

## Innovation in Health Learning Management for Stunting-Vulnerable Communities in Sub-Urban Areas

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### ABSTRACT

Stunting remains a major public health challenge in Indonesia, particularly in suburban areas characterized by limited access to education, health services, and socioeconomic resources. This research aims to analyze innovations in health learning management for stunting-vulnerable communities in suburban areas, with a focus on East Bolaang Mongondow Regency. Using a qualitative research approach, data were collected through in-depth interviews with heads of community health centers and health promotion officers, field observations, and document analysis. The findings reveal that health learning management innovations are implemented through four managerial functions: planning, organizing, implementation, and evaluation. Planning is based on local stunting data and community needs; organizing emphasizes family- and community-based learning networks; implementation applies participatory and experiential learning strategies; and evaluation is conducted through participatory and family-based monitoring. The implications of these findings suggest that context-based, community-embedded health learning management can effectively promote behavioral change and strengthen stunting prevention in suburban settings.

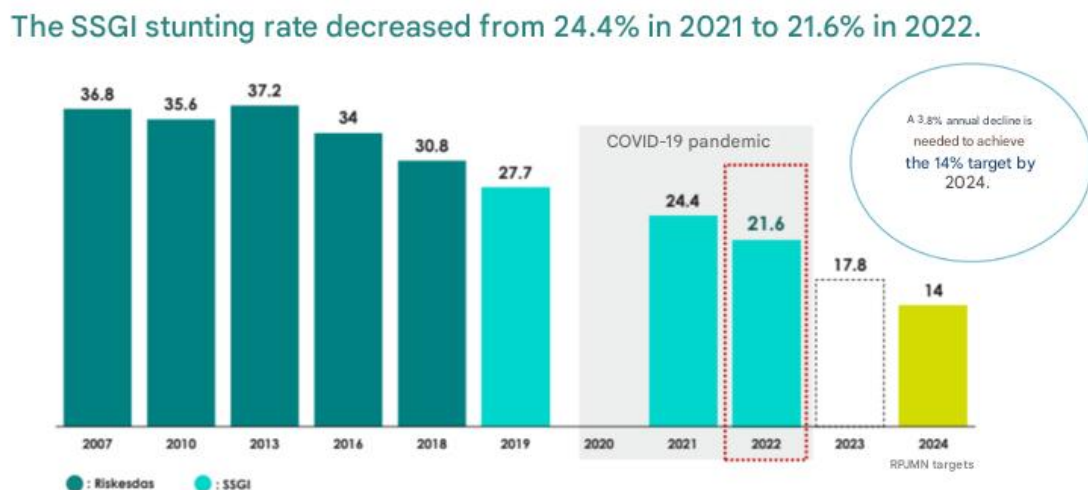
### INTRODUCTION

Innovation in educational activities in the field of health is required at the community level, with the aim of addressing the most vital needs in health education (Gilbert et al., 2014; Lamus-Lemus et al., 2017; Swargiary, 2024). Drucker (2012) asserts that innovation constitutes a specific tool for companies, whereby innovation can explore or capitalise on changes that occur as opportunities to operate a different business. This can be presented as a discipline, learning, and practice. In accordance with the assertions put forward by Lengkong, J. S. et al (2023):

*Within the domain of education, innovation is inextricably intertwined with the pedagogical practices of educators. Innovation can be seen to occur within the domain of classroom learning activities. Moreover, innovation is imperative to avert the potential stagnation of the educational dynamic between educators and students over time. Consequently, innovation in education is imperative and should be pursued.*

The advent of innovative learning methodologies has been shown to facilitate enhanced student learning outcomes (Andrini, 2016; Subramani & Iyappan, 2018; Susilowibowo & Hardini, 2019; Wagino et al., 2024). The pedagogical approach employed for students must be meticulously devised and cultivated in accordance with contemporary standards (Khadijah et al., 2025; Organization, 2018). Learning is a complex phenomenon, and the objective of learning innovation is to maximise learning outcomes for students. According to Serdyukov (2017), innovation can therefore be defined as the process of creating something that is either different from or similar to existing practices.

Stunting is a chronic nutritional problem that reflects long-term nutritional deprivation and repeated infections during early childhood (UNICEF, 2019). In Indonesia, stunting prevention remains a national priority, particularly in sub-urban areas where socio-economic vulnerability and limited access to health education persist (Puffer & Ayuku, 2022). East Bolaang Mongondow Regency represents a sub-urban region with diverse geographical, cultural, and socio-economic characteristics that influence community health behavior (Organization, 2020). Stunting rate in Indonesia can be seen through below figure from Indonesian Ministry Health Socialization 2022.



**Figure 1. Stunting Rates in Indonesia in 2022**

Source : Indonesian Ministry of Health Socialization 2022

Health education plays a crucial role in stunting prevention; however, conventional health promotion approaches often emphasize information delivery rather than systematic learning management. Therefore, innovation in health learning management is required to ensure that health education is not only informative but also transformative, empowering families and communities to adopt sustainable healthy behaviors (Prado et al., 2018; Tomoh et al., 2024; Van der Westhuizen et al., 2020).

The latest data obtained from the Health Office regarding the development of the number of stunting cases in North Sulawesi Province is as follows:

**Table 1. Stunting Cases in North Sulawesi Province in 2022**

No	Districts	Rate Presentation
1	Talau Islands	26 %
2	North Minahasa	20,5 %
3	Southeast Minahasa	26,5 %
4	East Bolaang Mongondow	30%
5	Bitung	23,5 %

<https://www.bkkbn.go.id/> retrieve 21 March 2023

As illustrated in Table 1 above, there are still five districts with relatively high stunting rates, namely East Bolaang Mongondow (30%), Southeast Minahasa (26.5%), Talaud Islands (26%), Bitung (23.5%), and North Minahasa (20.5%). On a national scale, North Sulawesi Province has a stunting prevalence rate of 20.5%, indicating a need to prioritise interventions in regions with high rates of stunting, as illustrated in the accompanying table.

The North Sulawesi Provincial Health Office is one of the health institutions whose functions include formulating technical policies in the health sector. Consequently, the North Sulawesi Provincial Health Office is tasked with enhancing the quality of health services by implementing programs to address health issues and developing strategies that support the reduction of stunting. These strategies encompass organisational approaches, programs to be executed, and the utilisation of resources. A recent study by Aseng, K.I. (2023) has indicated that one of the factors which contribute to the issue of stunting can be defined as follows:

**Table 2. The threat of stunting**

No	Threat	Value	Rating	Score
1	Lack of public awareness	0,15	4	0,60
2	Level of Community Economy	0,22	4	0,88
3	The Influence of Cultural Shame	0,14	3	0,42
Total		0,51	11	1,90

Aseng, K.I (2023)

This suggests that a significant threat factor contributing to stunting is the lack of public awareness, which is a more significant threat factor than the socio-cultural influence of shame. It is evident from the findings of numerous research studies that a multitude of factors exert an influence on the incidence of stunting. One of these factors is knowledge. The influence of maternal education, nutrition knowledge, family income, exclusive breastfeeding, the age at which complementary foods are introduced, micronutrient intake (e.g. zinc and iron), history of infectious diseases, and genetic factors on the prevalence of stunting in both rural and urban areas has been demonstrated (Aridiyah, Rohmawati, & Ririanty, 2015). It has been demonstrated by a number of studies that mothers of toddlers have the capacity to enhance their children's nutritional intake according to their age through counselling and PMBA practices. The level of nutritional adequacy (energy, protein, calcium) and the level of knowledge of mothers of non-stunted toddlers is superior to that of stunted toddlers aged 24-59 months in the working area of the Tambak Wedi Surabaya Community Health Center.

Previous research on stunting prevention has predominantly focused on biomedical, nutritional, and public health service delivery models. Studies such as those by Aridiyah et al. (2015) and Wulandari & Muniroh (2020) have identified factors such as maternal knowledge, family income, and feeding practices as key determinants. Research on educational interventions has often been limited to conventional health counseling and information dissemination, with less attention given to systematic learning management and pedagogical innovation tailored to community contexts. Furthermore, few studies have examined how health education is planned, organized, implemented, and evaluated as an integrated learning process—particularly in sub-urban settings where access and resources are constrained.

This study seeks to explore how health learning management is innovatively designed and implemented for stunting-vulnerable communities in sub-urban areas, focusing on East Bolaang Mongondow Regency. This research is expected to provide practical benefits for health institutions and field officers in designing contextual and participatory learning programs to support stunting prevention efforts. In terms of policy, the findings can serve as input for local governments in

formulating more adaptive and community-based health education strategies. Academically, the study contributes to enriching the literature on health learning management, particularly regarding the integration of educational innovation into public health practices in sub-urban areas. More broadly, the research aims to generate social impact through increased community empowerment, awareness, and sustainable healthy behavioral change to reduce stunting prevalence.

## METHOD

This study employed a qualitative case study design. The research site was East Bolaang Mongondow Regency, selected due to its sub-urban characteristics and stunting vulnerability. Participants included heads of community health centers and health promotion officers directly involved in stunting prevention programs. Data were collected through in-depth interviews, non-participant observation, and document analysis (Sivarajah et al., 2019). Data analysis followed an interactive model involving data reduction, data display, and conclusion drawing. Data validity was ensured through triangulation of sources and techniques (Creswell & Creswell, 2018).

## RESULTS AND DISCUSSION

This section presents more detailed empirical findings derived from in-depth interviews with Heads of Community Health Centers (KP-A.1 and KP-A.2), Health Promotion Officers (PRK-A.1 and PRK-A.2), extended field observations, and official program documents related to stunting prevention in East Bolaang Mongondow Regency. The results are organized according to four core functions of health learning management: planning, organizing, implementation, and evaluation.

### 1. Innovation in Health Learning Planning

The findings show that health learning planning in East Bolaang Mongondow Regency is strongly data-driven and context-sensitive (Indonesia, 2018; Sallis et al., 2015). Planning activities begin with the annual and quarterly analysis of stunting prevalence data at village and sub-district levels, including height-for-age indicators, maternal nutrition status, and household sanitation conditions ((Bappenas), 2018; Indonesia, 2020). These data are obtained from posyandu records, puskesmas reports, and village health profiles.

Heads of Community Health Centers (KP-A.1 and KP-A.2) reported that planning meetings involve internal health staff as well as coordination forums with village governments, family welfare organizations (PKK), and sub-district authorities. Priority learning targets include pregnant women, mothers of children under five, adolescent girls, and families identified as nutritionally vulnerable.

*“Planning is always based on village-level stunting data. We map which families need intensive assistance and design learning activities accordingly” (KP-A.2).*

However, the findings also indicate that planning documentation still emphasizes program activities rather than structured learning components. Learning objectives, competency indicators, instructional strategies, and evaluation criteria are not always explicitly formulated, indicating a gap between health program planning and instructional design principles.

### 2. Innovation in Health Learning Organization

In organizational terms, the results reveal a multi-layered learning structure rooted in community participation. Families function as the primary learning units, while cadres, midwives, PKK members, religious leaders, early childhood teachers, and village officials act as co-facilitators.

This organizational model allows learning activities to be embedded within existing social and cultural practices.

Document analysis shows that each village assigns stunting cadres responsible for coordinating family classes, home visits, and posyandu-based learning sessions. Health Promotion Officers noted that informal learning spaces such as women's religious gatherings and community meetings are strategically utilized to reach participants who rarely attend formal health sessions.

Digital organization also emerges as an innovation, with WhatsApp groups established at the village level to disseminate learning materials, reminders, and follow-up messages. These groups function as asynchronous learning platforms that reinforce face-to-face instruction.

### 3. Innovation in Health Learning Implementation

The implementation of health learning demonstrates a strong emphasis on participatory and experiential approaches. Learning activities include interactive discussions, cooking demonstrations for balanced and locally available foods, simulation of infant feeding practices, household sanitation practices, and joint growth monitoring sessions.

Field observations indicate that facilitators frequently use locally relevant examples and indigenous food ingredients to ensure contextual relevance. Learning sessions are conducted in small groups to encourage dialogue, peer learning, and mutual support among participants.

*“Mothers are more active when they practice directly. They ask questions, share experiences, and try the recipes together” (PRK-A.2).*

In addition, blended learning strategies are applied through the use of flipcharts, posters, short videos displayed during sessions, and follow-up discussions via WhatsApp. This combination increases learning continuity despite geographical and time constraints typical of sub-urban areas.

### 4. Innovation in Health Learning Evaluation

Evaluation practices extend beyond conventional knowledge assessment. The findings indicate that evaluation focuses on behavioral change indicators, such as improvements in feeding practices, attendance at posyandu, household hygiene behaviors, and parental involvement in child growth monitoring (Sallis et al., 2015).

Participatory evaluation methods include reflective group discussions, family-based action plan reviews, and public learning showcases (class performances) during community events. Nutrition status data are periodically reviewed during cross-sector integrated visits (TRIPIKA), involving health, security, and local government representatives.

Health centers also maintain simplified monitoring databases to track progress at the family level. According to KP-A.1, these data are used not only for reporting purposes but also as feedback for revising learning strategies and intensifying assistance for high-risk families.

## **Discussion**

The findings indicate that innovation in health learning management in East Bolaang Mongondow Regency is strongly influenced by the socio-cultural context of sub-urban communities. Planning that is based on local stunting data demonstrates effective needs assessment; however, it remains more service-oriented than instructionally structured. This aligns with Reigeluth's view that learning innovation requires holistic planning encompassing objectives, strategies, media, and evaluation.

Community- and family-based organization reflects the concept of community-embedded learning and Bronfenbrenner's ecological theory, emphasizing the role of immediate social environments in shaping behavior. The involvement of cadres, religious leaders, and early childhood institutions enhances the social legitimacy and acceptance of health messages.

Implementation strategies emphasizing direct practice and simulation align with Kolb's experiential learning theory, which posits that concrete experience is central to adult learning. This approach is particularly relevant to sub-urban communities that rely heavily on interpersonal interaction and practical learning.

Participatory evaluation methods represent a paradigm shift from administrative evaluation to empowerment-oriented evaluation, consistent with Participatory Rural Appraisal principles. Consequently, health learning management innovation in East Bolaang Mongondow Regency is not merely technical but also contextual, adaptive, and oriented toward sustainable behavioral change.

## CONCLUSION

This study concludes that innovation in health learning management for stunting-vulnerable communities in sub-urban areas of East Bolaang Mongondow Regency is implemented through data-driven planning, community-based organization, participatory and experiential implementation, and empowerment-oriented evaluation. These innovations demonstrate the importance of contextual and community-embedded learning management in supporting sustainable stunting prevention efforts. Future research is recommended to examine the effectiveness of this model in different regional contexts.

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