people. The population composition is presented in Table 1.

Table 1. Total Population of the Four Villages (compiled by the authors)

No.	Village	Residents	Gender		KK	%
			M	F		
1	Er	883	478	405	180	37.99
2	Sona	405	196	209	95	17.43
3	Agani	879	544	345	159	37.82
4	Mumugu	157	79	78	36	6.76
Total		2324	12	1037	461	100.00

Based on the Krejcie and Morgan sample size table [51], a total of 327 respondents were selected from the population, with the following composition: 45.87% mothers; 30.28% men; 11.01% youth; and 12.84% non-pregnant women. Among the total respondents, 15 were pregnant women, representing various stages of gestation.

3.1.2. Socio-Cultural Conditions

The four villages are located along the banks of the Pomat River, where social life remains deeply influenced by local culture and traditions. The primary livelihood involves harvesting forest and riverine resources to meet daily subsistence needs. The staple diet consists of sago supplemented with fish, shrimp, wild game, or poultry obtained from forests and rivers. Each village has an elementary school, though educational activities follow an irregular schedule. A traditional communal house (jew) serves as the center for social and cultural gatherings in each village.

Medically, an auxiliary health post (Postu) exists in each village, but no permanent health personnel are stationed there; services are limited to monthly visits by mobile posyandu teams. The division of roles between men and women, particularly within marital relationships, and community events such as Easter celebrations, the end of mourning periods, and the resolution of inter-village conflicts, often places a greater burden of responsibilities on women than on men. In some cases, tasks traditionally performed

exclusively by men are now undertaken by women due to economic pressures.

Access from two villages (Agani and, especially, Mumugu) to the district center and its health facilities is limited by long distances and high transportation costs. The main means of community transport are motorized canoes and a few speedboats. For drinking water, residents rely entirely on water from the forest and rivers.

3.1.3. Women's Daily Activities in the Four Villages

Based on discussions with community members in the four villages and in-depth interviews with key informants, a comprehensive overview of women's daily activities (from waking in the morning to sleeping at night) was developed. In these discussions, men were the primary source of information regarding the activities performed by women or their wives.

3.1.4. Women's Management Room

During the focus group discussions, each participant, particularly the women, created a transect of their daily activities, both within and outside the home. The results were compiled into a sketch map depicting the village layout, including various objects and locations where women carry out their tasks. Together, these visualizations illustrate the spatial scope of women's activities. They provide a more comprehensive understanding of both the temporal and spatial dimensions of women's workloads.

Figure 1 shows an example of a Transect Sketch Map of Women's Managed Spaces, developed by participants from Sona Village. While not exhaustive, the map offers valuable insight into the range of activities and responsibilities that women and mothers in the community must manage.



Figure 1. The transect sketch map of the women's management room (Primary Data)

3.1.5. Anthropometric Measurements

According to Regulation of the Minister of Health of the Republic of Indonesia No. 97 of 2014, anthropometric measurements include body weight (BB), height (TB), mid-upper arm circumference (MUAC), head circumference, abdominal circumference, and waist-to-hip ratio (RLPP). Among the female respondents, anthropometric measurements were conducted on 30% (n = 58), including 15 pregnant women. The results showed that 81.03% of these women had a low nutritional status (indicating risk of malnutrition), while 18.97% had a normal nutritional status. Of the 15 pregnant women, only two had a normal nutritional status; the remaining 13 were classified as malnourished or at nutritional risk.

3.1.6 Questionnaire Results

The overall education level of the respondents (both male and female) was as follows: 76% had never attended school or did not complete elementary education (SD), while 24% graduated from elementary school. Among female respondents (married and unmarried), 89% had no formal schooling or did not complete elementary education, and only 11% completed elementary school.

Respondents' perceptions and understanding of women were assessed through their responses to a series of statements, with the highest combined percentages selecting "Agree" and "Strongly Agree" on the following thematic areas:

1. Concept of Women:
 - 93% agreed that women are human beings of a different gender from men;
 - 92% viewed women as sisters to men;
 - 89% recognized women as mothers to children and wives to husbands.
2. Women's Work and Responsibilities:
 - 95% agreed that women always cook and prepare breakfast, lunch, and dinner for the family;
 - 94% acknowledged that women accompany their husbands in fishing activities in rivers;
 - 93% reported that women frequently travel to hamlets to gather food or harvest sago, sell garden produce or fish at markets, and manage household expenditures.
3. Women's health:
 - 90% of pregnant women rarely attend posyandu or seek prenatal care at health centers;
 - 84% engage in physically demanding labor to secure food for their families;
 - 82% lack knowledge of reproductive health, particularly regarding pregnancy, and work without adequate rest;
 - 80% are affected by early marriage and adolescent pregnancy.
4. Women's education:
 - 90% of women have never attended school or did

not complete elementary education;

- 78% do not attend school due to hunger, frequent school closures, or perceived lack of benefit;
- 73% believe schooling is unimportant for girls;
- 70% spend most of their time with parents (mothers) gathering food instead of attending school.

5. Food processing and consumption patterns:

83% frequently prepare sago as papeta, sinosi, or boiled sago;

81% report that men receive preferential access to food rations;

80% of pregnant women rarely receive nutritious supplements or vitamins;

87% sell garden produce and fish, using the income to purchase processed foods, such as rice, coffee, tea, sugar, and tobacco, from kiosks or shops for household consumption.

6. Family violence:

- 86% of women are subject to arranged marriages;
- 80% experience verbal abuse, including scolding, cursing, and threats, and physical violence, including beating, by their husbands;
- 79% of pregnant women are underweight;
- 78% continue to forage for food in hamlets and rivers and prepare meals despite illness or pregnancy;
- 77% work continuously regardless of condition, often in contexts of food scarcity.

3.2. The Double Burden of Asmat Women and the Incidence of Stunting

The causes of the high stunting prevalence in Asmat have been broadly discussed in the introduction. Based on field observations and research findings using various methodologies, an additional dominant factor has emerged: the double burden experienced by women, particularly within the context of Asmat's patriarchal culture. In this cultural framework, women are perceived not only as different from men but also as sisters, mothers, wives, and economic providers. The implications of this social construct are reflected in the documented daily activities presented in the Transect Sketch Map of Women's Managed Spaces, and respondents' qualitative responses.

David Jimanipits, Chairman of the Asmat Customary Consultative Institute (LMAA), stated: "Asmat women are different from men – they give life, sustain families, and support household welfare through hard work. At the very least, they find and prepare food for their families." This perspective culturally positions women in dual roles: as caregivers and as primary contributors to household subsistence. Fulfilling both roles under Asmat's challenging ecological and socioeconomic conditions is a demanding responsibility.

The greatest risk for women occurs during the first 1,000 days of life (1,000 HPK), as maternal health and nutrition directly influence fetal and infant development. In the context of stunting, this relationship is critical, as

the primary determinants of stunting originate in the health and nutritional status of the mother during pregnancy and the intrauterine environment.



Gambar : Foto seorang ibu membawa serta tiga orang anak mencari ikan di sungai (Dok. ...)

3.2.1 The Reality of Women's Double Burden

Asmat women experience multiple dimensions of the double burden during the first 1,000 days of life (1,000 HPK), as revealed by the findings of this study:

1) Limited Knowledge and Lack of Health Counseling

The study found that 90% of respondents had no formal education or did not complete elementary school, which significantly contributes to low awareness and understanding of women's roles and reproductive health (82%). This widespread illiteracy is compounded by insufficient health counseling and limited outreach efforts from health workers regarding the importance of the 1,000 HPK period for families, particularly for pregnant and lactating women.

Paskalis Boko, a posyandu cadre from Mumugu Village, explained: "The mothers and fathers in Mumugu have never attended school; some started but did not finish elementary education. I myself cannot speak Indonesian well, nor can I read, write, or count. We don't know about stunting because health workers rarely visit us, they don't really know us."

Mr. Boko's account highlights the absence of both community knowledge and systematic health education, which directly impacts maternal and child health outcomes during the critical 1,000 HPK window. Limited knowledge among women and inadequate engagement by health workers are key contributing factors to the high prevalence of stunting in young children.

2) Mothers with Malnourished Status and Nutritional Needs for Fetuses and Toddlers

Anthropometric measurements revealed that 81.03% of mothers had a low nutritional status, indicating undernutrition. This condition is closely linked to their high workload, physical exhaustion, insufficient rest, limited food intake (where men receive preferential access to meals in 81% of cases) and lack of nutritious supplements, reported by 80% of respondents. Poor adherence to clean and healthy living behaviors (PHBS) further exacerbates the risk.

As one mother, Maria Tomasarem from Sona Village, shared: "We sometimes eat only once a day. When we

go out to catch fish or shrimp, we often forget to eat and drink river or swamp water when thirsty. When we return home, I burn sago or prepare sago porridge, then grill or boil fish and shrimp for the family. I always serve my father first, followed by my children and mother."

All women require adequate nutrition for their own health and physiological development. Pregnant and lactating women have increased nutritional needs to support both their own well-being and the growth of the fetus or infant. However, when mothers are undernourished, they are unable to allocate sufficient nutrients to their children, compromising proper growth and development. This intergenerational nutritional deficit significantly increases the risk of stunting.

3) Performing Household Chores and Earning a Livelihood Outside the Home

The daily activities of women, when viewed in terms of space, distance, time, and tools used, constitute a significant burden. Managing household needs demands substantial time and physical effort: cooking, washing, cleaning, childcare, weaving, and other domestic tasks. The ease of performing these duties is further influenced by access to essential resources such as food, firewood, sago pith, fish, sago grubs, young shoots, and materials for making tools like shovels, nets, or fishing equipment.

Outdoor livelihood activities are carried out for extended periods under physically demanding conditions: processing sago, preparing digging tools, or catching shrimp. Rowing a boat to reach sago groves (hamlets) or fishing grounds also requires considerable time and energy.

Rufus Ause, a youth from Er Village, explained: "The community's foraging culture is now beginning to change. Previously, husbands and wives (or fathers and mothers) would go together to gather food, but now most mothers are solely responsible for providing for the family. Even during pregnancy, mothers still row boats to the hamlets or to riverbanks to catch shrimp."

Rufus' observation reinforces the responses of the majority of study participants (84%), who reported that pregnant women engage in strenuous labor to secure food for their families. This dual workload—combining intensive domestic responsibilities with physically taxing income-generating activities—further depletes the energy and compromises the health of women, particularly those who are pregnant or lactating and already suffering from malnutrition.

4) Efforts to Serve the Family and Exposure to Partner Violence

An ideal Asmat woman is expected to care for her family, particularly her husband and children, and to be skilled in securing food for household sustenance. To meet these expectations and be regarded as a "good" wife, women often push themselves beyond their physical limits to fulfill family needs, even when they are unwell, suffering, or in poor health.

Mama Sabina Okor from Agani Village shared: "I am

my husband's second wife. I had just reached adulthood when he proposed marriage. I did not want to marry, but his family insisted, and mine agreed. My father said, 'She is good at finding food, can care for her younger siblings, and knows how to make token and taping – she is ready for marriage.' After we married, I worked hard to feed the family, but was often scolded, cursed, and physically abused. Once, while pregnant and resting, Paitua wanted to eat, but the children had already given me all the food. He became angry and kicked me in the stomach and head. The next day, I rowed a boat to the hamlet, experienced severe abdominal pain, and gave birth, but the child died."

Mama Sabina's account reflects a widespread reality: 80% of respondents acknowledged that violence against women, including pregnant women, is common in the community. The constant pressure to perform domestic and economic roles, combined with exposure to verbal and physical abuse, contributes to significant psychological distress among women.

5) Desire to Learn and Limited Opportunities

Girls in the community express a strong desire for education and equal learning opportunities as boys. However, this aspiration is often hindered by prevailing communal beliefs that devalue girls' education—such as the perception that school is unbeneficial or unnecessary for girls (78%). Additionally, 70% of girls frequently accompany their parents (particularly mothers) to gather food, which limits their access to schooling. This mindset is rooted in broader cultural views that define women primarily in relation to men: as different from men (93%), as sisters (92%), and as mothers and wives (89%). These perceptions reinforce the idea that educational rights and priorities belong primarily to men.

Women are culturally defined as wives and mothers responsible for household duties, with little expectation or need to attend school. Father Klemens, a traditional elder from Agani Village, explained: "Many girls do not continue their education due to community and parental concerns. Parents fear that if their daughter goes to school:

- She may disappear or not return home;
- Who will help her mother find food or care for the family?
- Who will provide for them in old age?
- Who will manage the hamlet or oversee family affairs?
- Who will bear children and carry on the lineage?"

For these reasons, young girls are often married off shortly after weaning, either to boyfriends, widowers, or as second wives."

This account illustrates the deeply entrenched social constraints that limit girls' educational opportunities and perpetuate cycles of marginalization under patriarchal norms.



Figure 2. A photo of two teenage girls looking for shrimp in the river (taken by the authors)

3.2.2 Double Burden Resulting in Stunting

Stunting is primarily caused by chronic malnutrition, particularly during the first 1,000 days of life (1,000 HPK). This period spans from fetal development in utero, approximately 270 days during pregnancy, to the child's second year after birth (730 days), totaling about 1,000 days. During this critical window, vital organs, including the brain, liver, heart, kidneys, bones, arms, and legs, are formed and undergo rapid development. The 1,000 HPK phase represents a crucial developmental opportunity for a child's long-term health and well-being, which is largely dependent on the mother's health and nutritional status. Consequently, the maternal condition during pregnancy and lactation directly determines whether a child is at risk of stunting.

The complexity of the double burden faced by Asmat women, especially those who are pregnant or breastfeeding, includes low health literacy and limited awareness of clean and healthy living behaviors (PHBS), early marriage, excessive workload, insufficient rest, food insecurity, shifts toward less nutritious consumption patterns, inadequate nutrient and vitamin intake, limited access to health services, exposure to mental and physical violence, and poor overall nutritional status. These overlapping challenges significantly increase the vulnerability of mothers and their children to stunting. Given these conditions, the high stunting prevalence of 54.5% reported in Asmat Regency in 2022 is both understandable and consistent with the underlying social, economic, and health determinants. This rate exceeds that of all other districts in Papua Province and remains far above both national targets and the World Health Organization (WHO) threshold of 20%.

4. Conclusion

The high prevalence of stunting among children in Asmat is not an isolated or short-term phenomenon. It is deeply rooted and intrinsically linked to the primary factor enabling proper child development during the first

1,000 days of life (1,000 HPK), the health and well-being of the mother. Field findings confirm that women, particularly those who are pregnant or lactating, face a double burden that leads to nutritional deficits. The combination of malnutrition and multiple physical, social, and economic pressures on these women directly affects fetal and early childhood growth and development. This condition is strongly correlated with the high incidence of stunting in young children in Asmat.

Given the complexity of the double burden experienced by Asmat women, especially during pregnancy and lactation, the response must be equally comprehensive and integrated, involving multiple sectors and all relevant stakeholders. A fundamental step is to ensure that women have equal access to education and information, particularly on reproductive health and stunting prevention. Furthermore, there is a critical need to foster collective awareness and challenge gender-biased cultural norms within indigenous communities, which perpetuate the unequal treatment of women.

Government institutions and other actors should intensify their efforts through sustained counseling, training, and community-based health interventions on key thematic issues. Additionally, authorities must ensure that the 1,000 HPK program effectively reaches its intended beneficiaries, particularly pregnant and lactating women in remote villages where access to health services is limited due to geographic isolation or infrequent visits by health workers.

Declarations

Authors' Contribution

Conceptualization, M.F.; methodology, M.F.; software, H.H.; validation, M.F., and H.H.; formal analysis, M.F.; research, M.F.; resources, M.F.; data curation, M.F.; original drafting-drafting, M.F., and H.H.; drafting-revising and editing, M.F.; visualization, H.H.; supervision, M.F.; project administration, M.F. All authors have read and accepted the published version of the manuscript.

Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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Institutional Review Board Statement

The research was conducted in accordance with the Declaration of Helsinki and was approved by the Institutional Review Board of the Cenderawasih University, Indonesia.

Informed Consent Statement

The study was developed with the prior signed consent of the legal representatives and of the students themselves who took part in the research.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this study. This research was conducted independently, and no financial, personal, or institutional interests influenced the design, implementation, analysis, or interpretation of the study. All data and findings presented are solely based on objective research outcomes and are intended to contribute to the academic understanding and practical solutions addressing stunting in the studied region.

Should any potential conflicts arise during subsequent phases of the research or the dissemination of results, the authors commit to promptly addressing and disclosing them transparently.

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