



Primary Prevention of Neglect in Children through Health Education for Adolescent Girls in West Sumatra, Indonesia

Meri Neherta^{1*} , Yonrizal Nurdin²

¹Department of Pediatric and Maternity Nursing, Faculty of Nursing, Universitas Andalas, Padang, Indonesia; ²Department of Psychiatric and Community Nursing, Faculty of Nursing, Universitas Andalas, Padang, Indonesia

Abstract

Edited by: Mirko Spiroski

Citation: Neherta M, Nurdin Y. Primary Prevention of Neglect in Children through Health Education for Adolescent Girls in West Sumatra, Indonesia. Open-Access Maced J Med Sci. 2021 Nov 19; 9(T4):359-363. https://doi.org/10.3889/oamjms.2021.7556

Keywords: Female adolescent; Primary prevention; Anemia; Stunting in children

***Correspondence:** Meri Neherta, Department of Pediatric and Maternity Nursing, Faculty of Nursing, Universitas Andalas, Padang, Indonesia.

E-mail: merineherta@nrs.unand.ac.id

Received: 17-Oct-2021

Revised: 07-Nov-2021

Accepted: 11-Nov-2021

Copyright: © 2021 Meri Neherta, Yonrizal Nurdin

Funding: This study was supported by Andalas University, Faculty of Nursing

Competing Interest: The authors have declared that no competing interest exists

Open Access: This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)

BACKGROUND: High cases of stunting in toddlers require an effective and efficient primary prevention model. One of the efforts that can be done is to increase the knowledge of female adolescents to prevent anemia.

AIM: The aim of the study was to produce a model that can be used as primary prevention of stunting in children.

METHODS: Pre-test-Post-test Group Design. This research was conducted from March to November 2019 in Talamau District, West Pasaman Regency, involving 370 female adolescents as respondents. The intervention was carried out 3 times, followed by four separate evaluations. The intervention consists of engaging the respondents with various learning activities such as interactive lectures, group discussions, video screenings, messages through WhatsApp, and demonstrations. Data analysis was performed using GLM repeated measure.

RESULTS: Health education interventions on anemia prevention can improve knowledge and attitudes among female adolescents; anemia prevention got a p-value of 0.00.

CONCLUSION: The primary prevention model of stunting can increase knowledge and attitudes in female adolescents. It is recommended that parents, teachers, and health workers jointly provide health education regularly to prevent anemia so that stunting cases in toddlers no longer exist.

Introduction

A neglect is a form of violence that often occurs worldwide today [1]. In Indonesia, stunting is a real example of it. Stunting can increase the risk of infectious diseases, non-communicable diseases (NCDs), and emotional and behavioral disorders, which will inhibit their growth in the future.

At present, stunting is a global nutritional problem that occurs in many toddlers. In 2017, 150.8 million toddlers in the world were in stunting conditions [2]. Indonesia is ranked 3rd in Southeast Asia, with 36.4% of stunting children, while West Sumatra is ranked 7th in Indonesia, with a stunting rate of 37.2 in 2017 [3]. One of the causes of stunting in toddlers is born from a mother who has anemia during her teenage years [4].

Adolescents are an important group that is often forgotten in health programs, although public health in the future is very dependent on the health of adolescents at this time [5]. If a teenager has experienced malnutrition, they will surely give birth to LBW children [6], who will become stunted children [7]. Therefore, health intervention is crucial and needs to be done for female adolescents as they are prospective

mothers who are expected to give birth to healthy children in the future [8].

Materials and Methods

This research is pseudo experimental research with the design of a one-group pretest-post-test design. The intervention was carried out 3 times to the number of samples of 397 female adolescents, given health education on the prevention of anemia, with teaching materials: 1) Healthy and balanced food for adolescents, 2) impact of anemia in adolescents, and 3) stunting in children. The media used for the learning activities consist of PPT presentations, videos, interactive discussions, sending messages on anemia prevention through WhatsApp media, and healthy food demonstrations for anemia prevention in female adolescents. Implementation of this intervention is school-based. This research was conducted from March to November 2019 in Talamau District, West Pasaman Regency. This research has passed the research ethics test from the Ethics Committee Team of the Faculty of Medicine, Andalas University No: 200/KEP/FK/2019.

Results

This study involved 397 respondents (age range from 12 years to 19 years), with the most respondents aged 16 years (26.2%). The intervention was given to female adolescents 3 times. The following is the average knowledge value and attitude value of respondents before and after the intervention.

From Table 1, it is known that the average value of respondents' knowledge and attitudes after the intervention has increased. The increase occurred in each intervention. However, the average increases in the value of knowledge and attitudes, the highest value occurred after the second intervention. The following are the results of the GLM repeated measure test.

Table 1: Average knowledge value and attitude score of respondents before and after the intervention

	N	Mean	Min	Max	Std	95% Confidence Interval	
						Lower Bound	Upper Bound
P1 (pre)	397	12.90	7	17	2.246		
P2 (Int 1)	397	14.42	9	27	2.227	15.242	15.630
P3 (Int 2)	397	16.79	11	20	1.805		
P4 (Int 3)	397	16.88	11	20	1.725		
S1 (pre)	397	9.09	5	15	1.524	11.612	11.809
S2 (Int 1)	397	12.24	7	15	1.339		
S3 (Int 2)	397	13.80	10	16	1.922		
S4 (Int 3)	397	13.88	9	16	1.863		

Table 2, the tests of within-subjects contrasts results show an increase in the average knowledge value and attitude value of the respondents with $p = 0.00$.

Table 2: Average knowledge values and attitude scores of tests of within-subjects contrasts

Variable	Mean	p-value
Knowledge		
P2 versus P1	928.300	0.000
P3 versus P2	1894.673	0.000
P4 versus P3	948.176	0.000
Attitude		
S2 versus S1	1553.765	0.000
S3 versus S2	1383.304	0.000
S4 versus S3	687.222	0.000

From Table 3, it can be seen that there was an increase in the average knowledge value and the average attitude value of the respondents after receiving the intervention, with $p = 0.00$. The multivariate test value of $p = 0.00$ also indicates the increase in both knowledge and attitude value. An increase in the average value of knowledge and attitudes of respondents can also be seen in the following graph:

Table 3: Average knowledge value and attitude value of tests of between-subject effects

Source	Measure	Mean	p-value
Intercept	Attitude	39354.010	0.000
	Knowledge	68377.490	0.000
Respondent's description	Attitude	304.227	0.000
	Knowledge	37.566	0.000

From Figure 1, it is clear that the average knowledge value of the respondents increased after three interventions were carried out. The highest increase occurred after the second intervention.

From Figure 2, it can be seen that there is a change in the average attitude value of the respondents

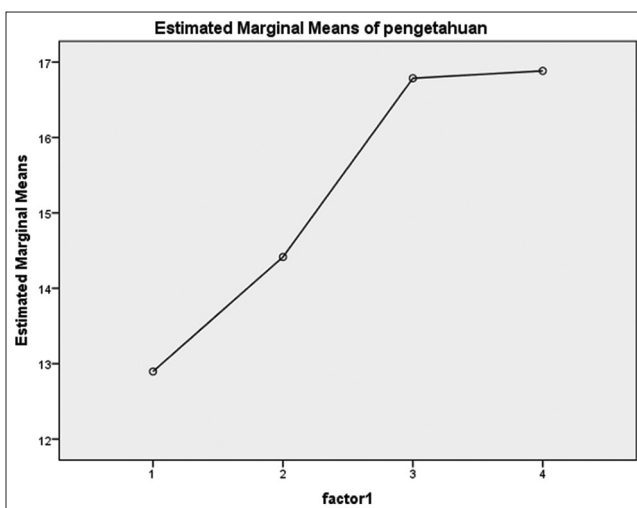


Figure 1: Chart changes in the knowledge of respondents in general at 4 times measurement

after the intervention was carried out 3 times. However, the most significant increase was after the second intervention.

The average value of knowledge and attitudes at all levels of age has increased after receiving the intervention. This increase is shown in Figure 3.

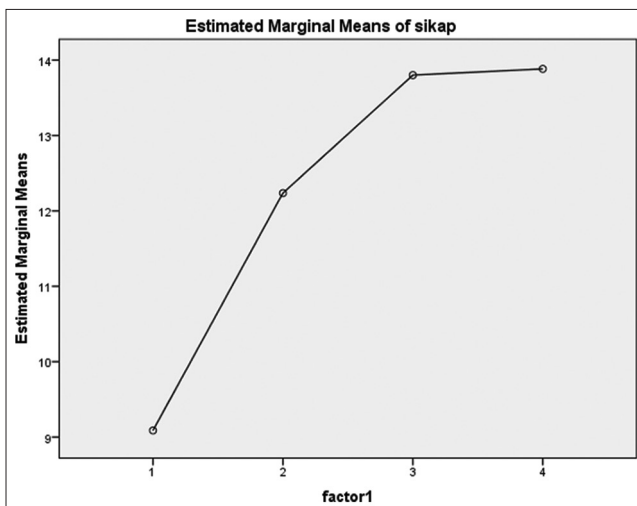


Figure 2: Chart changes in the attitude of respondents in general at 4 times measurement

From Figure 3, it is clear that there is an increase in the average value of knowledge in respondents from each age group after the third intervention. This situation is also the same as the average value of the respondent's attitude, as shown in Figure 4.

From Figure 4, it is clear that there is an increase in the average value of the attitude measurement of all age groups after getting the intervention 3 times. The increase in the average value of knowledge and attitudes needs to be categorized to see if the change in the average value of knowledge and attitudes is as expected. Tables 4 and 5 show a categorized distribution frequency changes in the average values of knowledge and attitude.

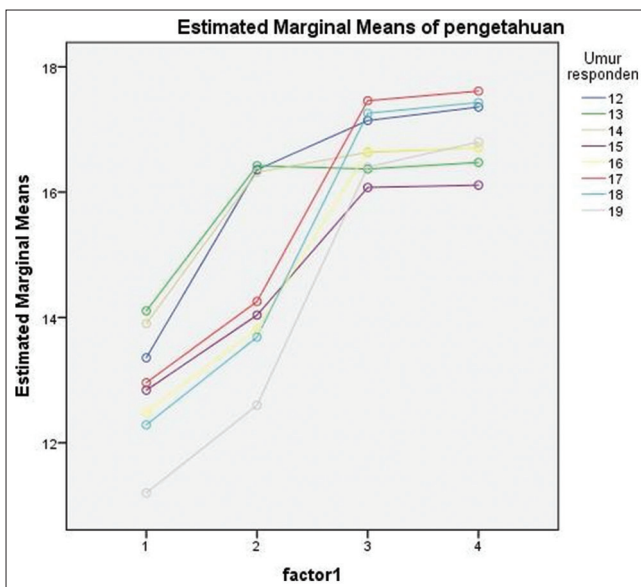


Figure 3: Graph of changes in respondents' knowledge in terms of age characteristics in four measurements

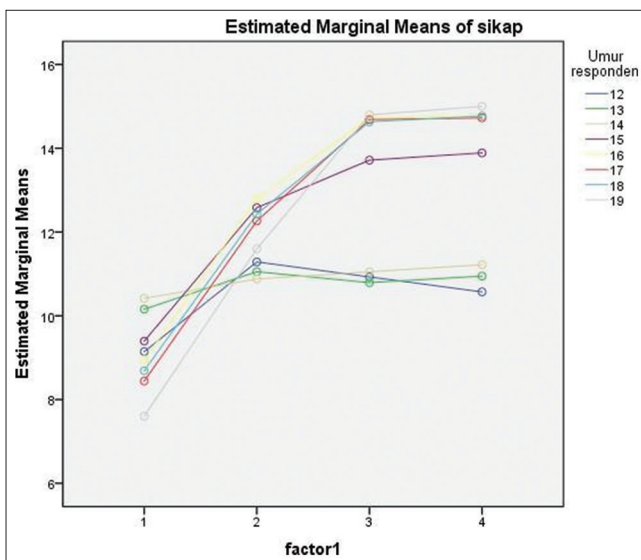


Figure 4: Graph of changes in respondents' attitudes seen from age characteristics in four measurements

Table 4: Distribution of knowledge frequency after getting intervention 3 times

	P1		P2		P3		P4	
	F	%	f	%	f	%	f	%
Knowledge								
High	44	11.1	132	33.2	297	74.8	304	76.7
Moderate	222	55.9	228	57.4	99	24.9	92	23
Low	131	33.0	37	9.3	1	0.3	1	0.3
Total	394	100	394	100	394	100	394	100

Table 5: Attitude frequency distribution after getting the intervention 3 times

	S1		S2		S3		S4	
	F	%	f	%	F	%	f	%
Attitude								
Supportive	152	38.3	176	44.3	259	65.2	290	73.0
Unsupportive	245	61.7	221	55.7	138	34.8	107	27.0
Total	397	100	397	100	397	100	397	100

Table 4, before the intervention, the high knowledge category was only 11.1%, moderate 55.9%, and low 33%. After the third intervention, the high knowledge category rose drastically to 76.6%, and low knowledge was only 0.3% (one person). For changes in attitude categories are shown in Table 5.

Table 5 shows that there is a change in the attitude category of the respondents. Before getting the intervention, respondents in the category of supportive attitude were only 38.3%, after 3 times the intervention increased to 73%. The unsupportive attitude before the intervention was 61.7%, which changed to 27% after getting the interventions.

Discussion

Based on this study, we suggest that interventions can increase the average value of knowledge and the average value of the attitude of the respondents. The well-prepared learning materials and interventions' frequencies (3 times) have resulted in a positive outcome [9]. The principle of learning that is needed is the theory of power psychology. According to this theory, learning is training the powers that exist in humans, consisting of the power to observe, perceive, remember, imagine, feel, and think [10]. These powers will develop by continuous and repetitive practice, just as a knife that is repeatedly sharpened will become sharp [11].

The repetition method, physiologically, will increase the dendrites and thicken the axon membrane, strengthening the network between nerve cells. Dendrites and axons are fibers that connect nerve cells, which strengthen memory power in the brain [12]. Likewise, with the AIR (Auditory Intellectually Repetition) method, learning by listening, learning by thinking, and repetition means deepening, expanding, and strengthening [13]. In this research, the interventions were carried out under the principle of learning with the repetition method. Through repetition, respondents will have a good and deep understanding [14].

Development during adolescence greatly determines the quality of a person to become an adult individual [15]. Nutritional problems that occur in adolescence will increase susceptibility to disease at the age of adolescent girls who suffer from anemia are at risk of becoming women of childbearing age who are anemic and subsequently become anemic pregnant women, and even experience protein-energy deficiency [16]. This increases the chances of giving birth to a low birth weight (LBW) baby and stunting, complications during delivery, and several other pregnancy-related risks, and the risk of giving birth to a generation with nutritional problems [17].

In this study, the learning media used is adjusted to the learning style of the respondents [18]. Therefore, the research uses a variety of learning media, that is, presentations with power points and videos. The second intervention uses interactive discussions with illustrated stories, and the third intervention uses demonstrations. These methods increase the average knowledge and attitudes of respondents [19].

This study reveals essential evidence in plans to disseminate knowledge about anemia and its prevention in female adolescents [20]. In addition, this study also proves that building a comprehensive educational intervention can increase knowledge and attitudes among respondents and is very important to reduce cases of anemia in female adolescents as prospective mothers, to prevent stunting in toddlers [21].

Conclusions and Suggestions

The intervention model for preventing child neglects (stunting) through health education about anemia and its prevention can increase knowledge among female adolescents for stunting prevention in West Pasaman.

Study limitations

The study was only conducted with medical record data with a limited number of samples.

Acknowledgment

We would like to thank the Chancellor of Andalas University, Head of LPPM Andalas University and the Dean of the Faculty of Virginity who have provided assistance, both morally and materially, for the implementation of this research.

References

- World Health Organization. 2018. Stunting is Measured by a Height-for-age Z-score of More Than 2 Standard Deviations Below the World Health Organization. Geneva: World Health Organization; 2018.
- Republik Indonesia. Riset Kesehatan Dasar Kementerian Kesehatan Republik Indonesia Tahun. Indonesia: Republik Indonesia; 2018.
- Rachmi CN, Agho KE, Li M, Baur LA. Stunting, underweight and overweight in children aged 2.0-4.9 years in Indonesia: Prevalence trends and associated risk factors. *PLoS One*. 2016;11(5):e0154756 <https://doi.org/10.1371/journal.pone.0154756> PMID:27167973
- Torlesse H, Cronin AA, Sebayang SK, Nandy R. Determinants of stunting in Indonesian children: Evidence from a cross-sectional survey indicate a prominent role for the water, sanitation and hygiene sector in stunting reduction. *BMC Public Health*. 2016;16:669. <https://doi.org/10.1186/s12889-016-3339-8> PMID:27472935
- Hure A, Oldmeadow C, Attia J. Invited commentary: Improving estimates of severe acute malnutrition requires more data. *Am J Epidemiol*. 2016;184(12):870-72. <https://doi.org/10.1093/aje/kww131> PMID:27856449
- Khara T, Mwangome M, Ngari M, Dolan C. Children concurrently wasted and stunted: A meta-analysis of prevalence data of children 6-59 months from 84 countries. *Matern Child Nutr*. 2018;14(2):e12516. <https://doi.org/10.1111/mcn.12516> PMID:28944990
- Mwangome M, Ngari M, Fegan G, Mturi N, Shebe M, Bauni E, *et al*. Diagnostic criteria for severe acute malnutrition among infants aged under 6 mo. *Am J Clin Nutr*. 2017;105(6):1415-23. <https://doi.org/10.3945/ajcn.116.149815> PMID:28424189
- Mason-Jones AJ, Sinclair D, Mathews C, Kagee A, Hillman A, Lombard C. School-based interventions for preventing HIV, sexually transmitted infections, and pregnancy in adolescents. *Cochrane Database Syst Rev*. 2016;11:CD006417. <https://doi.org/10.1002/14651858.CD006417.pub3> PMID:27824221
- Bandura A. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall; 1977.
- Kelly MP, Barker M. Why is changing health-related behaviour so difficult? *Public Health*. 2016;136:109-16. <https://doi.org/10.1016/j.puhe.2016.03.030> PMID:27184821
- Agustina R, Prafiantini E. Formative Research for an Improved Iron Folic Acid Supplementation Program for School Going Adolescents in Selected Districts of West Java Province in Indonesia. Indonesia: Department of Nutrition, Human Nutrition Research Cluster, Faculty of Medicine, Directorate of Research and Community Services, Universitas Indonesia and Nutrition International; 2016.
- Angood C, Khara T, Dolan C, Berkley JA. Research priorities on the relationship between wasting and stunting. *PLoS One*. 2016;11(5):e0153221. <https://doi.org/10.1371/journal.pone.0153221> PMID:27159235
- Briend A, Khara T, Dolan C. Wasting and stunting-similarities and differences: Policy and programmatic implications. *Food Nutr Bull*. 2015;36(1):S15-23. <https://doi.org/10.1177/15648265150361S103> PMID:25902610
- Bork KA, Diallo A. Boys are more stunted than girls from early infancy to 3 years of age in rural Senegal. *J Nutr*. 2017;147(5):940-7. <https://doi.org/10.3945/jn.116.243246> PMID:28298540
- Camaschella C. Iron deficiency anemia. *N Engl J Med*. 2015;372(19):1832-43. <https://doi.org/10.1056/NEJMra1401038>

-
- PMid:25946282
16. Castejon HV, Ortega P, Amaya D, Gomez G, Leal J, Castejon OJ. Anemia coexistence, vitamin a deficiency, and growth retardation in children 24-84 months in Maracaibo, Venezuela. *Nutr Neurosci.* 2013;7(2):113-9. <https://doi.org/10.1080/10284150410001704534>
PMid:15279497
17. Lopez A, Cacoub P, Macdougall IC, Peyrin-Biroulet L. Iron deficiency anemia. *Lancet.* 2016;387:907-16. [https://doi.org/10.1016/S0140-6736\(15\)60865-0](https://doi.org/10.1016/S0140-6736(15)60865-0)
18. McDonald EM, Mack K, Shields WC, Lee RP, Gielen AC. Primary care opportunities to prevent unintentional home injuries: A focus on children and older adults. *Am J Lifestyle Med.* 2016;12(2):96-106. <https://doi.org/10.1177/1559827616629924>
PMid:27141210
19. Development Initiatives. *Global Nutrition Report 2017: Nourishing the SDGs.* Bristol, UK: Development Initiatives; 2017.
20. Gosdin L, Martorell R, Bartolini RM, Mehta R, Srikantiah S, Young MF. Anemia and stunting in young children. *Matern Child Nutr.* 2018;14:e12597. <https://doi.org/10.1111/mcn.12597>
PMid:29468825
21. Ministry of Health, Republic of Indonesia. *Ministry of Health Anaemia Prevention and Control Program in Adolescent Girls and Women of Reproductive Age.* Indonesia: Ministry of Health, Republic of Indonesia, 2016.