BMC Public Health

RESEARCH

Open Access

Development and content validation of a questionnaire of activities in health promotion for primary and secondary education: PromoACTIVA-CE

Isabel Antón-Solanas[1,2*], Marta Callén-Galindo[1], Fernando Urcola-Pardo[1,2], Olga López-Dicastillo[3,4,5], Agurtzane Mujika[6], Naia Hernantes[6], Eva Benito-Ruiz[1,2], Edurne Zabaleta-del-Olmo[7,8,9], Dolors Juvinyá-Canal[9,10,11] and María Jesús Pumar-Méndez[3,4,5]

Abstract

Background This study aimed to develop, refine, and assess content validity of the PromoACTIVA-CE questionnaire, designed to assess health promotion activities in primary and secondary education. The tool addresses the need for a culturally and contextually relevant instrument to systematically evaluate and support health promotion initiatives in schools.

Methods Questionnaire development followed a five-phase process that included the following phases: (1) conceptualization; (2) item generation, structure and format; (3) content validation; (4) comprehensibility and semantic fit testing; and (5) pilot testing.

Results The PromoACTIVA-CE questionnaire was successfully developed and validated, resulting in a reliable tool with 37 items classified into eight health promotion action areas. Minor floor effects were observed, but no ceiling effects were detected.

Conclusions The PromoACTIVA-CE questionnaire is a valid and reliable tool for assessing health promotion activities in primary and secondary schools. Its development leveraged existing evidence-based practices while ensuring cultural and contextual relevance. The tool facilitates systematic assessment and operationalization of health promotion activities, contributing to the sustainability and effectiveness of health promotion initiatives in educational settings. Future research should explore the questionnaire's sensitivity to changes over time and its applicability in diverse school contexts.

Keywords Health promotion, Primary school, Secondary school, School health

*Correspondence:
Isabel Antón-Solanas
ianton@unizar.es

Full list of author information is available at the end of the article

Introduction

Health promotion (HP) in educational settings is a critical component of fostering well-being and academic success among students. Schools serve as essential platforms for implementing HP activities, influencing not only the health behaviors of students but also those of staff and the broader community [1].

Research in recent decades has indicated that health and health inequities in adulthood are largely shaped during childhood and adolescence through social factors [2, 3]. Primary and secondary school age is a crucial period for establishing lifelong health habits [4]; in Spain, it includes children and adolescents aged 6–16 years. In turn, good health and happiness positively influence students' learning and lead to better long-term health outcomes [1, 5]. According to the World Health Organization (WHO) [6], "schools are a unique setting for creating health and cover an important time period for establishing healthy behaviors". However, some challenges remain, namely, making school health education a key social and cultural priority by enhancing advocacy efforts, improving the ability of educational institutions to consistently provide high-quality health education in schools, achieving intersectoral collaboration to provide leadership and innovative ideas for school health education, and developing multidisciplinary research capacities to address challenges in implementing effective and reliable HP interventions in schools [7]. In Spain, school-based HP is framed by national laws such as the Ley Orgánica de Modificación de la Ley Orgánica de Educación (LOMLOE) [8], which establishes schools' duty to ensure students' personal and social development. However, there is no mandatory, standardized framework for operationalizing HP activities in schools, resulting in varied practices across regions.

HP in primary and secondary schools is a comprehensive approach aimed at improving the health and well-being of students, staff, and the broader school community [9]. Rooted in the principles outlined in the Ottawa Charter for Health Promotion [10], this construct emphasizes the importance of creating supportive environments, strengthening community action, developing personal skills, and reorienting health services toward prevention and health promotion.

In turn, the health promoting school (HPS) concept, articulated by the WHO, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Children's Fund (UNICEF) in 1992 [11], aims to affect organizational and structural changes, such as improving schools' physical and socioemotional environments, curricula and teaching methods. This approach seeks to support healthy behaviors among not only students but also teachers, parents, school staff and the local community by addressing both the school context and educational policies through a comprehensive model [12]. Accordingly, the WHO's Global Accelerated Action for the Health of Adolescents emphasizes that every school should aim to be an HPS. Subsequently, countries without a national school health program should establish one, whereas those with existing programs should continuously evaluate and improve them on the basis of the latest evidence and emerging priorities [5].

However, previous studies on the implementation of this approach in different countries and educational settings have described barriers, namely, lack of human resources, time and facilities [13]; lack of funding; unstable governmental support; inappropriate development of HPS national networks [14]; weak collaboration between the education and health sectors [15]; and insufficient preparedness of teachers and educational institutions in terms of health issues [16]. In Spain, the HPS initiative faces similar challenges, as does an overreliance on volunteer staff, the perception that HP is not a priority in educational policy, and limited family involvement [17]. Furthermore, HP is often seen as an additional burden on teachers, leading to feelings of being overwhelmed and unqualified to address health issues [18, 19]. These aspects hamper the introduction of innovative HP activities within the education community. Systematic reviews have identified key elements for the success of such programs, including institutional support, official recognition, effective assessment methods, the involvement of the entire school community, and the implementation of integrated HP activities [20, 21]. Other authors have highlighted the importance of motivating schools to transform into HPSs and integrate HP into their education processes [22]. Thus, it is essential to design resources to assist the implementation of HP in schools and to provide school personnel with comprehensive planning and systematic tools and training to guarantee the successful implementation of HP initiatives within school settings.

Existing tools for implementing HP in schools focus primarily on evaluating specific activities or interventions rather than the overall process of HP implementation. This limitation underscores the need for a tool to systematically assess HP as an ongoing, dynamic process. In contrast, a process-oriented tool would include components such as a clear implementation framework, defined success indicators, feedback mechanisms, resource allocation assessment, training and support evaluation, and criteria for sustainability and scalability. By developing and implementing this type of tool, schools could increase their HP efforts, leading to a healthier and more supportive school environment.

Theoretical framework

HP is delineated as a procedural construct by the WHO [10], necessitating a comprehensive planning approach that incorporates relevant information from all constituent stages. Pumar-Méndez et al. [23] operationalized and evaluated the HP process, delineating it into eight phases, which were specifically designed to integrate and assess HP activities in primary care. Despite the assigned numerical sequence, the first three phases may manifest in varying sequences or iteratively within this adaptable framework. In this context, *planning* assumes a pivotal role, formalizing, structuring, and systematizing practices and capacity-building initiatives for HP within organizations. *Situational analysis* involves the exploration and comprehension of circumstances at the individual, community, and organizational levels to facilitate HP strategy formulation, healthy public policy development, and planning. *Organizational* capacity building focuses on augmenting and optimizing the allocation and coordination of human, material, structural, and financial resources within organizations, which is integral for successful HP implementation.

The remaining four phases bear a dual impact, serving as both direct HP interventions and benefiting individuals and communities while concurrently enhancing HP capacity. Specifically, the phase *of raising awareness and shaping public opinion* entails activities focused on cultivating and influencing the perspectives of individuals, communities, and systems regarding the social determinants of health and their implications. Moreover, the *advocacy* phase involves endeavors to champion the necessity for strategies promoting health by addressing multiple determinants and upholding principles of equity, participation, and health in all policies. Finally, the phases of network development and collaboration development focus on establishing community and social networks for HP and identifying and establishing collaborations with key HP stakeholders, respectively.

A final phase, *intervention strategies*, stands as the singular component exclusively dedicated to enhancing individuals' health-related skills and the environments in which they reside or, in this case, in which they teach and learn, thereby fostering favorable health behaviors.

Justification

In Europe, the integration of HP into primary and secondary education has been encouraged through various national and international initiatives, including the Schools for Health in Europe network [24]. However, despite the recognized importance of HP in schools, there remains a need for comprehensive tools that can effectively provide a comprehensive understanding of how HP activities are integrated and sustained within the school context, considering long-term outcomes and the continuous evolution of HP efforts. Such a tool should be able to identify gaps and barriers in the implementation process, ensure consistency and quality, and support continuous improvement by providing regular feedback.

Aim

The lack of a validated, process-focused assessment tool has posed challenges for educators and policymakers seeking to evaluate and enhance HP efforts. To address this gap, our study aimed to develop, refine, and assess content validity of the PromoACTIVA-CE questionnaire, a tool specifically designed to guide and evaluate the process of integrating HP activities in primary and secondary school settings by its target population, namely, school personnel, including teachers; managers; and health and social care staff, such as school nurses.

Methods

The development process followed five steps aligned with established instrument-development frameworks [25, 26]. These frameworks commonly emphasize the following early-stage activities: (1) defining the construct and theoretical domain; (2) generating items and specifying the response format; (3) obtaining expert feedback to assess content relevance, clarity, and representativeness; (4) evaluating item comprehensibility and semantic fit with target users; and (5) pilot testing to identify issues before large-scale validation.

Accordingly, the following activities were carried out: (1) conceptualization; (2) item generation, structure and format; (3) content validation; (4) comprehensibility and semantic fit testing; and (5) pilot testing (see Fig. 1).

Conceptualization

The Ottawa Charter provides a comprehensive and internationally recognized framework for HP, emphasizing five key action areas: building healthy public policy, creating supportive environments, strengthening community action, developing personal skills, and reorienting health services. Using Ottawa Charter's action areas [10] as a framework, we searched the literature to ensure that the construct definition aligned with relevant prior research and theory and to identify existing tools or items that might be used or adapted.

Documentary searches of the Cochrane, CINAHL, PubMed, Web of Science, and Scopus databases were undertaken between January and April 2022, combining the Ottawa Charter's action areas and the controlled terms 'school' and 'health promotion'. In addition, we searched the databases to identify preexisting tools and instruments to evaluate health promotion interventions in both primary and secondary schools. The search was limited to publications in English and Spanish and focused on studies and reports published in the past 10

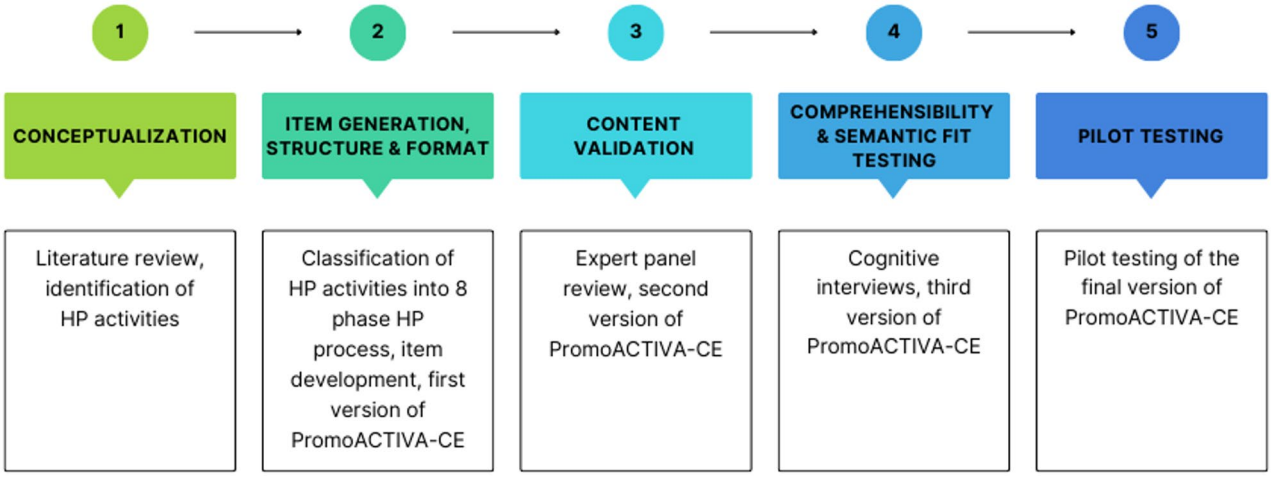

Fig. 1 PromoACTIVA-CE design process

years. In addition, we ensured that they represented HP activities integral to and supporting the practice of HP in primary and secondary schools. Relevant and sufficient sources, including scientific publications and policies, were identified throughout this time.

The papers identified through the literature review were analyzed via documentary analysis, as described by Hodder [27], by two researchers separately. This method involves a systematic examination of documents to extract meaningful information and identify patterns and themes. The analysis process included the following phases: (1) extraction of relevant information related to specific recommendations on HP activities in school settings; (2) comparative analysis aimed at identifying gaps, overlaps and unique contributions of the literature; and (3) synthesis and evaluation to guarantee that the conceptualization of the construct made theoretical sense and used appropriate, context-specific language [28].

Notably, the tool was conceptualized in the understanding that HP practice is a formative construct [29] as opposed to a reflective one. In the first case, the individual items in a questionnaire are viewed interchangeably and not necessarily represent different aspects of a single underlying construct; that is, the focus is on how the items collectively influence the construct being measured rather than how they reflect it. In the second case, the items are seen as directly measuring the construct itself. As a result, we ensured that the HP activities identified through the literature review represented HP activities integral to and supporting the practice of HP in primary and secondary schools.

Item generation, structure and format

We subsequently mapped the HP activities identified against Pumar-Méndez et al.'s [23] 8-phase HP process framework. Classifying and organizing HP activities into a structured framework ensures that all phases are systematically addressed, promotes consistency, facilitates replication, and makes it easier to monitor and adjust interventions, leading to more effective and sustainable health outcomes. In this process, we adhered to the following criteria: (1) the HP activities had to be relevant to the European primary and secondary school context, and (2) each HP activity could be integrated into only one phase in the HP process.

Once the HP activities were classified, the items were developed and iteratively reviewed for completeness, relevance to the European context and the potential to promote intersectoral collaboration. In addition, we ensured that they represented HP activities integral to and supporting the practice of HP in primary and secondary schools.

Each item started with an active verb describing one single HP activity applicable in school settings. In addition, each item was furnished with a descriptor providing more detail into each HP activity. This approach served several purposes, namely, (1) using active verbs in infinitive added clarity and conciseness to the actions required for each HP activity, avoiding ambiguity and focusing on the action itself, and (2) the descriptors following each item provided additional context and detail, clarifying the nature and scope of each HP activity.

Table 1 Cognitive interview guide

Strategies	Questions or instructions
Thinking aloud technique	• Please, read each item aloud, explain its meaning and what you understood when reading it.
Probing questions	1. Could you please explain the meaning of what you have just read in your own words? 2. Can you rephrase the question in your own words? 3. Could you give me examples? 4. Has it been difficult for you to understand this question? 5. Do you think it would be difficult for other people in your role to understand this question?

Table 2 Search strategy and results from the literature review

	PubMed	CINAHL	Cochrane	WOS	Scopus	Total
Search 1 ("Schools" AND "Health Promotion") AND "build healthy public policy"	10	6	0	2	2	10
Search 2 (Schools[Mesh] AND "Health Promotion"[Mesh]) AND 'build* AND "Public Policy"[Mesh]	15	0	1	4	0	20
Search 3 ("Schools" AND "Health Promotion") AND "create supportive environments for health"	132	4	1	2	2	141
Search 4 ("Schools" AND "Health Promotion") AND "strengthen community action for health"	48	4	0	0	0	52
Search 5 ("Schools" AND "Health Promotion") AND "develop personal skills"	339	7	0	0	1	347
Search 6 ("Schools" AND "Health Promotion") AND "reorient health services"	1	1	0	0	0	2
Search 7 ("Schools" AND "Health Promotion") AND "reorient health services"	0	0	0	0	0	0

Once the items were finalized, they were translated into Spanish (if applicable) and reviewed via de Vaus's [30] checklist of 17 questions to ensure clear writing and avoid ambiguity. A 5-point Likert-type scale was selected to measure respondents' perceptions regarding the degree of execution of each action: 1 = none (the action is not done), 2 = insufficient (the action is being considered for implementation), 3 = sufficient (the action is planned and has been partially implemented), 4 = advanced (the action is carried out but not yet systematized), and 5 = very advanced (the action is systematically carried out and integrated into the organization's practice). This scale provided enough variability to capture nuanced differences in respondents' perceptions of execution levels while remaining easy to understand and use. In addition, it allows for a reasonable level of discrimination between responses without overwhelming respondents with too many options or making the scale too complex.

Careful attention was given to the format of the PromoACTIVA-CE to ensure that it was easy for participants to understand and respond. The literature recommendations included a section outlining the tool's purpose, instructions for completion and return, criteria for participant selection, confidentiality considerations, and an explanation of the tool's structure [31].

Content validation

Content validity analysis of the initial version of the PromoACTIVA-CE tool was conducted via an expert panel and by calculating the content validity index (CVI). It is recommended that expert panels consist of 8 to 12 members [32]. Eight experts in school HP were intentionally chosen on the basis of the following criteria: (a) experience in making judgments and evidence-based decisions, (b) a strong reputation in the study area, (c) availability and willingness to participate, and (d) an impartial attitude. These qualified experts evaluate and provide feedback on the relevance of each item and of the whole tool [33]. Thus, they were invited to (1) rate the relevance of each item on a scale from 1 to 4, (2) provide qualitative observations/comments on each item and on the whole tool, and (3) suggest new items. The scores provided by the experts were used to calculate the CVI. This consensus estimation index calculates the proportion of experts who evaluate the items of the scale as relevant, allowing the estimation of the content validity of each item (I-CVI) and the scale as a whole (S-CVI) [32]. The I-CVI was calculated and applied by dividing the number of experts who had been awarded 3 or 4 points for the relevance rating of the item by the total number of experts on the panel. Items scoring ≥ 0.78 were considered valid; items scoring < 0.78 were proposed for review; and items scoring < 0.6 were eliminated.

With respect to the panel's qualitative comments and observations, the following process was used to guide the decision-making process:

- Suggestions for conceptual/terminological changes – consult the relevant literature to inform decision making.
- Suggestions for adding information to improve item clarity – Consider the original item descriptor to verify and make the new proposal.
- Confusing suggestions – Discuss with the expert who made the suggestion.
- Redundant suggestions – discard after being addressed.

Comprehensibility and semantic fit testing

The second version of the PromoACTIVA-CE questionnaire was tested for comprehensibility and semantic fit testing via the cognitive interview technique. We conducted five cognitive interviews with potential intended users of the tool. The interview protocol included thinking aloud techniques (Table 1). The cognitive interviews concluded by asking the respondent about their overall

Table 3 HP activities classified according to the Ottawa charter's actions

Actions	HP activities
Building healthy public policy	1. Collaboration frameworks between local government, communities, and schools are established. 2. The school has developed a policy or plan specifically for HP. 3. The HPS plan is consistent with current HP policy. 4. The HPS plan specifies the roles and responsibilities of the school board, administration, staff, students, parents, and caregivers, along with ongoing resource allocation. 5. School policies advocate for inclusive, equitable, evidence-based, and rights-oriented approaches, acknowledging the diversity of educators and students. 6. School policies are developed based on local needs assessments and priorities identified by students, the school, and the local community. 7. An all-encompassing school plan ensures the continuation of learning and HP during crises. 8. The plan incorporates partnerships with national, regional, and local authorities. 9. The plan involves partnerships with parents and caregivers. 10. The plan includes collaborations with the local community and other schools where relevant. 11. School policies are communicated transparently to all stakeholders. 12. Resources are sufficient to implement and monitor policies, aligning with policy objectives and targets. 13. Resource allocation is explicitly defined and included in the budget. 14. The school commits to professional development for teachers and other staff, including healthcare personnel, in HPS. 15. Systems for planning and tracking progress and performance are clearly detailed in operational plans and guidelines. 16. The school leadership team regularly convenes to review and incorporate the priorities, needs, and interests of the school community as identified by stakeholders. 17. Explicit roles are defined for HPS leadership within the school. 18. Students are actively involved in decision-making and HPS leadership and receive appropriate training. 19. Parents and caregivers are encouraged to participate in decision-making and HPS leadership. 20. Existing or new communication channels are used to ensure a shared understanding of HPS needs and strategies. 21. Training includes the implementation of monitoring and evaluation systems. 22. Training encompasses the range of social determinants, health risks, protective factors, and health issues affecting students, addressing resilience, diversity, and inclusion. 23. A structured system is in place to ensure regular planning, monitoring, and evaluation of the progress and effectiveness of school governance and leadership in HP.
Creating supportive environments	1. The desired elements of the school's social–emotional environment are agreed upon by all stakeholders within the school and local community, fostering equity, including gender equity, through inclusiveness and embracing diversity. 2. Members of the school community treat each other with respect and kindness in all interactions, with zero tolerance for discrimination, bullying, corporal punishment, or harassment. 3. Positive behavioral interventions and supports help in acquiring and applying the knowledge, attitudes, and skills necessary to manage emotions, set positive goals, show empathy, maintain relationships, and make responsible decisions. 4. The school sets high expectations for students, staff, and the local community regarding social interactions and relevant health and education outcomes, nurturing positive relationships, building self-esteem, and confidence in all individuals. 5. The school ensures that all aspects of the social–emotional environment are maintained, even during distance or virtual learning, by engaging students, supporting those at risk, and promoting school culture. 6. Teachers receive professional development to acquire skills that support a healthy and safe school climate, enhance connections with students and their families, and effectively address critical incidents. 7. The school has mechanisms to detect and respond to any disruptions in the socioemotional environment, using strategies like conflict mediation and anti-bullying programs. 8. The school's physical and learning environment is accessible and adapted to meet the needs of all individuals in the school community, including those with additional needs and disabilities, adhering to relevant government hygiene and safety standards and regulations. 9. Nutrition programs, such as those aimed at increasing fruit and vegetable consumption in schools, are implemented to improve students' health. 10. Programs aimed at developing emotional intelligence and social competence are provided, including activities tailored for moral growth, cognitive and social skills development, and overall well-being. 11. The school employs multi-tiered systems of support to prevent and respond to critical incidents, promoting a safe and inclusive school environment. 12. Infrastructure improvements are made to enhance the learning environment. 13. Strategies for preventing school violence and promoting inclusion and equity in education are developed and implemented. 14. Schools gather and act on student feedback to create more inclusive classroom practices, involving students and teachers in dialogue to explore ways to make lessons more inclusive. 15. Teachers receive guidelines for raising awareness about disabilities and fostering social relationships in inclusive classrooms. 16. Changes to the physical structure of classrooms, such as integrating spaces for emotional development, support an inclusive and emotionally supportive learning environment.

Table 3 (continued)

Actions	HP activities
Strengthening community action	1. Systems are established to support cooperation within the school and between the school and the surrounding community, including through the use of committees. 2. Parents and caregivers actively participate in planning activities related to HPS. 3. A student committee works in partnership with the HPS leadership, providing input on a regular and meaningful basis. 4. Resources are allocated to strengthen students' ability to engage in HPS activities and to act as advocates and change agents within the school and the broader community. 5. There is a consistent and clear flow of communication between the school and local communities regarding the objectives and actions of HPS. 6. The local community is involved in decision-making processes concerning HPS and related activities. 7. Community organizations collaborate with schools in implementing HPS initiatives, including during crises, to maintain the continuity of education. 8. Planning, oversight, and feedback mechanisms are implemented to ensure the effective functioning of HPS activities.
Developing personal skills	1. Teachers can adapt their teaching strategies and activities to meet the developmental stages of their students. 2. School staff are prepared to address the various physical, psychological, and emotional needs of students 3. Health-related topics are designed to address the rights, changing needs, and priorities of students, their families, and local communities, promoting relevant knowledge, attitudes, and skills. 4. The development of knowledge and skills is aligned with students' personal and social growth in a cyclical, progressive fashion throughout their educational journey. 5. The school's curriculum is developed in alignment with curriculum standards and evidence-based guidance, with active involvement from key stakeholders. 6. The curriculum incorporates the physical environment as a strategy to promote a healthy, safe, and sustainable setting. 7. The curriculum encourages participatory approaches by involving students in the context of their daily lives. 8. The curriculum promotes cooperative interaction among students and fosters inclusive education to support educational achievements. 9. The curriculum is adaptable and can be modified to address emerging health or environmental challenges. 10. The curriculum is implemented collaboratively with students, school staff, and the school community, including health professionals, community health workers, educators, and NGOs. 11. Essential health and relationship topics necessary for healthy development are delivered by school staff in an inclusive, age-appropriate, gender-responsive, rights-based, and evidence-informed manner, free from personal biases. 12. Equitable digital and distance learning methods are employed to supplement traditional classroom education and HP. 13. School staff are knowledgeable about the physical, social, and psychological development of students and understand how these factors influence their learning and behavior. 14. The school curriculum promotes understanding and values that encourage sustainable practices and environmental stewardship. 15. The teaching methods and relationships between students and teachers, as well as among teachers, foster a healthy, safe, and supportive environment that encourages positive behaviors, physical activity, and well-being. 16. Staff receive training and support in health literacy and effective teaching strategies to enhance the HP and services approach. 17. Educate the school community about air pollution risks, the importance of clean air, and protective measures during high pollution levels. 18. Provide education on preventing environmental risks, including intoxication and exposure to harmful substances. 19. Raise awareness about the importance of good water quality and hygiene practices. 20. Promote healthy eating habits and educate the community on food safety principles. 21. Educate about the risks of exposure to sunlight and wireless device radiation, along with strategies to reduce these risks. 22. Address the health risks associated with excessive noise and educate on ways to mitigate these risks. 23. Encourage physical exercise within school curricula to combat obesity. 24. Provide education on road safety and the use of public transportation. 25. Raise awareness about the impact of natural and human-induced disasters, and educate on safety measures 26. Implement swimming lessons to prevent drowning incidents. 27. The curriculum is continuously reviewed and updated to ensure it effectively supports the health and well-being of students.

Table 3 (continued)

Actions	HP activities
Reorienting health services	1. School health services are designed to meet the needs and priorities of both the school and the local community, with the flexibility to adapt to public health emergencies and other emerging issues. 2. Significant resources, including funding, training, and materials, have been allocated to school health services, such as nutrition programs and the provision of healthy food. 3. The school has established a system for planning, monitoring, and evaluating the effectiveness of its health services, ensuring adherence to quality standards and regulatory compliance. 4. Students have access to a broad and well-rounded set of health services that are grounded in evidence-based practices. 5. The school maintains the provision of health services for students even during periods of remote or virtual learning. 6. School health services play a supportive role in implementing public health and social interventions during times of public health crises. 7. School health professionals, such as nurses, psychologists, and social workers, undergo specialized training and education programs. 8. In times of public health crises, school health staff are equipped and encouraged to contribute to national and local public health efforts as needed. 9. Clear guidelines are established for information sharing and collaboration between school health services and other primary care providers, including the provision of specialized services, referral processes, and communication protocols during emergencies.

perception of the questionnaire's comprehensibility, ease of use, and length. All the interviews were audio recorded.

We documented whether respondents correctly understood each item and noted any specific issues they identified or changes they suggested [34]. Items were considered for modification if (a) two or more respondents misinterpreted an item, (b) respondents who misunderstood an item indicated unfamiliarity with a concept, or (c) two or more respondents proposed the same change or recommendation for an item.

Conducting pilot testing

Pilot testing of PromoACTIVA-CE was conducted to evaluate the administration process and assess the questionnaire's ability to distinguish between respondents at the extreme ends of the scale [35]. According to Johanson & Brooks [36], a pilot study with at least 30 participants sharing similar characteristics with the final target audience is necessary to investigate floor and ceiling effects. The PromoACTIVA-CE was delivered in paper format, and participants were given two weeks to complete it. A reminder to return the questionnaire was sent one week after its delivery.

A frequency analysis of each item was conducted. Missing data were also examined. Items with significant floor or ceiling effects (more than 70% of responses in the two highest or lowest options) would prompt a review of the Likert scale [37].

Ethical considerations

This study received approval from the Ethics, Animal Experimentation, and Biosafety Committee of the Public University of Navarre (Spain) (reference number: PI 011/21). All participants provided informed written consent after being fully informed about the study's objectives and procedures. Their identities were protected, and the information collected was kept confidential. Participation was voluntary, and participants were informed that they could withdraw at any time without negative consequences. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Results

The results are presented according to the methodology employed in its design and validation.

Conceptualization

The search for preexisting tools to evaluate HP activities in schools yielded two main results [38, 39]; the search for HP activities in schools on the basis of Ottawa Charter's action areas yielded 572 results (Table 2).

Following a review of the selected documents, a total of 83 HP activities were identified and classified according to the Ottawa Charter's actions (Table 3).

Item generation, structure and format

We classified the identified HP activities into Pumar-Méndez et al.'s [23] 8-phase HP process framework. The 83 HP activities were subsequently iteratively revised and written in the form of items and descriptors. Owing to the high level of redundancy, after applying the criteria of de Vaus [30], the total number of HP activities was reduced to 33 items, each furnished with a descriptor. Additionally, four items were added to ensure the instrument's completeness and relevance to the European context (see Table 4).

At this stage, 18 questions were added to gather sociodemographic information, with 9 focused on the school and 9 on the respondent.

Table 4 First version of the PromoACTIVA-CE questionnaire (items in italics, followed by the descriptor)

Action areas in the HP process	Items
Area 1 - Planning	1. *Design a policy or strategic plan for the school focused on a HP approach.* Develop a strategic plan for the school that aligns with local, regional, national, and international policies for HP in schools, based on an assessment of local needs and priorities determined by students, the school, and local communities regarding key outcomes (e.g., education, health, safety, well-being, nutrition), through participatory planning that meets relevant national and international standards and is evidence-based in relation to health and well-being education. 2. *Contribute to the planning of HP objectives for the school.* Participate in setting short- and medium-term goals for: (1) the health and empowerment of the school community, (2) the development of HP practices, and (3) building capacity for HP. 3. *Identify and invest in adequate and sufficient resources to promote safe and supportive environments, both physically and virtually.* Allocate appropriate and sufficient human, financial, and informational resources to HP. For example, the school invests in professional development for teachers and other staff members in HP during their work hours, freeing them from other tasks. 4. *Collaborate in designing professional training plans for HP.* Reflect on the training needs of school staff for the development of HP and the adequacy of existing professional training plans, with the aim of identifying and suggesting improvements to the school administration and/or relevant authorities. 5. *Design a communication, collaboration, and interaction strategy between the school and stakeholders for HP.* Ensure the school's interaction with local, regional, and national authorities, parents, caregivers, legal guardians, and the local community, and clearly communicate the school's policies, objectives, and strategies to all stakeholders. 6. *Design a contingency plan that ensures the continuity of learning and HP in case of an emergency.* Develop a contingency plan that ensures the continuity of learning and HP when class attendance is disrupted, in line with the national or regional plan for distance or virtual learning in case, for example, of a public health emergency. 7. *Design a system for the planning, implementation, and monitoring of the HP approach in the school.* Clearly define the systems for planning and monitoring the progress and performance of the HP approach in the school's policy or strategic plan. Monitoring includes students' health, well-being, and educational outcomes.
Area 2 - Situational analysis	8. *Contribute to community health assessment by collecting specific information.* Contribute to community health assessment by gathering and providing specific information about the health, well-being, and educational outcomes of the school community, either independently or in collaboration with other sectors such as municipalities, health centers, universities, and public health authorities. Specific indicators of the school community's health may include: (1) eating habits, (2) physical activity, (3) sleep, (4) screen use, (5) substance use, (6) sexual health, (7) socioemotional health, (8) sense of coherence, (9) self-efficacy, (10) life skills, (11) academic performance, etc. 9. *Consult relevant and reliable sources to assess the school community's environment.* Objectively assess the availability of economic and social resources in the geographic area surrounding the school by consulting relevant and reliable sources that include the evaluation of simple indicators (e.g., employment, education, social class, etc.) and complex indicators (e.g., poverty or deprivation index, child development index, human development index, etc.), either independently or in collaboration with other sectors such as municipalities, universities, and public health authorities. 10. *Assess the organizational capacity of the school.* Identify and evaluate the organizational aspects that may enhance or hinder the achievement or implementation of the school's HP objectives, plans, actions, or activities. These may include (1) input indicators (e.g., availability of human and financial resources, infrastructure, equipment, physical and socioemotional environment, HP policies); (2) process indicators (capacity to monitor HP actions); and (3) short-, medium-, and long-term impact indicators.
Area 3 - Organizational capacity building	11. *Create a HP committee or team in the school.* Include representatives from all members of the school community in the HP committee or team (e.g., the school principal, teaching, administrative, and healthcare staff, members of the school council, students, parents, caregivers, and legal guardians), and ensure that all members participate in decision-making. 12. **Update the leadership and HP competencies of the school staff.* Update the leadership and HP competencies of the school staff, including: (1) Teaching staff receive training to develop the necessary skills to create a healthy and safe environment in the school, including improving connections with students and their families, and can adapt learning strategies and activities to the physical, social, and psychological development needs of the students. The training may cover topics such as monitoring and evaluation systems, social determinants of health, health risks, health promoters, physical and mental health issues affecting students, resilience, diversity, inclusion, etc. (2) The school's healthcare staff (e.g., counselor, educational psychologist, school nurse) receive specialized training in HP. (3) The school staff are prepared to address other physical, psychological, and emotional needs of students and know to whom to refer them when necessary.

Table 4 (continued)

Action areas in the HP process	Items
Area 4 - Raising awareness	13. *Raise awareness within the school community about the school's HP needs and strategies.* Carry out actions aimed at informing the school community about the potential and impact of HP on students' health and well-being, adapting the communication medium and language to the audience as appropriate. 14. *Raise awareness within the local community about the school's HP needs and strategies.* Undertake actions aimed at contributing to the development of a shared vision among key stakeholders in the community regarding the school's HP needs and strategies, adapting the communication medium and language to the audience as appropriate. 15. *Mobilize the community to advocate for and participate in HP.* Gain the support of school community members, including students' families, as well as the local community, to encourage meaningful mobilization and participation in HP. 16. **Contribute to the development of a sense of belonging within the community.* Share and seek information about the needs identified by school community members to generate community awareness and stimulate their sense of belonging, thereby encouraging their mobilization and participation. 17. **Raise public awareness about the interrelationship between the environment and positive lifestyles.* Organize informational sessions on the impact of the physical and socioemotional environment on health, as well as the influence of positive lifestyles on the environment. 18. **Conduct a systematic evaluation of activities aimed at raising awareness for HP.* Collect, analyze, and interpret information about the structure, process, and outcomes of actions undertaken to raise public awareness for HP.
Area 5 - Advocacy	19. *Advocate for intersectoral coordination and collaboration to promote health through common goals and actions.* Encourage explicit agreements between the health and education sectors, and other sectors, to govern HP in schools, clearly defining roles, responsibilities, and funding sources to promote national, regional, and local policies or strategies that recognize HP as a means to achieve national development goals through education. 20. *Advocate for the allocation of adequate human resources, information, and funding for HP.* Engage with relevant authorities to improve and/or increase infrastructure and resources for HP. 21. *Advocate for the creation of professional development pathways in HP leadership, or integrate them into existing roles.* Officially recognize the work of school staff who lead or contribute to HP in schools. Make it worthwhile for school community members to become promoters/leaders in HP within the school. 22. *Advocate for a national plan that ensures the continuity of learning and HP in case of emergencies.* Engage with relevant authorities to ensure the necessary human and material resources, including information and communication technologies, for online, distance, or virtual teaching and learning. 23. *Advocate for safe and healthy environments for the community* Engage with relevant authorities and initiate social campaigns to secure political commitments, support for HP policies, social acceptance, and system support to create safe and healthy environments. 24. *Advocate for the school's participation in health and education promotion initiatives.* Undertake actions aimed at ensuring and raising the visibility of the school's involvement in local HP issues and their determinants. 25. *Advocate for systems of planning, progress monitoring, implementation, and evaluation of HP at all levels.* Engage with relevant authorities and initiate campaigns to improve systems for planning, monitoring, implementation, and evaluation of HP at all levels. 26. *Collaborate in the systematic evaluation of advocacy activities for HP.* Collaborate in the collection, analysis, and interpretation of data on the structure, process, and outcomes of advocacy actions for HP undertaken in the school.
Area 6 - Network development	27. *Develop social and community networks in HP.* Engage in activities to foster relationships and social bonds between the school and other community or social agents. The school's social networks may include, for example, other nearby schools, the healthcare services network, etc. The school's community networks may include, for example, people who live and work near the school, local government, NGOs, religious organizations, private businesses, community groups, etc. 28. *Establish action networks with the local community in case of emergencies.* Support social and public health measures during public health emergencies and ensure the continuation of education and HP in such cases. 29. *Develop networks among schools at local, regional, and national levels.* Engage with relevant institutions or authorities and initiate campaigns to create local, regional, and national school councils, which will allow for the exchange of knowledge and experiences.

Table 4 (continued)

Action areas in the HP process	Items
Area 7 - Collaborations development	30. *Establish new collaborations and strengthen existing ones between the school and the community.* Engage in activities to foster relationships and social bonds between the school community and the local community through various strategies: - Conduct asset or partner mapping. - Create committees that include multiple stakeholders in HP. - Establish communication and collaboration mechanisms considering existing channels. - Formally document collaborations with local community members, including roles and responsibilities, resources allocated for each activity, and shared accountability. 31. *Establish collaborations with researchers and universities.* Collaborate with researchers and universities to access the methodological support necessary for generating evidence for advocacy and assessing the health of the school community. 32. *Systematically evaluate the development of collaborations for HP.* Regularly review and reflect on collaborations to ensure they remain current and aligned with the agreements made by the parties. Integrate all members of the school community and the local community in the planning, supervision, monitoring, and performance of collaborations for HP.
Area 8 - Intervention strategies	33. *Contribute to health literacy through the curriculum.* Educate on health and interpersonal relationships through inclusive, participatory, and student-experience-based pedagogy to promote health, well-being, social and emotional competencies, as well as deep learning, by fostering students' and the school community's knowledge, skills, attitudes, and behaviors. Among other aspects, the following can be considered: (1) sustainable consumption and environment, (2) cooperative and meaningful interaction among students, (3) inclusivity, (4) equity, (5) diversity, (6) digital equity, (7) virtual teaching-learning strategies. 34. *Develop a safe and supportive socioemotional environment for all members of the school community that facilitates HP.* Promote the well-being, confidence, and mutual respect of all school and local community members, prioritizing the construction of an inclusive, supportive, and safe environment manifested in all interactions among students, staff, and community members, with the contribution of the school community and the local community, including local authorities. Among other values, the socioemotional environment of the school should promote: (1) equity, including gender equity, (2) respect and kindness in all interactions (e.g., through zero-tolerance policies against discrimination or bullying), (3) self-esteem and confidence, etc. 35. *Develop a healthy, safe, and inclusive physical environment for all members of the school community.* Adapt the physical environment and infrastructure of the school to meet the needs of all school community members, with the contribution of the school community and the local community, including local authorities, to promote health and well-being. Standards and regulations that ensure a healthy, safe, and inclusive physical environment may include, among others: (1) drinking water, (2) sanitation, (3) lighting, (4) clean air, (5) temperature control, (6) waste management, (7) sports facilities, (8) food, (9) resources for virtual learning, and (10) the physical environment inside and outside the classroom. 36. *Collaborate with the local community and/or relevant authorities to promote student health through social and health services.* Support students and their families in improving access to, usage of, and understanding of social and health services, and collaborate with the local community and/or relevant authorities to ensure that school-based or community-based social and health services adhere to standards and guidelines for providing quality health services for children and adolescents. 37. *Regularly monitor and actively promote the implementation of HP interventions.* Regularly review (1) the curriculum content and implementation, (2) the school's socioemotional environment, and (3) the hygiene and safety conditions of the school's physical environment, and periodically integrate the priorities, needs, and interests of the school community identified by stakeholders, as well as changing health or environmental situations into the school's activities to promote health and well-being, with the support and commitment of school leaders (e.g., management staff, both teaching and administrative, school board members, and other authority figures) and in collaboration with the school community and the local community.

*Items added during the item generation process

The first version of PromoACTIVA-CE had 14 A4 pages. The first page provided an overview of the tool's purpose, including instructions on how to complete it, guidelines for selecting participants, and details regarding confidentiality. Additionally, it offered an explanation of the tool's structure. The second and third pages contained 18 sociodemographic questions pertaining to the school and the respondent. Careful consideration was given to the overall presentation of the PromoACTIVA-CE to ensure that it was user-friendly and clearly formatted.

Content validation

Content validity analysis of the first version of the PromoACTIVA-CE tool was undertaken through an expert panel and calculation of the content validity index (CVI). A total of 8 experts in the subject of HP in schools, representing all major segments of this population, were purposefully selected for cognitive interviews [40] (Table 5).

After expert review, only 7 items scored < 0.78 and > 0.6 and were therefore proposed for review. The S-CVI was 0.89, suggesting that the instrument as a whole was composed of good or excellent items.

Table 5 Characteristics of the members of the expert panel

	Gender	Professional background	Professional affiliation/ expertise
1	Female	Nursing	Community nurse specialist and PhD in HPS
2	Female	Nursing	School nurse
3	Female	Nursing	School nurse
4	Female	Nursing	Public health nurse specialist at the local government
5	Female	Teaching	Teacher at a partly state-funded primary and secondary school
6	Female	Teaching	Teacher at a public secondary school
7	Female	Teaching	Director of a partly state-funded primary and secondary school
8	Female	Teaching	Teacher at a private school

The number of items in each of the eight HP action areas remained unchanged in the second version of the tool. However, with the recommendation of the expert panel, changes were made throughout to guarantee the use of gender-inclusive language. On the basis of the experts' qualitative comments, the following items were reworded:

- Action area 1 – Planning: Items 1–3.
- Action area 2 – Situational analysis: Items 8–9.
- Action area 4 – Raising Awareness and Shaping Public Opinion: Item 18.
- Action area 7 – Collaboration development: Items 30–31.

Comprehensibility and semantic fit testing

The comprehensibility and semantic alignment of the second iteration of the PromoACTIVA-CE tool were subsequently evaluated through the cognitive interview technique. On the basis of the results from the cognitive interviews, 15 items were modified, resulting in the third version of the questionnaire (Table 6).

Pilot testing

Finally, we conducted pilot testing on a sample of 36 participants. The characteristics of the sample are described in Table 7.

Floor effects were detected for items 3–2 (70% of responses 1–2), 21–5 (70% of responses 1–2), and 31–7 (70.4% of responses 1–2). In contrast, no ceiling effect was detected (Table 8). No further changes were made to the questionnaire after pilot testing.

Potential floor or ceiling effects, showing whether responses cluster disproportionately at the lower or higher ends of the scale, are represented in Fig. 2. This bar chart displays the frequency distribution of responses across all 37 items. For each item, responses were grouped into three categories: low (1–2), represented in orange, moderate (3), represented in blue, and high (4–5), represented in green.

The PromoACTIVA-CE instrument was designed and validated to guide and evaluate the process of integrating HP activities in primary and secondary school settings. The tool comprises 37 items organized into 8 phases of the HP process and uses a Likert scale ranging from 1 to 5 to measure the degree of systematization of each HP activity. The fourth and final version of the PromoACTIVA-CE questionnaire can be found in Supplementary File 1 (please note that the final version of the questionnaire has been translated into English to facilitate understanding for a non-Spanish speaking audience, but the original tool has only been validated in Spanish).

Discussion

This study aimed to develop, refine, and assess content validation of a questionnaire evaluating HP activities in primary and secondary education settings. The development and content validation of the PromoACTIVA-CE questionnaire represent a significant advancement in the systematic assessment of HP activities within primary and secondary education settings.

The identification of activities on the basis of the five areas of the Ottawa Charter, as well as their subsequent classification according to the phases of the HP process proposed by Pumar-Méndez et al. [23], offers a comprehensive lens through which schools can operationalize and evaluate their HP processes in a structured and systematic way. By enabling schools to reflect on their HP activities, the PromoACTIVA-CE questionnaire helps identify areas for improvement, fostering an environment conducive to continuous quality enhancement in HP efforts. In the Spanish context, issues surrounding the sustainability of HP in schools have been highlighted in the past [41]. Therefore, we developed an instrument that allows educational institutions to critically assess the extent to which their environments support HP. Furthermore, much of the existing evidence on health promotion in schools focuses primarily on health education and prevention, such as promoting healthy diets, physical activity, attendance and vaccinations [42]. This tool, however, allows schools to take HP a step further by adopting a more comprehensive and integrative approach. It emphasizes the identification of practical and attainable improvements through a flexible process that can be systematically revisited and refined over time [43], thereby advancing the scope and impact of HP efforts within educational settings.

The expert content validation process further reinforced the credibility of the PromoACTIVA-CE questionnaire. The CVI scores, coupled with qualitative feedback from the expert panel, ensured that the items were both relevant and inclusive [44]. The modifications made on

Table 6 Changes made to items in the third version of the questionnaire:

Item	Original item	Modified item
3	*Identify and invest in adequate and sufficient resources to promote safe and supportive environments, both physically and virtually.* Descriptor unchanged.	*Identify and manage the resources needed to promote health in the school setting.*
4	*Collaborate in designing professional training plans for HP.* Descriptor unchanged.	*Collaborate in designing professional training plans for school staff to promote health.*
5	*Design a communication, collaboration, and interaction strategy between the school and stakeholders for HP.* Descriptor unchanged.	*Design a communication and collaboration strategy between the school and other key stakeholders for HP.*
6	*Design a contingency plan that ensures the continuity of learning and HP in case of an emergency.* Descriptor unchanged.	*Design a contingency plan to ensure the continuity of learning and HP in the event of a public health emergency.*
7	*Design a system for the planning, implementation, and monitoring of the HP approach in the school.* Clearly define the systems for planning and monitoring the progress and performance of the HP approach in the school's policy or strategic plan. Monitoring includes students' health, well-being, and educational outcomes.	*Design a system to review the effectiveness and update the HP plan in the school setting.* Clearly define the planning and monitoring system for tracking progress and performance of the HP approach within the school's policy or strategic plan. Monitoring should include students' health, well-being, and educational outcomes.
14	*Raise awareness within the local community about the school's HP needs and strategies.* Undertake actions aimed at contributing to the development of a shared vision among key stakeholders in the community regarding the school's HP needs and strategies, adapting the communication medium and language to the audience as appropriate.	*Mobilize the school community to promote health.* Gather support from school community members, including students' families, to encourage meaningful participation and engagement in HP.
15	*Mobilize the community to advocate for and participate in HP.* Gain the support of school community members, including students' families, as well as the local community, to encourage meaningful mobilization and participation in HP.	*Raise awareness and build understanding within the local community about the school's HP needs and strategies.* Implement actions to develop a shared vision among key stakeholders regarding the school's HP needs and strategy, adapting communication methods and language to suit the audience as necessary.
16	*Contribute to the development of a sense of belonging within the community.* Share and seek information about the needs identified by school community members to generate community awareness and stimulate their sense of belonging, thereby encouraging their mobilization and participation.	*Contribute to the development of a sense of belonging to the local community.* Foster the school community's connection to the local area to encourage their mobilization and participation.
17	*Raise public awareness about the interrelationship between the environment and positive lifestyles.* Organize informational sessions on the impact of the physical and socioemotional environment on health, as well as the influence of positive lifestyles on the environment.	*Raise awareness about the interrelationship between the environment and lifestyle.* Conduct activities to sensitize individuals to the impact of the physical and socioemotional environment on health, as well as the effects of lifestyle on the environment.
18	*Conduct a systematic evaluation of activities aimed at raising awareness for HP.* Collect, analyze, and interpret information about the structure, process, and outcomes of actions undertaken to raise public awareness for HP.	*Systematically evaluate activities aimed at raising awareness and shaping opinion for HP.* Collect, analyze, and interpret information on the structure, process, and outcomes of the actions taken to raise awareness and influence opinion for HP.
21	*Advocate for the creation of professional development pathways in HP leadership, or integrate them into existing roles.* Descriptor unchanged.	*Advocate for the creation of professional development pathways in HP, or integrate them into existing roles.*
22	*Advocate for a national plan that ensures the continuity of learning and HP in case of emergencies.* Descriptor unchanged.	*Advocate for a national plan that ensures the continuity of learning and HP in case of public health emergencies.*
27	*Develop social and community networks in HP.* Descriptor unchanged.	*Develop community networks within the social fabric for HP.*
28	*Establish action networks with the local community in case of emergencies.* Descriptor unchanged.	*Establish action networks with the local community in case of public health emergencies.*
37	*Regularly monitor and actively promote the implementation of HP interventions.* Descriptor unchanged.	*Promote, monitor, and update HP interventions.*

Table 7 Sociodemographic characteristics of the participants in pilot testing

Variable	*N*	%	Mean	SD*
Age			44.8	8.72
Gender (female)	25	69.44		
Level of education	24	66.66		
University (degree)	12	33.33		
University (master)				
Professional background (teaching)	36	100		
Total years of work experience			16.11	8.05
Years working at the school			8.36	8.14
Level of education taught at the school	28	77.78		
Primary	8	22.22		
Secondary				
Currently in a managerial role	8	22.22		
Specific training in HP	12	33.33		

**SD* Standard deviation

the basis of the results of the cognitive interviews contributed to the refinement of the questionnaire, enhancing its comprehensibility and ensuring that it accurately captured the respondents' perceptions and experiences [45].

Pilot testing results indicated good internal consistency, with minor floor effects noted in specific phases. The absence of ceiling effects suggests that the questionnaire is capable of capturing a wide range of responses, making it a sensitive tool for assessing the nuances of HP activities in schools. This sensitivity is particularly important in identifying areas where schools excel and where further improvements are needed. In turn, the high floor effect observed may indicate that schools perceive themselves as already implementing most of the listed health promotion activities, which demonstrates good coverage of relevant actions. However, it could also imply limited sensitivity of some items to detect variation in less active contexts, potentially masking differences between schools. The overall S-CVI of 0.89 indicates excellent content validity, consistent with recommended benchmarks (≥0.80) and comparable instruments in school health promotion research. This supports the questionnaire's relevance and completeness, while highlighting the need for future refinements to reduce ceiling effects and improve the tool's ability to discriminate between varying levels of implementation.

Overall, the final version of the PromoACTIVA-CE questionnaire offers a robust tool for assessing HP activities in primary and secondary education settings. Its systematic development process, including validation procedures, ensures its validity and reliability for use in research and practice aimed at promoting health and well-being in schools. In such settings, professionals often adopt a predominantly biomedical perspective on HP. The questionnaire helps broaden this understanding by reframing HP as a holistic and integrative concept, which can reduce the perceived "stress" among teachers regarding their role in HP. By clarifying what HP entails, the tool may contribute to alleviating the sense of undue responsibility placed on teachers, fostering a more supportive environment for sustainable HP practices. From a practical perspective, PromoACTIVA-CE can be administered either online or in paper format, offering flexibility for different school contexts. The results can help schools identify which HP activities are well established and which require further development. They can also inform planning, support ongoing monitoring, and guide decision-making to strengthen health promotion practices in schools.

Subsequent research could investigate item redundancy or develop a shorter version of the tool to enhance its usability. Nevertheless, it is important to acknowledge that the PromoACTIVA-CE is founded on a formative construct, meaning that its items represent distinct dimensions of the construct. To assess the properties of such instruments accurately, formative models should be employed in the analysis. These models operate under the assumption that the items are uncorrelated and free from error. Consequently, measurement instruments of this type are not required to evaluate metric properties such as structural validity or internal consistency of scores [46, 47]. In addition, it is advisable to validate the instrument's properties with larger samples to ensure that the validation process is appropriate for formative models, including assessments of convergent validity, indicator collinearity, and the statistical significance and relevance of indicator weights [48]. Finally, further research could explore the questionnaire's sensitivity to changes over time and its effectiveness in guiding HP interventions in diverse school contexts.

Limitations

While the PromoACTIVA-CE questionnaire provides a robust tool for assessing HP activities in primary and secondary education, several limitations must be

Table 8 Description of responses, floor and ceiling effect

Item	*N*	Min.	Max.	Mean	SD	% in response options 1–2	% in response options 4–5
1	26	1	5	3.04	1.31	46.2	38.5
2	28	1	5	2.86	1.24	32.1	33.4
3	30	1	4	2.23	1.01	70	13.3
4	29	1	4	2.24	0.87	62.1	6.9
5	28	1	5	2.46	1.00	57.1	12.1
6	28	1	5	2.79	1.17	42.9	28.5
7	25	1	4	2.28	0.98	60	12
Phase 1	30	1.00	4.00	2.51	0.91		
8	30	1	5	2.63	1.03	46.7	20
9	28	1	4	2.25	0.97	60.7	10.7
10	29	1	4	2.62	0.98	44.8	20.7
Phase 2	31	1.00	4.00	2.50	0.87		
11	28	1	5	2.25	1.17	57.1	14.3
12	29	1	5	2.41	0.98	62.1	13.7
Phase 3	30	1.00	5.00	2.28	1.00		
13	31	1	5	2.71	1.01	45.2	22.6
14	31	1	5	2.68	1.05	51.6	25.8
15	29	1	5	2.66	0.94	48.3	17.2
16	31	1	5	2.77	1.06	32.3	22.6
17	31	1	5	2.94	1.00	29	29
18	30	1	5	2.63	1.07	50	23.3
Phase 4	32	1.00	4.83	2.70	0.87		
19	28	1	5	2.39	0.99	50	7.2
20	29	1	4	2.21	0.82	62.1	3.4
21	30	1	4	2.07	0.91	70	6.7
22	28	1	5	2.14	1.04	64.3	7.2
23	28	1	4	2.21	1.03	57.1	10.7
24	29	1	5	2.79	1.15	48.3	31
25	29	1	5	2.34	1.14	69	17.2
26	27	1	5	2.15	1.10	66.7	11.1
Phase 5	30	1.00	4.25	2.27	0.86		
27	30	1	5	2.60	1.07	46.7	20
28	30	1	5	2.63	1.07	43.3	20
29	27	1	5	2.30	1.07	59.3	11.1
Phase 6	30	1.00	5.00	2.52	0.88		
30	27	1	5	2.33	1.21	59.3	14.8
31	27	1	5	2.26	1.06	70.4	14.8
32	28	1	4	2.18	0.94	67.9	10.7
Phase 7	30	1.00	4.33	2.29	0.97		
33	31	1	5	3.06	1.06	32.3	29
34	30	2	5	3.43	0.94	20	53.3
35	32	1	5	3.19	1.12	25	43.8
36	28	1	5	2.79	0.96	39.3	21.4
37	27	1	4	2.67	0.92	40.7	18.5
Phase 8	32	1.00	4.60	3.02	0.90		

acknowledged. First, although the questionnaire was designed to align with international standards, the scope of the study was limited to the Spanish educational context, which may affect the generalizability of the findings to other countries or regions with different cultural, educational, and HP practices. Second, although the documentary search process followed key steps of a systematic literature review—such as independent database searches by multiple researchers—no formal PRISMA flowchart was produced. This was due to the distributed nature of the searches across different research pairs and the fact that no formal exclusion process was systematically documented, as some sources were set aside due to data saturation or target population mismatch rather than explicit

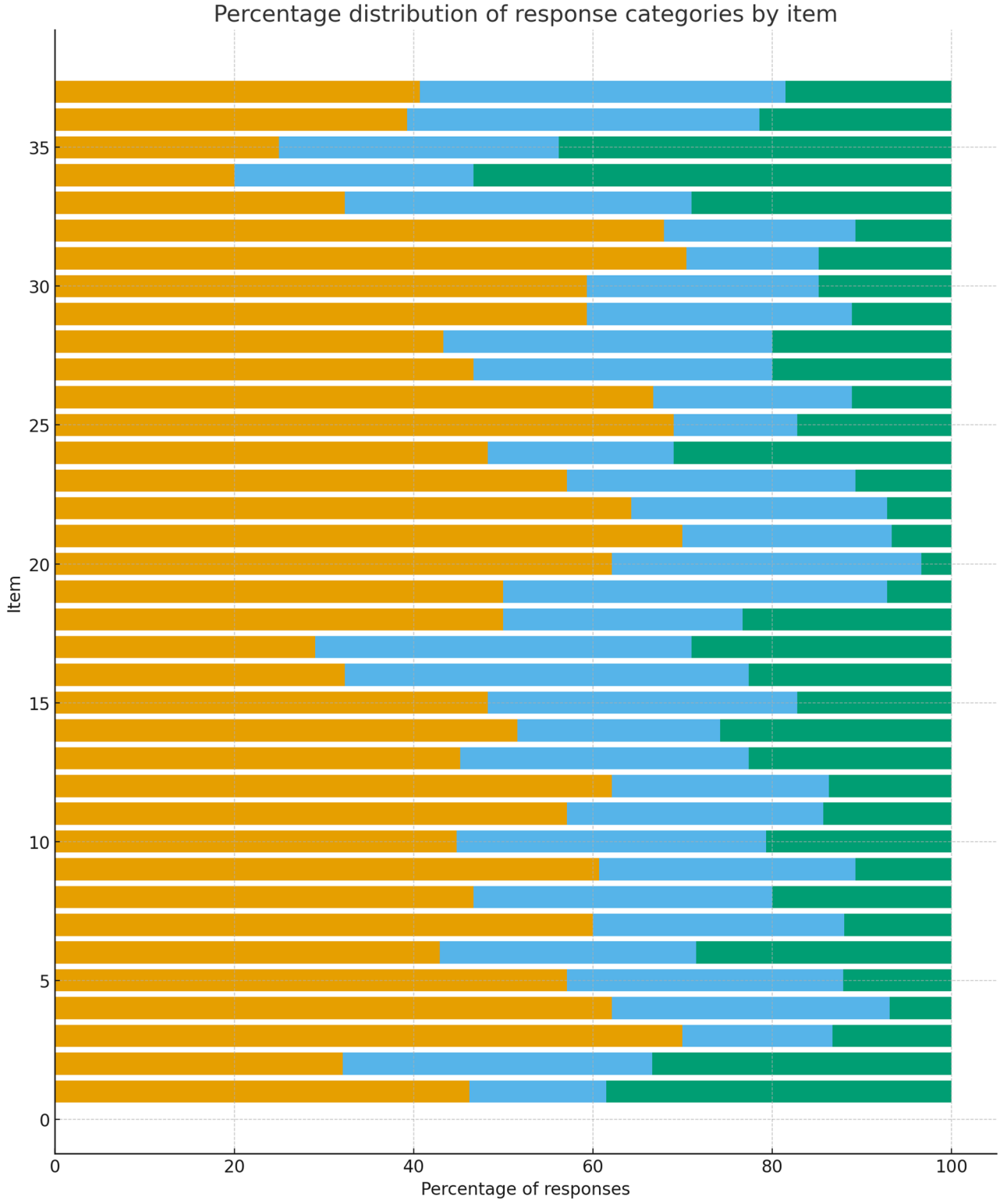

Fig. 2 Percentage distribution of response categories by item

exclusion criteria. Third, it is important to acknowledge that the expert panel for the content validity assessment was composed exclusively of women. While this reflects the gender distribution in nursing (approximately 85% female in Spain) and teaching (around 70% female in primary and secondary education), it may nonetheless have introduced a degree of gender bias in how items were evaluated and refined. Furthermore, although content validation represents a critical first phase in instrument development, it does not provide evidence of how the scale performs empirically when administered to larger or more diverse populations. Future research should therefore undertake comprehensive psychometric evaluation, including assessments of construct validity (e.g., factor structure), criterion-related validity, internal consistency reliability, and test–retest reliability to examine temporal stability. Fourth, while the pilot test provided valuable insights into the questionnaire's reliability, the sample size was relatively small ($n = 33$); furthermore, we did not record completion times or ask participants about any difficulties during the pilot phase, which limited our ability to describe the tool's practical use. Fifth, there is a possibility of response bias, as participants may have reported higher levels of HP activity due to aspects such as social desirability. Future studies should consider strategies to minimize these biases and test the tool's applicability in diverse contexts. Finally, the instrument's focus on the current state of HP activities may limit its sensitivity to capturing changes over time. Future studies should explore the longitudinal use of the PromoACTIVA-CE questionnaire to assess its ability to monitor progress and identify trends in health promotion activities within schools.

Conclusions

In summary, the PromoACTIVA-CE offers a carefully developed tool for assessing HP activities in primary and secondary schools. Its formative design means that each item adds distinct value to understanding school HP as a whole, which makes internal consistency less relevant but highlights the importance of content validity. We hope that this instrument can help schools reflect on their strengths and areas for improvement, and potentially inform practical decisions and educational policies to support sustainable, evidence-based HP. Further research is needed to explore its use in different contexts and to monitor how it can contribute to strengthening school HP over time.

Abbreviations

HP	Health promotion
HPS	Health promoting school
WHO	World health organization
UNESCO	United nations educational, scientific and cultural organization
UNICEF	United nations children's fund
CVI	Content validity index
ICVI	Item–level content validity index
SCVI	Scale–level content validity index

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12889-025-25925-w.

Supplementary Material 1.

Acknowledgements

Not applicable.

Authors' contributions

Conceptualization: Isabel Antón-Solanas, Olga López-Dicastillo, Agurtzane Mujika, Edurne Zabaleta-del-Olmo, María Jesús Pumar-Méndez.- Methodology: Isabel Antón-Solanas, Olga López-Dicastillo, Agurtzane Mujika, Edurne Zabaleta-del-Olmo, Dolors Juvinyá-Canal, María Jesús Pumar-Méndez.- Formal analysis: Fernando Urcola-Pardo.- Investigation: Isabel Antón-Solanas, Marta Callén-Galindo, Fernando Urcola-Pardo, Olga López-Dicastillo, Agurtzane Mujika, Naia Hernantes, Eva Benito-Ruiz, Edurne Zabaleta-del-Olmo, María Jesús Pumar-Méndez.- Data Curation: Fernando Urcola-Pardo.- Writing – Original Draft: Isabel Antón-Solanas.- Writing – Review & Editing: Isabel Antón-Solanas, Marta Callén-Galindo, Fernando Urcola-Pardo, Olga López-Dicastillo, Agurtzane Mujika, Naia Hernantes, Eva Benito-Ruiz, Edurne Zabaleta-del-Olmo, Dolors Juvinyá-Canal, María Jesús Pumar-Méndez.- Supervision: María Jesús Pumar-Méndez.- Funding acquisition: María Jesús Pumar-Méndez.

Funding

This study has been funded by the Spanish Ministerio de Ciencia, Innovación y Universidades through the Instituto de Salud Carlos III (PI21/01449).

Data availability

All data generated or analyzed during this study are included in this published article and its supplementary information files.

Declarations

Ethics approval and consent to participate

This study received approval from the Ethics, Animal Experimentation, and Biosafety Committee of the Public University of Navarre (Spain) (reference number: PI 011/21). All participants provided informed written consent after being fully informed about the study's objectives and procedures. Their identities were protected, and the information collected was kept confidential. Participation was voluntary, and participants were informed that they could withdraw at any time without negative consequences. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

[1]Department of Physiatry and Nursing, Faculty of Health Sciences, University of Zaragoza, C/Domingo Miral s/n, Zaragoza 50009, Spain
[2]Research Group SAPIENF (B53_23R), University of Zaragoza, Zaragoza 50009, Spain
[3]Department of Health Sciences, Public University of Navarra, Pamplona 31008, Spain
[4]Navarra Institute for Health Research, Pamplona 31008, Spain
[5]CreaP, Pamplona, Navarra, Spain
[6]SILO Research Group, Nursing II Department, Faculty of Medicine and Nursing, UPV/EHU, Paseo Dr. Beguiristain 105, Donostia 20014, Spain
[7]Fundació Institut Universitari per a la recerca a l'Atenció Primària de Salut Jordi Gol i Gurina (IDIAPJGol), Barcelona 08007, Spain
[8]Gerència d'Atenció Primària Barcelona Ciutat, Institut Català de la Salut, Barcelona, Spain
[9]Nursing Department, Faculty of Nursing, Universitat de Girona, Girona, Spain
[10]Grup de recerca Salut i Atenció sanitària, Universitat de Girona, Girona 17004, Spain

[11]Càtedra de Promoció de la Salut, Universitat de Girona, Girona 17004, Spain

Received: 3 May 2025 / Accepted: 3 December 2025
Published online: 23 December 2025

References

1. Pulimeno M, Piscitelli P, Colazzo S, Colao A, Miani A. School as ideal setting to promote health and wellbeing among young people. Health Promot Perspect. 2020;10:316–24. https://doi.org/10.34172/hpp.2020.50.
2. Dudovitz RN, Nelson BB, Coker TR, Biely C, Li N, Wu LC, et al. Long-term health implications of school quality. Soc Sci Med. 2016;158:1–7. https://doi.org/10.1016/j.socscimed.2016.04.009.
3. Serdà B-C, Planas-Lladó A, delValle A, Soler-Masó P. Health promotion in secondary schools: participatory process for constructing a self-assessment tool. Health Promot Int. 2022;37:daab123. https://doi.org/10.1093/heapro/daab123.
4. Sánchez-Hernando B, Antón-Solanas I, Juárez-Vela R, Gea-Caballero V, Carboneres-Tafaner MI, Ferrer-Gracia E, et al. Healthy lifestyle and academic performance in middle school students from the region of Aragón (Spain). Int J Environ Res Public Health. 2021;18:8624. https://doi.org/10.3390/ijerph18168624.
5. World Health Organization. Global Accelerated Action for the Health of Adolescents (AA-HA!): Guidance to Support Country Implementation. 2nd edition. Geneva: World Health Organization; 2023.
6. World Health Organization. Investing in school health. World Health Organization. 2024. https://www.who.int/activities/investing-in-school-health. Accessed 3 June 2024.
7. Mann MJ, Lohrmann DK. Addressing challenges to the Reliable, Large-Scale implementation of effective school health education. Health Promot Pract. 2019;20:834–44. https://doi.org/10.1177/1524839919870196.
8. Jefatura del Estado. Ley Orgánica 3/2020, de 29 de diciembre, por la que se modifica la Ley Orgánica 2/2006, de 3 de mayo, de Educación. 2020.
9. Bartelink N, Bessems K. Health promoting schools in Europe - State of the art. 2020.
10. World Health Organization. First International Conference on Health Promotion, Ottawa, 21 November 1986. World Health Organization. 1986. https://www.who.int/teams/health-promotion/enhanced-wellbeing/first-global-conference/actions. Accessed 17 Feb 2023.
11. World Health Organization. Making Every School a Health Promoting School. World Health Organization. 2024. https://www.who.int/initiatives/making-every-school-a-health-promoting-school. Accessed 6 June 2024.
12. Pearson M, Chilton R, Wyatt K, Abraham C, Ford T, Woods HB, et al. Implementing health promotion programmes in schools: a realist systematic review of research and experience in the united Kingdom. Implement Sci. 2015;10:149. https://doi.org/10.1186/s13012-015-0338-6.
13. Ippolito-Shepherd J, Cerqueira MT, Ortega DP. [Health-Promoting schools regional initiative of the Americas]. Promot Educ. 2005;12:220–9. https://doi.org/10.1177/10253823050120030139.
14. Fathi B, Allahverdipour H, Shaghaghi A, Kousha A, Jannati A. Challenges in developing health promoting schools' project: application of global traits in local realm. Health Promot Perspect. 2014;4:9–17. https://doi.org/10.5681/hpp.2014.002.
15. Barnekow Rasmussen V. The European network of health promoting Schools-from Iceland to Kyrgyzstan. Promot Educ. 2005;12:169–72. https://doi.org/10.1177/10253823050120030120.
16. St Leger L. Schools, health literacy and public health: possibilities and challenges. Health Promot Int. 2001;16:197–205. https://doi.org/10.1093/heapro/16.2.197.
17. Vega Fuente A, Aramendi Jauregi P, Bujan Vidales K, Garín Casares SM, Vega Fuente A, Aramendi Jauregi P et al. La educación para la salud en la ESO: aportaciones de un estudio sobre el país vasco. Educación XX1: Revista de la Facultad de Educación. 2015;18:167–88.
18. Rodrigo-Sanjoaquín J, Murillo-Pardo B, Corral-Abós A, Lorente-Echeverría S, Zaragoza Casterad J. Barriers to and ways of facilitating the implementation of aragon's Health-Promoting school network. Health Educ J. 2023;82:251–62. https://doi.org/10.1177/00178969221150904.
19. Soler-Masó P, Serdà B-C, Planas-Lladó A. Health promotion and students' well-being in secondary schools in Catalonia. Health Educ J. 2020;79:583–93. https://doi.org/10.1177/0017896919896381.
20. Chilton R, Pearson M, Anderson R. Health promotion in schools: a scoping review of systematic reviews. Health Educ. 2015;115:357–76. https://doi.org/10.1108/HE-03-2014-0033.
21. Lee A, Lo A, Li Q, Keung V, Kwong A. Health promoting schools: an update. Appl Health Econ Health Policy. 2020;18:605–23. https://doi.org/10.1007/s40258-020-00575-8.
22. Lee A, Lo ASC, Keung MW, Kwong CMA, Wong KK. Effective health promoting school for better health of children and adolescents: indicators for success. BMC Public Health. 2019;19:1088. https://doi.org/10.1186/s12889-019-7425-6.
23. Pumar-Méndez MJ, Lopez-Dicastillo O, Hernantes N, Iriarte-Roteta A, Belintxon M, García-Iriarte A, et al. Development of a taxonomy of activities in health prevention and promotion for primary care. J Nurs Manag. 2022;30:O10–22. https://doi.org/10.1111/jonm.12980.
24. Schools for Health in Europe network foundation. or Health In Europe. SHE. 2022. https://www.schoolsforhealth.org/. Accessed 27 May 2024.
25. Boateng GO, Neilands TB, Frongillo EA, Melgar-Quiñonez HR, Young SL. Best practices for developing and validating scales for Health, Social, and behavioral research: A primer. Front Public Health. 2018;6. https://doi.org/10.3389/fpubh.2018.00149.
26. DeVellis RF, Thorpe CT. Scale development: Theory and Applications. 5th edition. Thousand Oaks, CA: SAGE; 2022.
27. Hodder I. The interpretation of documents and material culture. In: Denzin N, Lincoln Y, editors. Handbook of qualitative research. Thousand Oaks, CA: Sage; 1994. pp. 673–715.
28. Artino A, La Rochelle JSL, Dezee KJ, Gehlbach H. Developing questionnaires for educational research: AMEE guide 87. Med Teach. 2014;36:463. https://doi.org/10.3109/0142159X.2014.889814.
29. Roberts N, Thatcher J. Conceptualizing and testing formative constructs: tutorial and annotated example. DATA BASE. 2009;40:9–39. https://doi.org/10.1145/1592401.1592405.
30. de Vaus D. Social surveys. London: Sage Publications Ltd.; 2002. https://doi.org/10.4135/9781446263495.
31. Bierner PP, Lyberg LE. Practical survey design for minimizing total survey error. Introduction to survey quality. Hoboken, New Jersey: John Wiley & Sons, Ltd; 2003. pp. 351–76. https://doi.org/10.1002/0471458740.ch10.
32. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. Res Nurs Health. 2007;30:459–67. https://doi.org/10.1002/nur.20199.
33. Escobar-Pérez J, Martínez A. Validez de Contenido y Juicio de expertos: Una aproximación a Su utilización. Av En Medición. 2008;6:27–36.
34. García AA. Cognitive interviews to test and refine questionnaires. Public Health Nurs. 2011;28:444–50. https://doi.org/10.1111/j.1525-1446.2010.00938.x.
35. Terwee CB, Bot SDM, de Boer MR, van der Windt DAWM, Knol DL, Dekker J, et al. Quality criteria were proposed for measurement properties of health status questionnaires. J Clin Epidemiol. 2007;60:34–42. https://doi.org/10.1016/j.jclinepi.2006.03.012.
36. Johanson GA, Brooks GP. Initial scale development: sample size for pilot studies. Educ Psychol Meas. 2010;70:394–400. https://doi.org/10.1177/0013164409355692.
37. Mooney CZ, Duval RD. Bootstrapping: a nonparametric approach to statistical inference. Newbury Park, CA: Sage; 1993.
38. World Health Organization and the United Nations Educational, Scientific and Cultural Organization. Making every school a health-promoting school – Implementation guidance. Geneva: World Health Organization and the United Nations Educational, Scientific and Cultural Organization; 2021.
39. World Health Organization and the United Nations Educational, Scientific and Cultural Organization. Making every school a health-promoting school: global standards and indicators for health-promoting schools and systems. Geneva: World Health Organization and the United Nations Educational, Scientific and Cultural Organization; 2021.
40. Willis GB. Cognitive interviewing: A tool for improving questionnaire design. London: SAGE; 2005.
41. Ramos P, Pasarín MI, Artazcoz L, Díez E, Juárez O, González I. [Healthy and participative schools: evaluation of a public health strategy]. Gac Sanit. 2013;27:104–10. https://doi.org/10.1016/j.gaceta.2012.04.002.

42. Langford R, Bonell C, Jones H, Pouliou T, Murphy S, Waters E, et al. The world health organization's health promoting schools framework: a Cochrane systematic review and meta-analysis. BMC Public Health. 2015;15:130. https://doi.org/10.1186/s12889-015-1360-y.
43. McHugh CA, Lloyd J, Logan S, Wyatt K. Implementing a set of health promoting processes in english secondary schools: A comparative case study. Public Health Pract (Oxf). 2021;2:100214. https://doi.org/10.1016/j.puhip.2021.100214.
44. Gilbert GE, Prion S. Making sense of methods and measurement: lawshe's content validity index. Clin Simul Nurs. 2016;12:530–1. https://doi.org/10.1016/j.ecns.2016.08.002.
45. Balza JS, Cusatis RN, McDonnell SM, Basir MA, Flynn KE. Effective questionnaire design: how to use cognitive interviews to refine questionnaire items. J Neonatal Perinat Med. 2022;15:345–9. https://doi.org/10.3233/NPM-210848.
46. Costa DSJ. Reflective, causal, and composite indicators of quality of life: A conceptual or an empirical distinction? Qual Life Res. 2015;24:2057–65. https://doi.org/10.1007/s11136-015-0954-2.
47. Streiner DL. Being inconsistent about consistency: when coefficient alpha does and doesn't matter. J Pers Assess. 2003;80:217–22. https://doi.org/10.1207/S15327752JPA8003_01.
48. Hair JF, Hult GTM, Ringle CM, Sarstedt M, Danks NP, Ray S. Evaluation of formative measurement models. Partial least squares structural equation modeling (PLS-SEM) using R. Cham: Springer; 2021. pp. 91–113. https://doi.org/10.1007/978-3-030-80519-7_5.

Publisher's Note