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The Effectiveness of Using the Anthropometric Stunting Meter in Children Aged 24-59 Months at the Lageun Health Center, Aceh Jaya District

Lensoni[1*], Elmiyati[2], Yulinar[3], M. Yahya[4], Ulfa Hanum[5]

[1] Public Health Study Program, Universitas Abulyatama, Aceh Besar, Indonesia.
[2] Medical Education Study Program, Universitas Abulyatama, Aceh Besar, Indonesia.
[3] Health and Recreation Physical Education Study Program, Universitas Abulyatama, Aceh Besar, Indonesia.
[4] Public Health Study Program, Universitas Jabal Ghafur Sigli, Aceh Besar, Indonesia.
[5] Students of the Public Health Study Program, Universitas Abulyatama, Aceh Besar, Indonesia.

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Corresponding Author:
Lensoni
soni@abulyatama.ac.id

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Abstract: Stunting in toddlers can have an impact on children's health and intelligence in the future, such as susceptibility to infection and decreased performance in school. This activity aims to train posyandu cadres in improving anthropometric measurement skills in toddlers. The target audience for this community service activity is posyandu cadres. Stunting indicates chronic nutritional problems as a result of long-lasting man many factors increase stunting in toddlers, both directly and indirectly. The purpose of this study was to determine the effectiveness of the stunting anthropometric tool in children aged 24-59 months in the working area of the Lageun Health Center. The population in this study were all toddlers aged 24-59 months, totaling 45 toddlers. The number of samples is 22 toddlers. The purpose of this training activity is to increase awareness of the targeted skills in independent early detection of stunting using anthropometric methods. The method of implementing this community service activity uses a combination of education, training, and simulation methods. The targets are pregnant women, mothers with children under five years old, and health cadres. Based on field studies, the stunting anthropometric tool shows effective results. The results of the implementation of activities show high enthusiasm from the target. It is hoped that this activity can parents' awareness of toddlers' nutritional health problems, so that t has an impact and can contribute to reducing the number of stunting cases to be precise in the Lageun Health Center area.

Keywords: Anthropometry; Effectiveness; Stunt; Toddler; Tool

Introduction

Stunting is a failure of linear growth due to malnutrition and infection both before and after birth. Stunting in early childhood is associated with poor cognitive, motor, and socioemotional development, and increased mortality. Stunted children do not reach their full growth potential and become stunted adolescents and adults. The functional consequences of stunting continue into adulthood, with reduced work capacity and in women an increased risk of stillbirth and adverse birth outcomes (Semba et al., 2020).

Few population-based studies in Nigeria have been conducted on factors associated with stunting among children aged 23-59 months. For example, conducting a multilevel logistic regression analysis using standardized nationally representative data to investigate factors associated with stunting and severe stunting in children under 5 years of age in Nigeria. They suggested being a boy, being a small or average-sized child, having a poor household, and having been

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breastfeeding for more than 12 months. Maternal education, ethnicity, and lack of exclusive breastfeeding were significantly associated with stunted children less than 2 years of age in Nigeria (Ezeh et al., 2021).

The Lageun Health Center, Aceh Jaya seeks to reduce the number of toddlers experiencing stunting by intensifying nutrition awareness outreach activities to the public and pregnant women. Stunting is a linear growth disorder that is not suitable for age which indicates a long-term event and is an accumulative impact of insufficient consumption of nutrients, poor health conditions, and inadequate parenting (Suratri et al., 2023). Low food consumption and nutritional imbalances in the food consumed can result in impaired growth and development, weak body resistance to disease, and decreased work activity and productivity (Wali et al., 2020).

Toddlers (under five years) and toddlers (under three years) are important periods in the process of a child's development (Panjeti-Madan & Ranganathan, 2023). Growth and development at that time became a benchmark for the success of children in the next period (Kruk et al., 2018). This period of growth and development of a child takes place very quickly and will never be repeated, therefore it is often called the golden age or the golden age. However, the challenge during this golden age is the nutritional adequacy of toddlers. When toddlers are not enough (Woldesenbet et al., 2023).

Stunting indicates a potential growth disorder for height where the causes include intrauterine growth retardation (Sinharoy et al., 2020), inadequate nutrition to support growth and development, and infectious diseases during early life that will affect their lives (Leroy & Frongillo, 2019). At present stunting is not only a health problem at the regional level but has become a national health issue and a priority health problem to be controlled immediately, including in the Lageun area, Aceh Jaya District, Aceh Province (Eliafiana et al., 2022). The cause of stunting is a multi-dimensional factor that is not only caused by the factor of malnutrition experienced by pregnant women and children under five (Nshimyiryo et al., 2019). Several factors that can cause stunting include poor parenting practices, limited health services including ANC (Ante Natal Care) services or health services for mothers during pregnancy (Amaha & Woldeamanuel, 2021), Post Natal Care, and quality early learning, still lack of household access to nutritious food (Torlesse et al., 2016); and lack of access to clean water and sanitation (Eliafiana et al., 2022).

Currently there have been various studies and toolsmeasuring height and weight for early detection stunting that combines stadiometer with ultrasonic sensors and digital scales. However,there are still not many who have a visual display specially designed for children. In the assessment of nutritional status and growth trends children need anthropometric measurement data Accurate. Inaccurate measurement results can caused by a weakness in the measuring instrument, improper procedures or inaccuracies when taking measurements because of observations done manually (Nelson et al., 2019).

Inaccuracy of anthropometric measurement results, especially in Posyandu (Integrated Service Post), besides due to human factors and the use of measuring instruments that are still conventional such as dacin, spring scales, stature meter, and so on, can also be caused by difficulties in the measurement process either due to children who feel uncomfortable, afraid to undergo examination, crying, as well as fussing, or even because the child is too active. Tool use conventional measurements are often less secure, less accurate, less convenient, and less attractive for children so that it can be difficult for cadres Posyandu and health practitioners who wish take measurements (Faza et al., 2022). In addition, Posyandu at Indonesia still uses two tools separately to measure the child's height and weight so that the measurement process is less practical. Anthropometry is a size assessment method, proportions, and composition of the human body (Guarnieri Lopez et al., 2023), meanwhile Anthropometric standards for children are a collection of data about body size, proportions, and composition as a reference for assessing nutritional status and trends child growth (Permatasari & Chadirin, 2022).

Anthropometric measurement skills are one of the skills that must be possessed by cadres to monitor the growth and nutritional status of toddlers (Sunjaya et al., 2021). Cadres are also expected to be able to invite families to bring toddlers to posyandu to increase access to health services (Angraini et al., 2021). Data obtained from the Lageun Health Center in 2021, there are 45 stunted toddlers aged 24-59 months in the short and very short categories. The data places the Lageun Health Center as a Stunting Health Center in the high category in Aceh Jaya City. Based on the background above, this study aims to train posyandu cadres in improving anthropometric measurement skills in toddlers.

Method

The time for conducting this research for the community is from December to May 2022. This research was conducted in Lhok Timon Village, Lhok Geulumpang, Gp.Baro, Sawang, Lhok Bot, Lhok Buya. Setia Bakti District, Aceh Besar District. The tools and materials used in this study were Automatic Stunting Meters, Amphenol Cables, Casing Components, Speakers, Adapters, and Sockets.

Result and Discussion

How to Measure the Nutritional Status of Children Using an Automatic Stunting Meter

The tools at the Lageun Health Center have shown effective results. This research was conducted on toddlers aged 24-59 months who met the criteria for children with stunting at the Lageun Health Center, Aceh Jaya.

Table 1. Criteria for Children with Stunting at the Lageun Health Center, Aceh Jaya

Name	Date Born	Weight	Height
M. Nazar	2017-06-03	11.40	90.60
Maulidi	2017-09-03	12.90	93.20
M. Ilham	2019-09-26	8.90	78.60
Fakhril	2018-02-24	12.50	93.30
Nurmala	2019-06-22	9.60	79
hafidzumar	2017-02-28	15	94
M. Khairul	2017-05-05	14.20	96.20
Ahmad	2018-02-12	12.10	90
Adiba	2019-05-21	9.50	80.60
Indah	2019-06-22	9.60	79
Khalida	2018-01-06	12	89
Rossa	2018-04-03	10.50	91.10
Asmaul	2018-04-20	11.50	90.20
Habil	2018-05-09	10.40	88.60
Maulidi	2017-0-03	12.90	93.20
Naura ranita	2018-03-27	11	87.60
Alika Naila	2016-11-13	12	95.10
Nurul	2018-05-10	10.50	82.40
Adiba	2019-05-21	9.50	80.60
Siti aisyah	2017-12-12	8.70	92.80
Humaira	2018-11-14	9.50	84.70
Fakhril rafif	2018-02-24	12.50	93.30

Based on the results of the study there are similarities between the initial data and the testing data. This research was conducted on toddlers aged 24-59 months who met the criteria for children with stunting at the Laguan Health Center, Aceh Jaya.

Table 2. Children with Stunting at the Lageun Health Center, Aceh Jaya

Area	Amount
LhokGeulumpang	8
Lhok Timon	10
Lhok Buya	8
Lhok Bot	7
Gp.Baro	7
Sawang	5

From the results of the study, the incidence of stunting in Lhok Timon village was 22%, Lhok Geulumpang village was 18%, Sawang village was 11%, Gp. Baro village was 16%, Lhok Buya village was 18%, and Lhok Bot village was 15%. These results are in line with Rusdiarti (2019) showing that growth assessment for age based on anthropometric measurements is an important and reliable method of monitoring the health of each child. Measurement of height and weight is also the most frequently used index to evaluate the nutritional state of society. There are several possible indications for anthropometric measurements (Noorwali et al., 2023). In children, indications include stunting, wasting, and being underweight (Khan et al., 2019). Stunting is when children are low in height for their age, underweight low in weight for their age, and underweight is low in their right for age (Li et al., 2020).

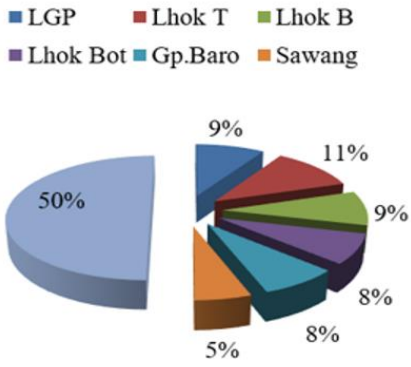

Figure 1. Number of stunted children

The results of the research conducted by Rahmandiani et al. (2018) state that one of the factors that can influence the incidence of stunting is the mother's knowledge. Knowledge about stunting is very necessary for a mother because a mother's lack of knowledge about stunting can cause a child to be at risk of experiencing stunting. Ariati (2019) explains that growth failure resulting from a lack of nutritional intake is a risk factor in determining child development. Lack of food that contains the nutrients needed for a prolonged period can hurt children's growth and result in changes in brain metabolism.

Conclusion

Based on the results of the study showed that the Stunting Anthropometric Tool showed effective results. Causal factors associated with the incidence of stunting in all villages in Lageun are maternal age during pregnancy, nutritional status of the mother during pregnancy, history of exclusive breastfeeding, protein intake, status of infectious diseases, immunization status, mother's education, father's occupation, and economic status. So that health workers need to pay more attention to factors that have a relationship with the incidence of stunting. And the puskesmas must increase promotive and preventive efforts on every factor related to the incidence of stunting.

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Conceptualization, L, E, Y, M. Y., U. H.; methodology, L.; validation, E, and Y; formal analysis, M. Y.; investigation, U. H, and L.; formal analysis, E.; investigation, Y and M. Y.; resources, U. H and L.; data curation, E.: writing—original draft preparation, Y, and M. Y.; writing—review and editing, U. H.: visualization, L and E.; supervision, Y.; project administration, M. Y; funding acquisition, U. H and L. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest
The authors declare no conflict of interest.

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