

## Prevention of stunting with nutrition and reproductive health education of adolescents in west Lombok, West Nusa Tenggara, Indonesia

Eka Arum Cahyaning Putri <sup>1,2,\*</sup>, Faiq Amirul Hakim <sup>1</sup>, Eko Purwanto <sup>3</sup>, Nabilah Izzatunnisa <sup>4</sup>, Reny I'tishom <sup>1</sup>, Uswatun Hasanah <sup>5</sup> and Purwo Sri Rejeki <sup>1,2</sup>

<sup>1</sup> Medical Program, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.

<sup>2</sup> Department of Physiology and Medical Biochemistry, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.

<sup>3</sup> Entrepreneurship Study Program, Faculty of Economics and Business, Maarif Hasyim Latif University, Sidoarjo, Indonesia.

<sup>4</sup> Medical Professional Education Program, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.

<sup>5</sup> Sports Health Science Master Program, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.

World Journal of Advanced Research and Reviews, 2024, 22(02), 994-999

Publication history: Received on 04 April 2024; revised on 12 May 2024; accepted on 14 May 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.22.2.1429>

### Abstract

The problem of stunting in Indonesia is a serious threat that requires appropriate handling. Basic Health Research data in 2018 shows that stunting cases in Indonesia are still relatively high, reaching 30.8%. Behavior change is one of the pillars of efforts to deal with malnutrition and stunting. Adolescent reproductive health is defined as a healthy condition in the system, function, and process of adolescent reproduction physically, mentally, and socio-culturally. The Community Service activities that will be carried out are a Community Partnership Program scheme focusing on service in the health sector which focuses on adolescent reproductive health. The targets of this activity are teachers and students of 1<sup>st</sup> State Senior High School, Gunungsari, Lombok, West of Nusa Tenggara. This Community Service aims to increase knowledge and implementation regarding strengthening character and leadership spirit and using technology wisely, increasing knowledge and skills about motor activities through the socialization of sports movements, anthropometric measurements related to adolescent reproductive readiness, and breast self-examination. The methods used are seminars, focus group discussions, and training.

**Keywords:** Nutrition; Teachers; Teenagers; Reproduction; Stunting

### 1. Introduction

The development of Indonesian society in the health sector in Indonesia considers multiple nutritional problems. Malnutrition, stunting, and waste concern the Indonesian government because of their impact on morbidity and mortality (1). Efforts to deal with malnutrition and stunting are carried out through five pillars, one of which is behavior change. The intervention strategy is based on the objectives with a specific and sensitive nutritional intervention approach. Specific dietary interventions target prospective brides and grooms, pregnant women, breastfeeding mothers with children aged less than 6 months, mothers aged 6-23 months, children aged 0-5 months, and children aged 6-59 months. Meanwhile, the target for sensitive nutrition interventions for the general public, especially families, is carried out across non-health sectors (2).

All efforts are made comprehensively to prevent and reduce stunting in Indonesia. Stunting is a condition where children fail to grow and develop as a result of poor nutrition, repeated infections, and lack of psychosocial stimulus, especially in the first thousand days of life. The incidence of stunting is not related to height alone but has an impact on

\* Corresponding author: Eka Arum Cahyaning Putri

other conditions, such as intelligence and the quality of human resources. Based on the 2005 Multicentre Growth Reference Study (WHO-MGRS) standards, a child is categorized as short if the z-score value is less than -2 SD (Standard Deviation). If the z-score value is less than -3 SD then it is classified as very short (3).

The impact of stunting on children will be seen in the short and long term. In the short term, the impact on physical growth is that the child's height is below the average for children his age. Apart from that, it also has an impact on cognitive development because it disrupts brain development which can reduce children's intelligence. Meanwhile, in the long term, stunting will cause children to become vulnerable to diseases such as diabetes, obesity, heart disease, blood vessels, cancer, stroke, and disability in old age. Apart from that, the long-term impact on children suffering from stunting is related to the quality of a country's human resources. Children are the next generation of the nation. If stunting is not immediately addressed, this will certainly cause a decline in the quality of human resources in the future (4)

The problem of stunting in Indonesia is a serious threat that requires appropriate handling. Basic Health Research data in 2018 shows that stunting cases in Indonesia are still relatively high, reaching 30.8%, consisting of 11.5% very short and 19.3% short (5). Based on data from the Indonesian Toddler Nutrition Status Survey in 2019, the prevalence of stunting in Indonesia reached 27.7%, while in 2021 it will still be 24.44%. This figure still does not reach the stunting rate recommended by the World Health Organization is 20%. The Indonesian government targets reducing the national stunting rate by 2024 to 14% (1).

The main causes of stunting include inadequate nutrition and nutritional intake for children's needs, wrong parenting patterns due to lack of knowledge and education for pregnant and breastfeeding mothers, poor sanitation in the living environment such as lack of clean water facilities and lack of adequate toilet facilities and limited access to health facilities needed for pregnant women, breastfeeding mothers and toddlers (4).

Early marriage, awareness, and readiness of teenagers regarding reproductive health are among the causes of stunting. Throughout 2021, 59,709 cases of early marriage received dispensation from the court. According to the National Commission on Women, the causes of early marriage are multifactorial, including (a) reasons for urgent situations, for example being pregnant, having a child at risk or having sexual relations, being in love with each other, being at risk of violating norms or committing adultery; (b) exposure to devices that provide information in the hand. Exposure to devices that are not followed by intelligence and maturity in thinking can trigger wrong relationships and unhealthy sexual relationships. The third cause is that programs related to a comprehensive understanding of reproductive health and rights are still not evenly distributed as a reference for teenagers (6).

There are various negative impacts of marriage at an early age, such as stunting, high infant and maternal mortality rates, several health problems, high school dropout rates, and also increased poverty rates. Marriage at an early age also causes stunting cases to increase, due to the lack of preparedness by underage married couples regarding adequate nutritional intake during pregnancy, psychological maturity, and reproductive organs, as well as knowledge about correct parenting patterns (6).

West Nusa Tenggara is one of the provinces with the highest prevalence of underweight in Indonesia in 2019, which is 26% apart from East Nusa Tenggara (28.44%), Maluku (24.6%), West Sulawesi (22.7%), and Gorontalo (22%). West Lombok is one of the regions that has the highest prevalence of nutritional status (Body Weight per Age) at 0-59 (under five) which is 22.8%, which is higher than the average for the province itself. Meanwhile, the prevalence of stunting was 20.73% in 2019 and 18.98% in 2021. Even though there has been a decline, this figure is still much higher than the national target (7,8).

In 2020, West Lombok had a population of 721,480 people with a population growth rate of 1.80%. The number of poor people is 100,250 or 14.28% of the population. The area of West Lombok is 1,053.92 km<sup>2</sup>. Based on its geographical position, West Lombok has boundaries: North Lombok Regency, South Indian Ocean, West of Lombok Strait, Mataram City, and East Central Lombok Regency. West Lombok consists of 1,223 villages/sub-districts located in 10 sub-districts, which are Gunungsari, Sekotong, Sheet, Gerung, Labuapi, Kediri, Kuripan, Narmada, Batulayar, and Lingsar. The total population in the 15-19 year age range is 56,548 people or around (7.83%). Of this number, there were 28,788 men and 27,760 women. There are 15 public and 15 private high schools with 505 and 128 teachers respectively. The number of male high school students is 9,810 and 9,358 females. For vocational schools, in West Lombok, there are 15 state and 28 private vocational schools with a total of 642 teachers and 310 teachers respectively (9)

Gunungsari has an area of 9% of West Lombok, which is 20.4 km from the district capital and has 16 sub-districts with a population of 95,000 people (13.17% of West Lombok) with a population density of 1,059 people/km<sup>2</sup>. The 2010-

2020 population growth rate is 1,85% which is higher than the West Lombok average and has a sex ratio of 100.06. In Gunungsari there is one state high school and one private high school with 53 and 14 teachers respectively. The number of male high school students is 1,017 and females is 1,029. For vocational schools, in Gunungsari there are 1 public and 3 private vocational schools with 45 teachers and 23 teachers respectively (10).

---

## 2. Material and methods

The implementation method for this community service activity is through community empowerment and community participation. The target population is teacher representatives in the Gunungsari area, West Lombok, School Health Center supervisors, representatives of School Health Center students in the Gunungsari area, and students of 1<sup>st</sup> State Senior High School of Gunungsari, West Lombok. Informed consent was obtained from all individual participants included in the study. The strategies used in community service are tailored to the objectives, as follows:

1. Seminar on a basic introduction to Stunting, Adolescent Reproductive Health, and Adolescent Nutrition. This activity aims to increase knowledge about (a) stunting, how to detect it, its impact, management, and the role of adolescents in preventing stunting, (b) Reproductive health of adolescent girls and boys, and (c) Nutrition education in adolescence. The target of this activity is the entire target population which includes the Head of Empowering Family Health. The targets are teacher representatives in the Gunungsari area, West Lombok, School Health Center supervisors, student representatives in the School Health Center of Gunungsari area, and students of 1<sup>st</sup> Senior High School of Gunungsari, West Lombok. The target participant is 50 people.

In this activity, information related to:

- Characteristics of the target population regarding identity, education level, employment, and other demographic status. For this reason, a willingness form is required from all activity participants.
- Distribution of participants' interest and motivation in attending the seminar
- Evaluation of seminar implementation regarding time, place, location, and suitability of material with promotion of stunting prevention in adolescents.
- Suggestions and input for future activities

Evaluation of activities is carried out by measuring knowledge before and after the seminar. The instrument used is a questionnaire consisting of Multiple Choice Questions. The resulting data was on a ratio scale and then a Paired t-test was carried out to determine whether there was a significant difference in knowledge before and after. Nominal scale data will be presented descriptively.

2. Focus Group Discussion about strengthening character and using technology wisely. This activity aims to increase knowledge and implementation regarding (1) strengthening character and leadership spirit in both leadership and inner leadership and (2) wise use of technology. The targets of this activity are representatives of School Health Center students in the Gunungsari area and students of 1<sup>st</sup> State Senior High School of Gunungsari, West Lombok. The target participant is 20 people. To achieve the goal, the following methods will be used:

- Division of participants into small groups consisting of 5 people
- Case-based problem stimuli
- Discussion in group
- Plenary of each group
- Evaluation of activities is carried out by assessing problem-solving abilities, teamwork, emotional control, and communication skills.

3. Zumba exercise. This activity aims to increase knowledge and skills about motor activities through the socialization of sports movements carried out by teenagers to improve stamina and health. The targets are teacher representatives in the Gunungsari area, West Lombok, School Health Center supervisors, student representatives of the School Health Center of Gunungsari area, and students of 1<sup>st</sup> Senior High School of Gunungsari, West Lombok. The target participants are 20 people. Evaluate activities through participant activity. The five most active participants will receive souvenirs from the Public Health Center team.

4. Training on anthropometric measurements and self-breast examination. This activity aims to increase knowledge and skills in anthropometric measurements related to adolescent reproductive readiness and self-breast examination. The targets are teacher representatives in the Gunungsari area, West Lombok, School Health Center supervisors,

student representatives of the School Health Center of Gunungsari area, and students 1<sup>st</sup> Senior High School of Gunungsari, West Lombok. The target participant is 50 people. The evaluation used to assess anthropometric measurements is the amount of data collected: Meanwhile, for self-breast examination, we calculate the accuracy of participants' answers using a questionnaire in the form of questions that are carried out before and after carrying out training activities.

### 3. Result and discussion

A seminar on a basic introduction to Stunting, Adolescent Reproductive Health, and Adolescent Nutrition which was attended by 25 female students (average age 16 years) and 25 teachers (average age 44 years) has obtained pre and post-test results regarding the participants' knowledge. There was a significant increase in knowledge after the seminar for female students by 13.33% and teachers by 20%. In anthropometric measurements, the average body weight of the female students was 47 kilograms and the teachers' weight was 60 kilograms; the average height of female students is 148 centimeters and the average height of teachers is 147 centimeters; The average circumference of the arm circumference of female students' bags is 21 centimeters and that of teachers is 27.75 centimeters. Random blood glucose levels were also checked during this activity, the results for female students were an average of 93.04mg/dl and for teachers 106.92mg/dl.

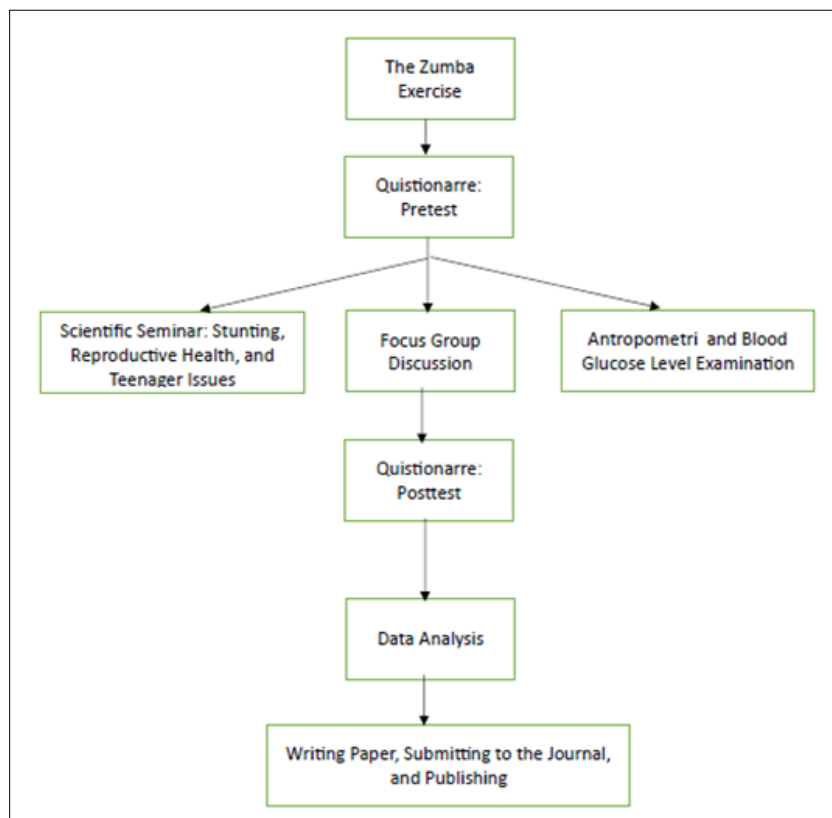
Data recorded from participants' pre-test results showed that the majority of female students and teachers did not have good knowledge of adolescent reproductive health. Data recording of participants' post-test assessment results showed increased participant scores. The recorded data is shown in Table 1. Based on the situation analysis above, West Lombok's blood has problems in several ways, which include the still high prevalence of stunting, poor people, and children with low nutrition. On the one hand, West Lombok has a population distribution in high school which is the target of sensitive nutrition interventions in handling stunting. This age group requires strengthening knowledge and skills in preventing stunting and other health problems. The population in this age range needs intervention regarding adolescent reproductive health, nutritional education, and character strengthening to prevent social errors and the phenomenon of dropping out of school because they have the potential to improve the quality of health, the economy, and indicators of resource development in the future. The target partner for the community service activities that will be carried out is the 1<sup>st</sup> State Senior High School of Gunungsari in West Lombok. This school is the only public high school in this area. The problem that requires strengthening is adolescent reproductive health. Adolescent reproductive health can be interpreted as a healthy condition in the reproductive systems, functions, and processes of adolescents, physically, mentally, and socio-culturally. The Public Health Center activities that will be carried out are a Community Partnership Program scheme. The focus area of service that will be carried out is the health sector which focuses on adolescent reproductive health.

The community service activities that will be carried out have received approval from the Head of 1<sup>st</sup> State Senior High School of Gunungsari, West Lombok, and will coordinate the dissemination of activity information to other high schools in the local area. Problems that occur are communicated between partners and the Public Health Center team by determining the priority scale of the problem so that community service activities are formulated. This community service aims to increase the knowledge of teenage female students and School Health Center teachers. Female students and teachers are provided with knowledge of adolescent reproductive health using the seminar method. The seminar method in question provides material about stunting, its prevention, and early detection. Early detection of stunting is also provided by the fourth method of community service. Meanwhile, the second method is Focus Group Discussion about strengthening character and using technology wisely. Changing behavior and strengthening character in adolescent female students is very important for adolescent reproductive health. The results of the second method are also evaluated through pre and post-test questionnaires. There was an increase in the knowledge of participants, namely teenage girls and teachers. The third method is the Zumba exercise, this activity can improve the health and fitness of teenage students and teachers. The fourth method is anthropometric examination: Body weight, height, upper arm circumference, and random blood glucose levels. The results of the examination showed that the average weight of the female students was 47 kilograms and the teacher's weight was 60 kilograms; the average height of female students is 148 centimeters and the average height of teachers is 147 centimeters; The average circumference of the arm circumference of female students' bags is 21 centimeters and that of teachers is 27.75 centimeters. Random blood glucose levels were also checked during this activity, the results for female students were an average of 93.04mg/dl and for teachers 106.92mg/dl. There was a significant increase in the pre-test and post-test carried out on Community Service.

**Table 1** Records of community service results

Group		Student	Teacher
n		25	25
Age	(years old)	16.24±0.66	44.52±7.61
Knowledge	pretest	63.73±10.01	59.73±12.24
	posttest	76.27±13.34 <sup>A</sup>	76.53±7.48 <sup>B</sup>
	Δ	13.33±2.91	20.00±2.28
Body Weight	(kg)	47.20±11.44	60.84±19.41
Length	(cm)	148.89±5.32	147.50±20.99
Upper Arm Circumstances	(cm)	21.00±3.93	27.75±2.88
Blood Glucose Level	(mg/dL)	93.04±18.97	106.92±26.96

A: Wilcoxon test  $p < 0.05$  between student’s pretest and posttest; B: Wilcoxon test  $p < 0.05$  between teacher’s pretest and posttest



**Figure 1** A series of community service activities and outcomes.

#### 4. Conclusion

Conclusion. Seminars and focus group discussions significantly increased knowledge among teenage female students and teachers at 1<sup>st</sup> State Senior High School of Gunungsari, Lombok, West Nusa Tenggara.

#### Suggestion

As community service activities are carried out, it is recommended that this topic of stunting prevention be carried out routinely and sustainably to achieve future goals.

---

## Compliance with ethical standards

### *Acknowledgments*

Acknowledgments are expressed to the Principal of 1<sup>st</sup> State Senior High School of Gunungsari, Lombok, West Nusa Tenggara. It was also expressed to the teenage students, and teachers, who were involved in this community service activity. This activity is funded by community service funding from the community partnership program scheme of the Faculty of Medicine, Airlangga University with contract number 3620/UN3.1.1/PM/2023

### *Disclosure of conflict of interest*

No conflict of interest is to be disclosed.

---

## Reference

- [1] Tingkatkan Status Gizi Masyarakat [Internet]. Jakarta : Kementerian Kesehatan Republik Indonesia. [cited 2022 Des 3] Available from <https://www.kemkes.go.id/article/view/19081600004/kemenkes-tingkatkan-status-gizimasyarakat.html>.
- [2] Peraturan Bupati (Perbup) Kabupaten Lombok Barat Nomor 19a Pencegahan Dan Penanganan Stunting [Internet]. Lombok Barat; © 2020. [cited 2022 Des 3]. Available from <https://peraturan.bpk.go.id/Home/Details/145682/perbup-kab-lombok-barat-no-19a-tahun-2020>.
- [3] Situasi Balita Pendek Di Indonesia [Internet]. Jakarta: Kementerian Kesehatan Republik Indonesia [cited 2022 Des 3].
- [4] Stunting [Internet]. Jakarta: Kementerian Keuangan Republik Indonesia [cited 2022 Des 3] Available from <https://djpb.kemkeu.go.id/kppn/lubSchoolHealthCenterikaping/id/data-publikasi/artikel/3012-stunting-apa-penyebab-dan-upaya-penanganannya.html>.
- [5] Riset Kesehatan Dasar [Internet] Jakarta: Kementerian Kesehatan Republik Indonesia. [cited 2022 Nov 30]. Available from [https://kesmas.kemkes.go.id/assets/upload/dir\\_519d41d8cd98f00/files/Hasil-risikesdas-2018\\_1274.pdf](https://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Hasil-risikesdas-2018_1274.pdf).
- [6] Kasus Pernikahan Dini di Indonesia [Internet]. Jakarta: Kompas. [cited 2022 Des 3]. Available from <https://nasional.kompas.com/read/2022/10/02/00000061/kasus-pernikahan-dini-diindonesia>.
- [7] Stunting [Internet]. [cited 2022 Des 3]. Available from <http://stunting.go.id>.
- [8] Kuliah Kerja Nyata [Internet]. [cited 2022 Des 3]. Available from <https://kkn.undip.ac.id/?p=327145>.
- [9] Angka Stunting di Lombok Barat Menurun [Internet]. Website Badan Pusat Statistika Kabupaten Lombok Barat. [cited 2022 Des 3]. Available from <https://rri.co.id/mataram/kesehatan/87540/angka-stunting-di-lombok-barat-menurun>.
- [10] Lombok Barat [Internet]. Website Kabupaten Lombok Barat. [cited 2022 Des 3]. Available from <https://lombokbaratkab.bps.go.id/publication/download.html?nrbvfeve=MmU1ODQxYTYgXNzliZGRkYTViMzYyMWJi&xzmn=aHR0cHM6Ly9sb21ib2tiYXJhdGthYi5icHMuZ28uaWQvcHVibGljYXRpb24vMjAyMS8wMi8yNi8yZTU4NDZhODE3OWJkZGRhNWlzMjIxYmIva2FidXBhdGVuLWxvbwJvay1iYXJhdC1kYWxhbS1hbmdrYS0yMDIxLmh0bWw%3D&twoadfnarfeauf=MjAyMi0xMi0wMyAxMzoxNjoyOA%3D%3D>.