

Original Research**Telehealth Model Strategy to Improve Maternal Feeding Practices in Children with Stunting: Randomized Control Trial****Henny Yolanda^{1*}, Raden Ahmad Dedy Mardani², Agus Supinganto³**^{1,2,3} Department of Nursing STIKES YARSI Mataram, Indonesia**ABSTRACT**

Background: *The eating behaviour of the stunted children is the high risk for their growth and development. Given the urgency of all the impacts caused and its high prevalence, handling stunting through changes in feeding patterns requires serious attention from the government, society, and individuals as a whole. This study utilises telehealth as an innovative solution to overcome the challenges in feeding children with stunting. The aim of this study is to improve maternal feeding practices for children with stunting using telehealth.*

Methods: *This study uses the single-blind randomised controlled trial method. The sampling method in this study was by using purposive sampling. The participants of this study are 41 mothers who have a child with stunting.*

Results: *There was a significant effect ($p=0.169$) of the Telehealth Model Strategy to Improve Maternal Feeding Practices in Children with Stunting.*

Conclusion: *We found that the telehealth model can be used to improve maternal feeding practices for children with stunting using telehealth.*

ARTICLE HISTORYReceived: October 23rd, 2024Accepted: January 14th, 2025**KEYWORDS**

behavior, child, eating, stunting, telehealth;

CONTACT

Henny Yolanda

henny.yolanda@gmail.com

Department of Nursing STIKES YARSI Mataram. Jl. Tgh. M. Rais, Lingkar Selatan, Mataram, NTB, Indonesia.

Cite this as: Yolanda, H., Mardani, R. A. D., & Supinganto, A. (2024). Telehealth Model Strategy to Improve Maternal Feeding Practices in Children with Stunting: Randomized Control Trial. *Interest: Jurnal Ilmu Kesehatan*, 13(2), 185–192. <https://doi.org/10.37341/interest.v13i2.672>

INTRODUCTION

One of the goals of the Global Nutrition Target in 2025 is to reduce the incidence of stunting in children. Around 151 million children in the world or around 22.1% of children in the world experience stunting, from the data, low and middle-income countries contribute higher stunting rates compared to high-income countries (UNICEF/WHO/WorldBankGroup, 2018). In the last decade, the prevalence of stunting in Indonesia is still quite high, even reaching 37 at the national level (Beal, Tumilowicz, Sutrisna, Izwardy, & Neufeld, 2018).

Data published by the Ministry of Health shows that the incidence of stunting in children aged five years and under is still high, namely 30.8% (Kemenkes RI, Badan Kependudukan dan Keluarga Berencana Nasional, & RISKESDAS, 2018). The Indonesian government has set a target of 7% for the prevalence of thinness in children under 5 years and a prevalence of stunting of 14% for children under 2 years in 2024 (Trihono et al., 2019). Based on the results of the Indonesian Nutritional Status Survey,

it is clear that NTB is ranked fourth in the prevalence of children with stunting nationally.

In 2022, the average prevalence of stunting in children in Indonesia was 21.6%, while NTB had a prevalence rate of 32.7% with the highest prevalence in Central Lombok Regency (SSGI, 2023). Stunting causes irreversible physical growth disorders in children. Not only in growth disorders, stunting can also cause decreased cognitive, motoric and work performance abilities. Stunting in toddlers needs special attention because it can cause stunted physical growth, mental development and health status. Recent studies show that children who experience stunting are associated with poor school performance, low education levels and low income as adults (Mulianingsih, Yolanda, Widiastuti, & Hayana, 2021).

Children who experience stunting at the age of <6 months tend to have difficulty spelling growth, developmental delays and are susceptible to infectious diseases later in life (Cameron et al., 2021; Kartika, Wibowo, & Nurdiati, 2016). The impact of growth with short height in stunted children also has an impact on the growth of nerve cells which causes stunted children to have lower intellectual intelligence than children of the same age (9). More fatally, stunting also causes the death of around one million children each year due to low ability to heal diseases and susceptibility to disease (Aguayo & Menon, 2016; Mustakim, Irwanto, Irawan, Irmawati, & Setyoboedi, 2022).

Mothers as primary caregivers have an important role in providing food for children. High maternal education is translated into influencing the mother's ability to utilize better health facilities and the mother's ability to make better health decisions in improving child nutrition (Yolanda, Supinganto, Mulianingsih, & Haris, 2022). Poor maternal knowledge about growth monitoring is related to the mother's inability to monitor growth and development in children (Bukari et al., 2020). Previous research has shown that the knowledge of mothers with stunted children regarding the causes and prevention of stunting is still relatively lacking (Wahyurin, Aqmarina, Rahmah, Hasanah, & Silaen, 2019).

Educational efforts are considered to be able to prevent stunting (Aswati, Agus Supinganto, Halid, Melati Inayati Albayani, & Henny Yolanda, 2023). Eating behavior is related to food selection and the amount of food eaten (Mardani, Wu, Nhi, & Huang, 2022). As many as 30% of stunted children have a high frequency of eating snacks which can be risky for their growth (Mulyaningsih et al., 2021). Toddlers who receive poor feeding parenting patterns are at 6 times higher risk of stunting than toddlers who have good feeding parenting patterns (Permatasari, 2021).

Children with stunting have eating habits with a variety of foods that cannot meet their daily nutritional needs (Yolanda, Karjono, et al., 2023). One of the factors that affects the nutritional status of children is a monotonous diet, children with stunting are often found to have the habit of eating less than three times a day because of the habit of consuming snacks (Mkhize & Sibanda, 2020; Yolanda, Mardani, et al., 2023). Given the urgency above, all the impacts caused and the high prevalence of stunting management through changes in feeding patterns require serious attention from the government, society and individuals as a whole.

Telehealth interventions are needed to reduce stunting rates and prevent long-term impacts that are detrimental to children. If the problem of maternal feeding in stunted children can be solved with a telehealth model, it can reduce stunting rates in Indonesia and can contribute to increasing health independence. The formulation of the research

problem is whether the problem of maternal feeding in children with stunting can be solved with a telehealth model?

MATERIALS AND METHOD

This research was approved by Al Azhar Islamic University with ethical number 080/EC-04/FK-06/UNIZAR/VIII/2024. This study conduct in Penimbang Primary Health Care, West Lombok from August until September 2024. The design of this study is a quantitative experimental Randomized Control Trial (RCT) with single blinding by providing interventions in the form of education and counseling through Telehealth. Randomized Control Trial is the best method that can be used to determine the efficacy of a treatment. The sampling method in this study was by using purposive sampling with total sampling.

The participant of this study is 41 mother have a child with stunting. Before conducting the intervention, the researcher will conduct randomization using fishbowl to determine the control group and the intervention group. Both groups will be given a questionnaire on feeding behavior and food recall for children with stunting in the pre- and post-intervention. After the intervention and control groups are obtained, the researcher then holds a meeting again to provide informed consent and a pretest for each group.

In the intervention group, the researcher will provide education to the sample via telehealth. As a form of research ethics, telehealth education is given to the control group after the results of the pre- and post-research are obtained. The education that will be provided in this study is Balanced nutrition / My Plate, Food variety, Ideal amount of food, Food frequency, Right meal time, Right food texture, Method of feeding children according to age, Method of feeding that can be given if the child refuses food, Method of feeding given if the child is sick, Food Recall and Balanced nutritional food recipe.

After the educational intervention via Telehealth is carried out, a post-test will be carried out. Posttest was conducted using a feeding behavior questionnaire and food recall report to determine the accuracy of feeding by mothers. After the data was collected, the researcher will conduct data analysis. Univariable analysis was conducted to obtain an overview of the characteristics of each research variable using frequency distribution and proportion.

Bivariable analysis aims to determine the relationship between Telehealth (independent variable) and feeding in children (dependent variable). The statistical test used was the chi-square test with a CI of 95% and a significance level of $p < 0.05$. Multivariable analysis aims to determine the effect of independent variables on the dependent variable together by controlling external variables. The multivariable analysis used was the binomial logistic regression test with a significance level of $P < 0.05$ with a CI of 95%. The univariable, bivariable and multivariable analyses were conducted using software.

RESULTS

Characteristic data in this study include education level, income, marital age, age at birth of stunted children. The research respondents consisted of 42 pairs of mothers and children. Based on table 1, it can be seen that the majority of mothers' education levels are low education consisting of elementary and junior high school graduates with a frequency of 54%, 73% of respondents have low incomes, 52% of respondents were

married at an age under 21 years, and 54% of respondents gave birth to children at a high-risk age.

Tabel 1. Characteristic Participant

Characteristic	Participant	
	Frekuensi (f)	Percentage (%)
Educational Level		
Low	23	54
Medium	17	40
High	2	6
Income		
Low	31	73
Middle	10	23
High	1	4
Marrital Age		
<21	22	52
>21	20	48
Age when deliver stunted baby		
Resiko Tinggi (<21 & >35)	23	54
Non Risk	19	46

Based on Table 2, the results of the analysis test using the paired t-test showed that there was a p-value <0.05 (0.001) of a significant relationship between the provision of telehealth and eating behaviour in mothers. By looking at the mean value in the control group and the intervention group, it was found that the increase in the intervention group score was higher by 2.2 compared to the increase in the score in the control group.

Tabel 2. The Differences Of Eating Behaviour Pre And Post Telehealth Intervention

	Control					Intervention				
	pre		post		<i>p</i> *	pre		post		<i>p</i> *
	M	SD	M	SD		M	SD	M	SD	
Score	13.33	1.4	12.38	1.5	0.125	10.35	1.4	13.50	2.1	<0.001

DISCUSSION

The majority of mothers' education levels are low education consisting of elementary and junior high school graduates with a frequency of 54%, Factors contributing to undernutrition include parental employment status and education level. These results are associated with the quality of employment that parents with low education levels will receive. Parents with low education are at risk of being unemployed parents are more likely to have undernourished children than those who are employed, perhaps because children of unemployed parents often experience food insecurity, inadequate care, and lack of health care services due to financial constraints (Danso & Appiah, 2023).

The results of the description of respondents' income in this study are in line with Katoch's, (2022) research that the most consistent factors associated with child malnutrition are maternal education, household income, and maternal nutritional status(Katoch, 2022). It is known that the age of respondents at the time of giving birth and at the time of marriage in this study was dominated by high-risk ages. This is in line

with research conducted by Indrasari which states that mothers with an at-risk age (less than 20 years) have a 4.2 times greater risk of experiencing low birth weight (LBW) compared to mothers who do not have an at-risk age.

The incidence of low birth weight and premature birth in adolescent pregnancy is often associated as a manifestation of Intra Uterine Growth Retrcition (IUGR) which is caused by the immaturity of the reproductive organs and the nutritional status of the mother before pregnancy (Pusmaika, Novfrida, Simatupang, Djami, & Sumiyati, 2022). In this study, it was found that telehealth has good effectiveness in improving maternal eating behaviors for stunted children. The use of telehealth - the delivery of health services through the use of two-way electronic audiovisual technology - has grown significantly in the US in recent years.

Telehealth offers significant benefits to patients and providers as a cheaper and easier way to access quality care (Manocchia, 2020). This study also found behavioral changes in the control group that did not receive telehealth. However, in the intervention group, the difference in behavioral changes led to higher values. So we argue that telehealth can be a mediator of additional information without eliminating the method of delivering information in person or face to face.

Our positive correlation results between eHealth literacy and health-related behavior suggest that eHealth literacy can be a mediator in the process by which health-related information leads to changes in health-related behavior (Kim, Shin, Kim, & Lee, 2023). Telehealth can also be a solution for health services, especially for areas with large and difficult-to-reach work areas, as stated in the previous article which stated that. Teleconsultation has the potential to provide remote interventions that save time and money while increasing access to health services(De Albornoz, Sia, & Harris, 2022).

CONCLUSION

Telehealth interventions have been proven to address the problem of feeding mothers with stunted children. This solution can help reduce stunting rates and prevent long-term adverse effects on children. The problem of feeding mothers with stunted children can be resolved with a telehealth model as a contribution to reducing stunting rates in Indonesia and can contribute to increasing health independence.

ACKNOWLEDGEMENT

This research was supported by funding from the *Direktorat Riset, Teknologi, dan Pengabdian kepada Masyarakat (DRTPM), Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi (Kemdikbudristekdikti)*, Indonesia. The authors gratefully acknowledge their financial support, which made this study possible

REFERENCES

- Aguayo, V. M., & Menon, P. (2016). Stop stunting: Improving child feeding, women's nutrition and household sanitation in South Asia. *Maternal and Child Nutrition*, 12, 3–11. <https://doi.org/10.1111/mcn.12283>
- Aswati, A., Agus Supiganto, Halid, S. H., Melati Inayati Albayani, & Henny Yolanda. (2023). Gambaran Pengetahuan Tugas Keperawatan Keluarga dan Upaya Pencegahan Gangguan Pertumbuhan Batita di Wilayah Kerja Puskesmas Penimbung. *Jurnal Kesehatan Qamarul Huda*, 11(1), 394–400.

<https://doi.org/10.37824/jkqh.v11i1.2023.516>

- Beal, T., Tumilowicz, A., Sutrisna, A., Izwardy, D., & Neufeld, L. M. (2018). A review of child stunting determinants in Indonesia. *Maternal and Child Nutrition, 14*(4), 1–10. <https://doi.org/10.1111/mcn.12617>
- Bukari, M., Abubakari, M. M., Majeed, M., Abizari, A. R., Wemakor, A., & Atosona, A. (2020). Effect of maternal growth monitoring knowledge on stunting, wasting and underweight among children 0-18 months in Tamale metropolis of Ghana. *BMC Research Notes, 13*(1), 1–6. <https://doi.org/10.1186/s13104-020-4910-z>
- Cameron, L., Chase, C., Haque, S., Joseph, G., Pinto, R., & Wang, Q. (2021). Childhood stunting and cognitive effects of water and sanitation in Indonesia. *Economics and Human Biology, 40*(May 2019), 100944. <https://doi.org/10.1016/j.ehb.2020.100944>
- Danso, F., & Appiah, M. A. (2023). Prevalence and associated factors influencing stunting and wasting among children of ages 1 to 5 years in Nkwanta South Municipality, Ghana. *Nutrition, 110*. <https://doi.org/10.1016/j.nut.2023.111996>
- De Albornoz, S. C., Sia, K. L., & Harris, A. (2022). The effectiveness of teleconsultations in primary care: Systematic review. *Family Practice, 39*(1), 168–182. <https://doi.org/10.1093/fampra/cmab077>
- Kartika, Wibowo, T., & Nurdiati, D. S. (2016). Pengaruh Penggunaan Minyak Kelapa Murni (Virgin Coconut Oil) Dibandingkan Minyak Mineral Pada Pijat Bayi Terhadap Peningkatan Berat Badan Bayi: Randomized Controlled Trial. *Universitas Gadjah Mada*.
- Katoch, O. R. (2022). Determinants of malnutrition among children: A systematic review Author links open overlay panel. *Nutrition, 96*. <https://doi.org/https://doi.org/10.1016/j.nut.2021.111565>
- Kemendes RI, Badan Kependudukan dan Keluarga Berencana Nasional, & RISKESDAS. (2018). *Survei Demografi dan Kesehatan Indonesia. Riset Kesehatan Dasar 2018*. Retrieved from layanandata.kemkes.go.id
- Kim, K., Shin, S., Kim, S., & Lee, E. (2023). The Relation between eHealth Literacy and Health-Related Behaviors: Systematic Review and Meta-analysis. *Journal of Medical Internet Research, 25*. <https://doi.org/10.2196/40778>
- Manocchia, A. (2020). Telehealth: Enhancing Care through Technology. *Rhode Island Medical Journal (2013), 103*(1), 18–20. Retrieved from ncbi.nlm.nih.gov/pubmed/32013298
- Mardani, R. A. D., Wu, W. R., Nhi, V. T., & Huang, H. C. (2022). Association of breastfeeding with undernutrition among children under 5 years of age in developing countries: A systematic review and meta-analysis. *Journal of Nursing*

Scholarship, 54(6), 692–703. <https://doi.org/10.1111/jnu.12799>

- Mkhize, M., & Sibanda, M. (2020). A Review of Selected Studies on the Factors Associated with the Nutrition Status of Children Under the Age of Five Years in South Africa. *International J Environ Res Public Health* 17(21):7973.
- Mulianingsih, M., Yolanda, H., Widiastuti, N. A., & Hayana, H. (2021). Media Permainan Ular Tangga sebagai Upaya Peningkatan Pengetahuan Ibu Hamil Tentang Stunting di Polindes Gerung Utara Puskesmas Gerung Lombok Barat. *Jurnal Pengabdian Multidisiplin*, 1(1), 33–40. <https://doi.org/10.51214/japamul.v1i1.88>
- Mulyaningsih, T., Mohanty, I., Widyaningsih, V., Gebremedhin, T. A., Miranti, R., & Wiyono, V. H. (2021). Beyond personal factors: Multilevel determinants of childhood stunting in Indonesia. *PLoS ONE*, 16(11 November), 1–19. <https://doi.org/10.1371/journal.pone.0260265>
- Mustakim, M. R. D., Irwanto, Irawan, R., Irmawati, M., & Setyoboedi, B. (2022). Impact of Stunting on Development of Children between 1-3 Years of Age. *Ethiopian Journal of Health Sciences*, 32(3), 569–578. <https://doi.org/10.4314/ejhs.v32i3.13>
- Permatasari, T. A. E. (2021). Pengaruh Pola Asuh Pembrian Makan Terhadap Kejadian Stunting Pada Balita. *Jurnal Kesehatan Masyarakat Andalas*, 14(2), 3. <https://doi.org/10.24893/jkma.v14i2.527>
- Pusmaika, R., Novfrida, Y., Simatupang, E. J., Djami, M. E. ., & Sumiyati, I. (2022). Hubungan Usia Ibu Saat Hamil dengan Kejadian Stunting Pada Balita di Kabupaten Tangerang. *Indonesian Health Issue*, 1(1), 49–56. <https://doi.org/10.47134/inhis.v1i1.11>
- SSGI. (2023). Hasil Survei Status Gizi Indonesia. *Kementerian Kesehatan Republik Indonesia*, 77–77. Retrieved from promkes.kemkes.go.id.
- Trihono, T., Atmarita, A., Tjandrarini, D. H., Irawati, A., Utami, N. H., & Tejayanti, T., & Nurlinawati, I. (2019). Stunting in Indonesia, Problems and Solutions. Joint Child Malnutrition Estimates 2018 Edition (2018).
- Wahyurin, I. S., Aqmarina, A. N., Rahmah, H. A., Hasanah, A. U., & Silaen, C. N. B. (2019). Pengaruh edukasi stunting menggunakan metode brainstorming dan audiovisual terhadap pengetahuan ibu dengan anak stunting. *Ilmu Gizi Indonesia*, 2(2), 141. <https://doi.org/10.35842/ilgi.v2i2.111>
- Yolanda, H., Karjono, M., Supinganto, A., Mulianingsih, M., Haris, A., & Hayana, H. (2023). Characteristics Of Eating Pattern And Food Variety In Toddler With Nutrition Problems. *Nurse and Holistic Care*, 2(3), 130–137.
- Yolanda, H., Mardani, R. A., Albayani, M. I., Haryani, Thoyibah, Z., & Hajri, Z.

(2023). Analisis Pengetahuan Ibu Mengenai Nutrisi Terhadap Eating Behaviour Pada Anak Dengan Stunting. *Jurnal Pendidikan Dan Teknologi Kesehatan*, 6(2), 209–214.

Yolanda, H., Supinganto, A., Mulianingsih, M., & Haris, A. (2022). Pembentukan pendamping nutrisi balita (putri balita) dalam pemenuhan nutrisi balita bawah garis merah. *Jurnal Masyarakat Mandiri* 6(3), 2059–2069.