

Effectiveness of Women's Empowerment Series in Increasing Stunting Literacy Relating to Oral Health Maintenance

Anne Agustina Suwargiani^{1,a)}, Netty Suryanti¹⁾, Fidya Meditia Putri¹⁾, Ardena Maulidia Hamdani¹⁾, Asty Samiaty Setiawan¹⁾, Gilang Yubiliana¹⁾, Cucu Zubaedah¹⁾, Dudi Aripin²⁾, Sri Susilawati¹⁾

¹Department of Public Dental Health, faculty of Dentistry, Universitas Padjadjaran, Bandung, Indonesia

²Department of Dental Conservation, faculty of Dentistry, Universitas Padjadjaran, Bandung, Indonesia

^{a)}Corresponding author: anne.agustina@unpad.ac.id

ABSTRACT

The high incidence of stunting necessitates accelerated prevention programs, which can be implemented by enhancing stunting literacy as part of women's empowerment initiative to prevent stunting, particularly in the field of oral health. Stunted children are more susceptible to dental caries due to changes in saliva characteristics, such as reduced flow rate and pH. The objective of this empowerment program is to increase women's literacy regarding stunting, specifically related to oral health and nutrition. The method includes a series of community empowerment activities through five educational programs and two training programs aimed at improving literacy in stunting, oral health, and nutrition. This is followed by demonstrations to enhance the skills of women cadres using educational units and training modules, which have been validated by public health experts. The results of the empowerment program indicate a significant increase in knowledge and skills within the community, reaching optimal levels, although the degree of improvement varies and there remains room for further development. The program, which empowers women by increase literacy on stunting and its relation to oral health and nutrition through education and training, can contribute to improving overall oral health literacy.

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INTRODUCTION

Stunted growth is a form of impaired physical and cognitive development in children, often caused by prolonged malnutrition or recurrent infections. As a result, affected children tend to be shorter than their peers and may experience delays in cognitive development. Stunting is measured using the height-for-age (H/A) indicator, based on the World Health Organization (WHO) Child Growth Standards, where an z-score of $H/A < -2$ SD indicates stunting (Sadida et al., 2022).

According to WHO data, Indonesia ranks third in Southeast Asia for the highest prevalence of stunting. The average prevalence of stunted toddlers in Indonesia from 2005-2017 was 36.4%. Survey and research data in Indonesia reveal that the prevalence of severe stunting (very short stature) reached 19.3% higher than in 2013 (19.2%) and 2007 (18%). Overall, the prevalence of mild and severe stunting (short and very short stature) stands at 30.8% (Andriyani et al., 2023).

The high rate of stunting in several districts and cities in Indonesia requires an accelerated program to prevent stunting, which can be achieved by increasing stunting literacy as a part of women's empowerment program focused on preventing stunting through the lens of oral health studies, supported by socio-cultural analysis. According to the 2022 Indonesian Nutrition Status Survey (SSGI), the prevalence of stunting based on height-for-age in Bandung Regency (25.0%) ranks it as the fifth largest district/city in terms of stunting prevalence (SSGI, 2022).

This prevalence is above the West Java Province average of 20.2%. Cibodas Village in Pasir Jambu Sub-district is one of the priority areas in Bandung District for addressing stunting. Stunting is a condition of child malnutrition that begins within the first 1,000 days of life and has lasting impacts into adulthood (SSGI, 2022)

Dental caries is another significant health issue, where teeth become damaged and may eventually affect supporting tissues, potentially leading to systemic problem. There is a reciprocal relationship between stunting and dental caries. Thus, preventing stunting requires balanced nutrition and maintaining oral health to ensure children can eat properly. Similarly, preventing dental caries can be supported by fulfilling nutritional needs, which is vital for optimal salivary function (Andriyani et al., 2023); (Sadida et al., 2022).

Oral health in children under five is closely linked to growth and underweight conditions. Nutritional status plays a key role in oral health, which in turn influences the timing of tooth development. Various factors, such as poor nutrition, disease, maternal knowledge, and social status, can affect a child's body weight. Given the strong impact of oral health on a toddler's nutritional status, an integrated oral health program is crucial for stunting prevention (Rohanawati & Bachtiar, 2019)

One of the main contributors to the high rate of stunting in rural areas is the low level of public knowledge regarding stunting and appropriate complementary foods for children. Enhancing understanding of stunting prevention and management is critical. A proven strategy to raise awareness is through educational materials aimed at improving stunting literacy (Santoso et al., 2023). Empowering women through education is key to increasing literacy about stunting, particularly with a focus on oral health and nutrition.

METHOD

The method employed involves women's empowerment through public health education, specifically via outreach programs designed to enhancing literacy in stunting, nutrition, and prevention, all interconnected with oral health for women in Bandung Regency. As part of the strategy to reduce stunting in children aged 0-6 months, maternal nutritional literacy intervention materials are utilized (Sirajuddin et al., 2021)

The empowerment initiative comprises three training programs, four counseling sessions, and the establishment of stunting cadres. These cadres are equipped to provide motivation and education on stunting prevention, particularly in relation to oral health.

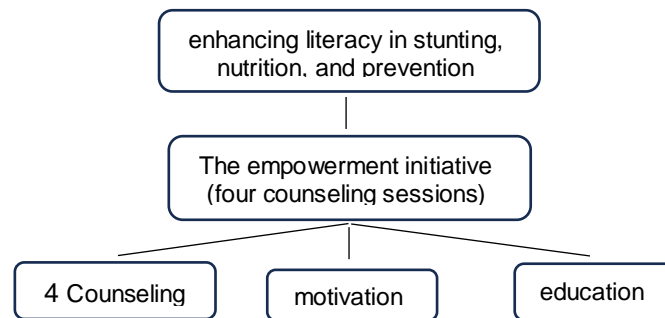


FIGURE 1. Method delivery enhancing literacy in stunting

This effort aligns with the revitalization of integrated healthcare centers (Posyandu), positioning them as comprehensive information hubs for stunting literacy, nutrition, and oral health. The aim is to increase public awareness and address potential misconceptions about stunting and its contributing factors.

The evaluation of stunting literacy and dental health status is conducted through the analysis of relevant socio-cultural studies. Data collection methods include both manual questionnaires and online forms via Google Forms. The data is then analyzed using Excel to present relative frequency distributions.



FIGURE 2. Extension Program
(source: Private collection)



FIGURE 3. Group photo after counseling activities
(source: Private collection)



FIGURE 4. Training Activities
(source: Private collection)



FIGURE 5. Group photo after training activities
(source: Private collection)

RESULTS AND DISCUSSION

The expected outcomes of the program include improved literacy among both cadres and the community, leading to enhanced motivation, knowledge, and behavioral changes in dental and oral health practices, particularly related to stunting, nutrition, and overall health. This is achieved through socio-cultural studies within the community and the development of reliable human resources focused on prevent stunting. The initiative also aims to establish a digital literacy model, a stunting prevention training module, a digital platform, and an e-book related to dental health and stunting prevention. Additionally, the program seeks to reduce stunting rates in West Java, contributing to the improvement of Indonesia's Human Development Index (IPM) in the health sector.

The results indicate that the program has positively impacted the knowledge and skills of cadres, who represent the Cibodas Village community. However, the degree of improvement varies, and further efforts are required. Continued follow-up programs will be necessary to further enhance cadres' skills, particularly in dental health and nutrition, in order to more effectively prevent stunting.

This program received positive feedback from the cadres, the village head, local residents, and the chairman of the Family Empowerment and Welfare (Pemberdayaan dan Kesejahteraan Keluarga) in Cibodas Village. The success of the program will be evaluated based on the increase in literacy and the establishment of stunting cadres in line with the program's objectives. Further data processing and the preparation of scientific articles are planned before the program enters its second phase.

Table 1 Activities of the Women's Empowerment Series in Increasing Stunting Literacy Related to Maintaining Oral Health

No	Activity Name	Pre test		Post test	
		F	%	F	%
1.	Counseling on Preventing Stunting by Maintaining Dental and Oral Hygiene in Children				
	Understanding stunting	15	50	30	100
	Impact of stunting	15	50	30	100
	Causes of stunting	15	50	30	100
	It is important to maintain healthy teeth in children	15	50	30	100
	How to maintain healthy teeth and mouth in children aged 0-6 months	15	50	30	100
	How to maintain healthy teeth and mouth in children aged 6 months-1 year	15	50	30	100
	How to maintain healthy teeth and mouth in children aged 1-3 years	15	50	30	100
	How to maintain healthy teeth and mouth in children aged 3-6 years	15	50	30	100
	How to maintain healthy teeth and mouth in children over 6 years old	15	50	30	100
	Position for brushing children's teeth	15	50	30	100
	How to stimulate the growth of baby teeth	15	50	30	100
	Child				
	Bad habits to avoid	15	50	30	100
2.	Digital Literacy Training				
	Hear about digital literacy	0	0	30	100
	Knowing about digital literacy	0	0	30	100
	having difficulty using the internet	15	50	30	100
	What information do you most often look for on the internet?				
	Health and stunting	5	16,67	30	100
	Entertainment	5	16,67	30	100
	Latest news	5	16,67	30	100
	Benefits of digital literacy	5	16,67	30	100
3.	Stunting Prevention Training Using Nutritious Food Processing Made from Chayote				
	Able to convey practical processing procedures	30	100	30	100
	Able to carry out practical processing procedures	30	100	30	100
4.	Counseling to Develop Behavioral Patterns <i>Figure Public</i> The good one				
	Role play builds a Fun Personality of Persuasion	0	0	30	100
	Building Good Relations between Public Figures and the Community	0	0	30	100
	How to Maintain Good Relations between Public Figures and the Community	0	0	30	100

No	Activity Name	Pre test		Post test	
		F	%	F	%
5	Counseling on Stunting Prevention Efforts and Dental and Oral Health				
	Good Tooth Brushing Time				
	Morning after waking up	6	20	30	100
	Night before bed	1	3,33	29	96,77
	The content of good toothpaste is				
	Glucose	1	3,33	30	100
	Protein	1	3,33	30	100
	Fluoride	28	93,33	30	100
	How many times should you brush your teeth a day?				
	How to choose a good toothbrush for children	15	50	30	100
	Understanding stunting	15	50	30	100
	Characteristics of stunted children	15	50	30	100
	Causes of stunting	0	0	30	100
	An important period to prevent stunting	0	50	30	100
	Does dental health affect the occurrence of stunting in children?	15	50	30	100
	Prevent stunting from dentition factors	15	50	30	100
	When is a good time to measure teeth	15	50	30	100
6	Education on Toothbrushing Protocols for Pre-Schools and Child Care Serving Children Aged 3-5 Years				
	Schedule tooth brushing	15	50	30	100
	How to brush your teeth	15	50	30	100
	Selection of toothbrush	15	50	30	100
	Installation of toothbrush labels	0	0	30	100
	Toothbrush Hygiene and Storage	0	50	30	100
	Time to replace tooth brushing	15	50	30	100
	The importance of using toothpaste	15	50	30	100
	Berfluoride				
	Selection of toothpaste	15	50	30	100
	The required amount of toothpaste	0	0	30	100
	Used				
	Procedures for distributing toothpaste	0	0	30	100
	Tooth brushing technique	0	0	30	100
	Rinsing after brushing your teeth	0	0	30	100
7	Counseling <i>Food hygiene</i> and a healthy lifestyle campaign through <i>culture behavior</i> based on perspective;				
	(1) Biology	0	0	30	100
	(2) Economics	0	0	30	100
	(3) International Relations	0	0	30	100
	(4) Anthropology, History and Social Affairs	0	0	30	100

The results in Table 1 indicate a 50% improvement in knowledge about preventing stunting through maintaining children's oral hygiene across nearly all questions. These findings align with the program's empowerment objectives, which focus on educating mothers about stunting prevention by ensuring good oral hygiene for their children. The initial empowerment stage successfully demonstrated that empowerment starts at the individual level and gradually leads to collective action (Purworini et al., 2023). Individual empowerment is crucial in addressing stunting, a global issue that requires serious attention from the government and all societal elements. Stunting occurs due to growth and developmental disorders in children caused by malnutrition, recurrent infections, and inadequate psychosocial stimulation. It can begin during pregnancy and becomes apparent when the child is around two years old (Daroini et al., 2023). Additionally, stunting has been linked to poor dental and oral hygiene, which can increase the risk of dental caries and reduce saliva production and flow (Sadida et al., 2022).

This empowerment initiative also includes digital literacy training aimed at raising awareness of stunting and dental health. As shown in Table 1, the digital training results reflect an 83.33% increase in knowledge. These results align with research by Sudarti et al. and Syefrinando et al., which demonstrate that digital literacy training can significantly improve knowledge, skills, and competencies ((Sudarti et al., 2022);

(Syefrinando et al., 2022). Digital literacy is essential because stunting is a public health issue that increases the risks of morbidity, mortality, and developmental delays, both motor and mental (Daroini et al., 2023)

The negative consequences of stunting include reduced academic potential, a higher risk of non-communicable diseases, increased healthcare costs, and decreased productivity. Stunting must be prevented early, as it is difficult to treat once it occurs. Prevention efforts should begin during pregnancy and continue until the child is two years old (Sirajuddin et al., 2021)

Table 1 shows that training on preventing stunting through the preparation of nutritious meals using chayote improved mothers' knowledge and skills by 50%. These findings are consistent with a systematic review that underscores the complexity of the determinants of stunting in children under five. While these factors are multifaceted, certain variables can be effectively targeted in sustainable stunting prevention programs. It is widely recognized that mothers play a crucial role in child-rearing, particularly in providing nutrition, care, hygiene, and healthcare during critical periods of growth (Sirajuddin et al., 2021).

Table 1 also demonstrates that counseling efforts led to a 50% increase in positive behavioral patterns across nearly all questions. This aligns with prior research indicating that child, maternal, and social environmental factors are interconnected. Positive responses from these factors support child growth, whereas negative influences hinder it. Enhancing parenting capacity is considered a key opportunity for improving sustainable nutrition (Sirajuddin et al., 2021). Maternal nutritional literacy interventions can be a valuable strategy for reducing stunting in children aged 0-6 months (Sirajuddin et al., 2021).

In this context, families with stunted children can respond to stunting prevention program initiatives by improving their quality of life through independent information management (Daroini et al., 2023). Empowering women with knowledge about providing proper nutrition for children aged 6-59 months is crucial for stunting prevention (Margatot & Huriah, 2021). Furthermore, educational videos on turning local foods into nutritious supplementary meals for stunted children are provided as part of the program (Santoso et al., 2023). Culture-based educational videos have proven effective in improving public health literacy on stunting (Asriadi et al., 2023). The learning materials and methods are also tailored to the developmental needs of Community Service Program (KKN) students involved in this program. Detailed material information is presented in Table 1.

Counseling on stunting prevention and dental and oral health showed a 50% improvement in almost all questions, indicating a positive impact from increased knowledge. The beneficial effects of high maternal health literacy are more noticeable in rural areas, though the difference in impact on underweight and severely underweight children between rural and urban settings is minimal. Children whose mothers have high health literacy have about half the risk of experiencing severe stunting or being underweight compared to children of mothers with lower health literacy, especially in cases of severe stunting (Johri et al., 2016).

Education on toothbrushing protocols for preschools and daycares serving children aged 3-5 also demonstrated a 50% improvement across nearly all questions. These findings are consistent with previous research emphasizing the importance of health literacy for individuals. Health literacy is essential for accessing health information, ultimately leading to better health maintenance. Generally, it enhances health knowledge, empowering individuals or communities to make informed health decisions (Daroini et al., 2023).

Individuals need to have access to comprehensive health information and the capacity to seek relevant information for their health circumstances. Understanding the role of program officers in implementing the stunting prevention program is essential for its success (Daroini et al., 2023). The program employs a strategy to enhance comprehension by providing educational materials that promote stunting literacy. This is supported by the creation of a website featuring educational articles and videos on stunting (Asriadi et al., 2023).

Counseling on food hygiene and the promotion of a healthy lifestyle, incorporating cultural behaviors from disciplines such as Biology, Economics, International Relations, Anthropology, History, and Social Sciences, resulted in a 50% increase in knowledge on nearly all questions. This aligns with the findings of Daroni et al., which emphasize the importance of fostering habits that promote health literacy, particularly at the village level. This collective value system is initiated by community participation in group meetings, where counseling serves as a vehicle for transferring health knowledge. The stunting prevention program aims to foster a social construct—a collective value system—focused on health literacy (Daroini et al., 2023).

Some of the material in Table 1, particularly regarding dental health, is repeated intentionally. Research suggests that ongoing educational interventions, especially through brainstorming methods, are essential for mothers of stunted children. Regular reinforcement of this knowledge is vital for improving understanding and influencing behavior related to stunting prevention. Increased awareness and behavioral change are crucial to reducing the prevalence of stunting. Repeated exposure to the information positively impacts the development of attitudes and behaviors, thereby empowering the target groups (Pantiawati et al., 2023).

Community empowerment efforts aim to address factors contributing to stunting, such as feeding-related parenting practices, and socio-demographic factors influenced by knowledge, maternal decision-making, socio-economic conditions, and environmental sanitation. By empowering communities to address these risk factors, the goal is to increase opportunities, participation, and access to health services (Aprillia et al., 2023). Families with low economic status and food insecurity require a comprehensive and multifaceted approach for effective empowerment (Nursanti et al., 2021).

CONCLUSION

Empowering women through education, including counseling and training, to enhance their understanding of stunting and its relation to dental, oral health, and nutrition can significantly improve dental and oral health literacy.

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