



EFFECTIVENESS OF PROVIDING SNAKES AND LADDERS GAME-BASED EDUCATION TO MOTHERS WITH TODDLERS REGARDING STUNTING PREVENTION

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ABSTRACT

Stunting is a chronic nutritional problem that affects the growth and development of toddlers. Increasing mothers' knowledge through interactive educational media is one of the prevention efforts. This study aims to determine the effectiveness of snakes and ladders game-based education on stunting prevention at the Lorog Tawang Sari Posyandu. The method used was a quantitative descriptive case study with purposive sampling of 15 mothers with toddlers. Knowledge was measured using pre-test and post-test questionnaires. The results showed an increase in good knowledge from 13.3% to 80% and a decrease in poor knowledge from 66% to 0%. Snakes and ladders game-based education is effective in increasing maternal knowledge and can be used as an alternative health education method.

Keywords: mothers with toddlers; snakes and ladders game; stunting prevention education

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INTRODUCTION

The Ministry of Health calls stunting a state of growth failure in children caused by prolonged inadequate nutrition resulting in children growing shorter than other children of the same age (Ministry of Health, 2018). The World Health Organization (WHO) states that stunting is a disorder of growth and development in children due to chronic malnutrition and repeated infections characterized by length or height below the standard⁴. Based on WHO data to determine the state of stunting is by assessing the z-score value of height according to age (TB/U index) < -2 SD³. The age that is vulnerable to various infectious diseases and nutritional problems that can result in stunting is the age of toddlers, especially those aged 24-59 months (Susanti., 2024).

According to the Joint Child Malnutrition Estimates from UNICEF, WHO, and the World Bank Group, by 2024, approximately 23.2% of children under five worldwide will experience stunting, equivalent to approximately 150.2 million children. Despite a decline in prevalence in recent decades, this figure still represents a significant burden of chronic global malnutrition and the need for sustained, cross-sectoral interventions. According to the 2024 Indonesian Nutritional Status Survey (SSGI), the national stunting prevalence dropped to 19.8% in 2024, or approximately 4,482,340 children under five experiencing stunting. This figure decreased compared to the previous year's figure of 21.5%. This decline demonstrates progress in stunting reduction efforts in Indonesia, although challenges remain until the next national target is achieved (Bahrun, 2022).

The prevalence of stunting in Central Java Province reached 20.8% in 2022, a figure still above the WHO threshold, indicating that stunting remains a public health challenge in the region (Prayogi., 2024). The Health Office Performance Report shows that in **2024 the number of stunting cases reached 4,139 cases or approximately 9.5% of toddlers measured. This indicates an increase in

prevalence compared to 2023 which was 7%, possibly influenced by the expansion of weighing and data recording coverage (LKIP Sukoharjo, 2024).

Stunting is a serious public health problem, and adequate knowledge about it helps individuals, especially mothers and prospective parents, take appropriate preventive measures, such as providing education. Mothers' lack of knowledge about stunting is a contributing factor to the high rate, so increasing knowledge through education needs to be carried out regularly by health workers (Salsabilla, 2025). Mothers who have a good understanding of stunting prevention are more likely to take effective preventive measures to reduce the risk of stunting in children (Hakim., 2024).

One promotional effort that can be undertaken to increase knowledge about stunting prevention is by implementing the snakes and ladders game. Snakes and ladders as a health promotion medium is an effective tool in providing information and increasing knowledge. This game uses a "ladder" to symbolize improved health through positive actions in daily habits. Conversely, this game uses a snake if the game participant is in the tail column of the snake, which indicates negative actions in daily habits (Ika Murtiyarini., 2024). Snakes and ladders is a giant game board measuring 1 x 1 meter placed on the floor. This large size aims to allow pregnant women to move actively, stand, and interact directly on the game board (Widayati., 2025). Education using snakes and ladders is an innovation that is easy to apply and creates a learning atmosphere through play. This provides a new experience for health workers and mothers of toddlers that the form of counseling is not just a lecture. This activity aims to increase knowledge, change the attitudes and behavior of mothers of toddlers towards stunting prevention. (Kheli Fitria Annuril, 2024). Based on the background described above, this study aims to determine the effectiveness of snakes and ladders game-based education in increasing the knowledge of mothers with toddlers regarding stunting prevention.

METHOD

The research method used in this activity is a case study with a quantitative descriptive approach carried out through community service activities. The activity was carried out at the Lorog Tawangsari Integrated Health Post (Posyandu), Sukoharjo Regency on January 14, 2026, at 10:00–11:00 WIB, involving 15 mothers with toddlers as respondents. Data collection was carried out using a knowledge questionnaire about stunting given before the intervention (pre-test) and after the intervention (post-test). The intervention provided was stunting prevention education using an interactive lecture method combined with a snakes and ladders game as an interesting and participatory learning tool. The snakes and ladders game consists of 36 boxes containing messages about positive and negative behaviors related to stunting prevention, so that participants can learn while playing. The variable measured was the level of maternal knowledge about stunting, which was categorized as good (80–100% correct answers), sufficient (60–79%), and poor (<60%). The data obtained were then analyzed by comparing the pre-test and post-test results and presented in the form of frequency and percentage tables to see changes in the level of mothers' knowledge after being given snakes and ladders game-based education.

RESULT

A community service activity, a stunting prevention education program based on the snakes and ladders game, was held at the Lorog Tawangsari Integrated Health Post (Posyandu) on Wednesday, January 14, 2026, from 10:00–11:00 a.m. Western Indonesian Time. Fifteen mothers with toddlers who actively participate in Posyandu activities participated in the activity. Prior to the education, all participants were given a *pre-test* to determine their initial knowledge of stunting.

Table 1.
Participants' knowledge about stunting before and after education

Knowledge about stunting	Pre-Test		Post-Test		Difference
	n	%	n	%	
Good	2	13.3	12	80	Increased by 80%
Enough	3	20	3	20	Increased by 20%
Not enough	10	66	0	0	Decreased 0%

Pre-test results showed that most participants had poor knowledge about stunting. Ten participants (66%) were in the poor knowledge category, three (20%) were in the adequate knowledge category, and only two (13.3%) were in the good knowledge category. After receiving education on stunting prevention through an interactive lecture method interspersed with a snakes and ladders game, a *post-test* was conducted to assess changes in participants' knowledge levels. The *post-test results* showed a significant increase in knowledge. Twelve participants (80%) were in the good knowledge category, three (20%) were in the fair knowledge category, and no participants were in the poor knowledge category (0%). Changes in participants' knowledge levels before and after education are presented in table 1. These results indicate that snakes and ladders game-based education was able to increase mothers' understanding of stunting, which was indicated by an increase in the percentage of the good knowledge category and a decrease in the poor knowledge category to 0%.

DISCUSSION

The results of this community service activity demonstrated that stunting prevention education based on the snakes and ladders game effectively increased the knowledge of mothers with toddlers. This increase in knowledge was evident in the shift in participants' knowledge categories, from the majority being in the poor category before the education, to the good and sufficient category after the intervention. This finding indicates that interactive and participatory educational methods play a crucial role in improving mothers' understanding of child health issues, particularly stunting.

The snakes and ladders game, as an educational medium, allows participants to learn through direct experience (learning by doing). Each step of the game, which contains positive and negative messages related to stunting prevention, helps participants connect theoretical concepts with everyday practices, such as providing balanced nutrition, practicing good hygiene, and monitoring child growth. This process strengthens participants' memory and understanding compared to a one-way lecture method. This aligns with adult learning theory, which states that learning is more effective when participants are actively involved and the material is linked to real-life experiences.

These results align with research conducted by Syakur (2023), which reported that stunting prevention education through the snakes and ladders game can improve participants' knowledge scores after the intervention. Syakur explained that the use of games creates a more enjoyable and less boring learning environment, allowing participants to focus and absorb the material more easily. This supports the findings of this study, where participants appeared more enthusiastic and active during the educational process.

Another study by (Muhammad Qasim, 2022) also supports this finding. In his study, stunting prevention education using a snakes and ladders game with a pre-posttest design proved effective in significantly increasing participants' knowledge. The study confirmed that a game-based learning approach can increase participant engagement and improve understanding of health materials compared to conventional educational methods. These findings align with the results of this study, which showed an increase in participant knowledge after game-based education.

Furthermore, this study aligns with research conducted by (Susanti, 2024) on stunting prevention education through board games for mothers with infants and toddlers in Suak Indrapuri Village, Meulaboh. The study reported that the use of board games significantly increased mothers' knowledge about stunting prevention. Games are considered effective because they create an

interactive, enjoyable learning environment and encourage active participant involvement throughout the educational process.

Based on the consistency of this study's findings with those of the three previous studies, it can be concluded that stunting prevention education using the Snakes and Ladders game is an effective method for increasing knowledge. Therefore, the Snakes and Ladders game can be recommended as an alternative, applicable and innovative health education method in integrated health service posts (Posyandu) and other preventive and promotive programs to support efforts to reduce stunting rates in the community.

CONCLUSION

Based on the educational activities that have been carried out, it can be concluded that providing stunting prevention education using the snakes and ladders game is effective in increasing the knowledge of mothers with toddlers. This is indicated by the pre-test and post-test results, which showed a significant increase in the good knowledge category, namely from 13.3% before the intervention to 80% after the education was provided, and a decrease in the poor knowledge category from 66% to 0%. The snakes and ladders game media can make the educational process more interactive, interesting, and easy to understand, so that mothers are more active in participating in activities and understanding information about stunting prevention. Therefore, health education using the game method can be used as an alternative health promotion media at integrated health posts (Posyandu) to increase mothers' knowledge in efforts to prevent stunting in toddlers.

REFERENCES

- Bahrin, W. (2022). Stunting In Indonesian Children And Its Contributing Factors : Study Through Bibliometric Analysis. 16(2).
- Hakim, H., & Wahyuni, S. (2024). The importance of education and knowledge of prospective parents in preventing stunting. 4(3).
- Muhammad Qasim, Helmi Juwita, D. S. (2022). Edukasi pencegahan stunting pada anak usia sekolah menggunakan.
- Murtiyarini, I., & Kusmaryati, P. (2024). Cadre assistance in efforts to prevent stunting using snakes and ladders game for pregnant women in Penyengat Olak Village, Muaro Jambi Regency. 5(3).
- Prayogi, D., & Rahani, R. (2024). Determinants analysis of stunting prevalence among toddlers in Central Java Province in 2022. 8(2), 152–163.
- Salsabilla, C., Eda, P., Muhamad, Z., & Febriyona, R. (2025). Jurnal Keperawatan Muhammadiyah: Pengaruh edukasi pengetahuan ibu balita terhadap upaya pencegahan stunting di wilayah kerja Puskesmas Limboto. 10(2), 194–203.
- Sukoharjo, D. (2024). Laporan kinerja instalasi pemerintah dinas kesehatan.
- Susanti, S. G., Husaini, M., & Islahuddin, J. (2024). Edukasi pencegahan stunting melalui permainan game board pada ibu dengan bayi dan balita di Gampong Suak Indrapuri Meulaboh. 2, 1395–1403.
- Syakur, R. (2023). Edukasi pencegahan stunting melalui permainan ular tangga. 2(1), 1–5.
- Widayati, H. W. (2025). Penerapan metode edukasi interaktif “ular tangga” untuk mengoptimalkan pemahaman gizi pada ibu hamil. 7, 221–228.