



INCREASING MATERNAL KNOWLEDGE IN PREVENTING STUNTING THROUGH COMMUNITY-BASED NUTRITION EDUCATION

Ade Emaniar, Nabila Shafira Octafania, Arie Maulana Buchori, Diah Ayu Anggraeni, Rachma Widyawati, Anastasya Yushinta Mawardhani, Derina Fuji Astuti, Rifa Safitri Anggrena, Andi Zahra Putri M.S, Mia Roosana, Yuliana Dwi Kurniawati, Belinda Dian Septianingrum, Vilda Ana Veria Setyawati*

Public Health Department, Faculty of Health Science, Universitas Dian Nuswantoro, Semarang City, Central Java, Indonesia)

Vilda.setyawati@dsn.dinus.ac.id

Abstract. Stunting is a disorder of growth and development of children due to chronic malnutrition and recurrent infections, which is characterized by their length or height being below the r mark set by the minister who organizes government affairs in the health sector. The respondents in this activity were mothers and toddlers in RW 02, RT 01, 02, and 03. The sample in this activity was 42 toddlers. The purpose of this activity is to increase mothers' knowledge about feeding, especially fruits and vegetables with balanced nutritional content for toddlers. The method used is the Wilcoxon Test with a confidence level of 95% and $\alpha = 0.05$. The results and discussion using the Wilcoxon test showed an increase in maternal knowledge related to stunting. There are 5 toddlers affected by stunting. There are efforts to change behavior for the better and increase maternal knowledge in stunting prevention, namely by socialization about the importance of preventing stunting, nutritious food demos, posters of processed fruit and vegetable creations, and distribution of PMT (Supplementary Feeding). After community-based nutrition education, there can be an increase in maternal knowledge in stunting prevention.

Keywords: stunting, maternal knowledge, toddler nutrition.

(Received 2023-07-21, Accepted 2023-07-31, Available Online by 2023-07-31)

1. INTRODUCTION

According to Presidential Regulation of the Republic of Indonesia Number 72 of 2021, stunting is a disorder of growth and development of children due to chronic malnutrition and recurrent infections, which is characterized by their length or height below the standards set by the minister who organizes government affairs in the health sector. Meanwhile, based on the Ministry of Health, stunting is children under five with a z-score of less than -2.00 SD / standard deviation (stunted) and less than -3.00 SD (severely stunted). Stunting is associated with birth weight, diarrhea, maternal knowledge and education level, family income, and sanitation (Herlina *et al.*, 2021).

Risk factors for stunting children are nutritional status and birth weight $<2,500$ grams, maternal education factors, low household income factors, poor sanitation factors.(Sutio, 2017). In addition, stunting risk factors tend to be more men than women, healthy and clean living habits that can affect the incidence of diarrhea as well.(Anwar, Winarti and Sunardi, 2022). Risk factors that can occur in

rob areas, caused by protein intake, iron intake, incidence of diarrhea, ISP, history of exclusive breastfeeding, sanitary hygiene and economic status. (Yuniarti, Margawati and Nuryanto, 2019).

Kelurahan Bandarharjo is a kelurahan located in JL. South Bandarharjo No.17, Bandarharjo, North Semarang, Semarang City, Central Java 50175. Which consists of 12 RW and 103 RT. Based on stunting data from the Semarang city government in 2023, there are 61 stunting cases. With 33 male children, and 28 female children. Integration activities were carried out in RW 02 RT 01, 02, and 03. The number of toddlers is 42, Rt 01 is 17 toddlers, Rt 02 is 15 toddlers, and Rt 03 is 10 toddlers. There is a problem of stunting cases as many as 9 toddlers, the most cases are in Rt 01 with 4 toddlers, Rt 2 with 2 toddlers, and Rt 3 with 3 toddlers.

Increasing maternal knowledge about child nutrition can be done through nutrition education. Nutrition education activity is an activity for nutrition-related information with the aim of increasing knowledge and changing behavior for the better (Muzarofatus, 2021). Knowledge about the health and nutrition of mothers will greatly affect the nutritional status of children under five (Sahanggamu, Purnomosari and Dillon, 2017) Good maternal nutrition behavior can have a positive impact on toddler nutrition. The ability of mothers to provide the right food ingredients and menus supported by their knowledge about nutrition can prevent nutritional problems in toddlers (Dwi Pratiwi, Masrul and Yerizel, 2016).

One of the efforts to prevent and overcome stunting is to implement balanced nutrition. Balanced nutrition is the fulfillment of food needs that are consumed daily and contain nutrients with the type and amount needed by the body (Fajriani, Aritonang and Nasution, 2020) UNICEF framework explains the factors that cause malnutrition. Two direct causes of stunting are disease factors and nutrient intake. Both of these factors are related to parenting factors, access to food, access to health services and environmental sanitation.

The impact that can be caused by stunting in the short term disrupts brain development, intelligence, impaired physical growth, and metabolic disorders in the body. The adverse effects in the long term are decreased cognitive ability and learning achievement, decreased immunity so that it is easy to get sick, and a high risk for the emergence of diabetes, obesity, heart and blood vessel disease, cancer, stroke, and disability in old age, as well as uncompetitive work quality which results in low economic productivity (Mother, 2012). Several studies show the risks caused by stunting are decreased academic achievement, increased risk of obesity, more susceptible to non-communicable diseases and increased risk of degenerative diseases according to United Children's Fund Indonesia (Mother, 2012). The purpose of this study is to find out whether there is an increase in maternal knowledge through nutrition education.

2. METHODS

The type of research carried out is Quasi-Experimental research with the design of the research carried out, namely One Group Pre-Post Test Design, which means that this test is carried out before and after the intervention of knowledge extension of mothers to prevent stunting. This activity began with filling out the pre-test and then continued with community-based nutrition education counseling intervention activities, cooking demos, discussions and questions and answers, at the end of filling out the post test. The duration of this intervention is carried out for 4 hours. The media used are posters, questionnaires about knowledge to prevent stunting, and the Si Gembul application. The population of this study was all children under five in Bandarharjo RW 2 sub-district. Samples were taken as many as 42 toddlers. Processes this sampling with confirmation to RT 01, 02, 03 to show parents who have toddlers. The technical data analysis used is using the *Wilcoxon* Test with a confidence level of 95% and $\alpha = 0.05$. The *Wilcoxon* test is performed as an alternative dependent paired t-test because the pre-test and post-test data are not normally distributed. (Alfedo *et al.*, 2023). This data analysis was performed using SPSS software version 26.

3. RESULTS AND DISCUSSION

1. Characteristics of Mother and Toddler Respondents

The maternal characteristics of the study subjects included the mother's age, and the mother's height. For toddler characteristics of the study subjects include the sex of toddlers, the age of toddlers (months), and the length of birth of toddlers.

Table 1. Characteristics of Mother and Toddler Respondents

Characteristics of Maternal Respondents	F	%
Mother's Age		
23 – 33	11	44
34 – 37	9	36
38 – 52	5	20
Mother's height		
130 – 150	7	28
155 – 159	13	52
160 – 168	5	20
Characteristics of Toddler Respondents	F	%
Gender of Toddler		
Male	10	40
Woman	15	60
Toddler Age (Months)		
10 – 30 months	9	36
31 – 43 months	7	28
43 – 56 months	9	36
Toddler Birth Length		
42 – 47	9	36
48 – 51	15	60

Based on Table 1. The age characteristics of IBU are grouped into 3, namely 22-33 years as many as 11 people, 34-37 years as many as 9 people and 38-52 as many as 5 people. Based on the characteristics of the mother's height, the average height of the mother is 155 cm as many as 10 people. While the mother's height is more than 130 cm as many as 24 people. Mothers with a height below 150 cm are at risk of having stunted children.

Based on the sex characteristics of respondents, it was found that the survey results of respondents were more women, which was as much as 60% compared to men as much as 40%. Based on the age characteristics of toddlers, they are divided into 3 categories, namely the age of 10-30 months as many as 9 toddlers (36%), the age of 31-42 months as many as 7 toddlers (28%) and the age of 43-56 months as many as 9 toddlers (36%). Based on the characteristics of the birth length of toddlers, the average toddler has a length of 49 cm as many as 7 people.

2. Overview of nutritional status conditions according to Z Score PB/U

The condition of nutritional status according to Z Score according to PB/U in 25 toddlers in RW 02 RT 01, 02, 03 in Bandarharjo Village. The Z Score is managed from the "The Gembul" application.

Table 2. Overview of nutritional status conditions according to Z Score PB/U

Nutritional Status According to Z Score	f	%
Normal -2SD+3SD	19	76
Short -3SD	3	12
Very Short <-3SD	2	8
Tall >+3SD	1	4

Based on the results of the description of stunting conditions according to PB / U with 25 toddlers, it can be known the nutritional status of toddlers who are stunted as many as 5 toddlers, 19 toddlers who have normal nutritional status, and 1 toddler has high nutritional status. The average Z Score for toddlers is -0.86, with a minimum value of -3.68 and a maximum of 5.27, so the category of z score is good (≥ -0.86).

3. Normality Test Results and Wilcoxon Test

Table 3. Data Normality Test Results & Wilcoxon Test

Normality Test Results	P - value
Mother's Knowledge in Preventing Stunting	
Pre Test	0.000
Post Test	0.004
Test Results- Wilcoxon	Asymp. Sig.(2 – Tailed)
Post Test – Pre Test	0.000

Based on the results of the normality test, the data above was found that maternal knowledge in preventing stunting before and after the intervention was not normally distributed ($p - value < 0.005$).

The following is data processing using nonparametrics because the results of the normality test are not normally distributed. So it uses the *Wilcoxon* test to find out if there is a difference after counseling. Based on the results of the *Wilcoxon* test, it produces with α (0.05) obtained a value of $p = 0.000$. Because the value of $0.000 < 0.05$ so that there is a difference between knowledge to prevent stunting for pre-test and post-test scores. There are differences in knowledge before and after counseling so that the community pays attention to the material that has been delivered.

These results are in line with James Kevin's research which states that the *Wilcoxon* test results of pre-test and post-test data are < 0.05 , these results show that there is a difference between pretest results before counseling and post-test results after counseling experienced effective results (Alfredo *et al.*, 2023). This result is also in line with Ravi Masitah's research which states that nutrition education in mothers can have a positive impact on increasing maternal knowledge related to stunting with the results of data analysis ($p - value < 0.005$) (Masitah, 2022).

This is also supported by Ansori's statement, namely research that can be concluded that nutrition counseling has an effect on changing knowledge about stunting in Kelampaian Village, Pontang District, Serang Regency. (Village, District and Regency, 2022).

4. Community-Based Education Methods

The following methods of community-based education that can be done, namely:

- Data collection using interview techniques using Google Form.
- Application "Si Gembul" as a medium to calculate the nutritional status of toddlers.
- Intervention activities were carried out by socializing stunting prevention using book guidelines from BKKBN with the themes "Skata Demi Keluarga Understand Important Steps to Prevent Stunting" and "Cook Delicious According to My Plate".
- Division of Pre Test and Post Test as a medium to measure maternal knowledge.
- Nutritious food demo as a medium to increase mothers' creativity in food processing for toddlers.
- The distribution of posters with the theme "Various Healthy Preparations to Prevent Stunting" as a medium to add ideas for processed food creations.
- The distribution of PMT (Supplementary Feeding) aims to improve nutritional status and meet the nutritional needs of toddlers.

4. CONCLUSION

Stunting cases in RW 02 RT 01, 02, and 03 in Bandarharjo there are 5 toddlers. The occurrence of stunting cases can be triggered by risk factors that can affect stunted toddler growth and development. In an effort to handle stunting cases in RW 02, RT 01, 02, and 03 in Bandarharjo, counseling activities were carried out on the importance of preventing stunting attended by mothers and toddlers, conducting nutritious food demonstrations, distributing posters of processed fruit creations to toddlers, and distributing PMT (Supplementary Feeding). Based on the results of the Pre Test and Post Test using *the Wilcoxon* Test to find out if there is a difference after counseling and show an increase in maternal knowledge about stunting.

5. THANK YOU SPEECH

The students expressed their gratitude for the cooperation and support during the implementation of Integration activities to Bandarharjo Village, North Semarang District, which has allowed and helped all activities carried out by students so that they can run smoothly, All RW 02 communities who have actively participated in the implementation of integration activities, Posyandu Minasari 1 which has helped increase public awareness, especially in terms of maintaining maternal and child health, as well as BKKBN of Central Java Province which has supported Integration, Monitoring, Evaluation activities in the field of population control and family planning.

References

- [1]. Alfredo, J.K. *et al.*(2023) 'The Effectiveness of Knowledge Counseling of Baduta Mothers (Under Two Years) Against Stunting in Kawangrejo Village, Jember Regency, East Java The Effectiveness of Knowledge Counseling of Baduta Mothers (Under Two Years) Against Stunting in Kawangrejo Vill', 8(1), pp. 103–109.
- [2]. Anwar, S., Winarti, E. and Sunardi, S. (2022) 'Systematic Review of Risk Factors, Causes and Impact of Stunting in Children', *Journal of Health Sciences*, 11(1), p. 88. Available at: <https://doi.org/10.32831/jik.v11i1.445>.
- [3]. Dwi Pratiwi, T., Masrul, M. and Yerizel, E. (2016) 'The Relationship between Maternal Parenting and Nutritional Status of Toddlers in the Working Area of the Belimbing Health

- Center in Padang City', *Andalas Health Journal*, 5(3), pp. 661–665. Available at: <https://doi.org/10.25077/jka.v5i3.595>.
- [4]. Ekayanthi, N.W.D. and Suryani, P. (2019) 'Nutrition Education for Pregnant Women to Prevent Stunting in Pregnant Women Class', *Health Journal*, 10(3), p. 312. Available at: <https://doi.org/10.26630/jk.v10i3.1389>.
- [5]. Erlita Firdanti *et al.* (2020) 'The Problem of Stunting in Children in Districts in West Java', *West Java Open Data*, (11), pp. 126–133. Available at: <https://opendata.jabarprov.go.id/id/infografik/wisatawan-di-jawa-barat>.
- [6]. Fajriani, F., Aritonang, E.Y. and Nasution, Z. (2020) 'The Relationship of Family Balanced Nutrition Knowledge, Attitudes and Actions with the Nutritional Status of Children Under the Age of 2-5 Years', *Journal of Public Health Sciences*, 9(01), pp. 1–11. Available at: <https://doi.org/10.33221/jikm.v9i01.470>.
- [7]. Herlina, T. *et al.* (2021) 'Overview of the Level of Maternal Knowledge about Stunting in Toddlers in Kedawung Village, Susukan District, Banjarnegara Regency', *Borneo Nursing Journal (BNJ)*, 4(1), pp. 10–17.
- [8]. Himawaty, A. (2020) 'Empowering Cadres and Mrs. Baduta to Prevent Stunting in Pilangsari Village, Bojonegoro Regency', *Ikesma*, 16(2), p. 77. Available at: <https://doi.org/10.19184/ikesma.v16i2.18917>.
- [9]. Huriah, T. *et al.* (2020) 'Community-Based Maternal Education (PIBM) in Improving Knowledge and Attitudes of Nutritional Fulfillment of Stunting Toddlers', *Solma Journal*, 9(2), pp. 400–410. Available at: <https://doi.org/10.22236/solma.v9i2.4930>.
- [10]. Ibu, K. (2012) 'Maternal & Child Health', *Unicef Indonesia*, (Figure 2), pp. 1–6.
- [11]. Masitah, R. (2022) 'The Effect of Nutrition Education on Maternal Knowledge Related to Stunting, Exclusive Breastfeeding and MPASI', *Journal of Innovation Research and Knowledge*, 2(3), pp. 673–678.
- [12]. Mulyani, N.S. *et al.* (2022) 'Increasing knowledge and attitudes of mothers for stunting prevention in Aceh Besar District', *PADE Journal: Community Service & Education*, 4(1), p. 28. Available at: <https://doi.org/10.30867/pade.v4i1.810>.
- [13]. Muzarofatus, D. (2021) 'Increasing Maternal Knowledge of Nutrition in School Children through Whatsapp Group Media', *Indonesian Journal of Community Dedication in Health (IJCDH)*, 1(02), p. 14. Available at: <https://doi.org/10.30587/ijcdh.v1i02.2497>.
- [14]. N., H.N., S., S.F. and Badriah, S. (2021) 'Stunting Prevention Counseling for Baduta Mothers in the Working Area of Uptd Puskesmas Pasir Putih', *Proceedings of SENAPENMAS*, p. 347. Available at: <https://doi.org/10.24912/psenapenmas.v0i0.15008>.
- [15]. Nurshanti, E.D. (2022) 'Nutrition for Stunting Prevention Literature Review'.
- [16]. Sahanggamu, P.D., Purnomosari, L. and Dillon, D. (2017) 'Information exposure and growth monitoring favour child nutrition in rural Indonesia', *Asia Pacific Journal of Clinical Nutrition*, 26(2), pp. 313–316. Available at: <https://doi.org/10.6133/apjcn.012016.09>.
- [17]. Sari, M.I. *et al.* (2021) 'Training of Posyandu Cadres to Improve Anthropometric Measurement Skills as an Effort to Prevent Stunting at Puskesmas Sukaraja Bandar Lampung', *JPKM : Journal of Public Health Service*, 2(1), pp. 56–63. Available at: <https://doi.org/10.37905/jpkm.v2i1.9833>.
- [18]. Siahaya, A., Haryanto, R. and Sutini, T. (2021) 'Education "Isi Piringku" on knowledge and behavior in stunting mothers under five in Maluku', *Journal of Sound Health Research Forikes*, 12(5), pp. 199–202.
- [19]. Sutio, D. (2017) 'Analysis of Risk Factors for the Incidence of Stunting in Toddlers', *Journal of the Department of Nutrition, Faculty of Public Health*, Vol. 28 No, pp. 247–256.
- [20]. Village, K., District, P. and Regency, S. (2022) 'The Effect of Nutrition Counseling on Increasing Stunting Knowledge in Community Groups in Kelampayan Village, Pontang District, Serang Regency', 1(1), pp. 1–4.
- [21]. Waliulu, S.H. (2018) 'The Effect of Education on the Level of Knowledge and Efforts to Prevent Stunting in Toddlers', *Forikes Sound Health Research Journal*, 9(4), pp. 269–272.
- [22]. Yuniarti, T.S., Margawati, A. and Nuryanto, N. (2019) 'Risk Factors for Stunting of Children Aged 1-2 Years in Rob Area of Pekalongan City', *Journal of Nutrition Research*, 7(2), pp. 83–90. Available at: <https://doi.org/10.31983/jrg.v7i2.5179>.



Advance Sustainable Science, Engineering and Technology (ASSET)

Vol. 5, No.2, Juli 2023, pp. 0230205-01 ~ 0230205-07

ISSN: 2715-4211 DOI: <https://doi.org/10.26877/asset.v5i2.16252>