EFFECT OF HEALTH EDUCATION ON KNOWLEDGE ABOUT STUNTING AMONG THE COMMUNITY IN TELUK SASAH DISTRICT OF BINTAN ISLAND, RIAU ISLAND, INDONESIA

Alpha Fardah Athiyyah[1], Nur Aisiyah Widjaja[1], Dewi Retno Suminar[2], Ika Yuniar Cahyanti[2], Sulistiawati[3]

[1]Department of Child Health, Faculty of Medicine Universitas Airlangga, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia
[2]Faculty of Psychology, Universitas Airlangga, Surabaya, Indonesia
[3]Department of Public Health and Community Medicine, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.

ABSTRACT

Stunting in early life, particularly in the first 1000 days has long-term consequences on children's physical growth, cognitive performance, and emotional well-being. Adequate parental and community knowledge plays a critical role in enabling early recognition, prevention, and appropriate management of factors contributing to stunting. This study aims to investigate the impact of health education on community knowledge related to stunting. A cross-sectional design was applied involving 24 adult participants (≥ 18 years) from the general public in Teluk Sasah District, Bintan Island using total sampling. The educational intervention was delivered through pamphlet distribution, health talks, and discussions with experts focusing on stunting. Pre and post-test were conducted to assess their understanding about stunting. Data were analyzed using Statistical Product and Service Solution (SPSS) Software version 16.0, employing the Shapiro-wilk for normality and the Wilcoxon signed-rank test to compare scores before and after the interventions. This study demonstrated a significant difference between pre-test and post-test (80.83 ± 9.74 vs 90.83 ± 7.76, p=0.000). Furthermore, the minimum score of post-test and pre-test also improved markedly (60.00 vs 70.00, p=0.000). This study found that the implementation of health education, including pamphlet distribution, classical lectures, and case discussions, effectively enhanced participants' knowledge about stunting.

ARTICLE HISTORY

Received: June, 10, 2024
Revision: January, 02, 2025
Accepted: January, 20, 2025
Online: November, 21, 2025

doi:
10.20473/jcmphr.v6i2.58815

KEYWORDS
Health education, knowledge, stunting, public health

Corresponding author
Alpha Fardah Athiyyah
✉alpha-f-a@fk.unair.ac.id
Department of Child Health, Faculty of Medicine, Universitas Airlangga, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia

How to cite:
Athiyyah, A. F., Widjaja, N. A., Suminar, D. R., Cahyanti, I. Y., Sulistiawati, 2025. Effect of Health Education on Knowledge About Stunting Among The Community in Teluk Sasah District of Bintan Island, Riau Island, Indonesia. Journal of Community Medicine and Public Health Research. 6(2): 123 - 129.

Highlights :

1. Health education interventions, including pamphlet distribution, lectures, and discussions, significantly improved community knowledge about stunting in Teluk Sasah District, Bintan Island.

2. These findings emphasize that accessible and interactive educational approaches are effective strategies to raise awareness and support stunting prevention efforts at the community level.

INTRODUCTION

Stunting is responsible for numerous adverse consequences, which have both immediate and long-term effects in children. Thus, it also increased morbidity and mortality, loss of physical growth potential, reduced the function of neurodevelopmental and cognitive, increased risk of infections and non-communicable diseases, adverse metabolic and degenerative effects, low capacity for work, and poor maternal reproductive outcomes in adulthood[1–3].

The risk factors contributing to childhood stunting in Indonesia and many other developing countries can be categorized into individual-level and community-level factors. The primary prevention of stunting through health promotion and education can be implemented starting at the cadre level in posyandu. This involves conducting standardized anthropometric measurements every month and distributing pamphlets or holding classical lectures, both of which are feasible to implement in each location[4].

Therefore, adults, especially parents, caregivers, and health professionals in their living environment, need sufficient knowledge about stunting. Understanding its causes and effects helps provide appropriate nutrition, care, and stimulation during crucial developmental stages, ensuring optimal growth and reaching full developmental potential. This study aims to investigate the impact of health education on community knowledge regarding stunting.

MATERIALS AND METHODS

The study employed a cross-sectional research design to evaluate the impact of health education on improving community knowledge about stunting in Teluk Sasah District, Bintan Island, Riau, Indonesia. The intervention was delivered through pamphlet distribution, health talks, and discussions with experts from Dr. Soetomo General Hospital, Surabaya, focusing on stunting. The intervention was delivered in the Bahasa Indonesia language. Before the intervention, all participants were given a pre-test to assess their basic understanding of stunting. The pre-test was conducted by completing the given questionnaires. After the intervention, participants filled out the same questionnaire.

The samples included in this study were communities in the Teluk Sasah District, Bintan Island, Riau Island, Indonesia. The inclusion criteria were as follows: residents of Teluk Sasah District, aged 18 years or older, able to communicate, and willing to participate in this study. Participants were collected using total sampling, and informed consent was obtained. The distribution of pre- and post-test scores was tested using the Shapiro-Wilk normality test, followed by a comparison test with the Wilcoxon test. IBM Statistical Product and Service Solution (SPSS) Software version 16.0 for Windows. Ethical approval does not apply to this article.

RESULTS

Community development was carried out smoothly and effectively due to the teamwork between the Community Development team and health workers, as illustrated in Figure 1.

The total number of participants was 24. The mean scores for pretest and posttest were 80.83 ± 9.74 and 90.83 ± 7.76, respectively. A significant improvement in mean scores was shown with a p-value of 0.000. The mean difference scores of the pretest and posttest were -10.00. The minimum post-test score was higher than the pre-test score, with an increase of 10 points (Table 1 and Figure 2).

Figure 1. Community development in Teluk Sasah District of Bintan Island, Riau Island, Indonesia

Table 1. Effect of Health Education on Knowledge about Stunting

	Pretest	Posttest	Difference	p-value
Mean	80.83	90.83	-10.00	
SD	9.74	7.76	1.98	
Min	60.00	70.00	-10.00	
Max	100.00	100.00	0.00	**0.000***
Range	40.00	30.00	10.00	
Median	80.00	90.00	-10.00	

*Wilcoxon Test

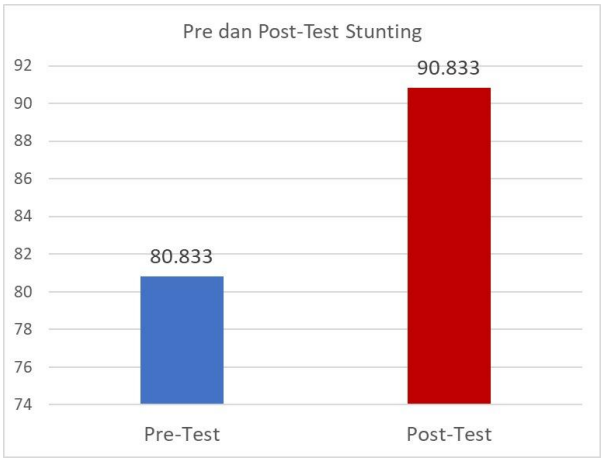

Figure 2. Pre and Post – Test Result

DISCUSSION

From the results, after completing the pre-test questionnaire, the participants were intervened through pamphlet distribution, health talks, and discussions with experts from Dr. Soetomo General Hospital Surabaya, focusing on stunting. Their knowledge was then tested again afterward. The pretest mean scores increased from 80.28 to 91.67. The same results were also found in the second discussion, which showed an increase in the pretest mean scores from 80.83 to 90.83. It has been found that health education has a positive influence on participants' knowledge. This has the same results as the research conducted by Nayoan (2023) which shows participants with poor knowledge decreased from 5.88% to 0%, the participants with a sound knowledge level decreased from 52.94% to 32.35% and the participants with the highest knowledge level, satisfactory, were escalated from 42.18% to 67.65%[5].

Following the implementation of health education initiatives, including pamphlet distribution, health talks, and discussions with experts from Dr. Soetomo General Hospital in Surabaya, it is evident that participants' knowledge has been enhanced. It can be concluded that health

education enhances participants' knowledge and benefits the overall well-being of society. This has the same results as the research conducted by Ranuh (2022), which shows that health education activities improved participants' knowledge about diarrhea and constipation in children in Mandangin Island[6].

Several factors caused stunting, namely insufficient breastfeeding, premature birth, and stunted fetal growth. The research also explains the critical role of a mother in stunting children, namely the mother's health during pregnancy, before pregnancy, and after pregnancy, as well as the mother's level of knowledge about breastfeeding and complementary foods, which also play an essential role in stunting. The final factor is socioeconomic, which includes poverty and the mother's level of knowledge about stunting[7–12]. The parents, particularly the mother's level of expertise, play a crucial role in understanding stunting and improving its prevention. In research conducted in Pakistan, maternal education is one of the factors that influence the occurrence of stunting[13].

Delivering education can also influence parents in receiving information, especially when it is presented in general terms or their native language, because the majority of medical texts consist of general words, and medical texts written in one's native language are more easily understood. This yields the same results as the research conducted by Hamad (2023), which demonstrates that medical texts are more familiar and comprehensible to students when presented in their native language[14]. In this research, health education was conducted through various methods, including health talks, pamphlet distribution, and discussions with pediatricians. As in previous research, which used audiovisual to improve health education[15]. The concept of eating can influence the provision of complementary food to breastfeeding children[16,17]. As in prior research, the Madurese tribe was considered not to have eaten if they had not eaten rice. Research shows that children who only consume rice without other side dishes tend to experience stunting compared to other normal children who consume healthy foods (rice, vegetables, meat, fish)[17].

To maintain adults' knowledge about stunting, health education can be carried out periodically at the *posyandu*. We can provide health education through interactive talk shows, telemedicine, or by playing videos about preventing stunting[6,15,18]. We can also campaign for exclusive breastfeeding to prevent stunting even in pandemic situations[17,19]. Volmer (2017), did research comparing the role of paternal and maternal education, which showed that in all backgrounds, higher parental education levels are associated with reduced instances of stunting, underweight conditions, and wasting. The educational levels of both mothers and fathers significantly influence the occurrence of stunting[20]. The education of the mother affects the incidence of stunting under five; the lower the education, the higher the incidence of stunting. Stunting caused by low maternal education can serve as a basis for various health organizations to eradicate stunting, thereby also achieving the goals of SDG 2030[21].

Strength and limitations

This study provides an objective measure of increased participant knowledge following the implementation of a highly comprehensive intervention. By focusing on a coastal community, it has

strong practical relevance and offers actionable insights for future public health education program. However, this study is limited by its small sample size and the absence of follow-up to assess long-term knowledge retention or behavioral change.

CONCLUSION

The implementation of health education and promotion, such as pamphlet distribution, classical lectures, and case discussions, effectively enhanced participants' knowledge about stunting. However, the classical lecture must be used in a general language that is easy to understand. Due to certain limitations, this study was only able to analyze data from one center, which may not have accurately represented the entire population. In this study, there was also no follow-up on the effect of increasing participant knowledge on child growth after the intervention. The participants' level of expertise is significant in understanding stunting and enhancing its prevention. The interventions carried out are also expected to increase participants' knowledge, enabling them to prevent stunting.

ACKNOWLEDGMENT

The authors would like to thank the Faculty of Medicine Universitas Airlangga and Dr. Soetomo General Academic Hospital for all of their support.

CONFLICT OF INTEREST

All Authors have no conflict of interest.

ETHIC CONSIDERATION

This research has obtained ethical approval from the (Please input ethical Approval) with reference number (Please input the number ethical approval) and date number ethical approval.

FUNDING

Funding by Airlangga Community Developmental Hub (ACDH) in 2023.

AUTHOR CONTRIBUTION

All authors have contributed to all process in this research, including preparation, data gathering, and analysis, drafting, and approval for publication of this manuscript.

REFERENCES

1. Deshpande A, Ramachandran R. Early childhood stunting and later life outcomes: A longitudinal analysis. *Econ Hum Biol* 2022; 44: 101099. DOI: 10.1016/j.ehb.2021.101099
2. Childhood stunting: a global perspective - Onis - 2016 - Maternal & Child Nutrition - Wiley Online Library, https://onlinelibrary.wiley.com/doi/full/10.1111/mcn.12231 (accessed 24 November 2023). DOI: 10.1111/mcn.12231
3. Sanctis VD, Soliman A, Alaaraj N, et al. Early and Long-term Consequences of Nutritional Stunting: From Childhood to Adulthood: Early and Long-term Consequences of Nutritional Stunting. *Acta Biomed Atenei Parm* 2021; 92: 11346–11346. DOI: 10.23750/abm.v92i1.11346
4. Ministry of Health, Republic of Indonesia. Keputusan Menteri Kesehatan Republik Indonesia. [Decree of the Minister of Health, Republic of Indonesia] Nomor HK.01.07/Menkes/1928/2022

Tentang Pedoman Nasional Pelayanan Kedokteran Tata Laksana Stunting. [About the National Guidelines for Medical Services for Stunting Management] https://peraturan.bpk.go.id/Download/338789/Kepmenkes%20HK%2001.07-1928%20-%202022.pdf

5. Nayoan A, Kawalo B, Tulungen G, et al. The Impact Of Community Health Education About Stunting on Mothers' Knowledge Levels. *J Cakrawala Ilm* 2023; 2: 1951–1956. DOI: 10.53625/jcijurnalcakrawalailmiah.v2i5.4618
6. Ranuh RG, Susianto SC, Athiyyah AF, Darma A, Puspitasari D, Sumitro KR, Nesa NNM, Faizi M, Sudarmo SM. Community Development Influence on Public's Knowledge in Mandangin Island About Acute Diarrhea and Functional Constipation in Children. JCMPHR [Internet]. 2022 Dec. 1 ;3(2):86-91. Available from: https://e-journal.unair.ac.id/JCMPHR/article/view/34285
7. Cetthakrikul N, Topothai C, Suphanchaimat R, et al. Childhood stunting in Thailand: when prolonged breastfeeding interacts with household poverty. *BMC Pediatr* 2018; 18: 395. DOI: 10.1186/s12887-018-1375-5
8. Luzingu JK, Stroupe N, Alaofe H, et al. Risk factors associated with under-five stunting, wasting, and underweight in four provinces of the Democratic Republic of Congo: analysis of the ASSP project baseline data. *BMC Public Health* 2022; 22: 2422. DOI: 10.1186/s12889-022-14842-x
9. Jonah CMP, Sambu WC, May JD. A comparative analysis of socioeconomic inequities in stunting: a case of three middle-income African countries. *Arch Public Health* 2018; 76: 77. DOI: 10.1186/s13690-018-0320-2
10. Nshimyiryo A, Hedt-Gauthier B, Mutaganzwa C, et al. Risk factors for stunting among children under five years: a cross-sectional population-based study in Rwanda using the 2015 Demographic and Health Survey. *BMC Public Health* 2019; 19: 175. DOI: 10.1186/s12889-019-6504-z
11. Kahssay M, Woldu E, Gebre A, et al. Determinants of stunting among children aged 6 to 59 months in pastoral community, Afar region, North East Ethiopia: unmatched case control study. *BMC Nutr* 2020; 6: 9. DOI: 10.1186/s40795-020-00332-z
12. Mzumara B, Bwembya P, Halwiindi H, et al. Factors associated with stunting among children below five years of age in Zambia: evidence from the 2014 Zambia demographic and health survey. *BMC Nutr* 2018; 4: 51. DOI: 10.1186/s40795-018-0260-9
13. Ponum M, Khan S, Hasan O, et al. Stunting diagnostic and awareness: impact assessment study of sociodemographic factors of stunting among school-going children of Pakistan. *BMC Pediatr* 2020; 20: 232. DOI: 10.1186/s12887-020-02139-0
14. Hamad, A. A. (2023) 'Understanding the comprehensibility of mother tongue-based medical texts', *Journal of Medicine, Surgery, and Public Health*. Elsevier Ltd, 1(November), p. 100023. DOI: 10.1016/j.glmedi.2023.100023
15. Nuraini A, Sari P, Astuti S, et al. Effect of Health Education Video on Knowledge about Stunting among

Women in Childbearing Age. *Althea Med J* 2021; 8: 7–12. DOI: 10.15850/amj.v8n1.2150

16. Kureishy S, Khan GN, Arrif S, et al. A mixed methods study to assess the effectiveness of food-based interventions to prevent stunting among children under-five years in Districts Thatta and Sujawal, Sindh Province, Pakistan: study protocol. *BMC Public Health* 2017; 17: 24. DOI: 10.1186/s12889-016-3976-y
17. Diana R, Rachmayanti RD, Khomsan A, et al. Influence of eating concept on eating behavior and stunting in Indonesian Madurese ethnic group. *J Ethn Foods* 2022; 9: 48. https://link.springer.com/article/10.1186/s42779-022-00162-3
18. Thirafi SZT, Paladan TP, Ariobimo BN, et al. Telemedicine as an Effort to Improve Public Knowledge to Fight Covid-19 Pandemic. *J Community Med Public Health Res* 2021; 2: 6–10. DOI : 10.20473/jcmphr.v2i1.21883
19. Utomo MT, Puspitasari D, Thirafi SZT, et al. Recommendations for Mothers With COVID-19 for Breastfeeding: A Review. https://www.perinatology.in/recommendations-for-mothers-with-covid19-for-breastfeeding-a-review
20. Vollmer S, Bommer C, Krishna A, et al. The association of parental education with childhood undernutrition in low- and middle-income countries: comparing the role of paternal and maternal education. *Int J Epidemiol* 2017; 46: 312–323. DOI: 10.1093/ije/dyw133
21. Azizah AM, Nurmala I, Devy SR. The Effect of Mother's Educational Level and Stunting Incidence on Toddler: A Meta-analysis. AMNT [Internet]. 2022 Nov. 24 ;6(4):369-75. Available from: https://e-journal.unair.ac.id/AMNT/article/view/32170