

**SCHOOLS AS SPACES FOR SOCIO-ENVIRONMENTAL TRANSFORMATION AND PLANETARY HEALTH
PROMOTION: A SCOPING REVIEW PROTOCOL**

**ESCOLAS COMO ESPAÇOS DE TRANSFORMAÇÃO SOCIOAMBIENTAL E PROMOÇÃO DA SAÚDE
PLANETÁRIA: PROTOCOLO DE REVISÃO DE ESCOPO**

**LAS ESCUELAS COMO ESPACIOS DE TRANSFORMACIÓN SOCIOAMBIENTAL Y PROMOCIÓN DE LA SALUD
PLANETARIA: PROTOCOLO DE REVISIÓN DE ALCANCE**

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ABSTRACT

Objective: To map the scientific evidence on health education strategies developed in school settings aimed at promoting Planetary Health. Methodology: The study will follow the JBI method, using the PCC strategy (Population: students, teachers or school community; Concept: health education strategies related to Planetary Health; Context: school setting or health promotion programs in schools). The guiding question is as follows: "Which health education strategies developed in school settings promote Planetary Health and socio-environmental transformation?". The protocol has been registered in the *Open Science Framework (OSF)*. The studies will be selected in three stages: reading titles and abstracts to identify papers aligned with the objective; full-reading to verify inclusion criteria; and, finally, summarization of relevant information. Final considerations: The expectation is to compile and analyze the literature aiming to expand knowledge about health and Planetary Health education in school settings, in order to support health promotion and sustainability public policies, with the objective of contributing to devising public micropolicies that will transform new students into more conscious citizens regarding the consequences of climate change.

Keywords: Global Health; Health Education; Sustainable Development; Primary Health Care; School Health Services.

RESUMO

Objetivo: Mapear as evidências científicas sobre estratégias de educação em saúde desenvolvidas em ambientes escolares voltadas à promoção da Saúde Planetária. Metodologia: O estudo seguirá o método JBI, utilizando a estratégia - PCC (População: estudantes, professores ou comunidade escolar; Conceito: estratégias de educação em saúde relacionadas à Saúde Planetária; Contexto: ambiente escolar ou programas de promoção da saúde nas escolas). A pergunta norteadora é: Quais estratégias de educação em saúde desenvolvidas em ambientes escolares promovem Saúde Planetária e transformação socioambiental? O protocolo está registrado no *Open Science Framework (OSF)*. A seleção dos estudos será realizada em três etapas: leitura de títulos e resumos para identificar trabalhos alinhados ao objetivo, leitura completa para verificar critérios de inclusão e, por fim, sumarização das informações relevantes. Considerações finais: Espera-se compilar e analisar a literatura visando ampliar o conhecimento sobre educação em saúde e Saúde Planetária no ambiente escolar, de modo a subsidiar políticas públicas de promoção da saúde e sustentabilidade com o objetivo de contribuir para a formação de micropolíticas públicas que transformem os novos estudantes em cidadãos mais conscientes diante das consequências das mudanças.

Palavras-chave: Saúde Global; Educação em Saúde; Desenvolvimento Sustentável; Atenção Primária à Saúde; Serviços de Saúde Escolar.

RESUMEN

Objetivo: Mapear evidencias científicas sobre estrategias de educación en salud desarrolladas en ambientes escolares orientadas a la promoción de la Salud Planetaria. Metodología: El estudio seguirá el método JBI, utilizando la estrategia PCC (Población: estudiantes, profesores o comunidad escolar; Concepto: estrategias de educación en salud relacionadas con la Salud Planetaria; Contexto: ambiente escolar o programas de promoción de la salud en las escuelas). La pregunta orientadora es: ¿Qué estrategias de educación en salud desarrolladas en ambientes escolares promueven la Salud Planetaria y la transformación socioambiental? El protocolo está registrado en el *Open Science Framework (OSF)*. La selección de los estudios se realizará en tres etapas: lectura de títulos y resúmenes con el objetivo de identificar trabajos alineados con el objetivo, lectura completa para verificar los criterios de inclusión y, finalmente, la síntesis de la información relevante. Consideraciones finales: Se espera compilar y analizar la literatura para ampliar el conocimiento sobre educación en salud y Salud Planetaria en el ambiente escolar, con el fin de subsidiar políticas públicas de promoción de la salud y sostenibilidad, buscando contribuir a la formación de micropolíticas públicas que transformen a los nuevos estudiantes en ciudadanos más conscientes frente a las consecuencias del cambio climático.

Palabras clave: Salud Global; Educación en Salud; Desarrollo Sostenible; Atención Primaria de Salud; Servicios de Salud Escolar.

INTRODUCTION

School spaces are important places that favor several practices in the students' health process, as they are understood as enriched environments both to identify socio-environmental inequalities and as multipliers of individual and collective transformations that benefit the development of public policies. In turn, students also acknowledge them as places that ease inter- and intra-personal relationships and how they construct the view of their territories⁽¹⁾.

This relevance is mainly accentuated in a context marked by intensification of the environmental and climate changes in the last few decades, which have exerted significant impacts on human health, evidencing the need for integrated approaches articulating environment, society and collective health⁽²⁾. Consequently, contact with nature (especially in early childhood) plays a central role in comprehensive development and in changing the world view of these students and future adults⁽³⁾.

Therefore, driven by factors such as disorderly urbanization, pollution and climate change, environmental degradation has contributed to an increase in number of diseases, deterioration of living conditions and deeper health inequalities⁽²⁾.

In this context, school settings can also contribute to identifying individuals and population groups unequally suffering from the effects exerted by environmental degradation, especially those exposed to socio-environmental

vulnerability conditions. These impacts are not restricted to physical problems but include new clinical and socio-psychological categories such as eco-anxiety, characterized by persistent fear of an environmental catastrophe, and solastalgia, related to the emotional distress resulting from the degradation of places holding affective value. Such situations reinforce the importance of literacy in terms of health and Planetary Health, especially among socially vulnerable population groups, which frequently face greater barriers to accessing information, care and social protection mechanisms⁽⁴⁾. In addition to that, school settings can favor recognizing groups exposed to environmental racism and other forms of environmental injustice present in territories.

Consequently, it becomes indispensable to develop educational actions that promote awareness rising and behavioral change since childhood, strengthening the construction of a more sustainable society.

In addition, school settings stand out as privileged spaces to promote education in terms of the environment, health and, therefore, Planetary Health, which emerges as a strategic field to propose a systemic view where the population well-being is directly related to preserving natural ecosystems; in other words, the deeper the degradation, the higher the burden of diseases. Such being the case, there should be certain harmony between human and non-human beings (animals, nature, ecosystems) for populations to live longer and enjoying good quality of life⁽¹⁻²⁾. Therefore, schools become an ideal place for this social diagnosis, for

educating the population and for developing actions targeted at socio-environmental transformation.

Consequently, the following question is formulated: Which health education strategies developed in school settings promote Planetary Health and socio-environmental transformation?

In this context, the Health at School Program (*Programa Saúde na Escola*, PSE)⁽⁵⁾ was developed and implemented in Brazil in 2007, articulating health and education to promote the students' comprehensive development and qualify promotion, prevention and care actions in school settings, which turns out to be strategic to incorporate the Planetary Health principles. In other words, the changes have already been outlined, but advancing in their implementation is still a pending task.

Thus, these associations allow shaping critical and participative individuals capable of understanding their reality and intervening in it⁽⁶⁾. Including the Planetary Health theme in schools can contribute to developing competencies related to socio-environmental responsibility and to adopting sustainable practices in everyday life, as it enhances Planetary Health literacy, thus assisting in decision-making in the students' attached territories and contributing to mitigating possible socio-environmental risks.

Therefore, the objective of this protocol is to map diverse scientific evidence on health education strategies developed in school settings, targeted at promoting Planetary Health.

METHODS

This scoping review protocol follows the JBI methodology⁽⁷⁾. In order to ensure transparency, reproducibility and standardization in the synthesis of the evidence, the study stages and the presentation of the results shall follow the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews* (PRISMA-ScR) recommendations⁽⁸⁾. The protocol has been registered on the *Open Science Framework* (OSF) platform, identified as 9TM4E and with DOI: <https://doi.org/10.17605/OSF.IO/9TM4E>.

The review process shall follow these stages⁽⁹⁾: Defining the research question; Identifying relevant studies; Selecting studies; Extracting data; and Synthesizing and presenting the evidence.

The PCC acronym⁽¹⁰⁾ was used to formulate the research question (Chart 1). Consequently, the review sought to answer the following guiding question: Which health education strategies developed in school settings promote Planetary Health and socio-environmental transformation?

Chart 1 - Process to formulate the research question

-	p	C	C
Acronym definition	Population	Concept	Context
Question component	Students, teachers or school community.	Health education strategies related to Planetary Health.	School setting or health promotion programs in schools.

Source: The authors (2026).

After searching the pre-selected databases, the data will be extracted as per the JBI recommendations, using a standardized form previously tests by two independent reviewers.

Eligibility criteria

The inclusion criteria will be as follows: studies on health education strategies in school settings and focused on Planetary Health, environmental health, sustainability or climate change; with qualitative, quantitative or mixed-methods designs; and published in Portuguese, English or Spanish. The time clipping will begin in 2007, year when the Brazilian Ministry of Health implemented the Health at School Program (PSE) via Presidential Decree No. 6,286⁽⁵⁾.

The following exclusion criteria will be adopted: opinion articles, editorials or comments and studies outside the school context or with no educational components defined.

Information sources

The searches will be conducted in the following databases: LILACS (*Literatura Latino-Americana e do Caribe em Ciências da Saúde*); SciELO (Scientific Electronic Library

Online); Sci Verse Scopus; Web of Science (WoS); and the PubMed database, managed by the National Library of Medicine (NLM) linked to the National Institutes of Health (NIH). The platform includes the MEDLINE (Medical Literature Analysis and Retrieval System Online) database, indexed by means of MeSH (Medical Subject Headings) terms, in addition to unindexed records, which enhances sensitivity and identification of relevant evidence.

Search strategy

The search strategy will be prepared using “AND” and “OR” Boolean operators. It will combine controlled descriptors (MeSH [Medical Subject Headings] and DeCS [*Descritores em Ciências da Saúde*] with free terms in order to enhance sensitivity and specificity in identifying studies, as per the JBI recommendations. The following controlled descriptors will be used: Saúde Global OR Global Health OR Salud Global; Educação em saúde OR Health Education OR Educación en Salud; Desenvolvimento Sustentável OR Sustainable Development OR Desarrollo Sostenible; Atenção Primária à Saúde OR Primary Health Care OR

Atención Primaria de Salud; Serviços de Saúde Escolar OR School Health Services OR Servicios de Salud Escolar.

In order to expand sensitivity of the search strategy, alternative and uncontrolled terms such as the following ones will be added: International Health Problems; International Health; Global Health; Planetary Health; Educating for Health; Health Education; Community Health Education; Health-Related Education; 2030 Agenda; Sustainable Development Goal; Sustainable Development Objective; Sustainable Development Goals; Sustainable Development Goals (SDGs); Sustainable Development Objectives; Sustainable Development Objectives (SDOs); Basic Support; Primary Support; Primary Health Support; Basic Assistance; Basic Health

Assistance; Basic Assistance, Health; Primary Assistance; Primary Health Assistance; Primary Assistance, Health; Primary Health Care; Primary Care, Health; Primary Health Care Measures; Primary Care Measures; Primary Health Care, Measures; Primary Care, Health; First Assistance Level; First Support Level; First Assistance Level; First Health Assistance Level; First Care Level; First Level, Care; Pupils' Health Promotion; Students' Health Promotion; Health Promotion in School Settings; Health Promotion in School Environments; School Health Promotion; Health Promotion in Schools; Health Promotion in School Settings; Health Promotion in School Environments; Health Promotion in Academic Institutions; School-Based Health Service; School-Based Health Services.

Chart 2 - Search strategy, conducted on March 24th, 2026

Databases	Search strategy	Articles found
<i>Literatura Latino-Americana e do Caribe em Ciências da Saúde</i> (LILACS)	((Global Health) AND (Health Education)) AND (Sustainable Development))	80
SciELO (Scientific Electronic Library Online)	(Saúde Global OR "Saúde Global) AND (Educação em Saúde OR Educação em Saúde) AND (Desenvolvimento Sustentável OR "Desenvolvimento Sustentável)	193
Sci Verse SCOPUS	("Global Health") AND ("Health Education") AND ("Sustainable Development") AND ("Health Personnel"))	253
Web of Science (WoS)	Global Health (Topic) AND Health Education (Topic) AND Sustainable Development (Topic)	34
National Library of Medicine - National Institutes of Health (NIH)	((Global Health) AND (Health Education)) AND (Sustainable Development)) AND (Health Personnel)	290
Total		850

Source: The authors, March 2026.

Selection of studies

The selection process will consist in three stages: Identifying studies in the databases; Screening by titles and abstracts; and Full-text evaluation according to the eligibility criteria. The references will be imported to the Rayyan software program, which will support an independent and blind review in charge of two reviewers. Any and all disagreements will be solved by consensus or by resorting to a third reviewer. The selection flow will be presented in a diagram, according to the PRISMA-ScR recommendations⁽⁸⁾. Only the studies included in this stage will comprise the final sample for data collection and extraction.

The Rayyan software will be used as a support tool to screen and select the studies identified in the databases⁽¹¹⁾. This platform allows importing references and independent assessments of titles and abstracts in charge of reviewers, to subsequently compare their decisions. This resource favors transparency, organization and traceability of the selection process⁽¹²⁾. In addition to that, Rayyan allows identifying duplicates, applying thematic labels and filters and systematically recording inclusion and exclusion decisions, thus ensuring greater methodological rigor and standardization in conducting scoping reviews⁽¹³⁾.

RESULTS

The subsequent stage will be data extraction, a phase of fundamental relevance to systematize all the information found,

considering the recommendations set forth in the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses— Extension for Scoping Reviews* (PRISMA-ScR).

Data collection and extraction

The recommendations set forth in Chapter 7 of the *JBIM Manual for Evidence Synthesis*¹² will be observed when extracting the data. All the information shall be organized in a spreadsheet structured in *Microsoft Excel 365*®.

A previously tested standardized form will be used; it shall include authors, publication year, country of origin, methodological design, characteristics of the educational intervention, target population, Planetary Health topics addressed and main results. The extraction process will be in charge of two independent reviewers and will include cross-checking and resolution of disagreements by consensus or by resorting to a third reviewer, when necessary.

Data synthesis and analysis

The data extracted will be organized in descriptive tables and thematic categories. The synthesis shall include the following: characterization of the studies included; mapping of the educational strategies; identification of Planetary Health topics addressed; and thematic analysis of the educational Approaches. The results will be presented in the form of tables, narrative synthesis and conceptual maps of the evidence.

Ethical considerations

For being a literature review based on previously published studies, approval by a Research Ethics Committee (*Comitê de Ética em Pesquisa*, CEP) is waived. Nevertheless, principles pertaining to scientific integrity, transparency and good research practices will be respected.

Study limitations

The protocol limitations include possible heterogeneity of the studies found and conceptual diversity regarding planetary health and socio-environmental transformation, in addition to the restriction concerning the databases and languages selected. It is also noted that, for being a scoping review, the objective will be to map all the available evidence, without deepening the assessment regarding the methodological quality of the studies included

Contributions for the Nursing, Health or Public Policy areas

It is of utmost importance to discuss new themes that address the relevance of the fusion between education and health, mainly in school contexts, for being spaces that shape new citizens. The children and young individuals currently undergoing their education process shall be the adults of the future; therefore, it is fundamental to invest in health and Planetary Health education, aiming to devise more adequate and sustainable environments. In this way, the intention is to minimize the impacts exerted by climate change and to mitigate the

harms caused by events such as the pandemics experiences in the last few years (COVID-19, for example) by means of socio-environmental education strategies.

FINAL CONSIDERATIONS

It is expected that this review will contribute to: 1) expanding knowledge on health and Planetary Health education in school settings; informing health promotion and sustainability public policies; supporting innovating health strategies in schools; strengthening the articulation between the health and education sectors; and, perhaps, helping devise public micropolicies that will transform new students into more conscious citizens and, therefore, less affected by diseases arising from the new climate changes.

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No datasets were generated in this study. The information presented is described in the body of the article.

Conflict of Interest Statement

"None to declare."

Authorship Criteria (Author Contributions)

Meillyne Alves dos Reis - 1. Substantial contribution to the conception and/or planning of the study; 2. Acquisition, analysis, and/or interpretation of data; 3. Drafting and/or critical revision and final approval of the published version.

Flavia Alves Amorim Souza Sales - 2. Acquisition, analysis, and/or interpretation of data; 3. Drafting and/or critical revision and final approval of the published version.

Giovana Galvão Tavares - 2. Acquisition, analysis, and/or interpretation of data; 3.

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Iel Marciano de Moraes Filho - 1. Substantial contribution to the conception and/or planning of the study; 2. Acquisition, analysis, and/or interpretation of data; 3. Drafting and/or critical revision and final approval of the published version.

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