KARYA KESEHATAN SIWALIMA
Open Access Full Text Article

Original Article

Improving Nutritional Awareness Through Food Label Reading Education among School-Age Children

Joan Herly Herwawan[1], Fandro Armando Tasijawa[2], Lea Mediatrix Y. Janwarin[3], Hery Jotley[4], Maria Nindatu[5]

[1,2]*Nursing Study Program, Faculty of Health Science, Universitas Kristen Indonesia Maluku, Maluku Province, Indonesia*
[3,4]*Public Health Study Program, Faculty of Health Science, Universitas Kristen Indonesia Maluku, Maluku Province, Indonesia*
[5]*Postgraduate Program, Universitas Pattimura, Maluku Province, Indonesia*

Vol 4(2),60-70

https://doi.org/10.54639/kks.v4i2.1655

Article Information

Submitted: 14-08-2025;
Revised: 07-09-2025;
Accepted: 09-09-2025;
Published: 09-09-2025;

Corresponding Author:
Joan Herly Herwawan
Nursing Study Program, Faculty of Health Science, Universitas Kristen Indonesia Maluku, Maluku Province, Indonesia
Email: nerzjoan@gmail.com

Citation Information

Herwawan, JH., Tasijawa, FA., Janwarin, LMY., Jotley, H., Nindatu, M. (2025). Improving Nutritional Awareness Through Food Label Reading Education among School-Age Children. Karya Kesehatan Siwalima, 4(2), 98-107. https://doi.org/10.54639/kks.v4i2.1655

E-ISSN: 2828-8181
P-ISSN: 2828-8408

Publisher
Lembaga Penerbitan Fakultas Kesehatan, Universitas Kristen Indonesia Maluku
https://ojs.ukim.ac.id/index.php/KKS/index

Abstract

The nutritional status of school-age children is a crucial determinant of their health, growth, and academic performance. However, low nutrition literacy and frequent consumption of packaged foods high in sugar, salt, and fat pose significant challenges. This community service program aimed to improve students' nutritional awareness through food label reading education at SD YPPK Waenibe (YPPK Waenibe Elementary School). The program employed health education sessions on balanced nutrition and interactive practice in reading food labels, including demonstrations of sugar and salt content. Evaluation was conducted using pre-test and post-test assessments among 19 students. Results showed a significant improvement in knowledge, with the mean score increasing from 68.37 (pre-test) to 80.11 (post-test). Most students shifted from the "fair" to the "good" knowledge category. These findings confirm that simple, practice-based educational interventions can effectively enhance nutrition literacy among school-age children. Moreover, the program has the potential to empower students as change agents in both school and family contexts. Nevertheless, this initiative was limited to a single intervention and lacked parental involvement. It is recommended that future programs be integrated into school curricula and involve parents to strengthen children's healthy consumption behaviors.

Keywords: nutritional awareness; school-age children; food labels; nutrition literacy

Introduction

Nutritional status plays a critical role in determining the quality of human resources. For school-age children, it is a key factor influencing health, physical growth, development, and academic achievement. With rising concerns about malnutrition, obesity, and poor dietary patterns, it is essential for parents, caregivers, and children to make informed food choices.

Indonesia currently faces a dual burden of malnutrition-undernutrition and overnutrition (Rachmawati & Kartika, 2024). UNICEF (2019) reported that three out of ten children experience stunting, one in ten are underweight, and one-fifth are overweight. Nutritional problems among schoolchildren include undernutrition, overnutrition, vitamin A deficiency, and iodine deficiency (Liu et al., 2025). Factors influencing nutritional status include parental background (education, occupation, and income), knowledge, and attitudes such as personal hygiene and food label reading habits (Herwawan & Tasijawa, 2025). In addition, unhealthy snacking is a common issue.

Packaged foods, often high in sugar, salt, fat, and additives but low in essential nutrients, pose significant health risks such as obesity, growth delays, and type 2 diabetes (Patil et al., 2024). Children are especially vulnerable due to their developing bodies and exposure to marketing strategies. Strategies to address this include preparing homemade meals, reducing processed food consumption, and teaching children to make healthier choices with the support of parents.

Nutrition awareness through food label reading is therefore crucial (Afroza et al., 2024). Food labels provide information on fat, sugar, protein, vitamins, minerals, portion sizes, and calories (Kartika et al., 2025). However, engagement with food labels remains low, with only 13.1% consistently reading nutrition facts (Patil et al., 2024). Most studies focus on adults, while children-who consume many packaged foods-often lack health awareness (Kamarudin et al., 2025; Wang et al., 2022).

A preliminary assessment at SD YPPK Waenibe revealed no prior food label education. Teachers and students rarely read packaging labels, and students often consumed colorful candies, drinks such as *Ale-ale* and *Pop Ice*, and other snacks excessively. This underscores the urgency of

implementing nutrition awareness education through food label reading.

This initiative is expected to improve students' understanding of balanced nutrition, equip them with skills to read labels, and encourage healthier food choices. Beyond improving knowledge, the program seeks to instill critical attitudes and promote healthier behaviors, such as reducing unhealthy snack consumption and bringing homemade meals. Furthermore, students are envisioned to act as change agents by sharing knowledge with peers and families. Ultimately, this program aims to foster healthier generations with stronger nutrition literacy.

Method

This community engagement program was carried out at SD YPPK Waenibe, Central Maluku Regency, Indonesia, as part of a collaborative effort between the PkM (Community Service Program) team and the school. The activity was conducted in June 2024, following an agreed schedule with the school as a community partner.

1. Health Education on Food Label Reading and Balanced Nutrition

   The health education session was conducted in collaboration with the partner school, based on an agreed schedule between the PkM (Community Service Program) team and the school administration. The session aimed to provide students with fundamental knowledge about balanced nutrition and the importance of reading food labels in making healthier food choices.

2. Practical Training on Food Label Reading for School-Age Children

   This activity included the distribution of instructional guides on food label reading, materials on nutrition, and explanations regarding how to interpret food labels. The session continued with a direct demonstration of label reading, focusing on identifying and calculating the sugar and salt content in packaged foods.

Figure 1. Banner displaying packaged products and their labels, used as a training tool for students to measure sugar and salt content.

The team also provided a teaching banner displaying several examples of packaged products and their nutritional labels (Figure 1). Using this banner, students were guided step by step to practice reading labels and calculating nutritional content (particularly sugar and salt) in order to assess whether the products met health standards or exceeded recommended limits.

Results

Table 1 shows that the number of participants in the "good" score category increased in the post-test compared to the pre-test, with the number rising from 12 to 18 participants. This improvement is also reflected in the mean score, which increased from 68.37 (pre-test) to 80.11 (post-test). An overview of this improvement is illustrated in Figure 2.

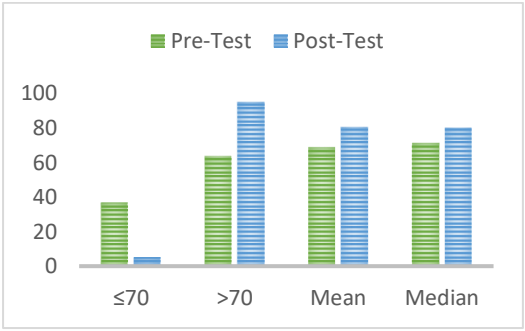

Figure 2. Pre-test and post-test scores of students during the nutrition label reading education activity

Figure 2. Process of Health Education and Food Label Reading Practice

Table 1. Pre-test and post-test results of the program

Score category	Pre-test				Post-test			
	n	%	mean	median	n	%	mean	Median
Fair (≤70)	7	36,8	68,37	71	1	5,3	80,11	80
Good (>70)	12	63,2			18	94,7		

Discussion

The results of this community engagement program, which focused on nutrition awareness education through food label reading at SD YPPK Waenibe, indicate a significant improvement in students' knowledge. The average student score increased from 68.37 in the pre-test to 80.11 in the post-test. This shift demonstrates that the majority of students who were initially in the "fair" category advanced to the "good" category. These findings confirm that relatively simple interventions-such as health education sessions, practical label reading, and demonstrations of nutritional content-can produce tangible improvements in school-age children's understanding of nutrition.

The findings also show that health education using interactive approaches is more easily absorbed by children. Students were not merely passive listeners to theoretical explanations about balanced nutrition; instead, they actively engaged in practical exercises, such as reading nutrition labels on beverages and snacks that they frequently consume(Hidayanti et al., 2025). This contextualized learning process enabled them to connect the information to their daily habits. Through these activities, students realized that many of the foods and drinks they often consume contain excessive amounts of sugar and salt, which pose long-term health risks.

This increase in knowledge is consistent with findings from previous studies. Rai et al. (2023) reported that only 13.1% of respondents consistently read nutrition labels, while the majority did not. (Patil et al., 2024)similarly noted that although 70.3% of consumers reported reading food labels, only a fraction focused on nutritional information. These findings highlight the low level of nutrition literacy in society. Therefore, early interventions targeting school-age children are strategic, as they can foster a generation that is more critical and selective in making food choices.

Furthermore, the results emphasize that experiential learning plays a crucial role in shaping knowledge. School-age children are naturally curious but require concrete stimulation. When students were asked to calculate the sugar content in a bottle of packaged beverages, they were able to directly compare the results to health standards. Such visualizations provided more meaningful learning experiences than abstract explanations,

making the information easier to remember and apply in practice.

From a theoretical perspective, the success of this intervention can be explained through Bandura's social learning theory (Rumjaun & Narod, 2025), which posits that learning is more effective when individuals observe, imitate, and practice modeled behaviors. In this program, students not only received information but also observed demonstrations of label reading, imitated the process, and then practiced independently. This cycle of observation and imitation contributed significantly to the observed increase in knowledge.

The program's success was also supported by the involvement of teachers and the school environment. Teachers were simultaneously educated during the sessions and began to recognize the importance of nutrition literacy. With teachers aware of the value of food label reading, schools can serve as supportive environments for instilling healthy habits in children. Teachers have the potential to act as role models by encouraging students to bring healthier lunches, reminding them to be mindful of their snack choices, or assigning tasks that require analyzing food labels (Bolte et al., 2025).

A broader implication of this program is the potential role of children as agents of change within their families. Equipped with the ability to read food labels, children can share this knowledge with their parents and siblings. For example, during grocery shopping, children can remind their parents to choose products with healthier nutritional content. In this way, the knowledge imparted at school can extend into households, influencing family dietary patterns and ultimately contributing to improved community health.

This program also aligns with national health policies. The Indonesian Ministry of Health has launched initiatives to reduce the prevalence of malnutrition and childhood obesity, including campaigns to limit sugar, salt, and fat consumption (GGL) and to promote balanced nutrition. The school-based nutrition awareness program complements these policies by providing children with practical skills to evaluate the health risks of products through label reading. Moreover, the program supports the achievement of the Sustainable Development Goals (SDGs), particularly Goal 2 (end hunger) and Goal 3 (ensure

healthy lives and promote well-being for all) (Moelyo et al., 2025).

Nevertheless, the program has limitations. The education sessions were conducted only once, making it difficult to assess long-term impacts. There was no follow-up evaluation to determine whether students sustained changes in their snacking habits after the intervention. Parental involvement was also limited, despite the fact that children's dietary patterns are heavily influenced by parents' food choices at home. Environmental factors present additional challenges, as students remain exposed to unhealthy snacks sold around the school (Mauludyani et al., 2025). Even with increased awareness, the appeal of taste and attractive packaging often outweighs health considerations.

Conclusion

The nutrition awareness education program through food label reading at SD YPPK Waenibe proved effective in increasing students' knowledge of balanced nutrition and packaged food contents. Students' mean scores significantly improved from 68.37 to 80.11 after the intervention, with most students progressing to the "good" knowledge category. Interactive education involving demonstrations and hands-on practice was found to be more engaging and meaningful for children, fostering better retention and application of knowledge. Beyond improving students' nutrition literacy, the program also fostered their potential role as change agents within schools and families.

Recommendations

Based on the findings of this program, several recommendations can be proposed to strengthen the impact of nutrition awareness education. First, nutrition education should not be limited to a single intervention but rather implemented continuously as part of regular school activities to ensure sustainable behavioral change. Parental involvement is also essential, since children's dietary patterns are greatly influenced by the food choices available at home. Actively engaging parents in similar activities would help reinforce the knowledge and behaviors learned at school.

Furthermore, schools and teachers should play a more central role by integrating nutrition literacy into the curriculum or extracurricular activities, thereby creating a supportive

environment for healthy eating habits. Such integration would also position teachers as role models who can guide students in applying their knowledge to everyday practices. Beyond the school setting, cross-sector collaboration between health authorities, educational institutions, and community stakeholders is highly recommended to expand the reach of this initiative and promote healthier food choices among children on a broader scale. Finally, further longitudinal research is needed to evaluate the long-term effects of food label reading education, particularly in relation to sustained behavioral changes in children's snack consumption and overall dietary habits.

Acknowledgements

The authors would like to express their gratitude to the Community Service Institute of the Christian University of Indonesia Maluku, and to SD YPPK Waenibe for serving as a partner in carrying out the activities.

Conflict of Interests Statement

The author declares that there are no conflicts of interest related to the publication of this article.

Funding Statement

This community service program was funded by the Institute for Community Service, Universitas Kristen Indonesia Maluku.

References

Afroza, U., Abrar, A. K., Nowar, A., Sobhan, S. M. M., Ide, N., & Choudhury, S. R. (2024). Global overview of government-endorsed nutrition labeling policies of packaged foods: a document review. *Frontiers in Public Health*, *12*. https://doi.org/10.3389/fpubh.2024.1426639

Bolte, J., Abalos, J., Johnson, J., Garcia, A., Joyce, A., Hinds, C., Patel, P., Nnali, E., Vargas, V., Stewart, A., Kakulavar, A., & Svec, J. (2025). *Nutrition Able: A Novel Tool for Improving and Assessing Nutritional Literacy of Middle School Children*. https://doi.org/10.1101/2025.07.20.25331738

Herwawan, J. H., & Tasijawa, F. A. (2025). *Gizi Pada Anak Usia Sekolah* (Pertama). CV. Peduli Literasi.

Hidayanti, L., Rahfiludin, M. Z., Nugraheni, S. A., & Murwani, R. (2025). Association of malnutrition and main-meal- and snack-predominant intake among female adolescent students in boarding schools in Tasikmalaya, Indonesia. *Nutrition and Health*, *31*(1), 235–246.

https://doi.org/10.1177/02601060231166224

Kamarudin, S., Poh, B. K., Yahya, H. M., Nor, N. M., Sharif, R., & Talib, R. A. (2025). Food label literacy among Malaysian school adolescents: A prevalence study. *PLOS One*, *20*(5), e0324142. https://doi.org/10.1371/journal.pone.0324142

Kartika, P. C., Subiyantoro, S., & Daryanto, J. (2025). Analysis Challenge Packaging Label Education Food and Drink in Elementary School. *Social, Humanities, and Educational Studies (SHES): Conference Series*, *8*(1), 513. https://doi.org/10.20961/shes.v8i1.98994

Liu, L., Ren, X., Li, W., Zhao, S., Guo, X., Yan, R., Guo, X., & Li, R. (2025). Nutritional literacy and health behaviors in primary school students in China: a cross-sectional study. *BMC Public Health*, *25*(1), 2275. https://doi.org/10.1186/s12889-025-23420-w

Mauludyani, A. V. R., Ali Khomsan, Riyadi, H., Nurhidayati, V. A., & Fatchiya, A. (2025). Determinants of children's nutritional status in rural and urban areas of West Java, Indonesia. *Nutrición Clínica y Dietética Hospitalaria*, *45*(2). https://doi.org/10.12873/452ali-khomsan

Moelyo, A. G., Pulungan, A. B., Sitaresmi, M. N., & Julia, M. (2025). The effect of early childhood stature on later cognitive functions in Indonesian adolescents: comparation using the National growth reference and the WHO growth standard. *BMC Pediatrics*, *25*(1), 466. https://doi.org/10.1186/s12887-025-05829-9

Patil, P. D., Kulkarni, M. V., & Saoji, A. V. (2024). Awareness and perception of consumers regarding food labels on packaged foods with special emphasis on front of package labels. *Journal of Dr. NTR University of Health Sciences*, *13*(3), 241–246. https://doi.org/10.4103/jdrysruhs.jdrysruhs_184_23

Rachmawati, Y., & Kartika, K. (2024). Edukasi Remaja Sadar Gizi di SMAIT Peradaban Al Izzah Kota Sorong. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, *7*(3), 1101–1110. https://doi.org/10.33024/jkpm.v7i3.13180

Rai, F. H., Jalal, K., Hussain, Z., Fatima Rai, A., Maqsud, M., & Khan, M. (2023). Awareness About Nutrition Facts on Food Labels and Their Influence on Food Selection Among Consumers. *Pakistan Journal of Health Sciences*, 185–189. https://doi.org/10.54393/pjhs.v4i04.442

Rumjaun, A., & Narod, F. (2025). *Social Learning Theory—Albert Bandura* (pp. 65–82). https://doi.org/10.1007/978-3-031-81351-1_5

UNICEF. (2019). *Status Anak Dunia 2019*.

Https://Www.Unicef.Org/Indonesia/Id/Status- Anak-Dunia-2019.

Wang, C.-Y., Hsu, C.-J., & Cai, D. (2022). Effects of food nutrition labels on the health awareness of school-age children. *BMC Public Health*, *22*(1), 1249. https://doi.org/10.1186/s12889-022-13613-y