

Supplementary Table S1

Table S1 Evolution of School Health Promotion Instrument Development and Evaluation Approaches (1985–2025)

Year Range	Research Direction	Description
1985–1995	Foundational Instrument Development	Initially, a lot of work was done in establishing standard measuring instruments for health issues of adolescents, cardiovascular risk behaviors, and the needs of health programs in schools through surveys and inventories. The tools were designed to register knowledge, attitudes, and behaviors related to health in order to guide the development and evaluation of programs. Their focus was mainly on content and construct validity as well as moderate reliability for the school environment.
1996–2005	Expansion to Comprehensive Health Behavior Assessment	The research has become more extensive, covering multidimensional health behavior surveys and process evaluation tools for school based interventions targeting nutrition, physical activity, and obesity prevention. Along with the psychometric properties such as internal consistency and reliability, they have also been improved. Moreover, the involvement of the family and the community has been initiated at an early stage. The researchers have also dealt with methodological aspects of the instrument development and validation.
2006–2010	Integration of Health Promotion Frameworks and Planning Tools	Development of the instruments has moved towards incorporating whole school approaches and health, promoting school frameworks with an emphasis on school ethos, organizational support, and environmental factors. There has been the emergence of planning, monitoring, and evaluation tools for comprehensive school health programs that often use mixed methods and participatory techniques to stakeholder relevance.

2011–2015	Psychometric Refinement and Adaptation to Diverse Contexts	Studies primarily concentrated on enhancing instruments by employing state of the art psychometric techniques such as factor analysis and reliability testing for different populations and age groups. The main focus was on short but still valid scales for measuring adolescent health behaviors, school policy fit, and implementation fidelity. Also, there was a significant increase in the use of participatory and mixed methods approaches.
2016–2020	Holistic Instrument Development and Policy Integration	The research featured comprehensive and multidimensional instruments as the main priority to depict the reality of school health promotion in the pedagogical, structural, relational, and policy areas. The instruments dealt with the culture of the school, the processes of implementation, and the practicality, while also being orientated towards the issues of fairness and contextual heterogeneity in the design.
2021–2025	Advanced Validation and Equity-Focused Measurement	Present studies highlight the creation of scientifically sound instruments as the main goal accomplished through mixed methods, expert consultation, and large scale field testing. The instruments concentrate on the comprehensive health of students, the school environment, the integration of policies, and the implementation processes with strong indicators of reliability and validity supporting the application on a large scale, i.e., nationwide and multisectoral.