

Curriculum Model for Health Education and Health Promotion in the First Cycle of Secondary Education Based on the National Comprehensive Map

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ABSTRACT

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Purpose: The present study aimed to design a curriculum model for health education and health promotion in the first cycle of secondary education based on the National Comprehensive Map.

Methods and Materials: This study was applied in terms of purpose and exploratory-descriptive in nature, employing a qualitative approach. The research population consisted of experts in curriculum planning, health education, educational management, and educational policymaking at provincial and national levels. Participants were selected using purposive and snowball sampling methods, and data collection continued until theoretical saturation was achieved, resulting in the participation of 18 experts. Data were gathered through semi-structured interviews designed according to the study objectives and theoretical foundations. The qualitative data were analyzed using thematic analysis and thematic network analysis based on the approaches of Braun and Clarke and Attride-Stirling. The coding process included open, axial, and selective coding. Credibility, dependability, and confirmability criteria were used to ensure trustworthiness, and expert review was employed to validate the extracted model.

Findings: The analysis revealed that the curriculum model for health education and health promotion in lower-secondary education is multidimensional and consists of five interrelated dimensions: learning, curriculum, social, environmental, and strategic dimensions. Among these, the learning dimension emerged as the core component, emphasizing health literacy, self-care, healthy decision-making, emotion management, and life skills. The curriculum dimension highlighted the importance of health-oriented content, active teaching methods, and performance-based assessment. The social dimension emphasized stakeholder participation, including family involvement and cooperation with health institutions. The environmental dimension focused on healthy physical and psychological school environments, while the strategic dimension underscored alignment with national educational

documents, managerial support, and educational policymaking. Expert evaluations indicated a high level of acceptance regarding the comprehensiveness, coherence, applicability, and policy alignment of the proposed model.

Conclusion: The findings indicate that effective health education and health promotion in lower-secondary schools require a comprehensive, systemic, and multidimensional curriculum framework. The proposed model integrates individual health competencies, curriculum structures, social participation, environmental support, and strategic governance into a coherent framework capable of guiding curriculum development, educational policymaking, and school-based health promotion initiatives. Its alignment with the National Comprehensive Map enhances its relevance and applicability within the national educational system.

Keywords: Curriculum; Health Education; Health Promotion; First Cycle of Secondary Education; National Comprehensive Map.

1. Introduction

Health education and health promotion have increasingly become central concerns in contemporary educational systems, because schools are no longer viewed merely as institutions for academic instruction, but also as strategic environments for developing healthy, responsible, and socially capable citizens. In this regard, the school is one of the most effective settings for improving public health, as it provides continuous access to children and adolescents during critical stages of physical, psychological, social, and behavioral development (Kolbe, 2019; Pulimeno et al., 2020). Health-oriented schooling can influence students' lifestyle patterns, health literacy, psychological adjustment, social behavior, and long-term wellbeing, particularly when health education is integrated into the formal curriculum rather than treated as a temporary or peripheral activity (Jourdan et al., 2021; Roland et al., 2026). Therefore, designing a coherent curriculum model for health education and health promotion is a necessary step toward transforming schools into active foundations for healthy lives.

The importance of health education becomes more pronounced during early adolescence and the lower-secondary period. Students at this educational level experience rapid biological, emotional, cognitive, and social changes, which can expose them to health-related risks such as poor nutrition, physical inactivity, psychological distress, substance abuse, unsafe behaviors, and inadequate self-care skills. Accordingly, health education at this stage should not be limited to the transmission of factual information; rather, it must develop practical competencies such as decision-making, self-care, emotional regulation, health literacy, interpersonal skills, and responsible lifestyle choices (Sharma, 2021; Wold & Mittelmark, 2018). Evidence from

adolescent health promotion studies shows that structured educational programs can improve students' lifestyle and health-oriented behaviors, especially when they are designed based on developmental needs and implemented through participatory learning approaches (Arazi et al., 2017; Salehi Seifabad, 2025).

From a curriculum perspective, health education requires systematic attention to objectives, content, teaching methods, learning experiences, assessment procedures, hidden curriculum, school culture, and policy alignment. Curriculum theory emphasizes that a curriculum is not merely a list of subjects or textbook content; rather, it is a structured educational experience shaped by social values, institutional priorities, learner needs, and pedagogical assumptions (Coskun Yasar & Aslan, 2021). Therefore, a health-oriented curriculum must be designed as an integrated system in which health concepts are embedded across learning activities, school routines, assessment methods, and educational relationships. In this regard, previous studies have emphasized the need to examine both the explicit and hidden dimensions of the curriculum, because students' health behaviors are shaped not only by formal lessons but also by the school environment, teacher behavior, peer interaction, and institutional culture (Azimi, 2020; Sabouri et al., 2020).

The health-promoting school approach suggests that effective health education must be multidimensional and ecological. It should connect classroom instruction with school policies, family participation, community engagement, environmental conditions, and intersectoral collaboration. The social-ecological view of health promotion argues that sustainable health behavior change cannot be achieved through individual instruction alone; rather, it requires supportive environments and coordinated interventions at individual, interpersonal, institutional,

community, and policy levels (Wold & Mittelmark, 2018). Consistent with this view, school-based health promotion research has shown that successful interventions require clear core functions, adaptable implementation forms, leadership support, and conditions for scale-up across schools (Dabravolskaj et al., 2025). Thus, curriculum design for health education must consider not only what students learn, but also how schools organize health-supportive environments and partnerships.

In recent years, international scholarship has increasingly emphasized the role of educational leadership, innovation, and equity in school health promotion. Effective leadership can facilitate coordination among teachers, health professionals, families, and policymakers, while also ensuring that mental health and equity are treated as essential components of educational quality (Mugabekazi & Mukanziza, 2025). Similarly, public health innovation in high schools highlights the importance of linking local school needs with global health challenges, particularly through participatory, technology-supported, and context-sensitive strategies (Joshi, 2026). Educational technologies and innovations can also create new opportunities for sustainable health education, although they require careful attention to accessibility, teacher readiness, ethical implementation, and long-term educational impact (Chiu, 2025). These developments indicate that health education curricula must be forward-looking, flexible, and responsive to both national priorities and emerging health challenges.

The relationship between policy and classroom practice is another key issue in health education curriculum design. Even when national policies emphasize health promotion, the translation of policy ambitions into actual classroom practices is often difficult. Studies on curriculum reform show that policy intentions may remain abstract unless they are supported by teacher preparation, practical teaching models, suitable resources, assessment mechanisms, and school-level implementation strategies (Yang et al., 2026). In this regard, practical teaching models that combine theory, competition-driven activities, experiential learning, and student engagement can improve the effectiveness of health education courses (Sa, 2026). Moreover, emergency conditions such as the COVID-19 pandemic demonstrated that curriculum delivery must remain adaptable and resilient, particularly when educational systems face disruptions that affect students' health, learning continuity, and access to instruction (Taha et al., 2020). Therefore, a curriculum model for health education must be both policy-aligned and operationally feasible.

In the Iranian educational context, several studies have addressed the status of health education, health-oriented curricula, and school-based health promotion. Azimi designed and validated a health education and health promotion curriculum model in elementary school based on assumptions of the health system, showing that health-oriented curriculum design requires attention to content, objectives, evaluation, and institutional requirements (Azimi, 2020). In another study, health promotion components in development planning laws were examined with an emphasis on school education, suggesting that health education must be aligned with national development policies and educational planning frameworks (Azimi, 2021). Furthermore, evaluation of health-oriented educational content in the field of healthy nutrition showed that curriculum content must be carefully analyzed and improved to adequately address students' health needs (Azimi, 2023). These findings indicate the necessity of developing a curriculum model that is not only theoretically grounded but also compatible with national educational documents.

Lower-secondary education has received specific attention in Iranian curriculum studies. Zameni and Amini designed a health education and health development curriculum model for lower-secondary education based on health system indicators and the Fundamental Transformation Document of Education, emphasizing the importance of aligning health education with national educational transformation policies (Zameni & Amini, 2020). More recently, Ranjdoost and colleagues qualitatively analyzed lower-secondary experimental science textbooks in terms of reflecting concepts and assumptions of health education and showed that textbook content plays an important role in shaping students' exposure to health-related concepts (Ranjdoost et al., 2025). These studies provide valuable foundations, but they also show that existing health education efforts require a more comprehensive model that integrates learning competencies, curriculum structure, school environment, social participation, and strategic policy alignment.

Several Iranian studies further emphasize the practical and behavioral significance of health education in schools. Research on the role of health education and healthy lifestyle in promoting students' physical and mental health indicates that health instruction can contribute to both bodily wellbeing and psychological adjustment when it is designed and implemented appropriately (Chatarsimab & Akbari, 2025). Studies on personal health education and students'

health promotion also highlight the importance of individual hygiene, self-care behaviors, and awareness-building in school settings (Jalilzadeh Tabrizi, 2025). Similarly, research on the role of education in promoting health culture suggests that health education contributes to the formation of shared values and collective norms regarding healthy living (Taghdisi et al., 2024). These findings show that health education should be understood not only as knowledge transmission, but also as culture-building and behavior formation.

The design of health-oriented educational environments is another essential component of school health promotion. A curriculum cannot achieve its intended outcomes if it is implemented in a school environment that lacks physical safety, psychological support, sanitary standards, or positive social climate. Research on designing health-oriented educational environments and programs indicates that students' health promotion depends on both planned educational content and the environmental conditions in which learning takes place (Niafiroozjah Mortazavi et al., 2024). Likewise, studies on health education and science in disease prevention and healthy lifestyle formation show that schools can play a preventive role by combining scientific knowledge, practical health training, and supportive environments (Ziraei et al., 2024). Thus, the school environment must be treated as a curriculum component, not merely as a physical setting.

Health literacy is one of the key theoretical and practical foundations of health education. Systematic review evidence on the application of health education and health promotion theories and models in health literacy research indicates that theory-based approaches can improve the design, implementation, and evaluation of health literacy interventions (Jafari & Peyman, 2018). Health literacy enables students to access, understand, evaluate, and use health information in daily decision-making. This is particularly important in adolescence, when students increasingly encounter health information through media, peers, digital platforms, and social networks. Therefore, a curriculum model for health education should explicitly include health literacy as a central competency and should employ active pedagogical methods that help students apply health knowledge in real-life situations.

Mental health and social security are also closely related to school health education. Research on the relationship between mental health promotion, health education, and the sense of social security has shown that health education can be connected to broader social and psychological outcomes

(Esmaeilzadeh & Esmaeilzadeh, 2022). In schools, mental health education can support students in recognizing emotions, managing stress, developing resilience, preventing risky behaviors, and seeking help when needed. In this regard, health education is closely linked to social and emotional learning, school safety, and psychological wellbeing. Studies on the effect of health education on students' quality of life further confirm that health-oriented instruction can improve broader dimensions of student wellbeing beyond physical health alone (Jafari et al., 2023).

Adolescent risk prevention is another important area that supports the need for a comprehensive health curriculum. A systematic review of health education and health promotion models and theories in substance abuse prevention among adolescents emphasizes that prevention programs should be theory-based, developmentally appropriate, and focused on behavioral determinants such as attitudes, skills, norms, and perceived control (Farjam et al., 2023). These findings indicate that lower-secondary health education should include preventive content related to risky behaviors, but this content must be delivered through pedagogically appropriate and non-stigmatizing approaches. When combined with family participation, school support, and community resources, such curricula can contribute to reducing health and social harms among adolescents.

The social accountability perspective also provides an important lens for health-oriented curriculum design. Although social accountability has often been discussed in medical education, its principles are relevant to school health education because curricula should respond to real social needs, promote equity, and be evaluated based on their contribution to community wellbeing (Barber et al., 2020). A socially accountable school health curriculum should therefore address students' actual health needs, local community conditions, national priorities, and the expectations of families and educational stakeholders. In this sense, health education is not an isolated instructional subject; it is part of the broader responsibility of educational systems to contribute to public health, social development, and human capital formation.

Despite the growing body of research on health education, several gaps remain. Many studies have focused on specific topics such as nutrition, lifestyle, health literacy, personal hygiene, substance abuse prevention, or textbook analysis, while fewer studies have attempted to design an integrated curriculum model for lower-secondary health education based on national macro-documents. In addition, some existing models emphasize either health system

indicators or curriculum components, but less attention has been paid to the simultaneous interaction among learning competencies, formal curriculum design, family and community participation, school environment, and strategic alignment with national educational frameworks. Therefore, developing a comprehensive model based on expert perspectives can help bridge the gap between theoretical health promotion principles, curriculum planning requirements, and the practical realities of schools.

Accordingly, the present study is grounded in the assumption that health education and health promotion in lower-secondary schools require a multidimensional curriculum model that integrates learner-centered competencies, health-oriented content, active teaching methods, performance-based assessment, family and community participation, a healthy school environment, and strategic alignment with the National Comprehensive Map. Such a model can provide policymakers, curriculum planners, educational managers, and school practitioners with a coherent framework for designing and implementing effective health education programs. The aim of the present study was to design a curriculum model for health education and health promotion in the first cycle of secondary education based on the National Comprehensive Map.

2. Methods and Materials

This study is applied in terms of purpose, because its results can be made available to experts in the field of education, curriculum planners, and other institutions related to the country's educational system, and can be used in designing and improving health-oriented educational programs. Moreover, given that the aim of the study is to identify the dimensions, components, and indicators of the curriculum model for health education and health promotion in the first cycle of secondary education based on the National Comprehensive Map, the present study is considered exploratory. In terms of nature, this research is descriptive, because the existing situation was first examined and described, and then, based on the obtained findings, a model was presented for the curriculum of health education and health promotion. In the qualitative section of the study, the case study method was used. In this section, thematic analysis was used to analyze the data obtained from the interviews. Thematic analysis is a method for identifying, analyzing, and reporting patterns within qualitative data, and it can transform scattered and diverse data into coherent and meaningful data (Braun & Clarke, 2006). In addition to

contributing to a deeper understanding of the data, this method also makes it possible to interpret and systematically analyze textual data. In thematic analysis, the researcher carefully examines the text of the data to identify the main themes and attempts, through data analysis, to reveal the relationships among concepts and existing patterns. In this study, the thematic network method was also used to analyze themes. This method was introduced by Attride-Stirling and seeks to identify and explain basic themes, organizing themes, and global themes through textual analysis.

The statistical population of this study in the qualitative section consisted of experts, specialists, and scholars in the fields of curriculum planning and first-cycle secondary education at the provincial and national levels who had specialized experience and knowledge in the curriculum of health education and health promotion. These individuals included managers, experts, and specialists related to curriculum planning in the Ministry of Education, officials in the field of first-cycle secondary education, and university scholars active in the fields of curriculum planning and health education. The size of the statistical population in the qualitative section was estimated to be approximately 40 individuals. Sampling in this study was conducted purposively and through the snowball sampling method; in this way, several key experts were first identified and selected, and then, through their referrals, other eligible individuals were selected to participate in the study. The main criterion for selecting participants was having scientific and practical experience in the field of curriculum or health education in schools. In qualitative studies, the sample size is usually not precisely determined in advance and continues until theoretical saturation is reached. In this study, the interviews also continued until no new data were obtained and the extracted themes became repetitive. The data collection instrument in the qualitative section was a semi-structured interview. This type of interview is one of the most common methods of data collection in qualitative research and enables the researcher to examine the participants' views and experiences regarding the research topic in depth by asking open-ended questions. The interview questions were designed based on the theoretical foundations of the study and the research objectives, and an attempt was made to allow participants to freely express their views through open-ended questions.

To ensure the validity and reliability of the data collection instrument in the qualitative section, common criteria in qualitative research, including credibility, dependability, and confirmability, were used (Morrow, 2015). To enhance

the credibility of the findings, after the interviews were conducted, the transcribed interview texts were provided to the participants so that they could confirm the accuracy of the content and the researcher's interpretations. In addition, to increase dependability, an attempt was made to document the research implementation process, the method of data collection, and the stages of data analysis accurately and transparently so that they could be examined and evaluated by other researchers. For confirmability, the obtained findings were compared with the research background and theoretical foundations, and an attempt was made to interpret the results based on evidence from the data. The qualitative data of the study were analyzed through thematic analysis and the coding process. In the first stage, open coding was conducted, and initial concepts were extracted from the interview texts. At this stage, the data were examined at the sentence and phrase levels, and conceptual codes were identified. In the second stage, axial coding was conducted, and similar concepts were classified into subcategories or components. In the third stage, selective coding was performed, through which the main dimensions and macro-categories related to the curriculum model for health education and health promotion were identified. Finally, by combining and integrating the extracted themes, the thematic network was formed, and the dimensions, components, and indicators of the curriculum model for health education and health promotion in the first cycle of secondary education were extracted. Interpretive analysis of the interviews and, when necessary, MaxQDA software were used for data management and analysis. After the model was extracted, quantitative analysis procedures were used to examine and validate the proposed model.

3. Findings and Results

In this section, the research findings obtained from the analysis of semi-structured interviews with experts in the fields of curriculum planning, health education, and

educational policymaking are presented. Data analysis was conducted using the grounded theory approach in three stages: open coding, axial coding, and selective coding. Overall, from the interviews conducted with 18 experts, a considerable number of conceptual codes were extracted, which, after refinement and integration, were organized into categories and main dimensions. To present the results systematically, the demographic characteristics of the participants were first examined, and then the results of the interview analysis are presented in specialized tables. Each table represents a part of the data analysis process and the extraction of the dimensions and components of the curriculum model for health education and health promotion in the first cycle of secondary education based on the National Comprehensive Map.

Before entering the qualitative analysis of the interview data, it is necessary to examine the demographic characteristics of the participants. In qualitative studies based on expert interviews, the demographic composition of the sample can play an important role in the richness of the data and the validity of the results. Characteristics such as gender, age, educational level, professional experience, field of specialization, and place of service indicate the extent of participants' experience and the diversity of their perspectives in the field under study. Since the subject of this study is the design of a curriculum model for health education and health promotion in the first cycle of secondary education, an effort was made to select individuals with scientific and executive experience in curriculum planning, health education, educational management, and educational policymaking. These individuals were selected through purposive sampling using the snowball technique in order to gain access to deep and specialized perspectives. Examining these characteristics, in addition to describing the research population, shows that the data obtained from the interviews had sufficient diversity of perspectives and experiences and could provide a suitable basis for extracting the conceptual model of the study.

Table 1

Demographic Characteristics of the Research Participants

Variable	Category	Frequency	Percentage
Gender	Male	12	67
	Female	6	33
Age	30 to 40 years	4	22
	41 to 50 years	8	44
	51 to 60 years	5	28
	Over 60 years	1	6
Educational level	Master's degree in curriculum planning	3	17

Work experience	Master's degree in health education	4	22
	PhD in curriculum planning	6	33
	PhD in educational management	3	17
	PhD in health education	2	11
	10 to 15 years	5	28
	16 to 20 years	7	39
	21 to 25 years	4	22
	More than 25 years	2	11
	University	7	39
	Ministry of Education	8	44
Field of activity	Educational policymaking	3	17

Table 1 shows that the demographic composition of the participants was highly diverse, and this can contribute to the richness of the research data. According to the data in the table, the majority of participants were male; however, the presence of women in the research sample was also notable and indicates the relative participation of both genders in the interview process. In terms of age, the highest frequency belonged to the age group of 41 to 50 years, an age range in which individuals usually have considerable professional experience while also being at the peak of their scientific and executive activities. A considerable proportion of the participants also held doctoral degrees in curriculum planning, educational management, and health education, which indicates the high scientific level of the research sample. In terms of work experience, most individuals had more than 15 years of experience in education and educational planning, which can contribute to the credibility of the qualitative data of the study. In addition, the composition of the participants' fields of activity shows that the collected views were not limited to the academic environment, and that experts and managers from the Ministry of Education as well as individuals active in educational policymaking were also present in the study. This diversity of perspectives made it possible for the data

obtained from the interviews to cover different dimensions of the research topic and for the final extracted model to have greater comprehensiveness.

After examining the demographic characteristics of the participants, the first stage of qualitative data analysis, namely open coding, was conducted. At this stage, the full texts of the interviews were carefully read, and expressions and concepts related to the research topic were extracted. The purpose of open coding is to break textual data into smaller conceptual units and identify initial concepts. This stage is one of the most important stages of data analysis in grounded theory, because it forms the basis for the development of categories and main dimensions of the study in the subsequent stages of data analysis. In the open coding process, an attempt was made to identify all concepts related to the curriculum of health education and health promotion in schools. These concepts included topics such as life skills education, health literacy, mental health, a healthy school environment, family participation, educational policies, and other factors related to health promotion in schools. Overall, more than 200 initial conceptual codes were extracted from the interviews, and after refinement and removal of repetitive items, a set of main codes was formed. Table 2 presents a sample of these extracted open codes.

Table 2

Sample Open Codes Extracted from Expert Interviews

No.	Statement Extracted from the Interview	Open Code	Frequency
1	Students should learn decision-making skills in the field of health.	Health decision-making skills education	14
2	Health literacy is one of the basic needs of adolescents.	Development of health literacy	16
3	Mental health has received less attention in schools.	Mental health education	15
4	Concepts of healthy nutrition should be included in textbooks.	Healthy nutrition education	12
5	Families should participate in school health programs.	Family participation	13
6	The curriculum should be aligned with upstream documents.	Alignment with the National Comprehensive Map	17
7	The school environment should meet health standards.	Healthy physical environment	11
8	Assessment should measure health-oriented behaviors.	Assessment of health behavior	9
9	The use of active teaching methods is necessary.	Participatory learning	10
10	Cooperation with health centers can be effective.	Interaction with the health system	8

Table 2 shows that, in the open coding stage, numerous concepts were extracted from the expert interviews, each representing part of the participants' views on health education and health promotion in schools. Examining the frequency of the codes shows that some concepts, such as alignment with the National Comprehensive Map, development of health literacy, and mental health education, were repeated most frequently in the participants' responses. This indicates that, in addition to emphasizing the teaching of basic health concepts, the experts also paid attention to the necessity of aligning the curriculum with the country's macro-level educational policies. The considerable frequency of codes related to mental health also shows that this dimension of health is of particular importance in the first cycle of secondary education, because adolescents at this stage of development face numerous psychological and social challenges. On the other hand, codes such as family participation and interaction with the health system indicate that the experts emphasized an intersectoral approach to health education. In other words, promoting students' health is not possible only through classroom instruction and requires the participation of families, social institutions, and the health system. Therefore, the results of the open coding stage show that health education and health promotion in schools should be designed multidimensionally and in

interaction with various educational, social, and policy-related factors.

After extracting the open codes and identifying the initial concepts from the interview data, the second stage of data analysis, namely axial coding, was conducted. The purpose of axial coding is to establish relationships among the scattered codes of the previous stage and organize them into more coherent conceptual categories. At this stage, the researcher attempts to link similar or related concepts and classify them into subcategories and then axial categories. In fact, axial coding functions as a bridge between raw data and the conceptual structure of the theory or research model. In the present study, after careful examination and constant comparison of the data, the open codes extracted from the interviews were classified into a set of subcategories. These subcategories were then organized into broader axial categories, each representing one of the main areas affecting the design of the curriculum for health education and health promotion in the first cycle of secondary education. This process was carried out using the constant comparative method, and an effort was made to accurately identify the conceptual relationships among the codes and interview themes. Table 3 shows the structure of axial coding and how the open codes were organized into subcategories and axial categories.

Table 3

Axial Coding Structure of the Interview Data

Selected Open Codes	Subcategory	Axial Category	Number of Codes
Decision-making skills education, problem-solving skills, stress management, self-care	Individual health skills	Development of health competencies	24
Mental health education, emotion regulation, prevention of psychological harms	Students' mental health	Development of health competencies	21
Healthy nutrition education, personal hygiene, physical activity	Physical health	Health-oriented content	19
Performance assessment, assessment of health behavior, continuous feedback	Formative health assessment	Health assessment system	14
Family participation, communication with parents, parent education	Family-school interaction	Stakeholder participation	10
Cooperation with health centers, use of health specialists	Intersectoral cooperation	Stakeholder participation	8
Creating a healthy physical environment, hygiene of the school environment	Health-oriented physical environment	Healthy school environment	12
Creating a positive psychological climate, social support at school	Healthy psychological environment	Healthy school environment	9
Coordination with macro-level educational policies	Macro-level policymaking	Strategic leadership	13
Alignment with the National Comprehensive Map	Alignment with upstream documents	Strategic leadership	9

The analysis of Table 3 shows that the codes extracted from the interviews were organized into a set of coherent conceptual categories, each representing part of the structure of the curriculum for health education and health promotion.

As the data show, the axial category of "development of health competencies" includes the largest number of codes and encompasses individual health skills and students' mental health. This indicates that the experts emphasized,

more than anything else, the empowerment of students in health-related skills. In other words, from their perspective, a health-oriented curriculum should go beyond the transfer of theoretical information and should focus on developing practical and behavioral skills in students. The categories of “health-oriented content” and “health assessment system” also show that the design of educational content and appropriate assessment methods are important elements in the health education curriculum. In addition, the presence of categories such as “stakeholder participation” and “healthy school environment” indicates that promoting students’ health is not limited merely to educational activities in the classroom, but requires interaction among the school, the family, and other social institutions. Finally, the category of “strategic leadership” reflects the importance of aligning the curriculum with macro-level educational policies and upstream documents, including the National Comprehensive Map. This finding shows that, from the experts’ viewpoint, the success of the health education curriculum depends on

coordination between the school level and the macro-level educational policymaking level.

After identifying the axial categories, the third stage of data analysis, namely selective coding, was conducted. At this stage, an attempt is made to organize the axial categories into broader dimensions and form the final conceptual structure of the study. In fact, selective coding is the stage in which the researcher attempts to extract a coherent conceptual model based on the relationships among categories. In the present study, the axial categories extracted in the previous stage were organized into five main dimensions through comparative analysis and examination of the conceptual relationships among them. These dimensions represent the key components of the curriculum model for health education and health promotion in the first cycle of secondary education. Each of these dimensions includes a set of categories and indicators that together form the overall structure of the proposed research model. Table 4 presents the main dimensions extracted in the selective coding stage.

Table 4

Main Dimensions of the Curriculum Model for Health Education and Health Promotion

Main Dimension	Related Axial Categories	Number of Related Codes
Learning dimension	Development of health competencies	45
Curriculum dimension	Health-oriented content, health assessment system	33
Social dimension	Stakeholder participation	18
Environmental dimension	Healthy school environment	21
Strategic dimension	Strategic leadership and policymaking	22

The analysis of Table 4 shows that the model extracted from the research data has a multidimensional and systematic structure. Based on the findings, the “learning” dimension, with 45 codes, has the largest share among the model dimensions. This indicates that the experts placed the greatest emphasis on empowering students in the field of health competencies. In this dimension, skills such as self-care, healthy decision-making, emotion management, and health literacy are of particular importance. The second dimension, namely the “curriculum” dimension, includes components such as the design of health-oriented content and an appropriate assessment system, which indicates the importance of the formal curriculum structure in transferring health concepts. The “social” dimension also refers to the role of the family, society, and related institutions in supporting school health programs. This dimension shows that health education will be effective when an effective relationship is established between the school and students’

social environment. The “environmental” dimension refers to the physical and psychological conditions of the school and emphasizes the creation of a healthy, safe, and supportive environment for students. Finally, the “strategic” dimension is related to the macro-level of policymaking and the alignment of the curriculum with upstream documents such as the National Comprehensive Map. This dimension shows that the health education curriculum should be designed and implemented within the framework of macro-level educational policies.

After identifying the main dimensions of the model, the operational indicators of each dimension were extracted in the next step in order to make the model applicable in the educational system. In applied research, presenting operational indicators is highly important, because these indicators help policymakers and educational planners implement the proposed model in practice. In the present study, the operational indicators of each dimension were

extracted based on the analysis of interview data and their integration with the theoretical foundations of the study. These indicators represent the key elements that should be

considered in designing and implementing the curriculum for health education and health promotion. Table 5 presents the operational indicators of each dimension of the model.

Table 5

Operational Indicators of the Dimensions of the Proposed Model

Dimension	Operational Indicators	Relative Weight
Learning	Life skills, health literacy, self-care, healthy decision-making, emotion management	30%
Curriculum	Integrated health content, active teaching methods, performance assessment	22%
Social	Family participation, cooperation with health centers, interaction with the community	15%
Environmental	Healthy physical space, hygiene of the school environment, positive psychological climate	16%
Strategic	Alignment with national documents, managerial support, educational policymaking	17%

The analysis of Table 5 shows that, among the different dimensions of the model, the learning dimension has the highest relative weight. This finding indicates that the main purpose of the curriculum for health education and health promotion is to empower students in health-related skills. In this dimension, skills such as health literacy, healthy decision-making, self-care, and emotion management play a fundamental role in shaping health-oriented behaviors. The curriculum dimension also ranks second with a considerable weight, indicating the importance of designing appropriate educational content and using active teaching methods in health education. The social and environmental dimensions also show that health education should be implemented within a supportive and participatory context. Finally, the strategic dimension reflects the importance of managerial and policy support in the successful implementation of health education programs in schools.

After extracting the main dimensions and indicators of the curriculum model for health education and health

promotion, the next step in the data analysis process was to examine the expected outcomes of implementing this model in educational environments. In model-design studies, merely identifying dimensions and components is not sufficient; rather, the possible outcomes of implementing the model must also be specified so that its effectiveness can be evaluated in the short term and long term. For this reason, in the interviews, the experts were asked to express their views on the expected results of implementing a health-oriented curriculum in first-cycle secondary schools. Analysis of their responses showed that implementing such a model could have a range of educational, behavioral, social, and even cultural outcomes. Some of these outcomes are observable in the short term at the school level, while others appear in the long term at the societal level. Therefore, to better understand these relationships, an analytical matrix was designed in which the relationship between the dimensions of the proposed model and the expected outcomes was specified. Table 6 shows these relationships.

Table 6

Matrix of the Relationship Between Model Dimensions and Expected Outcomes

Model Dimension	Key Indicators	Short-Term Outcomes	Long-Term Outcomes
Learning	Health literacy, decision-making skills, emotion management	Increased student awareness of health, improved attitudes toward healthy behaviors	Formation of a healthy lifestyle among adolescents
Curriculum	Integrated health content, active teaching methods	Increased attractiveness of learning health concepts	Institutionalization of health education in the educational system
Social	Participation of families and health institutions	Increased family-school interaction	Development of a culture of health in society
Environmental	Healthy physical and psychological school environment	Improved sense of safety and calmness at school	Promotion of mental health and reduction of social harms
Strategic	Alignment with national documents and managerial support	Institutional coordination in program implementation	Achievement of macro-level health goals in the educational system

The analysis of Table 6 shows that each dimension of the proposed model can create a set of specific outcomes at different levels. Based on the interview data, the learning

dimension plays a central role in shaping behavioral outcomes in students. When students learn skills such as health literacy, informed decision-making, and emotion

management, their level of awareness and attitudes toward healthy behaviors increase in the short term, and in the long term, this awareness leads to changes in behavioral patterns and the formation of a healthy lifestyle. The curriculum dimension, as the formal framework of education, provides the necessary foundation for the systematic transfer of health concepts. If health concepts are integrated into educational content and active teaching methods are used, the learning process will become more attractive and effective for students. The social dimension also indicates the importance of interaction among the school, family, and social institutions. The interview findings show that family participation in school health programs can play an important role in stabilizing health-oriented behaviors in students. On the other hand, the environmental dimension emphasizes the importance of creating a healthy and supportive environment in schools. If the school environment has appropriate physical and psychological conditions, it can play an important role in promoting students' psychological and social health. Finally, the strategic dimension reflects the importance of policymaking and managerial support in the successful implementation of health programs. If the health education curriculum is aligned with upstream documents and the country's macro-level policies, its implementation across the educational system will be more coherent, and achieving macro-level health goals in society will become more feasible.

After extracting the dimensions, categories, and operational indicators of the curriculum model for health education and health promotion, the final stage in the findings section was devoted to validating the proposed model. Model validation is one of the essential stages in qualitative model-design studies, because it determines whether the developed model, from the experts' perspective, has comprehensiveness, coherence, implementability, and alignment with the real needs of the educational system. In this study, the validity of the model was examined using the views of experts in the fields of curriculum planning, health education, educational management, and educational policymaking.

For this purpose, the initial version of the extracted model was provided to the experts, and they were asked to evaluate each of the model's dimensions and components based on indicators such as consistency with the objectives of first-cycle secondary education, comprehensiveness, conceptual coherence, applicability, feasibility of implementation in schools, and degree of alignment with the National Comprehensive Map and upstream documents. The evaluations were conducted using a five-point Likert scale from 1 to 5. The results of analyzing the experts' views showed that the proposed model had a high level of acceptance and that the mean evaluation scores of all indicators were at a desirable level. Table 7 presents the results of model validation.

Table 7

Results of Validating the Curriculum Model for Health Education and Health Promotion from the Experts' Perspective

Evaluation Indicator	Mean	Standard Deviation	Interpretation
Comprehensiveness of the model dimensions	4.6	0.41	Very desirable
Logical coherence among dimensions and components	4.5	0.44	Very desirable
Feasibility of implementation in first-cycle secondary schools	4.3	0.52	Desirable
Consistency with the needs of students at this level	4.4	0.47	Desirable
Alignment with the National Comprehensive Map and upstream documents	4.7	0.36	Very desirable
Applicability for curriculum planners and educational managers	4.5	0.43	Very desirable
Overall mean	4.5	0.44	Desirable to very desirable

The analysis of the findings in Table 7 shows that the overall mean of the experts' evaluation was 4.5 out of 5; this value indicates that, from the specialists' perspective, the proposed model has appropriate scientific and practical validity. The highest mean belonged to the indicator of alignment with the National Comprehensive Map and upstream documents, with a value of 4.7. This finding is particularly important because one of the main innovations of the present study is the design of a model that not only focuses on students' educational and health-oriented needs,

but is also coordinated with national policies and documents. Therefore, it can be stated that, from a macro-level perspective, the proposed model has the capacity to be placed within the framework of the country's formal educational planning.

The indicator of comprehensiveness of the model dimensions also obtained a mean of 4.6 and was placed at a very desirable level. This indicates that the experts believed the five extracted dimensions appropriately cover the main and influential domains of the curriculum for health

education and health promotion. The indicator of logical coherence among dimensions and components, with a mean of 4.5, also shows that an appropriate conceptual relationship has been established among the different parts of the model and that the structure of the model does not suffer from fragmentation or internal discontinuity.

At the same time, the lowest mean belonged to the indicator of feasibility of implementation in first-cycle secondary schools, with a value of 4.3, although this value is still at a desirable level. This finding can be attributed to certain implementation limitations in schools, including a shortage of specialized personnel, overloaded curricula, time constraints, and differences in school facilities. Therefore, although the proposed model was approved by experts in conceptual and content terms, its effective implementation will require executive arrangements, teacher training, managerial support, and provision of the necessary infrastructure.

Overall, the validation results show that the designed model has appropriate expert support and can be used as a valid framework for curriculum planning in health education and health promotion in the first cycle of secondary education.

After data analysis, theme extraction, and validation of the experts' views, the final conceptual model of the curriculum model for health education and health promotion was developed. This model is the result of the systematic integration of qualitative data, theoretical foundations, the research background, and expert opinions. In this model, the curriculum for health education and health promotion is considered a multidimensional system consisting of five

main dimensions: learning, curriculum, social, environmental, and strategic. These dimensions interact with one another and provide the foundation for achieving health-oriented objectives in first-cycle secondary schools.

The logic underlying this model is that health education and health promotion are not merely a limited subject-matter content or an extracurricular activity; rather, they constitute a multilevel and interactive process that begins at the level of students' individual learning, is organized within the formal curriculum structure, is strengthened through social participation, continues within the context of a healthy school environment, and is ultimately stabilized through strategic and policy support. Therefore, each dimension of the model assumes part of the overall function of the health education system, and the removal or weakening of any one of them can reduce the effectiveness of the model.

Within this framework, the learning dimension forms the central core of the model, because the ultimate goal of the curriculum is the formation of health competencies in students. The curriculum dimension is responsible for organizing objectives, content, teaching methods, and assessment. The social dimension emphasizes the participation of families, local institutions, and the health sector. The environmental dimension attends to the necessity of providing a healthy physical and psychological environment in schools. Finally, the strategic dimension, by emphasizing alignment with national documents, management, support, and policymaking, provides the foundation for the sustainability and institutionalization of the model.

Table 8

Dimensions, Components, and Key Functions of the Final Conceptual Model

Main Dimension	Key Components	Main Functions
Learning	Health literacy, self-care, decision-making skills, emotion management, life skills	Empowering students to choose and maintain healthy behaviors
Curriculum	Health-oriented objectives, integrated content, active teaching methods, performance assessment	Institutionalizing health education in the formal teaching-learning structure
Social	Family participation, school cooperation with health centers, connection with the local community, stakeholder participation	Strengthening social support and sustaining health-oriented behaviors outside school
Environmental	Healthy physical space, environmental hygiene, positive psychological climate, social support at school	Creating a safe, healthy, and supportive context for students' holistic development
Strategic	Alignment with upstream documents, managerial support, educational policymaking, leadership and supervision	Ensuring coherence, sustainability, and scalability of the program at the level of the educational system

According to Table 8, the final model of the study has a coherent and systematic structure. The most important feature of this model is the interactive nature of its

dimensions. For example, achieving the components of the learning dimension is difficult without appropriate content in the curriculum dimension; similarly, the formal

curriculum will not be fully effective without family participation and a healthy school environment. Moreover, all dimensions require strategic and managerial support for implementation and sustainability. Therefore, the final model of the study is not a linear model, but a systemic and interactive model. The findings of the study showed that designing a curriculum for health education and health promotion in the first cycle of secondary education requires a comprehensive, multidimensional, and systematic perspective. Based on the analysis of data obtained from interviews with experts, the final model of the study was extracted in the form of five main dimensions: learning, curriculum, social, environmental, and strategic. These dimensions interact with one another and provide a coherent framework for designing, implementing, and evaluating health-oriented programs in schools.

Among the extracted dimensions, the learning dimension had the largest share, indicating the experts' emphasis on empowering students in the field of health competencies. However, the findings showed that achieving this goal is not possible without simultaneous attention to the curriculum structure, family and community participation, a healthy school environment, and strategic support. In other words, health education and health promotion in schools will be effective only when they are considered part of an interactive and policy-based system.

The main innovation of the present study is that, unlike many previous studies that have merely examined the effect of health education, analyzed textbook content, or evaluated existing programs, this study was able to present a comprehensive curriculum model that is both supported by qualitative data and expert opinion and is explicitly linked to the National Comprehensive Map and upstream educational and health documents. This feature elevates the present model beyond a mere educational proposal and turns it into a strategic framework for policymaking, curriculum planning, and school-based implementation of health education.

4. Discussion and Conclusion

The findings of the present study led to the development of a multidimensional curriculum model for health education and health promotion in the first cycle of secondary education based on the National Comprehensive Map. The extracted model consisted of five major dimensions, namely learning, curriculum, social, environmental, and strategic dimensions. The results demonstrated that health education

in schools cannot be limited to the transmission of health-related information through formal lessons; rather, it requires a comprehensive and integrated system that simultaneously addresses students' health competencies, curriculum structure, stakeholder participation, school environment, and policy support. Among the extracted dimensions, the learning dimension received the greatest emphasis from experts, indicating that the development of health competencies constitutes the central objective of health education programs. Furthermore, the validation findings revealed that the proposed model achieved a high level of acceptance among experts, particularly in terms of comprehensiveness, conceptual coherence, and alignment with national educational and health policy documents.

One of the most important findings of the study was the central role of the learning dimension in the proposed model. The experts emphasized that health education should focus primarily on empowering students through the development of health literacy, self-care skills, decision-making abilities, emotion management, and life skills. This finding is consistent with the theoretical foundations of health education and health promotion, which emphasize the importance of enabling individuals to make informed decisions regarding their health and wellbeing (Sharma, 2021). Contemporary health promotion theories view health not merely as the absence of disease but as a dynamic state that requires the acquisition of knowledge, attitudes, and practical skills necessary for maintaining healthy lifestyles. Therefore, the strong emphasis placed on health competencies in the present study reflects the growing recognition that effective health education must move beyond information transmission and focus on behavioral capability development.

The prominence of health literacy within the learning dimension also aligns with previous research emphasizing the importance of health literacy as a core educational outcome. Studies have shown that students who possess higher levels of health literacy are more capable of understanding health information, evaluating health-related risks, and engaging in preventive behaviors (Jafari & Peyman, 2018). Likewise, research investigating personal health education among students reported that educational interventions targeting individual health awareness significantly contribute to health promotion outcomes (Jalilzadeh Tabrizi, 2025). The present findings therefore support the argument that health literacy should be regarded as a foundational component of school curricula and

integrated systematically throughout the educational experience.

Another significant finding concerned the importance of mental health and emotional competencies. Experts consistently highlighted the need for mental health education, emotion regulation, stress management, and psychological wellbeing within the curriculum. This finding is understandable given the developmental characteristics of early adolescence, a period associated with substantial psychological, social, and emotional transitions. Previous research has similarly emphasized the relationship between health education and mental health promotion. Studies have demonstrated that educational programs focusing on health promotion can enhance psychological wellbeing and social security among individuals and communities (Esmailzadeh & Esmailzadeh, 2022). Furthermore, investigations examining the role of health education and healthy lifestyles in promoting students' physical and mental health reported positive effects on both dimensions of wellbeing (Chatarsimab & Akbari, 2025). Consequently, the present findings reinforce the notion that mental health should be treated as an integral element of school health education rather than as a separate or supplementary topic.

The curriculum dimension emerged as the second major component of the proposed model. This dimension included health-oriented content, active teaching methods, and performance-based assessment systems. The emphasis on curriculum design reflects the understanding that health promotion requires intentional educational planning and cannot rely solely on extracurricular activities or isolated interventions. Curriculum theory suggests that learning outcomes are strongly influenced by the alignment among objectives, content, pedagogy, and assessment (Coskun Yasar & Aslan, 2021). Therefore, a curriculum intended to promote health must incorporate health-related concepts systematically across learning experiences while employing teaching approaches that encourage active participation and behavioral engagement.

The findings regarding curriculum content are consistent with previous Iranian studies evaluating health-related educational materials. Research examining health-oriented content in elementary education concluded that curriculum materials frequently require enhancement to adequately address students' health needs (Azimi, 2023). Similarly, qualitative analyses of lower-secondary science textbooks have shown that although health concepts are present, they are not always integrated comprehensively or systematically throughout the curriculum (Ranjdoost et al., 2025). The

present findings suggest that curriculum reform should extend beyond content revision and encompass teaching strategies, learning experiences, and assessment mechanisms designed to foster meaningful health-related competencies.

The significance of active teaching methods identified in this study also corresponds with contemporary educational trends. Evidence suggests that students acquire health-related behaviors more effectively through experiential learning, participatory instruction, collaborative activities, and problem-solving approaches than through traditional lecture-based methods (Sa, 2026). Furthermore, educational innovations and technological approaches have been identified as promising tools for supporting health education and sustainable development goals within schools (Chiu, 2025). Thus, the curriculum dimension of the proposed model reflects international recommendations advocating learner-centered and competency-based approaches to health education.

The social dimension constituted another key component of the proposed model. Experts emphasized the importance of family participation, collaboration with health institutions, stakeholder engagement, and community involvement. This finding supports ecological and social models of health promotion, which argue that health behaviors are influenced by multiple environmental systems extending beyond the individual (Wold & Mittelmark, 2018). From this perspective, schools cannot promote health effectively in isolation; rather, they must collaborate with families, communities, and healthcare organizations to create supportive networks that reinforce healthy behaviors.

This result is strongly supported by prior literature. The health-promoting schools framework identifies family engagement and community partnerships as essential elements of successful health promotion initiatives (Jourdan et al., 2021). Likewise, studies focusing on school health as a public health strategy emphasize the importance of coordinated action among educational and health sectors (Kolbe, 2019). Research investigating the role of public health curricula in community health has similarly highlighted the need for educational programs to establish meaningful connections with broader social systems (Sarbalouki Arani & Nourabadi, 2021). Consequently, the present findings confirm that health promotion should be viewed as a collective responsibility involving multiple stakeholders.

The environmental dimension also emerged as a critical component of the model. Participants emphasized both the

physical and psychological characteristics of the school environment, including hygiene standards, safety, positive school climate, and social support systems. This finding reflects the understanding that educational outcomes are shaped not only by curriculum content but also by the environments in which learning occurs. A healthy school environment provides opportunities for students to practice healthy behaviors, develop positive relationships, and experience psychological security.

Previous studies strongly support this conclusion. Research examining health-oriented educational environments has demonstrated that school settings significantly influence students' physical, emotional, and social wellbeing (Niafiroozjah Mortazavi et al., 2024). Similarly, studies have identified schools as ideal settings for promoting health and wellbeing because they provide structured environments where educational, social, and behavioral interventions can be implemented simultaneously (Pulimeno et al., 2020). The findings of the present study therefore reinforce the necessity of addressing environmental conditions as an integral aspect of health curriculum implementation.

The strategic dimension of the model represents another important contribution of the study. Experts emphasized the need for alignment with national policy documents, strategic leadership, managerial support, and educational policymaking. The high validation scores assigned to this dimension indicate that experts view policy alignment as a prerequisite for sustainable implementation. This finding is particularly important because many educational innovations fail not because of conceptual weaknesses but because of insufficient institutional support and policy integration.

The importance of strategic leadership and policy alignment has been highlighted in both national and international studies. Research examining health promotion components within development planning laws emphasized the necessity of integrating health education into broader educational policies (Azimi, 2021). Likewise, curriculum models developed for health education in lower-secondary education have stressed alignment with national transformation documents and health system priorities (Zameni & Amini, 2020). International evidence also demonstrates that translating policy ambitions into classroom practice requires coherent leadership structures, implementation strategies, and supportive governance mechanisms (Yang et al., 2026). Therefore, the strategic dimension identified in the present study reflects both

theoretical expectations and practical implementation requirements.

The validation results provide additional support for the robustness of the proposed model. Experts rated the model highly in terms of comprehensiveness, coherence, applicability, and policy alignment. These findings suggest that the model successfully integrates multiple dimensions of health education into a coherent framework. The particularly high ratings assigned to alignment with national documents indicate that the model is perceived as relevant to existing educational priorities and capable of supporting broader educational reforms. This outcome is consistent with recommendations emphasizing social accountability and responsiveness in educational program design (Barber et al., 2020).

The multidimensional nature of the proposed model also aligns with contemporary approaches to school-based health promotion. Effective interventions typically involve multiple components operating simultaneously across individual, organizational, and policy levels (Dabravolskaj et al., 2025). Similarly, leadership-focused reviews have highlighted the importance of integrating educational leadership, mental health promotion, and equity considerations within comprehensive school improvement efforts (Mugabekazi & Mukanziza, 2025). The present study extends this perspective by proposing a curriculum model that explicitly connects learning processes, curriculum structures, environmental conditions, social partnerships, and strategic governance.

Moreover, the findings support evidence demonstrating the effectiveness of health education programs in improving health-related outcomes among students. Previous studies have reported positive effects on lifestyle behaviors, disease prevention, quality of life, and health-oriented behaviors following participation in health education programs (Arazi et al., 2017; Jafari et al., 2023; Salehi Seifabad, 2025; Ziraei et al., 2024). Research examining the application of health education theories in substance abuse prevention has similarly shown that theory-based educational interventions can significantly influence adolescent behavior (Farjam et al., 2023). Collectively, these findings provide empirical support for the assumption that a comprehensive curriculum model can contribute meaningfully to student health promotion.

Finally, the present findings are consistent with emerging global discussions regarding the future of school health education. Recent scholarship emphasizes innovation, sustainability, leadership, and global-local integration as

essential features of effective health education systems (Joshi, 2026; Roland et al., 2026). The proposed model incorporates these considerations by emphasizing competency development, stakeholder collaboration, supportive environments, and strategic alignment. As such, it offers a framework capable of addressing both current educational needs and future health challenges.

Several limitations should be considered when interpreting the findings of this study. First, the research was conducted using a qualitative approach and relied primarily on the perspectives of experts; therefore, the findings reflect expert judgments rather than direct observations of curriculum implementation in schools. Second, the sample was limited to a relatively small number of specialists, and although theoretical saturation was achieved, additional perspectives from teachers, students, parents, and school administrators may have provided further insights. Third, the study focused on the first cycle of secondary education, which may limit the direct applicability of the findings to other educational levels. Finally, the proposed model was validated conceptually by experts but was not empirically implemented or tested within actual school settings.

Future studies should examine the implementation and effectiveness of the proposed model in real educational environments through experimental, quasi-experimental, or mixed-methods designs. Researchers may also investigate the perspectives of teachers, students, parents, and policymakers regarding the practicality of the model and identify contextual factors influencing implementation. Comparative studies across different educational regions and cultural contexts could further refine the model and enhance its generalizability. Additionally, future research may explore the integration of digital technologies, artificial intelligence, and innovative pedagogical approaches into health education curricula to address emerging health challenges among adolescents.

Educational policymakers should consider incorporating the dimensions and components identified in the proposed model into curriculum development processes and national educational planning. School administrators should create supportive physical and psychological environments that facilitate health promotion and encourage collaboration among teachers, families, and health professionals. Teacher preparation programs should provide educators with the competencies necessary to implement health-oriented teaching methods and assessment practices. Curriculum planners should ensure that health literacy, self-care, mental health, and healthy lifestyle competencies are systematically

integrated into learning experiences. Furthermore, educational authorities should establish mechanisms for continuous monitoring, evaluation, and improvement of school health education programs to ensure their long-term effectiveness and sustainability.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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Declaration of Interest

The authors report no conflict of interest.

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All procedures performed in studies involving human participants were under the ethical standards of the institutional and, or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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