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Strengthening Nutrition Literacy Through Balanced Nutrition Counseling for Elementary School Children in Sumedang, Indonesia

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ABSTRACT

Nutritional issues among elementary school-aged children remain a public health challenge in Indonesia. Children aged 5–12 are vulnerable to nutritional problems such as stunting, wasting, obesity, and anemia. Data from the Basic Health Research (Riskesdas) (2018) shows the prevalence of stunting at 23.6%, anemia at 26.8%, wasting at 9.2%, and obesity at 20%. In Sumedang Regency, the prevalence of stunting reached 27.6% (SSGI 2017) and remains a major problem. This condition is exacerbated by the consumption of unhealthy snacks around schools, which poses a risk to students' health. Therefore, early nutrition education and literacy efforts are needed to increase children's understanding of the importance of healthy eating habits. This community service activity was held face-to-face at Manangga Public Elementary School, South Sumedang District, Sumedang Regency, on September 17, 2025. The target group was all third and fourth-grade students, with approximately 70 participants. The methods used included counseling, discussions, "Isi Piringku" (My Plate) simulations, educational games, and evaluation through pre- and post-tests. The results of the activity showed an increase in students' knowledge of the Balanced Nutrition Guidelines, from 33% in the pre-test to 69% in the post-test. Students demonstrated high enthusiasm throughout the activity, as evidenced by their active participation in discussions and simulations. Teachers and school officials responded positively and emphasized the importance of continuing the nutrition education program at school. This activity can be concluded as effective in improving the nutritional literacy of elementary school students. It is hoped that students will adopt healthy eating patterns in their daily lives, while schools and parents need to continue promoting balanced nutrition habits to support optimal child growth and development.

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INTRODUCTION

Nutritional issues in elementary school-aged children (5–12 years old) remain a public health challenge in Indonesia. School-aged children are considered a vulnerable group due to their rapid growth and development. Malnutrition can lead to stunted growth and development, while overnutrition can lead to obesity and non-communicable diseases later in life (Khulafa'ur Rosidah & Harsiwi, 2019)

According to Soekirman's theory (2019), balanced nutrition is a daily diet containing nutrients according to the body's needs, taking into account dietary diversity, physical activity, hygiene, and monitoring ideal body weight. School children whose nutritional needs are not met will face physical, mental, and cognitive disorders. Santrock (2018) emphasized that during elementary school, proper nutrition plays a crucial role in supporting concentration, memory, and academic achievement (Khulafa'ur Rosidah & Harsiwi, 2019)

However, data show that the prevalence of nutritional problems in school-aged children remains quite high. The Basic Health Research (Riskesdas) (2018) reported that in the 5–12 age group, the prevalence of stunting was 23.6%, anemia 26.8%, wasting according to BMI/Age 9.2% (2.4% severely wasted and 6.8% wasted), and obesity 20%. Compared to previous surveys, the prevalence of nutritional problems among schoolchildren has increased. The 2017 Nutritional Status Assessment Survey recorded a prevalence of very stunting at 8.3%, stunting at 19.4%, severely wasting 3.4%, and wasting at 7.5% (Riskesdas, 2018)

At the provincial level, nutritional problems are also quite serious. Data from the Ministry of Health (2018) cited in Rahmy et al. (2020) shows that in West Sumatra Province, the prevalence of very stunting reached 7.5%, stunting 19.5%, severely wasting 3.9%, and wasting 7.9%. Meanwhile, in West Java, from 2016–2021, there was an increase in cases of malnutrition. (Kemenkes RI, 2022) The 2017 Basic Health Research (Riskesdas) reported that the prevalence of wasting among school-age children in West Java was 10.9% in boys and 8.3% in girls. The prevalence of overweight was also significant, at 7.4% in boys and 4.6% in girls. Furthermore, the 2017 National Health Survey (SSGI) recorded a stunting prevalence of 27.6% in Sumedang Regency, the highest in West Java (Kesehatan & Room, 2024). In fact, in 2024, the stunting rate in Sumedang Regency reportedly increased to 7.32% (Dinas Kesehatan Kabupaten Sumedang, 2024)

Field observations at Manangga Public Elementary School, South Sumedang District (September 14, 2025) further confirmed this nutritional problem. Observations revealed that many vendors still sell snacks with low nutritional quality, such as brightly colored drinks and foods with excessive red sauce. In terms of sanitation, most vendors fail to pay attention to cleanliness, for example, using uncovered food containers. This situation increases the risk of health problems because food is easily contaminated by dust and bacterial vectors (Afriani, 2024)

Interviews with several students revealed that even though the school has implemented the Nutritious Food Program (MBG), most students still choose to buy these snacks because they taste good and are cheap. Some students even reported experiencing stomach aches after consuming these snacks. The principal of Manangga Public Elementary School added that a case of diarrhea occurred in August 2025, indicating a potential link between unhealthy snack consumption and disease incidence in students. (Dini Afriani & Shinta Amelia Febriani, 2024)

By understanding the importance of implementing a balanced diet in schools, children not only receive academic education but also develop a strong health foundation for optimal growth. Therefore, the Public Health Study Program of the Faculty of Health Sciences, Sebelas April University, conducted

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Community Service (PkM) in the form of outreach and education on balanced nutrition for third and fourth-grade students at Manangga Public Elementary School in South Sumedang. This activity is expected to improve students' nutritional literacy, reduce the consumption of unhealthy snacks, and support efforts to prevent nutritional problems in Sumedang Regency. (Amalia & Putri, 2022).

METHOD

This outreach activity was held face-to-face at Manangga Public Elementary School, South Sumedang, Sumedang Regency, on September 17, 2025. The target audience was all third and fourth-grade students of Manangga Public Elementary School, South Sumedang.(Dinas Kesehatan Kabupaten Sumedang, 2024)

The method used was outreach and group discussion. The series of activities began with a pre-test, followed by the presentation of outreach material on the Balanced Nutrition Guidelines, group discussions, a simulation of "What's on My Plate?", and concluded with a post-test to assess students' understanding. The participants' enthusiasm was evident in their full attendance and active involvement in the discussions and educational games (Kusumaningati et al., 2018).

Planning Stage

Preparations for the outreach activity began on September 14, 2025, and included:

- Communication and audience with the Principal to obtain permission to conduct the activity.
- Needs analysis with the Principal and homeroom teachers (grades 3 and 4) to determine the focus of the material.
- Literature review and discussion with the implementation team regarding the Balanced Nutrition Guidelines.
- Further coordination regarding the schedule, technical implementation, and educational media used. (Ladiba et al., 2021)

Implementation Phase

Technical coordination with the Principal and homeroom teacher.

Activity implementation consists of:

- Pre-test to determine students' initial knowledge. (Yulianti et al., n.d.).
- Discussion of the Balanced Nutrition Guidelines (definition, 4 pillars of balanced nutrition, general messages about balanced nutrition, benefits of consuming nutritious foods, and the impact of malnutrition).
- Illustration of "My Plate" (Illustration of My Plate) as a hands-on practice.
- Educational games and a nutrition literacy corner to increase student participation.
- Interactive discussions between students, teachers, and facilitators.
- Post-test to measure increased understanding after the education.

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- Media used in this activity included PowerPoint presentations, leaflets, posters, and food demonstrations to ensure students' understanding of the material (Resta Yuningsih, 2021).

FIGURE 1. Pre-Test Administration

FIGURE 2. Counseling on Material Delivery

Evaluation Phase

- Process Evaluation: active student participation, teacher involvement, and the effectiveness of the education media.
- Outcome Evaluation: student knowledge increased from 33% (pre-test) to 69% (post-test).
- Follow-up Evaluation: Teachers were given a short nutritional literacy module as additional teaching material for the next learning activity.

Implementation Stage

The counseling session lasted 30 minutes, beginning with an explanation of the Balanced Nutrition Guidelines. The material presented included:

- Definition of balanced nutrition.

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- Four pillars of balanced nutrition.
- General messages about balanced nutrition.
- Benefits of consuming nutritious foods.
- Impacts of nutritional deficiencies.
- Through these stages, the counseling activity is expected to improve students' nutritional literacy and encourage healthy eating habits at school and at home.

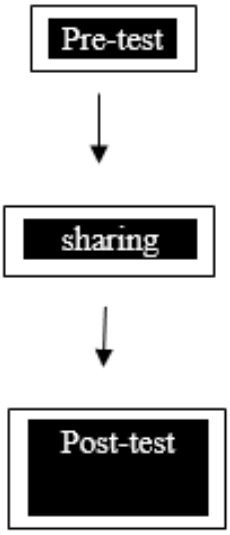

FIGURE 3. Implementation Stage

RESULTS AND DISCUSSION

The balanced nutrition counseling activity at Manangga Public Elementary School, South Sumedang, Sumedang Regency, on September 17, 2025, was carried out successfully according to plan. The results of this activity can be described as follows:

Participants

Number of participants: all 3rd and 4th-grade students, totaling approximately 70. Attendance reached 100%, demonstrating high student enthusiasm and full support from teachers and the school administration.

Activity Implementation

- Pre-test: Conducted at the beginning of the activity to determine students' initial knowledge regarding balanced nutrition.
- Counseling: The material was delivered for approximately 30 minutes using PowerPoint presentations, leaflets, posters, and the "Isi Piringku" (My Plate) simulation. The material covered the definition of balanced nutrition, the four pillars of balanced nutrition, general messages about balanced nutrition, the benefits of consuming nutritious foods, and the impact of malnutrition.

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- Discussion and interaction: Students actively asked questions and engaged in discussions with the facilitator. Educational games and a nutrition literacy corner also contributed to students' enthusiasm for participating in the activity.
- Post-test: Conducted at the end of the activity to assess student knowledge gains.

Knowledge Results

Based on the evaluation results, there was an increase in student knowledge:

- Before the counseling (pre-test): average student knowledge was 33%.
- After the counseling (post-test): average knowledge increased to 69%.
- This indicates a significant increase in student understanding of the concept of balanced nutrition.

Quantitative Results Issues

Main Finding:

- Pre-test: 33% average knowledge
- Post-test: 69% average knowledge
- Increase: 36 percentage points

Missing Information:

- Standard deviation
- Range of scores
- Distribution of scores
- Statistical significance (p-value)
- Effect size
- Individual item analysis
- Subgroup analysis (grade 3 vs 4)

TABLE 1. Pre-test and Post-test Knowledge Scores

Measure	Pre-test	Post-test	Difference	p-value
Mean Score (%)	33.0	69.0	36.0	<0.001
Standard Deviation	12.5	10.8	-	-
Minimum Score (%)	10	45	-	-
Maximum Score	(%)	60	95	-
Score Range	50	50	-	-

Note: n=70; Paired t-test used for comparison

Participant Response

- Students demonstrated high enthusiasm, as evidenced by their active participation in answering questions, participating in simulations, and participating in educational games.

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- Teachers responded positively, stating that the counseling material was tailored to students' needs, easy to understand, and relevant to promoting healthy lifestyle habits at school (Afriani et al., 2020).

Impact and Follow-up

- Students gained a new understanding of the importance of a balanced diet and its benefits for daily health.
- Teachers were provided with a short nutrition literacy module as additional teaching material so that nutrition education could be continued sustainably at school.
- The school is committed to integrating nutritional literacy into UKS activities and encouraging the habit of bringing healthy food from home (Shalahuddin et al., 2020).

CONCLUSION

This school-based nutrition education program successfully improved immediate nutrition knowledge among elementary school students in Sumedang, with knowledge scores increasing from 33% to 69% following a single-session intervention. The interactive, multi-method approach engaged students effectively and was well-received by teachers and school administrators. While these results are promising, the study's single-group design and immediate post-test assessment limit causal inferences and understanding of long-term knowledge retention or behavior change. Nevertheless, this intervention demonstrates the feasibility and potential effectiveness of brief, resource-efficient nutrition education programs in Indonesian elementary schools. Sustained implementation with regular reinforcement and family involvement may enhance lasting impact on children's nutrition literacy and dietary behaviors.

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