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The Strategic Role of the First 1,000 Days of Life in Preventing Stunting and Achieving a Stunting-Free Generation

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A B S T R A C T

This community service program aimed to enhance public literacy and awareness regarding stunting prevention strategies through a massive online educational intervention. Conducted via Zoom on April 18, 2026, the program featured a multidisciplinary panel of eight experts covering essential topics: the urgency of HPK, maternal nutrition, exclusive breastfeeding, appropriate complementary feeding (MP-ASI), sanitation and hygiene (PHBS), and growth monitoring. Evaluation of the program through post-test assessments of 52 participants revealed a high level of knowledge acquisition, with an average score of 125.77 out of 150 (83.8%). The majority of participants (57.7%) achieved a score of 132, indicating the effectiveness of the multidisciplinary delivery. This holistic educational approach successfully provided participants with actionable knowledge, emphasizing that stunting prevention is a collective responsibility involving families, healthcare cadres, and the broader community.

INTRODUCTION

Stunting represents a form of chronic malnutrition manifested through impaired physical growth and developmental delays in children, primarily caused by prolonged inadequate nutrient intake, recurrent infections, and insufficient psychosocial stimulation (Black et al., 2013). Its consequences extend beyond reduced stature, encompassing deficits in cognitive function, increased risk of metabolic disorders, and diminished economic productivity in adulthood (Black et al., 2013). In the context of Indonesia's preparation for the demographic dividend and the realization of the "Golden Generation 2045" (Generasi Emas 2045), stunting reduction has been positioned as a national priority (Peraturan Presiden Republik Indonesia Nomor 72 Tahun 2021). Nevertheless, effective prevention requires not only policy-level commitment but also strengthened community-based interventions and sustainable behavioral change (Kementerian Kesehatan Republik Indonesia, 2020).

The First 1,000 Days of Life (HPK), beginning from conception until a child reaches two years of age, constitutes a critical and sensitive period for optimal human development. Interventions delivered during this window have been shown to yield the most significant impact in reducing stunting prevalence (World Health Organization, 2021). Despite its importance, public understanding of HPK remains limited and often fragmented (Rahmawati & Astuti, 2025). Furthermore, focusing solely on nutritional intake is insufficient without integrating complementary factors such as environmental sanitation, maternal healthcare, and routine child growth monitoring (Cumming & Cairncross, 2016).

Addressing stunting requires a comprehensive and interconnected approach. Maternal health during pregnancy plays a decisive role, where adequate intake of essential nutrients—such as iron, folic acid, and protein—is necessary to prevent Chronic Energy Deficiency (KEK) and anemia, both of which contribute significantly to the risk of stunting (Almatsier, 2010; Sari & Ningsih, 2024). In addition, optimal infant feeding practices, including exclusive breastfeeding during the first six months followed by appropriate complementary feeding (MP-ASI), are fundamental to ensuring adequate growth and development (World Health Organization, 2021). Environmental determinants, particularly poor sanitation and hygiene behaviors (PHBS), further exacerbate the risk by increasing susceptibility to infectious diseases such as diarrhea and Acute Respiratory Infections (ISPA), which negatively affect nutritional status (Cumming & Cairncross, 2016).

Moreover, efforts to prevent stunting must involve multiple stakeholders across different life stages and sectors. Adolescents, especially young girls, represent a critical target group, as early nutritional education and anemia prevention prior to marriage can influence future pregnancy outcomes (Sari & Ningsih, 2024). At the community level, integrated health service posts (Posyandu) serve as essential platforms for monitoring child growth and facilitating early detection of developmental issues (Pramono & Hasanah, 2024). The engagement of community health volunteers, religious leaders, and local figures is also instrumental in promoting the concept of "Nutrition-Aware Families" (Keluarga Sadar Gizi) (Kementerian Kesehatan Republik Indonesia,

2022). Ultimately, education functions as a key determinant in building informed, resilient populations capable of breaking the intergenerational cycle of malnutrition (Kementerian Kesehatan Republik Indonesia, 2023).

In response to these challenges, a multidisciplinary community engagement initiative (Pengabdian kepada Masyarakat) was conducted through a national webinar entitled "Generasi Emas Bebas Stunting: Peran di 1000 Hari Pertama Kehidupan," held on April 18, 2026. This program brought together experts from diverse fields including nutrition, midwifery, public health, nursing, and education with the objective of delivering integrated, evidence-based, and practical knowledge to the broader community. Through this initiative, it is expected that collective awareness and action can be strengthened to accelerate stunting reduction and support the realization of Indonesia's Golden Generation.

IMPLEMENTATION AND METHODS

This community service initiative was conducted using an educational intervention delivered through a national-scale webinar. This method was strategically selected to facilitate broad outreach across different geographical areas, enabling effective dissemination of essential information on stunting prevention without being constrained by physical distance (Kementerian Kesehatan Republik Indonesia, 2020).

Target Audience and Partners

The program targeted a diverse audience, including pregnant women, parents of young children, adolescents (prospective brides and grooms), Posyandu health cadres, students, and the general public. This multi-target approach reflects the cross-sectoral nature of stunting prevention, which requires involvement across different life stages and community levels (Kementerian Kesehatan Republik Indonesia, 2022). Participation was offered free of charge to ensure inclusivity and maximize outreach. Additionally, an optional electronic certificate (e-certificate) was provided as an incentive to enhance participant engagement and formally acknowledge their involvement in the learning process.

Stages of Implementation

The implementation of the program was organized into three structured phases:

1. **Preparation Stage:** This initial stage involved identifying key challenges related to stunting in Indonesia and assembling a multidisciplinary team of experts. Coordination was carried out with eight speakers from various fields, including nutrition, midwifery, public health, and education, to ensure comprehensive and integrated content delivery. This multidisciplinary approach aligns with recommendations that stunting prevention must integrate various sectors and expertise (Black et al., 2013). Promotional activities were conducted through the dissemination of digital flyers via social media platforms and academic networks to attract participants.

2. **Execution Stage (Implementation):** The main activity took place on April 18, 2026, from 08:30 to 12:00 WIB via the Zoom Cloud Meetings platform. The webinar was structured into eight thematic sessions, each addressing key determinants of stunting prevention across the life course (World Health Organization, 2021):
   a) **Session 1:** The significance of the First 1,000 Days of Life (HPK)
   b) **Session 2:** Maternal nutrition and anemia prevention
   c) **Session 3:** Exclusive breastfeeding and appropriate complementary feeding (MP-ASI).
   d) **Session 4:** Environmental health, clean and healthy living behaviors (PHBS), and infection prevention (diarrhea and ISPA) (Cumming & Cairncross, 2016).
   e) **Session 5:** Strengthening the role of Posyandu and child growth monitoring using KMS (Pramono & Hasanah, 2024).
   f) **Session 6:** The role of adolescents in stunting prevention efforts (Sari & Ningsih, 2024).
   g) **Session 7:** Community and religious leaders' contributions to promoting "Nutrition-Aware Families" (Kementerian Kesehatan Republik Indonesia, 2022).
   h) **Session 8:** Educational strategies for strengthening human resource quality.

3. **Evaluation and Follow-up Stage:** Program evaluation was conducted through interactive question-and-answer sessions following each presentation, allowing assessment of participants' comprehension and engagement. In addition, the distribution of e-certificates functioned as a mechanism to document participation rates and gauge commitment to the educational intervention. This participatory evaluation approach is commonly used in community-based health education to assess knowledge transfer qualitatively (Rahmawati & Astuti, 2025).

Instruments and Media

Several supporting tools and media were utilized to optimize program delivery:

i) **Visual Presentations (PPT):** Developed by each speaker to translate complex health and nutrition concepts into practical and easily understood information (Kementerian Kesehatan Republik Indonesia, 2020).
j) **Digital Flyer:** Used as a communication tool for outreach and participant recruitment.
k) **Video Conferencing (Zoom):** Served as the primary medium for delivering interactive distance learning sessions.

Data Analysis

The effectiveness of the program implementation was analyzed using a descriptive qualitative approach. Key indicators included the level of participant engagement, the breadth and relevance of topics presented, and the nature of questions raised during discussion sessions. These indicators provided insights into participants' level of understanding and community literacy regarding

stunting prevention, which is an important component in behavioral change strategies (Kementerian Kesehatan Republik Indonesia, 2020).

RESULTS AND DISCUSSION

The national webinar titled "Golden Generation Free of Stunting: The Role of the First 1,000 Days of Life" was successfully held on April 18, 2026. This program facilitated a comprehensive transfer of knowledge from a multidisciplinary panel of experts to the community. The educational intervention was highly interactive, addressing various dimensions of stunting prevention. The discussion is categorized into several strategic pillars based on the comprehensive material presented during the webinar.

The Foundation: The First 1,000 Days and Maternal Health

The primary focus of various stunting prevention intervention strategies is the crucial period known as the First 1,000 Days of Life (HPK), spanning from the beginning of pregnancy until the child reaches two years of age. This period is often referred to as the "golden window of opportunity" due to the significant impact that targeted nutritional interventions can achieve. As emphasized by Muayanah Hardiah, S.Gz., M.Gz., specific and sensitive nutritional interventions during this time are fundamental components that cannot be delayed. Families hold a key role in early prevention efforts, given the immense difficulty in overcoming stunting once this critical stage has passed.

Building awareness on this matter, Jenny Kartika, S.Tr.Keb., SKM., M.Kes., further outlined the importance of healthy maternal physiological conditions during pregnancy as a primary prerequisite. Stunting prevention efforts essentially begin while the fetus is still in the womb. Fulfilling the essential nutritional needs of pregnant women, particularly micronutrients such as iron and folic acid, as well as protein, is a fundamental element. Furthermore, the effectiveness of distribution programs and the adherence of pregnant women in consuming Blood Supplement Tablets (TTD) are crucial in minimizing the risk of anemia and Chronic Energy Deficiency (KEK) in mothers. Both conditions are proven to have a strong correlation with low birth weight and the development of stunting.

Infant Nutrition and Environmental Health

Post-natal care involves strict monitoring of the infant's nutrition and health. Agus Sulistyowati, S.Kep., M.Kes., detailed the undeniable benefits of exclusive breastfeeding for the first six months, which provides complete nutrition and immune defense. This must be followed seamlessly by the appropriate introduction of complementary foods (MP-ASI). Participants were educated regarding the timing, methods, and examples of balanced MP-ASI menus tailored to the availability of local food sources.

However, optimal nutrition can easily be compromised by a poor environment. Syamsul Rizal Sinulingga, MPH., explained the crucial link between sanitation, Clean and Healthy Living Behavior (CHLB/PHBS), and infection prevention. Recurring episodes of diarrhea and Acute Respiratory Infections (ARI/ISPA) drastically deplete a child's energy, diverting nutrients

away from growth to fight illness. Therefore, access to clean water, the use of healthy latrines, and simple yet effective practices like handwashing with soap are integral parts of the anti-stunting strategy.

Early Detection and Growth Monitoring

Continuous monitoring is required to detect early signs of growth deceleration. Bedjo Utomo, S.KM., M.Kes., outlined the strategic role of **Posyandu** (Integrated Healthcare Center). Community empowerment was targeted by teaching participants how to correctly read the **Kartu Menuju Sehat** (KMS/Growth Chart). Early detection of growth disorders empowers parents and health cadres to make timely referrals to primary healthcare facilities before developmental delays become permanent stunting.

Pre-Conception and Community Ecosystem Empowerment

Stunting prevention is not solely the burden of pregnant and breastfeeding mothers; it requires preventive actions and a supportive social ecosystem. Tatarini Ika P, SST., M.Kes., shifted the focus to adolescents, emphasizing that preventing anemia in young girls is the first line of defense. Pre-marital nutritional education ensures that future mothers are physically and biologically prepared for a healthy pregnancy.

Furthermore, Nina Rahmadiliyani, S.Kep., M.P.H., discussed the sociological approach to achieving the 2045 Golden Generation. Health cadres and religious/community leaders must be actively involved to transform individual behavior into a collective cultural shift, specifically through the "Nutrition-Aware Family" (**Keluarga Sadar Gizi**) movement.

Education as the Ultimate Catalyst

To unify all cross-sectoral efforts, Muhammad Ihsan, M.Pd., conceptualized education as a fundamental pillar for human resource development. This perspective positions stunting prevention not merely as a clinical intervention but as a transformative educational process. Public health literacy serves as a critical prerequisite for meaningful behavioral change; without a deep understanding of nutritional principles and hygiene, sustainable health practices cannot be established at the household level.

Through continuous and structured education, the community shifts from being passive recipients of health policies to active, informed participants in shaping a Stunting-Free Golden Generation. This transformation is vital for the realization of Indonesia's "Golden Generation 2045" vision, where the quality of human capital depends heavily on health interventions during the first 1,000 days of life. Education acts as the "ultimate catalyst" by translating complex medical data into actionable knowledge that empowers parents, adolescents, and community leaders.

The effectiveness of education as a catalyst was empirically evidenced by the program's evaluation results. Participants demonstrated a high level of knowledge acquisition, achieving an average score of **125.77 out of 150 (83.8%)**. This quantitative success indicates that a well-structured multidisciplinary webinar can significantly bridge the literacy gap. With the majority of

participants (**57.7**%) reaching a high mastery level (score of 132), it is evident that educational interventions are capable of fostering the critical awareness needed to drive a collective cultural shift toward better nutrition and sanitation.

Furthermore, education in this context extends beyond simple information sharing; it involves building practical skills and a sense of shared responsibility. By equipping the community with the "why" and the "how" of stunting prevention, education ensures that the efforts discussed in other strategic pillars such as maternal health, infant nutrition, and growth monitoring are not only understood but also sustained in the long term.

Quantitative Analysis of Knowledge Improvement

To measure the webinar's effectiveness, evaluations were conducted via pre-tests and post-tests among 52 respondents. Based on the collected data, the majority of respondents were female (94.2%), with backgrounds dominated by students (65.4%) and the general public/professionals (34.6%).

Table 1. Summary of Participant Evaluation Score Statistics (N=52)

Indicator	**Analysis Results**
Mean Score	125.77 / 150 (83.8%)
Maximum Score	144 / 150
Minimum Score	108 / 150
Mode (Most Frequent)	132 / 150 (57.7% of participants)

The data analysis indicates a very high level of post-intervention understanding. Approximately 57.7% of participants achieved a score of 132 out of 150, demonstrating that key messages regarding the 1,000 HPK and stunting prevention were effectively communicated. Nonetheless, variations in understanding were observed in specific topics, such as the duration of exclusive breastfeeding and the appropriate time to start MP-ASI among some respondents, indicating a need for continuous educational reinforcement on these technical points.

Community Impact

The holistic approach used in this community service bridges the gap between clinical knowledge and everyday practical application. Based on the quantitative evaluation results above, it is evident that public literacy regarding the multifaceted causes of stunting has increased significantly. Participants recognized that stunting mitigation requires the synergy of proper nutrition, hygiene, routine health monitoring, and strong socio-educational support.

Qualitative evaluation through Q&A sessions showed an increased level of understanding regarding the 1,000 HPK concept, the importance of exclusive breastfeeding, and the link between sanitation and infection. With an average score of 125.77 out of 150, this webinar proved to be an effective knowledge catalyst. Many participants expressed appreciation for the integrated and easy-to-understand delivery of the material.

However, challenges remain in ensuring the sustainability of behavioral change. To achieve the 2045 Golden Generation, stunting prevention must be viewed as a long-term investment. This webinar represents a vital first step in building collective awareness and driving real action for the broader community.

CONCLUSIONS AND RECOMMENDATIONS

The community service program, executed through the national webinar **"Generasi Emas Bebas Stunting: Peran di 1000 Hari Pertama Kehidupan,"** was successfully implemented and achieved its objective of enhancing public literacy regarding stunting prevention. Based on the comprehensive multi-disciplinary insights shared during the program, it is concluded that preventing stunting is not solely a medical or nutritional issue, but a complex socio-environmental challenge.

The First 1,000 Days of Life (HPK) remains the most critical window for intervention. However, success during this period relies heavily on a synergistic approach encompassing maternal health and anemia prevention, exclusive breastfeeding and optimal MP-ASI, strict adherence to sanitation and hygiene (PHBS), and routine growth monitoring at Posyandu. Furthermore, the program highlighted that the foundation of a Stunting-Free Golden Generation must be built earlier through adolescent health preparation and strengthened by the active involvement of community and religious leaders. Ultimately, continuous, multi-sectoral education is the primary catalyst for transforming public awareness into sustained behavioral change within families and communities.

To ensure the sustainability of the knowledge disseminated during this program and to accelerate the reduction of stunting prevalence, several recommendations are proposed:

1. For Families and the Community: Participants are highly encouraged to implement the principles of the First 1,000 Days of Life in their daily households. This includes ensuring proper nutrition for pregnant women and adolescent girls, practicing exclusive breastfeeding, preparing balanced local MP-ASI, maintaining household sanitation, and actively participating in routine Posyandu visits for early growth monitoring.
2. For Posyandu Cadres and Local Health Workers: It is recommended to continuously update their skills, particularly in accurately reading the KMS (Health Card) and conducting early detection of growth faltering. Cadres should also intensify their proactive outreach to guide "Nutrition-Aware Families" (**Keluarga Sadar Gizi**) at the neighborhood level.
3. For Future Community Service and Academic Programs: Future educational interventions should not be limited to online webinars. It is recommended to conduct offline, hands-on workshops—such as MP-ASI cooking demonstrations or sanitation building projects in targeted, high-risk villages. Additionally, future programs should incorporate quantitative assessments (pre-test and post-test) and long-term monitoring to empirically measure the impact of the educational intervention on actual behavioral changes and stunting reduction rates.

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