

## Strengthening Health Literacy in Secondary Schools as a Strategy to Achieve SDG 3

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### ABSTRACT

ABSTRACT Health literacy plays a crucial role in empowering individuals to make informed health decisions, which directly contributes to the achievement of Sustainable Development Goal 3 (Good Health and Well-Being). This article, using a literature review method, explores various strategies implemented in secondary schools to enhance students' health literacy, drawing on findings from both national and international studies. The research highlights that low health literacy among both students and school leaders can hinder health promotion efforts, as seen in the limited implementation of Health Promoting Schools. Effective interventions, such as problem-based learning, the paired literacy technique, and the integration of socio-scientific issues (SSI) into web-based biology education, have been shown to significantly improve students' understanding, critical thinking, and ability to apply health information. Additionally, school-wide programs that account for socio-ecological factors and digital media use can further support adolescents in developing lifelong health competencies. Strengthening health literacy in schools is therefore a strategic approach to fostering healthier generations and advancing SDG 3.

**Keywords:** Health literacy, school, sdg 3, student, learning

## 127 Introduction

Health literacy is broadly defined as the capacity of individuals to find, understand, evaluate, use, and communicate health information effectively across their lifespan. It encompasses several dimensions, including basic or functional literacy, communicative or interactive skills, and critical literacy competencies. These components enable individuals not only to comprehend and apply health-related information, but also to engage in social and political actions that support collective well-being. However, there is no universally agreed-upon definition of health literacy, as its interpretation often varies across disciplines, cultures, and contexts. This diversity in definition poses challenges for consistent measurement and discussion. Despite these complexities, health literacy is increasingly recognized as a vital component of public health, functioning as a process, an outcome, and a conceptual bridge between education and health systems [1].

Health literacy is crucial for understanding and addressing health disparities, particularly among adolescents. It includes essential competencies such as critical thinking, self awareness, and the ability to make informed decisions, all of which significantly influence individual health outcomes. Studies have shown that individuals with higher levels of health literacy are more likely to engage in positive health behaviors and experience better overall health. In addition, health literacy acts as a connecting factor between structural influences such as education, income, and health outcomes. This indicates that improving health literacy can help reduce health disparities related to differences in socioeconomic conditions. Developing health

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literacy skills from an early age is therefore important, as it shapes children's health perceptions and behaviors and contributes to their long term well being. At its core, health literacy refers to the ability to find, understand, evaluate, use, and communicate health information effectively. These skills are essential for navigating health services and making informed health decisions throughout life [2].

The Sustainable Development Goals (SDGs) are a set of 17 global objectives established by the United Nations in 2015 to address critical global challenges such as poverty, inequality, and health, with a target for achievement by the year 2030. SDG 3 focuses on ensuring healthy lives and promoting well being for all people at all ages, recognizing health as a fundamental human right. Among its key targets is the achievement of universal health coverage, which aims to provide access to quality health services without causing financial hardship [1]. Achieving this goal requires collaboration across various sectors beyond healthcare, including efforts to address the social factors that influence health and to empower communities. SDG 3 also includes actions to reduce maternal and child mortality, combat infectious diseases, and address mental health challenges [2].

Health literacy plays a critical role in supporting the success of SDG 3 because it strongly influences how individuals make health decisions and engage in health related behaviors. People with higher levels of health literacy are more likely to participate in preventive care, manage long term health conditions effectively, and follow medical advice accurately, all of which contribute to improved health outcomes and reduced disease burdens. Education is an essential foundation for developing health literacy, as it equips individuals with the knowledge and skills needed to understand and use health information. In addition, stronger health literacy can lead to increased civic participation in health issues and support broader public health efforts. On the other hand, limited health literacy is often associated with poorer health outcomes, making it clear that strengthening health literacy through education is a powerful strategy to advance the goals of SDG 3 [3].

Research indicates that children from diverse socio-economic and cultural backgrounds often face challenges in developing adequate health literacy, which is essential for positive health outcomes. In the United States, certain groups including racial and ethnic minorities, non-English speakers, and individuals from lower income and education levels are disproportionately affected by low health literacy. The World Health Organization emphasizes the importance of investing in health literacy within schools, highlighting the critical role of health education classes in addressing disparities and improving both educational and health outcomes. Furthermore, studies reveal that children and adolescents with migrant backgrounds frequently demonstrate lower health literacy levels, underscoring the need for tailored educational strategies to support these populations [1].

Health literacy levels also vary by gender and age, with boys generally showing lower proficiency compared to girls, and younger students such as those in seventh grade having lower levels than older students in ninth grade. In Canada, tenth-grade students who speak a language other than English at home tend to have lower health literacy than their English-speaking peers. There is a significant association between migrant background and reduced health literacy among children and adolescents. Additionally, cultural capital indicated by factors such as the number of books available at home correlates positively with higher health literacy levels in students. These findings point to the complex interplay of sociocultural factors that influence health literacy development and the importance of considering these factors when designing interventions in school settings [4].

Based on the aforementioned background, the purpose of this article is to review and synthesize effective strategies implemented in secondary education to enhance students' health literacy. This study aims to identify instructional approaches and interventions that have been proven to improve students' understanding, critical thinking skills, and ability to access and use

health information appropriately. By strengthening health literacy among adolescents through education, it is expected that a more health-conscious generation will emerge, capable of making informed decisions that support long-term well-being. These efforts directly contribute to the achievement of Sustainable Development Goal 3, which seeks to ensure healthy lives and promote well-being for all at all ages.

## **128 Literature Review**

### **Health Literacy: Concept and Importance**

Health literacy is the capacity of individuals to access, interpret, assess, utilize, and convey health-related information effectively throughout their lives. It comprises various aspects, including basic reading and writing skills, the ability to communicate and interact effectively, as well as critical thinking related to health contexts. These skills enable individuals not only to understand health information but also to take part in collective actions that promote societal well-being. Health literacy plays a pivotal role in shaping health-related decisions, influencing how individuals seek healthcare services, adopt healthy lifestyles, and manage diseases. In a broader context, improving health literacy contributes substantially to the realization of Sustainable Development Goal 3, which advocates for healthy lives and well-being for all. By facilitating informed choices and preventing noncommunicable diseases, health literacy becomes a vital driver in achieving this global objective [1].

### **Health Literacy in the School Context**

Schools represent a crucial platform for fostering health literacy, especially among teenagers. Secondary schools have the advantage of sustained engagement with students from diverse backgrounds, offering an ideal setting to embed essential health concepts into everyday learning. Nevertheless, research has shown that limited health literacy among both students and educators can hinder the effectiveness of health education and reduce the success of school-based health programs. Insufficient health literacy is often associated with unequal health outcomes and reduced participation in beneficial health practices. To address these challenges, the Health Promoting Schools (HPS) initiative integrates health education into school curricula while also cultivating a supportive atmosphere that enhances both student learning and overall well-being. When executed successfully, such programs can significantly raise health awareness and literacy among youth [2].

### **Effective Strategies to Improve Health Literacy in Schools**

A number of educational methods have proven effective in strengthening students' health literacy in secondary education. One such method is problem-based learning, which stimulates active involvement and critical reasoning by having students explore authentic health problems. This learning model allows students to connect academic theory with real-life health scenarios. Another approach, the paired literacy technique, involves cooperative learning, where students work together to understand and analyze health information, which in turn improves retention and comprehension. Moreover, incorporating socio-scientific issues (SSI) into online biology instruction has been shown to nurture reflective thinking by linking biological science with pressing health matters. These diverse teaching strategies play a significant role in equipping students with the competencies required to make thoughtful and informed health decisions [3].

### **School-Wide and Socio-Ecological Approaches**

Advancing health literacy goes beyond traditional classroom lessons and calls for a comprehensive, school-wide approach that takes into account the broader social and environmental factors influencing students' health behaviors. Elements such as family dynamics, peer relationships, school climate, and community support all shape how students perceive and act on health information. Interventions based on the socio-ecological model address these multi-layered influences, resulting in more effective and enduring impacts. In addition, the integration of digital technology into health education has become increasingly relevant. Digital tools offer interactive and accessible content, enabling students to engage with health topics in personalized ways and build digital health literacy skills. In today's digital age, where vast amounts of health information are encountered online, these competencies are essential. Utilizing digital platforms in education fosters analytical thinking and supports informed, responsible health-related choices among students [1].

## **129 Research Methods**

This study employed a qualitative approach using a descriptive-analytical literature review method to identify and analyze effective strategies for enhancing health literacy among secondary school students. Data were collected through purposive sampling from various peer-reviewed journal articles published between 2020 and 2025, focusing on health literacy interventions in secondary education. The selected articles were sourced from reputable databases such as Google Scholar, ScienceDirect, and SpringerLink, with inclusion criteria covering studies targeting secondary school students, discussing health literacy strategies, and written in English or Indonesian. The collected data were analyzed using content analysis techniques by categorizing findings based on instructional approaches such as problem-based learning, paired literacy techniques, socio-scientific issue integration, and whole-school approaches. This analysis aims to illustrate the effectiveness of each strategy in supporting the development of students' health literacy and its contribution to the achievement of Sustainable Development Goal (SDG) 3.

## **130 Result and Discussion**

Table 14: Six of credible articles have been selected for final analysis

No	Author & Year	Title	Main findings
1	Dadaczynski et al. 2020	The role of school leaders' health literacy for the implementation of health promoting schools	This study explores the level of health literacy among school leaders in Germany and how it influences the adoption of Health Promoting Schools (HPS). The results show that 29.3% of school leaders have limited health literacy, with a notably higher prevalence among males. This limited literacy correlates with lower levels of HPS implementation, especially among male leaders. The study highlights the importance of improving health literacy among school leadership to strengthen health promotion initiatives in educational settings [5].
2	Auld et al. 2020	Health Literacy and Health Education in Schools: Collaboration for Action	The article highlights the critical role of health literacy and school-based education, stressing the need for reliable evaluation tools to track progress and guide improvements. It also points out that socio-ecological factors can shape health behaviors and may cause misunderstandings about informed decision-making. "The Bigger Picture" initiative is featured as a program that empowers youth—especially those at risk of Type 2 diabetes—by addressing the broader social and environmental factors influencing their health [6].
3	Faradila et al. 2023	Improving Health Literacy through Problem-Based Learning with the Paired Literacy Technique in Class XI MIPA 2 of SMA Negeri Ambulu	Students demonstrated increased health literacy as they engaged in project-based learning activities related to health topics. Through collaborative projects, they not only gained knowledge about health but also developed the ability to seek, understand, and apply health information in real-life contexts. This learning model encouraged them to think critically about health issues and promoted responsible decision-making regarding personal and community health [7].

No	Author & Year	Title	Main findings
4	Puspita et al. 2022	Development of a Biology Learning Website Based on Socio-Scientific Issues (SSI) on the Digestive System Topic to Enhance High School Students' Health Literacy	The research findings indicate that integrating health-related content into science learning using scientific-based student worksheets (LKPD) helps improve students' health literacy. Students become more capable of understanding, analyzing, and applying health information through stages such as observing, questioning, and concluding. This approach encourages students to critically engage with health issues, fostering informed decision-making and healthy behavior [8].
5	Rifa et al. 2022	Feasibility of Socio-Scientific Issues-Based Biology Learning Web on Respiratory System Topic for Students' Health Literacy Development	The study reveals that adolescent health literacy remains low, particularly in understanding medical information and making informed health decisions. Key influencing factors include access to reliable information, family support, and educational background. To improve health literacy, it is essential to adopt age-appropriate, interactive educational approaches and integrate digital media that resonate with youth [9].

The analysis of selected studies underscores the multifaceted nature of health literacy development in secondary education and highlights the critical role of schools in fostering this competency. A central finding is that low levels of health literacy among both students and school leaders can significantly hinder the implementation of comprehensive health promotion programs, as illustrated in the study by Dadaczynski et al. (2020). Their research revealed that nearly a third of school leaders had limited health literacy, with male leaders showing particularly low proficiency—an issue that directly affects the success of the Health Promoting Schools (HPS) framework. This finding emphasizes the need to expand health literacy training beyond students to include educators and administrators as key agents of change [5].

Effective instructional strategies identified in the literature—such as problem-based learning, the paired literacy technique, and socio-scientific issue (SSI)-based instruction—have consistently demonstrated their capacity to enhance students' engagement and comprehension of health topics. The study by Faradila et al. (2023) showed that integrating collaborative projects with health-related content enabled students to better access, analyze, and apply health information [7]. Similarly, the work of Puspita et al. (2022) and Rifa et al. (2022) demonstrated how SSI-based digital platforms can improve reflective thinking, particularly when addressing topics such as the digestive and respiratory systems. These approaches empower students to link academic knowledge with real-life health concerns, promoting informed decision-making and encouraging healthier behaviors [9].

In addition to classroom-based strategies, the discussion also draws attention to the socio-ecological context in which students develop health literacy. As highlighted by Auld et al. (2020), environmental and social factors including socioeconomic status, family support, and access to reliable information significantly influence students' health choices. This calls for a holistic approach to health literacy education, incorporating not only curricular innovations but also whole-school strategies that engage families and communities. Digital technology

emerges as a particularly promising tool for bridging gaps in health understanding, especially when tailored to the realities of adolescents' media use and cultural backgrounds [6].

Taken together, these findings suggest that advancing health literacy in secondary schools requires a combination of pedagogical innovation, institutional support, and socio-cultural sensitivity. Targeted interventions that are inclusive, interactive, and contextually relevant are more likely to succeed in equipping students with the skills needed to navigate complex health environments. Strengthening health literacy through education not only benefits individual well-being but also contributes to broader public health goals, particularly the achievement of Sustainable Development Goal 3. Schools, therefore, play a strategic role in shaping healthier, more informed generations.

## 131 Conclusion

This literature review highlights that enhancing health literacy in secondary schools is essential for empowering adolescents to make informed health decisions, thereby supporting the achievement of Sustainable Development Goal 3 (Good Health and Well-Being). Effective instructional strategies such as problem-based learning, paired literacy techniques, and the integration of socio-scientific issues into digital biology education have proven successful in improving students' health literacy. Moreover, addressing socio-ecological factors and leveraging digital media through whole-school approaches further strengthens these efforts. However, low health literacy among school leaders can limit the success of health promotion programs, indicating the need for comprehensive capacity-building within the entire school community. Ultimately, a coordinated, context-sensitive educational approach can foster lifelong health competencies among students, contributing to healthier populations and advancing global health objectives.

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