

Systematics of Literature Review: The Importance of a Healthy Lifestyle and Balanced Nutrition as a Strategy to Realize a Sustainable Future in High School Students

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ABSTRACT

ABSTRACT A healthy lifestyle and the application of balanced nutrition are important elements in shaping a productive young generation and able to compete globally. However, the relationship between these two aspects with the Sustainable Development Goals (SDGs), especially SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-Being), has so far been rarely systematically analyzed in the context of high school students. Therefore, this study aims to identify and analyze findings from the scientific literature that examines the integration of healthy lifestyles, balanced nutrition, and sustainable development among high school students using the Systematic Literature Review (SLR) approach in publications from 2019 to 2024. The findings of the study show that integrated health education has the potential to be a preventive step in instilling sustainable living habits from adolescence. This study also presents an existing research map and offers a conceptual framework to support future policy and research development.

Keywords: Healthy lifestyle, balanced nutrition, sustainable development, high school students

26 Introduction

Adolescents are an age group in a transition period with very rapid physical and psychological changes. During this period, behaviors and life habits begin to form and tend to continue into adulthood. Therefore, adolescence is a strategic moment to intervene in building a physically and mentally healthy generation [1], [2]. However, the trend of improving lifestyle, fast food consumption, and lack of nutrition education in the school environment are significant challenges [3]. In addition, the integration of healthy lifestyles and balanced nutrition with sustainable development goals, especially SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-Being) has not been fully optimized in the secondary education curriculum [4], [5].

This research raises the limitations in the scientific literature related to the relationship of three main aspects: healthy lifestyle, balanced nutrition, and sustainability. Many studies are still sectoral and have not specifically placed high school students as an important role in encouraging sustainable development [6]. Therefore, the Systematic Literature Review (SLR) is needed to map and analyze research results in the last six years, as the basis for the formulation of evidence-based education policies (Evidence-Based Education).

27 Literature Review

A healthy lifestyle is the main foundation in forming a quality generation, especially for high school students who are in the growth phase. [4] emphasizes that a balanced nutritious diet,

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consistent physical activity, and good stress management are essential to support long-term health and improve quality of life.

Nutrition education in schools has been proven to be effective in shaping healthy consumption behaviors. Research [3] and [6] Shows that nutrition education programs can encourage students to choose healthy foods and reduce the consumption of non-nutritious foods. On the other hand, school involvement also has an effect on significantly increasing students' physical activity levels, as the results of research by [2] and [1]), which has a positive impact on their physical fitness and mental health.

The link between a healthy lifestyle and the global development agenda is increasingly recognized. Some studies link nutrition education and the promotion of healthy lifestyles to goal achievement Sustainable Development Goals (SDG) 2 (Zero Hunger) and SDG 3 (Health and Well-Being), as stated by [5] and [7]. Efforts that can be made through current educational institutions in schools are one of the drivers for accelerating the achievement of targets in this life. In addition to classroom learning, collaboration between schools, families, and communities is also a major factor in ensuring the sustainability of healthy living behaviors [8]. This holistic approach increases the chances of forming sustainable positive habits, while preparing the younger generation to be more aware of the importance of individual health and environmental sustainability.

Based on theoretical studies and the latest research findings, it can be concluded that instilling a healthy lifestyle and balanced nutrition since adolescence is very important in supporting the creation of a sustainable future. Therefore, this study uses the Systematic Literature Review (SLR) approach to summarize the latest scientific evidence on the role of healthy lifestyles and balanced nutrition as the main strategies in building a sustainable future among high school students, as summarized in the following table.

Table 7: Results of a healthy lifestyle and balanced nutrition as the main strategy in building a sustainable future among high school students

No	Writer	Year	Heading	Research Methods	Research Results
1	Martinez & Royo-Bordonada	2019	School-based Interventions to Prevent Obesity	Review of review	School involvement lowers adolescent obesity and supports SDG 2.
2	Aulia et al.,	2019	School Nutrition Programs and Adolescent Health	Longitudinal surveys	The healthy canteen program lowers the consumption of ultra-processed foods among students.
3	Nuryanto & Prase-tyo	2020	Strategies for Forming Healthy Living Behaviors	Action studies	Integrative learning models are effective in shaping students' healthy living behaviors.
4	Alsubaie & Omer	2020	Promoting Healthy Lifestyles among Adolescents	Descriptive model	The role of school health workers in supporting a healthy lifestyle.

No	Writer	Year	Heading	Research Methods	Research Results
5	Ramadhan & Zain	2020	Nutrition Education Program in Secondary Schools	Experimental studies	Nutrition education programs reduce the consumption of foods high in sugar and salt.
6	Rain & Goddess	2021	Digital Intervention for Adolescent Nutrition	Quasi-experiment	Digital-based nutrition education applications improve healthy consumption behavior.
7	WHO	2021	World Health Statistics 2021	Global reports	Health education supports the achievement of SDG 3 through the promotion of a healthy lifestyle.
8	Farianna et al.	2021	The Impact of Nutrition Education on Adolescent Eating Behavior	Quasi-experiment	Nutrition education improves healthy food consumption behavior of high school students.
9	Rahmawati et al.	2021	The Role of Teachers as Agents of Healthy Lifestyle Change	Qualitative studies	Teachers play an important role in shaping students' healthy living habits.
10	Wahyuni & Lestari	2021	Curriculum of Sustainable Nutrition in Schools	Action studies	The integration of balanced nutrition in the curriculum effectively supports healthy habits.
11	Guerra et al.	2022	School-based Physical Activity Interventions for Adolescents	Systematic review	Physical programs in schools improve student fitness and reduce sedentary lifestyle.
12	Setiawan & Rachmawati	2022	Health Education and Sustainable Behavior Change	Field experiments	Health education encourages sustainable behavior change
13	Andini et al.	2022	Implementation of Integrated UKS Based on SDGs	Qualitative	SDGs-based UKS is effective in internalizing the value of healthy and sustainable living
14	Kim et al.	2022	Sustainable Nutrition Awareness in Teens	Descriptive survey	The level of sustainable nutrition awareness in adolescents is still low.

No	Writer	Year	Heading	Research Methods	Research Results
15	Wang et al.	2022	Linking School Health Promotion to SDG 3: Lessons from Global Experiences	Review	Health education in schools contributes to the achievement of SDG 3.
16	Sari & Yunita	2023	Building Nutrition Literacy through Digital Media	Quantitative	Digital media is effective in improving the nutritional literacy of high school students.
17	Santosa & Wijayanti	2023	Active and Productive Lifestyle in Adolescence	Mixed methods	Regular physical activity is positively related to students' academic achievement.
18	Zhang et al.	2023	The Role of Nutrition Education in Sustainable School Development	Mixed methods	Nutrition education supports sustainable consumption and healthy living behaviors.
19	Hartono & Dewi	2024	School-Community Synergy in Promoting Healthy Eating	Participatory studies	School and community collaboration strengthens the sustainability of students' healthy behaviors.

An analysis of 19 articles published between 2019 and 2024 shows that there are three main focuses in the discussion of healthy lifestyles and balanced nutrition in high school students. A total of 12 studies confirm that nutrition education is able to encourage changes in consumption behavior in a healthier direction. In addition, 9 articles prove that school involvement can increase students' physical activity as well as reduce sedentary life habits. A total of 7 studies also linked the practice of this healthy lifestyle to the achievement of Sustainable Development Goals (SDGs) number 2 and 3. Additional findings emphasize the importance of collaborative engagement between schools, families, and communities, as well as the use of digital technology in supporting health education. Overall, the integration of healthy lifestyles and balanced nutrition into secondary education plays an important role in improving adolescent health and supporting long-term sustainability.

28 Research Methods

This study uses the Systematic Literature Review (SLR) approach to review and analyze various studies that discuss healthy lifestyles, balanced nutrition, and sustainability in high school students. The SLR approach was chosen because it is able to provide a comprehensive overview of the development of science in this field while identifying research gaps that still exist.

The research stage begins with a literature search from several leading databases, such as Scopus, Web of Science, PubMed, and Google Scholar. The search criteria are limited to English and Indonesian articles published in the last six years, namely 2019 to 2024. The article selection was carried out based on the relevance to the topic, namely studies that discuss healthy lifestyles, balanced nutrition, school-based education interventions, and their relationship with sustainable development goals (SDG 2 and SDG 3). Articles that do not meet the cri-

teria of the population (not high school students), are individual case study reports, or do not go through a peer-review process are excluded from further analysis.

Over 100 articles found, the gradual screening process resulted in 19 articles that met the specified criteria. Each article is then evaluated for quality using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The collected data were analyzed in a qualitative descriptive manner to identify key themes, such as changes in consumption behavior through nutrition education, increased physical activity through school programs, and the integration of sustainability principles in students' daily practices. To maintain validity, the data selection and synthesis process is carried out independently by the researcher, then the results are compared to ensure the consistency of the analysis. The results of this study are presented in the form of a descriptive narrative that shows the relationship between a healthy lifestyle, balanced nutrition, and efforts to achieve sustainability goals among high school students.

29 Result and Discussion

Based on the results of the Systematic Literature Review (SLR) of 19 articles that met the criteria, a number of key findings were obtained that revealed the relationship between healthy lifestyles, balanced nutrition, and sustainability in high school students. These findings provide valuable insights to support efforts to realize a sustainable future, while clarifying the contribution of healthy lifestyles to achieving the SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-Being) targets. Things that need to be considered include:

1. **Nutrition Education and Consumption Behavior Change** A total of 12 studies analyzed in this study revealed that nutrition education has a key role in encouraging changes in consumption behavior among students. Educational programs implemented in the school environment consistently show a significant increase in students' understanding of the importance of healthy eating. As an illustration, a study by [3] It found that students who attended nutrition education were more likely to choose nutritious foods such as fruits, vegetables, and whole grains, while reducing the consumption of fast foods high in trans fats, sugar, and salt. These results are reinforced by the findings [6] which shows that nutrition education is effective in reducing the consumption of high-calorie processed foods, which if left untreated can increase the risk of long-term health problems such as obesity.
2. **School Engagement and Physical Activity** A total of 9 studies in this analysis highlight that school involvement integrated with physical activity programs is able to increase students' physical activity levels. These programs, which include scheduled sports activities, extracurricular physical activities, and active lifestyle promotions, have proven to be effective in improving physical fitness while supporting students' mental health. [2] and [1] affirms the importance of organizing structured physical activities in schools, such as team sports and active games, that contribute to improving the overall physical fitness of students.
3. **Contribution to Sustainability through a Healthy Lifestyle** A total of 7 articles analyzed linked the implementation of a healthy lifestyle among students with efforts to achieve sustainable development. [5] suggest that plant-based diets, which are more environmentally friendly, can be integrated into the nutrition education curriculum in schools. This approach is considered effective in reducing the carbon footprint and negative impacts of unsustainable food production. Moreover [4] affirms that a healthy lifestyle, which involves the consumption of nutritious food as well as regular physical activity, is not only important for individual health, but also contributes to global sustainability goals.

4. Collaboration between Schools and Communities One of the key findings in this study is the importance of collaboration between schools, families, and communities in shaping healthy lifestyles among students. [8] emphasizing that synergy between educational institutions and the community plays an important role in strengthening the sustainability of health and nutrition education programs. Effective collaboration not only ensures that knowledge about healthy lifestyles is gained in the school environment, but is also internalized and applied as part of students' daily lifestyles.
5. The Role of Technology in Nutrition Education and Physical Activity In addition, technology also plays an important role in supporting nutrition education programs and the formation of physical habits among students. [18] It shows that the use of digital-based nutrition education applications is able to increase students' understanding of the importance of healthy eating and the concept of sustainability. In addition to serving as learning mediums, these apps also help students monitor their daily consumption patterns as well as motivate them to increase their physical activity consistently.

Overall, the findings of this study show that the implementation of a healthy lifestyle and balanced nutrition among high school students contributes significantly to improving individual health while supporting the achievement of SDG 2 and SDG 3 targets. The provision of effective nutrition education, regular physical activity strengthening, and the integration of sustainability principles into the school curriculum have the potential to form a younger generation that is healthier, more aware of sustainability issues, and more responsible in choosing consumption patterns. By engaging schools, families, and communities collaboratively, health education programs based on healthy lifestyles and sustainability are expected to have a positive long-term impact, not only for students, but also for families, communities, and the environment at large.

30 Conclusion

Based on the results of the Systematic Literature Review (SLR) of 21 relevant articles, it can be concluded that nutrition education plays an effective role in increasing students' awareness of the importance of a healthy and nutritious diet, as well as encouraging changes in consumption behavior in a more positive direction. These findings also emphasize the importance of the involvement of various parties in supporting the implementation of healthy lifestyle education at the school level. Synergistic collaboration between schools, families, and communities, supported by the use of digital technology, is a key strategy to build a healthy lifestyle and balanced nutrition among the younger generation. In addition to the health aspect, a number of articles also highlight the link between healthy consumption patterns and environmental impacts, underlining the importance of building an environmentally friendly lifestyle as an integral part of efforts to achieve sustainable development.

References

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