Socio-emotional skills programs for high school adolescents: A systematic review of the articles published between 2013 and 2023

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Conflict of Interest: None declared.

Abstract

This systematic review aimed to synthesize and describe the main characteristics and results of Social and Emotional Learning programs implemented in high schools, or the equivalent in other countries, addressing adolescents aged between 14 and 18. Independent reviewers conducted this review following the PRISMA 2020 guidelines. The following databases were consulted: PubMed, Medline, Scielo, and LILACS, considering publications between 2013 and 2023. From the 1,290 records initially identified, 10 articles met the inclusion criteria. The studies were assessed according to their objectives, methodological designs, theoretical frameworks, characteristics, strategies, and primary outcomes. The results revealed various programs' characteristics, strategies, and criteria adopted to assess post-intervention outcomes. The interventions in 70% of the studies lasted less than one school year, with 8 to 26 sessions (80% of which were held weekly). School teachers facilitated 70% of the interventions, and 80% adopted interactive and experiential strategies. All studies adopted a quantitative design using various instruments with pre and post-test. Most (70%) aimed to assess the interventions' effectiveness and effects; however, only two studies (20%) conducted a follow-up six months after the intervention ended. The studies show that school-based Social and Emotional Learning programs are valid strategies for promoting mental health among high school adolescents. Future studies are suggested to verify the effectiveness and efficacy of programs in more depth, consolidating flexible interventions to meet the specificities of different populations, contexts, and cultures and using structured criteria for evaluating their results.

Keywords: socio-emotional skills, socio-emotional learning, high school, psychological interventions, educational practices of socio-emotional learning

PROGRAMAS DE HABILIDADES SOCIOEMOCIONAIS PARA ADOLESCENTES DE ENSINO MÉDIO: UMA REVISÃO SISTEMÁTICA DE ARTIGOS PUBLICADOS ENTRE 2013 E 2023

Resumo

Esta revisão sistemática objetivou sintetizar e descrever as principais características e resultados de programas de desenvolvimento de habilidades socioemocionais aplicados em escolas de Ensino Médio, ou equivalente em outros países, com adolescentes entre 14 e 18 anos. A revisão foi feita por pares seguindo o método PRISMA 2020. As bases consultadas foram: PubMed, MedLine, Scielo e LILACS, considerando publicações entre 2013 e 2023. Foram identificados inicialmente 1.290 registros e incluídos 10 artigos que cumpriram os critérios de inclusão. Os estudos foram analisados de acordo com seus objetivos, delineamento metodológico, abordagem teórica e características, estratégias e principais resultados. Os resultados mostraram grande variedade de características e estratégias dos programas, bem como distintos critérios de avaliação de resultados pós-intervenção. Em 70% dos estudos as intervenções duraram menos de um ano letivo, com número de encontros entre 8 e 26 sessões (80% com encontros semanais), 70% das intervenções foram facilitadas por professores da escola e 80% utilizaram estratégias interativas e vivenciais. Todos os estudos analisados adotaram método de investigação quantitativo com medidas pré e pós teste com uso de instrumentos variados. A maioria deles (70%) objetivou avaliar a efetividade e efeitos das intervenções, entretanto apenas dois estudos (20%) realizaram follow-up após seis meses da conclusão da intervenção. Os estudos demonstram que intervenções escolares de habilidades socioemocionais são estratégias válidas para promoção de saúde mental de adolescentes de Ensino Médio. Indica-se a necessidade de estudos futuros para aprofundar a verificação de efetividade e eficácia dos programas, consolidando intervenções flexíveis para atender especificidades de diferentes populações, contextos e culturas e que contem com critérios estruturados de avaliação de seus resultados.

Palavras-chave: habilidades socioemocionais, aprendizagem socioemocional, ensino médio, intervenções psicológicas, práticas educativas de aprendizagem socioemocional

IMPLICACIONES DEL USO DE LAS REDES SOCIALES VIRTUALES EN EL TRATAMIENTO DE LOS TRASTORNOS ALIMENTARIOS

Resumen

Esta revisión sistemática buscó sintetizar y describir las principales características y resultados de los programas de desarrollo de habilidades socioemocionales aplicados en escuelas secundarias, o equivalentes en

otros países, con adolescents entre 14 y 18 años. La revisión fue realizada por pares siguiendo el método PRISMA 2020. Las bases de datos consultadas fueron: PubMed, MedLine, Scielo y LILACS, considerando publicaciones entre 2013 y 2023. Inicialmente se identificaron 1.290 registros y se incluyeron 10 artículos que cumplieron con los criterios de inclusión. Los estudios fueron analizados según sus objetivos, diseño metodológico, enfoque y características teóricas, estrategias y principales resultados. Los resultados mostraron amplia variedad de características y estrategias del programa, con diferentes criterios para evaluar los resultados post-intervención. En el 70% de los estudios, las intervenciones duraron menos de un año escolar, con un número de reuniones de entre 8 y 26 sesiones (80% con reuniones semanales), el 70% de las intervenciones fueron facilitadas por profesores de la escuela y el 80% utilizó medios interactivos y estrategias experienciales. Todos los estudios adoptaron un método de investigación cuantitativa con mediciones previas y posteriores a la intervención utilizando instrumentos variados. La mayoría (70%) tuvo como objetivo evaluar la efectividad y los efectos de las intervenciones; sólo dos estudios (20%) realizaron un seguimiento después de seis meses de finalizar la intervención. Los estudios demuestran que las intervenciones escolares sobre habilidades socioemocionales son estrategias válidas para promover la salud mental en adolescents de secundaria. Se indica la necesidad de futuros estudios para verificar la eficacia y efectividad de los programas, consolidando intervenciones flexibles para atender las especificidades de diferentes poblaciones, contextos y culturas y que cuenten con criterios estructurados para evaluar sus resultados.

Palabras clave: habilidades socioemocionales, aprendizaje socioemocional, secundaria, intervenciones psicológicas, prácticas educativas de aprendizaje socioemocional

The importance of socio-emotional skills in children's and adolescents' lives and mental health has drawn the attention of schools and communities worldwide (Black, 2022; Singh & Duraiappah, 2020). Socio-emotional skills are associated with various types of knowledge, skills, and attitudes applied in everyday life in the intra and interpersonal spheres. Such skills can be verified through indicators of psychosocial development (Ruiz-Aranda et al., 2012), such as behavioral implications (Brantes & Gondim, 2022; Stalker et al., 2018), relational skills (Ciarrochi et al., 2008), feeling and showing empathy for others, establishing and maintaining supportive relationships (Collaborative for Academic, Social, and Emotional Learning [Casel], 2020), academic performance (Santos et al., 2021; Durlak et al., 2011; McCallops et al., 2019), emotion recognition and management (Bono et al., 2020), ability to achieve personal and collective goals, and making responsible and cautious decisions (Casel, 2020; Mogro-Wilson & Tredinnick, 2020).

The terms social skills, social competencies, and socio-emotional skills are used interchangeably in the health descriptor libraries Health Science Descriptors (DeCS) and Medical Subject Headings (MeSH) and define a set of skills necessary to interact and communicate successfully. According to the hierarchical structure adopted by these libraries, the preferred term is social skills, which was introduced in DeCS/MeSH in 2015. Despite being included as equivalent terms in these libraries, some terminological distinctions characterize different theoretical perspectives. For example, in studies with a cognitive-behavioral approach, social skills refer to the specific abilities an individual develops and applies in different situations and contexts. In contrast, social competencies refer to an evaluative construct of an individual's performance in an interpersonal task that meets the individual's objectives, situation, or culture (Del Prette & Del Prette, 2017).

The notions of competence and skills were developed and modified from the 1960s onwards, originating from research in the Business Administration and Economics, and Education and Psychology fields (Duarte & Araújo, 2022). The term socio-emotional skills has been adopted by studies in several areas of knowledge anchored on different theoretical frameworks. Thus, it is a multidimensional construct, including emotional, cognitive, and behavioral aspects (Damásio, 2017; Oliveira & Muszkat, 2021). The term's polysemic nature reflects various approaches and understandings in which this discussion is inserted. In this study, we chose the term socio-emotional skills because it is the broadest term, aligned with the notion frequently used in socio-emotional skills programs, referred to in the literature as SEL (Social and Emotional Learning), which encompasses different theoretical frameworks and often intersects different fields of knowledge (Blyth et al., 2018).

Socio-emotional skills are learned and improved throughout life and constitute a protective factor for the healthy development and well-being of children, adolescents, and adults. Interpersonal relationships within the family and social group are expected to provide adequate conditions for acquiring these skills, but such environments may be deficient or limited (Campos et al., 2018). Failure to acquire these skills might lead to personal, social, and academic difficulties in the short and long term and is often associated with worse quality of life and

various psychological disorders and health problems in general (Barbosa et al., 2023; Casali-Robalinho et al., 2015; Del Prette & Del Prette, 2017).

Thus, it is essential to implement programs to develop, improve, and expand the repertoire of socio-emotional skills through structured techniques and strategies (Del Prette & Del Prette, 2017). Schools are considered the primary locus for the implementation of these programs, as education comprises not only academic learning but also promotes well-being and socio-emotional values and skills (Cavioni et al., 2020; Coelho & Dell'Aglio, 2019; Durlak et al., 2011, 2022; Rodrigues et al., 2021; Singh & Duraiappah, 2020). Such a perspective aligns with the 2030 Agenda for Sustainable Development proposed by the United Nations, which aims to ensure inclusive and equitable education, as well as promote lifelong learning opportunities for all, including the promotion of well-being and mental health in school environments (United Nations, 2015).

Many studies have implemented and assessed these programs using a wide variety of approaches and modes of delivery (e.g., including SEL in the academic curriculum, extracurricular programs, brief interventions, models based on specific competencies and skills, and addressing students of different age groups, among others). Many studies have aimed at preschool and elementary school children rather than high school adolescents (Barbosa et al., 2023; Barbosa & Melo-Silva, 2023; Pedrini et al., 2022; Taylor et al., 2017). Although some authors report that the positive results of SEL programs encompass different age groups (Taylor et al., 2017), strategies and interventions must adapt to the specificities and characteristics of the group for which they are intended (McCallops et al., 2019).

Thus, this study examines the results of recent research in detail, considering which findings are associated with interventions, as well as the role of other related factors (Durlak et al., 2022; Singh & Duraiappah, 2020; Skoog-Hoffman et al., 2020). Specifically, the relevance of investigating the characteristics of SEL programs aimed at the high school population is highlighted, given the importance of this period in the life cycle, which involves decision-making that meets internal and social demands, such as academic and professional choices, how to relate to peers, affective and sexual experiences, responsibility for one's own body and of others. This study is also relevant for the development, grounding, and methodological structuring of school-based intervention programs aimed at the development of socio-emotional skills of high-school adolescents.

This study's objective was to synthesize and describe the main characteristics and results of socio-emotional skills development programs implemented in high schools, or the equivalent abroad, addressing 14 to 18-year-old adolescents, published in the last ten years.

Method

The method adopted here followed the guidelines and principles proposed by PRISMA 2020, designed to guide systematic reviews assessing the effects of interventions in different areas (e.g., health, school, social) among studies with varied methodological designs (Page et al., 2021).

Three guiding questions were determined for this study:

1. What are the main characteristics of school-based intervention programs for developing socio-emotional skills among adolescents?

2. What are the methodological designs adopted in the studies, variables observed, themes addressed, and strategies used in the interventions?

3. What are the results obtained in these interventions?

These questions correspond to the elements of the PICOS model, which are recommended to facilitate the development of the search strategy (Munn et al., 2018), considering (P) participants – high school adolescents; (I) interventions – school-based socio-emotional skills programs; (C) comparisons – pre and post-intervention; (O) outcomes – interventions' variables and results; (S) study – study design.

After determining the research questions, we consulted the keywords to search and retrieve the articles appropriate to this review's scope in DeCS/MeSH. The searches were performed between June and August 2023 in the PubMed, Scielo, MedLine, and LILACS databases, considering the terms in Portuguese and English, using the Boolean operators "OR" and "AND," or advanced search tools, whenever available. The terms were: social skills; social emotional skills; social emotional learning; social emotional competence; adolescent; adolec*; psychosocial intervention; intervention; school; school-based; high school.

Given the large number of results obtained with different combinations of the above-mentioned terms, the automatic 10-year filter available in each database was applied. Thus, only articles published between 2013 and 2023 were selected for screening. The search results were recorded and saved in a document (Microsoft Excel) and shared among the authors to ensure the appropriate combination of the searched terms and a clear and replicable record of the entire review process.

The screening process was initiated by applying the following inclusion criteria: (1) research reports on interventions and programs focusing on socio-emotional skills and/or socio-emotional learning and/or social skills; (2) school-based interventions addressing adolescents between 14 and 18 attending high school in Brazil or the equivalent abroad, and studies addressing mixed samples including participants in this age group; (3) samples including students; (4) non-clinical population, and (5) articles written in Portuguese, English, or Spanish. Grey literature, theoretical studies, research reviews, brief reports, conference proceedings, protocols, and articles on intervention programs with samples not compatible with the research objectives, including clinical populations or with specific clinical demands, students attending grades other than high school, and unspecified academic years, were excluded.

Two independent reviewers selected the keywords, determined the search databases, and identified and screened the articles. All the selection and screening actions were recorded in an Excel spreadsheet shared with the authors, including access date, database consulted, duplicate articles, screening stages (title, abstract, full texts), authors, and article title. At each screening stage, the reviewers decided together on the selection procedures and systematically

checked and compared the results. Disagreements were resolved after discussion and by jointly reading the studies, considering the review's objectives and guiding questions, in addition to the previously defined inclusion and exclusion criteria. All stages were recorded in detail in files that composed a virtual research folder (Google Drive platform) to which only the authors had access.
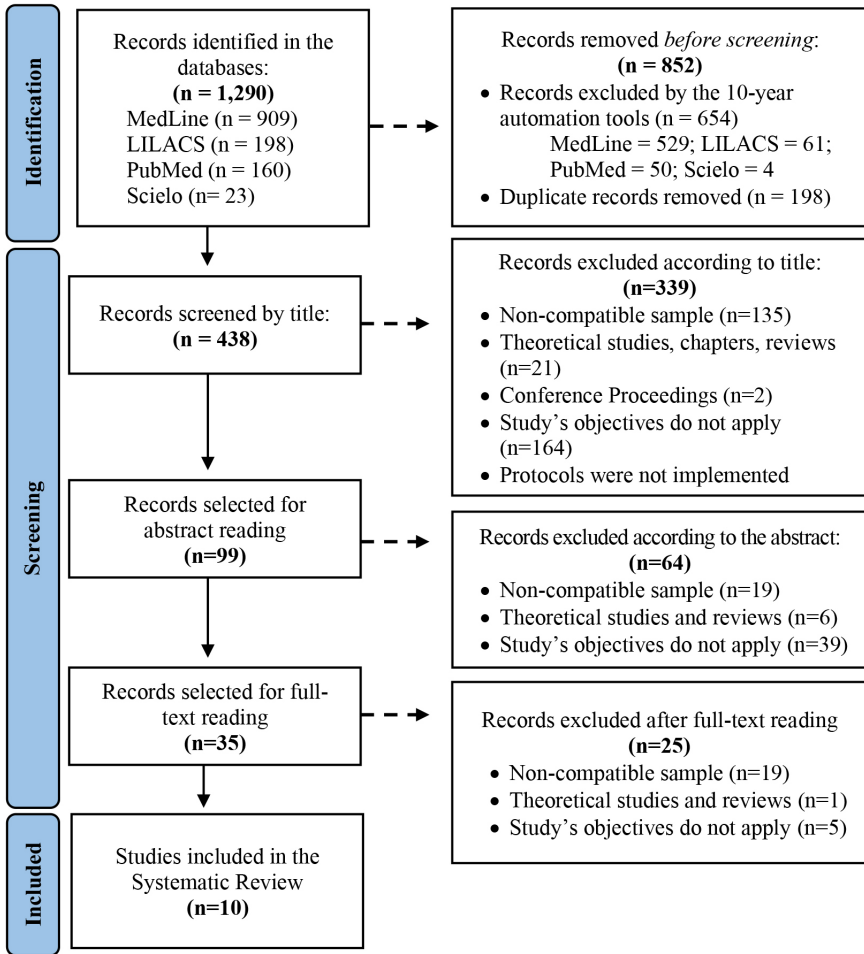
Regarding the risk of bias, two authors independently assessed the studies included in the review and later checked, compared, and reached a consensus using the Risk of Bias in Randomized Trials (RoB 2; Sterne et al., 2019) and the Risk of Bias in Non-randomized Studies of Interventions (ROBINS-I; Sterne et al., 2016). These tools provide guidelines for risk assessment in randomized and non-randomized studies considering specific domains of each study (e.g., sample selection, control of confounding variables, and missing data, among others). By assessing each domain, an overall rate of the risk of bias is obtained, classified as low, moderate, severe, critical, or no information.

Results

The initial search using the keywords previously described resulted in 1,290 records, 654 of which were excluded by the automatic date filter tool (10 years), and 198 were excluded for being duplicated. Next, the inclusion and exclusion criteria were applied: 438 articles were screened according to title, and 99 remained for reading the abstracts. Sixty-four articles were excluded from the abstract screening. Hence, the full texts of 35 articles were selected, 10 of which met all the eligibility criteria and were included in this review. The flowchart (Figure 1), adapted from the PRISMA method (Page et al., 2021), presents the details concerning the identification, screening, and eligibility process, including the reasons why the articles were excluded in each stage.

Figure 1

Review procedure flowchart – PRISMA 2020 method

Identification

Records identified in the databases:
(n = 1,290)
MedLine (n = 909)
LILACS (n = 198)
PubMed (n = 160)
Scielo (n= 23)

Records removed *before screening*:
(n = 852)
- Records excluded by the 10-year automation tools (n = 654)
  MedLine = 529; LILACS = 61; PubMed = 50; Scielo = 4
- Duplicate records removed (n = 198)

Screening

Records screened by title:
(n = 438)

Records excluded according to title:
(n=339)
- Non-compatible sample (n=135)
- Theoretical studies, chapters, reviews (n=21)
- Conference Proceedings (n=2)
- Study's objectives do not apply (n=164)
- Protocols were not implemented

Records selected for abstract reading
(n=99)

Records excluded according to the abstract:
(n=64)
- Non-compatible sample (n=19)
- Theoretical studies and reviews (n=6)
- Study's objectives do not apply (n=39)

Records selected for full-text reading
(n=35)

Records excluded after full-text reading
(n=25)
- Non-compatible sample (n=19)
- Theoretical studies and reviews (n=1)
- Study's objectives do not apply (n=5)

Included

Studies included in the Systematic Review
(n=10)

Note. Source: study's data (2023). Adapted from: http://www.prisma-statement.org/PRISMAStatement/FlowDiagram

Figure 2 shows the number of articles included in this systematic review according to year of publication. Most studies included in this review were published from 2019 onwards (80%).

Figure 2

Articles distributed over the years
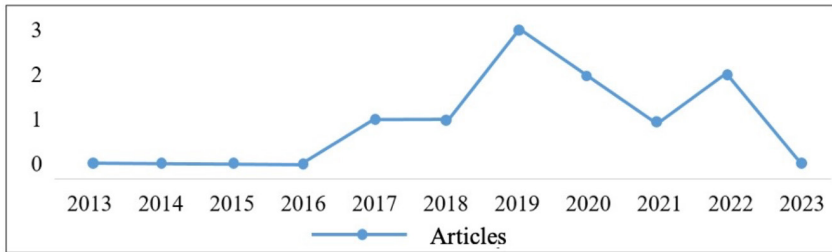
Codes identify the articles, and Table 1 shows their characterization, including country and year of publication, title, authors, theoretical approach, and objectives. Two studies were conducted in Spain (D, E), two in Ireland (G, I), one in Romania (A), one in Italy (F), one in the Netherlands (H), one in Poland (C), and one in Portugal (J). One study was conducted in six European countries: Croatia, Greece, Italy, Latvia, Portugal, and Romania (B). Regarding the objectives, the most prevalent were studies of effectiveness (A, B, D, I), effects of interventions (E, F, H), impact (C, G), and efficacy (J). As for the studies' framework, 30% of the interventions were based on SEL (Social Emotional Learning) developed by the Collaborative for Academic, Social, and Emotional Learning (CASEL) (A, B, G), and one intervention was grounded on Adventure Education (C). Both frameworks are comprehensive models that contextualize, provide conceptual and methodological parameters, and guide the implementation of socio-emotional skills learning practices. The remaining studies specified the theoretical approaches: Cognitive-behavioral (D, H), Positive Youth Development (PYD) (E), Emotional Intelligence (F), Dialectical Behavioral Therapy (I), Social Learning Theory, and the ABCD development model (J).

Table 1

Characterization of articles according to year, country of origin, authors, title, theoretical framework, and objectives

Title Authors, Year, and Country	Theoretical Framework and Objective
(A) Impact of a School Mental Health Program on Children's and Adolescents' Socio-Emotional Skills and Psychosocial Difficulties (Colomeischi et al., 2022) Romania	CASEL (Collaborative for Academic, Social, and Emotional Learning) To assess the effectiveness of the Promoting Mental Health at School (PROMEHS) program in improving socio-emotional skills and decreasing psychosocial difficulties among students and to analyze differences in the program's effectiveness according to the students' school level (Preschool to High school).
(B) The Effectiveness of a School-Based, Universal Mental Health Programme in Six European Countries (Cefai et al., 2022) Croatia, Greece, Italy, Latvia, Portugal, Romania	CASEL (Collaborative for Academic, Social, and Emotional Learning) To investigate the PROMEHS's effectiveness in the schools of 6 European countries. Specifically, it verified whether the students who completed the program experienced improved social and emotional competencies, prosocial behaviors, academic engagement, and decreased internalizing and externalizing behavioral difficulties compared to the control group.
(C) The Impact of Physical Education Based on the Adventure Education Programme on Self-Esteem and Social Competences of Adolescent Boys (Koszałka-Silska et al., 2021) Poland	Adventure Education (a branch of education aimed at developing intra- and inter-personal relational skills through outdoor adventure activities). To analyze the impact of an Adventure Education program included in a school physical education curriculum on the social skills of adolescent boys.
(D) Effectiveness of the Reasoning and Rehabilitation V2 Programme for Improving Personal and Social Skills in Spanish Adolescent Students (Sánchez-SanSegundo et al., 2020) Spain	Cognitive-behavioral study To evaluate the effectiveness of the R&R2 program in improving the personal and emotional skills of adolescents attending alternative education in Spain.
(E) Positive Adolescent Development: Effects of a Psychosocial Intervention Program in a Rural Setting (Paricio et al., 2020) Spain	Positive Youth Development (PYD) To implement a psychosocial intervention program in the school environment and evaluate its effects.
(F) Can Videogames Be Used to Promote Emotional Intelligence in Teenagers? Results from EmotivaMente, a School Program (Carissoli & Villani, 2019) Italy	Emotional Intelligence (EI) To investigate the effects of educational training in emotional intelligence using video games as a learning tool.

Table 1

Characterization of articles according to year, country of origin, authors, title, theoretical framework, and objectives (continuation)

Title Authors, Year, and Country	Theoretical Framework and Objective
(G) A Cluster Randomized-Controlled Trial of the MindOut Social and Emotional Learning Program for Disadvantaged Post-Primary School Students (Dowling et al., 2019) Ireland	CASEL (Collaborative for Academic, Social, and Emotional Learning) To assess the immediate and long-term impact of the MindOut Program on students' social and emotional skills, general mental health and well-being, and academic performance.
(H) A Social Gradient in the Effects of the Skills for Life Program on Self-Efficacy and Mental Wellbeing of Adolescent Students (Pannebakker et al., 2019) Holland	Cognitive-behavioral To verify the long-term effects of the Skills 4 Life (S4L) curriculum on the socio-emotional development, psychological and behavioral problems, and depressive symptoms of high school students, with an emphasis on students at lower educational levels.
(I) Innovations in Practice: Dialectical Behaviour Therapy – Skills Training For Emotional Problem Solving For Adolescents (DBT STEPS-A): Evaluation of a Pilot Implementation In Irish Post-Primary Schools (Flynn Et Al., 2018) Ireland	Dialectical Behavioral Therapy To adapt the American DBT STEPS-A program to the Irish school environment and verify its effectiveness.
(J) The impact of a Portuguese Middle School Social-Emotional Learning Program (Coelho et al., 2017) Portugal	Social Learning Theory and the ABCD (affective, behavioral, cognitive, dynamic) development model. To analyze the effectiveness of a social-emotional learning (SEL) program on the social-emotional skills of Portuguese high school students, as well as the moderating role of student characteristics (such as gender and baseline levels) in two distinct cohorts.

Note. Source: study's data (2023)

Table 2 systematizes the characteristics of the selected studies, specifying the method and sample, describing the interventions and strategies, and the primary results.

All studies included an experimental (EG) and a control group (CG), as well as pre- and post-intervention assessments (T0 and T1). Three (D, G, H) were randomized controlled trials, and six adopted a quasi-experimental design (A, B, C, E, F, I, J). In addition to the assessments at T0 and T1, four studies (F, G, H, J) monitored participants after a certain period had elapsed since the intervention (follow-up – T2), which ranged from three to twenty months.

The sample sizes ranged from 70 to 7,789 participants. Nine studies (B, C, D, E, F, G, H, I, J) addressed samples comprising students only, and one study (A) addressed teachers and students. All studies were performed in regular schools, with three of them having some specificities, such as basic vocational training school (B), rural school (C), and single-sex school (G). The adolescents participating in the programs were aged from 4 to 18. Two studies (A, B) indicated interventions with a mixed age range, including school level equivalent to preschool,

elementary school, middle school, and high school. One of these studies (B) did not report the age range, only the school grades.

The schools' teachers conducted the programs (A, B, C, F, G, H, I) or professionals trained in the program (D, E), or a psychologist (J), accompanied by school collaborators (coordinator, teacher, and/or former student). The interventions were implemented over a period that ranged from three months to two years; most programs were implemented in less than one academic year (A, B, C, D, E, F, G). The number of meetings ranged from 8 to 26 and lasted between 50 minutes and 2 hours each. Sessions were implemented weekly in seven studies (A, C, E, F, G, H, J), while three studies did not specify (B, D, I). Two studies (B and C) provided 6 hours of training to school leaders and parents. The interventions addressed the following topics: mental health promotion in schools, emotional intelligence, emotion regulation, emotion recognition, self-awareness, self-management, emotional and social resilience, empathy, social awareness, relationship management and responsible decision-making, problem-solving and negotiation skills, and communication skills. The strategies used in the interventions to develop socio-emotional skills included outdoor adventure activities, games (in-person and video games), debates and discussions, dramatizations, paper presentations, and videos. Information transfer techniques, modeling, behavioral rehearsal, and feedback were adopted beside homework assignments and supplementary materials, such as manuals for teachers and instructors with step-by-step instructions for the activities and student handouts.

In general, the programs described in the articles presented satisfactory results. Most (60%) implemented two pre- and post-test assessments, and four studies (F, G, H, J) included a follow-up between 3 and 20 months after the intervention. Four studies (A, B, D, G) reported significant improvements in the EG participants' repertoire of social and emotional skills between T0 and T1 compared to CG and a decrease in internalizing problems (A, B, G, I) – especially self-reported symptoms of anxiety, social anxiety, and depression – and decreased externalizing problems (A, B). Two studies indicated an improvement in internalizing problems only in the follow-up assessment, 20 months (H) and 6 months (J) after the intervention, a result not found in T1.

Specifically regarding socio-emotional skills, the results showed statistically significant improvements after the intervention in the following variables: self-management, self-efficacy, and self-control (A, E, H, J); responsible decision-making (A); assertiveness (C, E); problem-solving and conflict resolution (D, E); empathy (D, E); relational skills (A), effective behavior in situations of social exposure (C); prosocial behavior (B), social awareness (J), and social support (G). Significant improvements were found after the interventions regarding emotion recognition (F), decreased suppression of emotions and avoidance strategies, increased coping (G), and improvement in alexithymia (E). The following aspects did not show significant differences in five studies (C, E, F, H, I) after the intervention: moral values, decision-making, and planning, recognition of emotions in others, emotional regulation, self-confidence to apply strategies learned in the programs, self-esteem, social interaction, and dysfunctional coping.

Regarding the similarities between the programs, all were implemented during school hours, two as part of the regular curriculum (I, J), and 50% of the interventions (A, C, D, G, J) implemented 12 or 13 sessions, distributed in different periods throughout the school year. In 90% of the interventions, most participants were 15 and 16 years old. Interactive and experiential strategies predominated; in most interventions (80%), teachers from the educational institution led the meetings and administered the content (A, B, C, E, F, G, H, I).

Table 2

Studies' characteristics: sample, method, intervention and strategies general description, main results

Study	Sample and Method	General description of the intervention and strategies	Main Results
(A)	*Participants:* 104 teachers assessed 1,392 students aged between 4 and 16 (895 students in the EG and 497 in the CG) (Preschool to High School – mixed sample of age range) from 30 schools. *Method:* quasi-experimental study. Non-random sample distribution into EG and CG (T0 and T1). The teachers answered questionnaires before and after the intervention. *Instruments:* Strengths and Difficulties Questionnaire (SDQ); Social Skills Improvement System Social-Emotional Learning Brief Scales (SSIS SEL); academic results based on teacher assessment; sociodemographic questionnaire.	PROMEHS aims to design, implement, and assess a curriculum for promoting mental health in schools among students, teachers, and parents. The curriculum focuses on improving students' learning, social and emotional resilience and decreasing social, emotional, and behavioral difficulties. *Duration:* 3 months – with 12 one-hour sessions per week as part of the school curriculum *Administered by* trained school teachers (before intervention – 16h of theoretical and practical training; during the intervention – 9h of supervision) *Strategies:* teacher training and supervision; teaching materials (7 manuals for teachers and students – different for each school stage – and 2 mental health glossaries for teachers); meetings and activities with students; meeting with parents and leaders.	The intervention positively and significantly promoted mental health by improving social and emotional skills and decreasing internalizing and externalizing difficulties. After the intervention, the EG showed a significant decrease in internalizing problems (primary/middle school and high school), externalizing problems (preschool and primary schools, and total difficulty (all levels). The SEL variables (self-management, relational skills, and responsible decision-making) significantly improved in the EG at T1 for all school levels.

Table 2

Studies' characteristics: sample, method, intervention and strategies general description, main results (continuation)

Study	Sample and Method	General description of the intervention and strategies	Main Results
(B)	*Participants:* 7.789 students (respective teachers and parents) from kindergarten to high school in 6 European countries, including 434 classrooms in 124 schools (4,501 students in the EG and 3,288 in the CG): 2,505 from kindergarten; 2,641 from primary; 2,015 from middle school, 628 from high school (mixed sample of age range – age not specified) *Method:* quasi-experimental, longitudinal study. Non-random distribution of the sample with EG and CG (T0 and T1) *Instruments:* Strengths and Difficulties Questionnaire (SDQ); Social Skills Improvement System Social-Emotional Learning Brief Scales (SSIS SEL); academic results based on teacher assessment; sociodemographic questionnaire.	The PROMESH program offers a universal curriculum from early childhood to high school. It includes three key domains: promoting social and emotional learning (SEL), resilience, and preventing social, emotional, and behavioral difficulties. *Duration:* 6 months (class hours were decreased in some countries due to the COVID-19 pandemic) *Administered by* trained school teachers (16 hours of theoretical and practical training on the program as preparation and 9 hours of supervision during implementation of the intervention) *Strategies:* Teacher training (16 hours) and supervision (9 hours); teaching materials (7 manuals for teachers and students). According to each school stage – and 2 mental health glossaries for teachers); meetings and activities with students; meeting with parents and school leaders (6h – 3 two-hour meetings). Topics covered: self-awareness, self-management, social awareness, relationship skills and decision-making (SEL); resilience – dealing with psychosocial challenges and traumatic experiences; prevention of social, emotional and behavioral problems (dealing with difficulties and risky behavior).	The EG showed significantly greater increases in social and emotional competence and prosocial behavior and decreased mental health problems (externalizing and internalizing problems). No significant impact was found on academic performance. High school students in the EG obtained significantly higher mean scores on internalizing difficulties and significantly lower mean scores on prosocial behavior than preschool and primary/middle school students. Primary and preschool students in the EG obtained significantly higher academic performance scores than the high school students.

Table 2

Studies' characteristics: sample, method, intervention and strategies general description, main results (continuation)

Study	Sample and Method	General description of the intervention and strategies	Main Results
(C)	*Participants:* 70 girls aged between 15 and 16 in the first year of high school (mixed-gender school, but the study considered only girls). *Method:* quasi-experimental study with EG and CG (T0 and T1) *Instruments:* Rosenberg's Self-Esteem Scale; Social Competence Questionnaire Version for Adolescents (SCQ); The Health Behavior in School Aged Children (HBSC).	The program is based on Adventure Education and seeks to promote the learning of intra and interpersonal skills through experiences centered on outdoor adventure. *Duration:* 12 weeks (weekly 90-minute meetings) *Administered by* School teachers *Strategies:* The meetings consist of practical activities outdoors or in the school playground, implemented at three points in time: (1) warm-up with a dynamic game; (2) main part addressing problem-solving tasks that require collaboration, group actions, and interactions, and trust games; (3) experiences with a reflection and transfer.	Improved skills for effective behavior in situations of social exposure and situations requiring assertiveness. No changes were observed in close interpersonal contact skills or significant changes in self-esteem.
(D)	*Participants:* 142 students aged between 13 and 17 attending a basic vocational training school and diversification program. *Method:* experimental design with EG and CG randomly assigned (T0 and T1). *Instruments:* Rosenberg's Self-Esteem Scale; Social Skills Scale; Social Problem-Solving Inventory, Revised; Interpersonal Reactive Index (Empathy).	R&R2 is a program focused on training behavioral, emotional, and cognitive skills associated with negative behaviors and mental health problems. It aims to improve problem solving, social perspective taking, critical reasoning, empathy, negotiation skills and values. *Duration:* 6 months – with 12 two-hour sessions. *Administered by* qualified instructors *Strategies:* games, practical skills, and discussions.	Results showed that R&R2 improved participants' self-esteem, social skills, empathy, and problem solving with a medium-large effect size.

Table 2

Studies' characteristics: sample, method, intervention and strategies general description, main results (continuation)

Study	Sample and Method	General description of the intervention and strategies	Main Results
(E)	*Participants:* 176 adolescents (11 to 15 years old) attending rural schools. *Method:* quasi-experimental study with EG and CG (T0 and T1) *Instruments:* Rosenberg Self-Esteem scale; The General Self-Efficacy Scale; Tarrant's Group Identification Scale; Basic Empathy Scale; the Toronto Alexithymia Scale (TAS-20); Scale of Social Skills; The Problem Solving/Decision Making Subscale of the Life Skills Development Scale for Adolescents; The Scale of Values for Positive Adolescent Development. Academic performance was assessed according to the students' average grades on the first test and at the end of the semester.	The program is organized in 3 phases: (1) invitation and consent forms, preparation of the school community, 1 module to present the program and assessment T0; (2) intervention (EG) − 5 modules working personal, cognitive, emotional, social, and moral competencies; (3) closure of intervention module, assessment, T1, and feedback to the school. *Duration:* the intervention is developed over 8 months with weekly sessions lasting 50 minutes each. *Administration:* a professional specialized in PYD, one schoolteacher and a former student. *Strategies:* debates, group work, dramatizations, and homework.	The results showed significant improvement in the EG compared to the CG in the variables: self-esteem, self-efficacy, group identity, empathy, relational skills, assertiveness, conflict resolution, alexithymia, and improved academic performance. No significant improvement was found in moral values or cognitive skills concerning planning and decision-making. The authors emphasize the use of a systemic approach, considering the participation of students, teachers, former students, and the community.
(F)	*Participants:* 121 adolescents attending high school (14 to 16 years old) in two schools *Method:* quasi-experimental study with EG and CG (T0, T1, and T2 − follow-up 3 months after the intervention) *Instruments:* sociodemographic questionnaire, the Italian versions of the Emotional Intelligence Scale and Emotion Regulation Questionnaire.	The EmotivaMente program is intended to promote emotional intelligence (EI) in adolescents. *Duration:* 3 months – 8 weekly sessions of 90 minutes each (implemented in 6 classes) *Administration:* teachers. *Strategies:* learning is promoted through video games integrated into guided and structured group or individual activities.	EG: improved skills to recognize one's own emotions in T1, though did not remain in T2. No changes were found after the intervention regarding other EI aspects (ability to recognize emotions in others, emotion regulation). No changes were found regarding the students' confidence in applying the strategies learned in class in their daily lives. The adolescents reported increased use of cognitive reappraisal as a regulation strategy over time.

Table 2

Studies' characteristics: sample, method, intervention and strategies general description, main results (continuation)

Study	Sample and Method	General description of the intervention and strategies	Main Results
(G)	*Participants:* 497 adolescents aged between 15 and 18 attending schools considered disadvantaged by the Department of Education in Ireland. *Method:* Randomized study with EG and CG (T0, T1 and T2 after 13 weeks of T1) *Instruments:* Rosenberg's Self-Esteem Scale; The emotional regulation questionnaire; Trait Meta-Mood Scale; Coping Strategy Indicator; The self-efficacy questionnaire; Adolescent Interpersonal Competence Questionnaire; Making Decisions in Everyday Life Scale; The Depression Anxiety Stress Scale; Warwick Edinburgh Mental Wellbeing Scale; The Attitudes Towards School scale; The School Achievement Motivation Rating Scale.	MindOut is a universal school-based program intended to promote social and emotional well-being among 15 to 18-year-old attending high school students. The program's content is based on five CASEL competencies (self-awareness, self-management, social awareness, relationship management, and responsible decision-making). *Duration:* 13 weekly meetings. *Administration:* class teacher. *Strategies:* structured and interactive activities (for students and interactions with the school community and families are suggested) addressing varied topics such as emotion recognition and management, facing challenges, communication skills, empathy, and relationship skills, among others.	Significant improvement in social and emotional skills, including decreased suppression of emotions, using more positive strategies (decreased avoidance), and increased social support as a coping strategy. Decreased stress levels, and depressive symptoms in boys and girls; decreased anxiety scores among girls.
(H)	*Participants:* T0 – 1.505 students aged 13 to 16. T1 – 995 (one year after T0) T2 – 512 (end of the second year) *Method:* randomized control trial including 38 schools (66 classes from the 7th to 9th grade), with EG and CG (T0, T1, and T2) *Instruments:* Rosenberg's Self-Esteem Scale; Generalized Self-Efficacy Scale; Strengths and Difficulties Questionnaire; Beck Depression Inventory. The teachers assessed the students for 2 years: Strengths and Difficulties Questionnaire (teacher version)	S4L is a life skills development program. *Duration:* 2 years. *Content and duration:* Year 1: 17 weekly classes of 1 hour each – lessons addressed problem-solving skills, interpersonal skills, emotional regulation, and critical thinking. Some classes focused on skills to deal with specific problematic situations, such as giving and asking for help, dealing with bullying, respecting boundaries, substance abuse, gambling, and sexuality. Each session ended with a "weekly behavioral commitment." Year 2: 9 classes addressed three topics: "dealing with emotional problems and suicidal tendencies", "dealing with aggressions," and "introducing oneself. " *Administration:* school teachers (who received 3-day training before the first and second years)	T1: the intervention showed no statistically significant effects. T2 (20 months after the first assessment post-intervention): the EG students reported significant self-efficacy improvement compared to the CG; the teachers reported fewer problematic behaviors; and decreased self-reported depressive symptoms. No statistical difference was found between the groups regarding self-esteem and positive social interaction over time. The conclusion is that the S4L program is efficacious in improving mental health and self-efficacy among adolescents.

Table 2

Studies' characteristics: sample, method, intervention and strategies general description, main results (continuation)

Study	Sample and Method	General description of the intervention and strategies	Main Results
(H)		*Strategies:* information transference, instruction, discussion, modeling, behavioral rehearsal, feedback, role plays, videos, social reinforcement, and extended practice. Teacher's manual and student handout.	
(I)	*Participants:* 72 female students aged 15 to 16 from two single-gender schools in southern Ireland. *Method:* Quasi-experimental study with EG and CG (T0 and T1) *Instruments:* The DBT Ways of Coping Checklist; Behaviour Assessment System for Children: the Emotional Symptom Index (measuring social stress, anxiety, depression, feelings of inadequacy, self-esteem, and self-confidence) and Internalizing Problems (measuring atypicality, locus of control, social stress, anxiety, depression, feelings of Inadequacy, and somatization).	DBT STEPS-A is a 1-year program with 30 classes that was developed in the United States to teach adolescents about distress tolerance, emotion regulation, interpersonal effectiveness, and mindfulness skills. *Duration:* 1 school year – 22 weeks (adaptation to the school year in Ireland) *Administration:* school teacher trained for the program *Strategies:* not reported.	EG showed significant improvement in scores for emotional symptoms and internalizing problems (significant decrease in depression, anxiety, and social stress), but not in dysfunctional coping or the use of dialectical behavior therapy skills.
(J)	*Participants:* 628 adolescents from 11 to 17 attending public schools. *Method:* Quasi-experimental study with EG and CG (T0, T1, and T2 – *follow-up* after 6 months) *Instruments: Bateria de Socialização-3 (BAS-3)* [Socialization Battery] and a Questionnaire to verify satisfaction with the program with 5 close-ended questions and 4 open-ended questions.	The Positive Attitude program aims to develop socio-emotional skills, by increasing self-control, enhancing self-awareness and social awareness, promoting relationship skills, responsible decision-making, and decreasing social and emotional problems among students. *Duration:* 1 academic year – 13 weekly sessions of 45 minutes each, included in the curriculum schedule (a course called Civic Education). *Administration:* specialist psychologist, in the presence of the class director (responsible for coordinating all the class' teachers and communication with parents) *Strategies:* manual with detailed description of each module, session by session, including instructions for activities and materials, SEL learning objectives, techniques, and strategies to be implemented.	T1: EG showed significant improvements in social awareness and self-control and decreased levels of social anxiety. T2: positive effects remained stable, except for social anxiety. Girls showed more significant gains in social awareness and decreased levels of social isolation and social anxiety compared to boys. Students in the EG with lower levels of competence benefited more from the intervention in the social awareness dimension than the CG.

Note. Source: study's data (2023)

Risk of Bias

Overall, most of the studies (80%) (A, C, D, E, F, G, H, J) presented a moderate risk of bias, meaning that they were classified with a low or moderate risk for each domain and their results are considered robust evidence. The domains in the non-randomized studies (A, B, C, E, F, H, I, J) considered to present a moderate risk of bias were: bias due to confounding variables that could impact the results; the non-randomized selection of participants; and how data were collected, which relied on self-report instruments based on only one informant (e.g., teachers or students). Two non-randomized studies (B, I) were considered to present a severe risk of bias in at least one domain, resulting in an overall rate of severe risk. Study B (Cefai et al., 2022) was strongly impacted by the emergence of the COVID-19 pandemic, which interfered with the program's implementation (reliability). Considering study I (Flynn et al., 2018) is a pilot study, it addressed a limited sample and adapted the intervention to a different context; hence, one cannot ensure a reliable implementation. A moderate risk of bias existed regarding randomized studies due to omitted information regarding the experimental condition to which the study participants were submitted. Nevertheless, the biases found in these studies do not diminish their results' validity. In most cases, such biases are part of the challenges inherent to research conducted in a school setting, such as ethical aspects related to the omission of the condition assigned to the participants (experimental or control) or the randomization process according to school, class, or individual. A detailed and precise description of the entire research process, from its planning to the results and considerations regarding limitations, is necessary to ensure the quality of studies addressing school-based socio-emotional skills programs.

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Discussion and Final Considerations

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This systematic review summarized and described the characteristics and results of studies published in the last ten years on socio-emotional skills development programs implemented in High Schools or the equivalent in other countries that included participants aged between 14 and 18. Two researchers surveyed and selected the articles using the PRISMA method, and 10 publications met the inclusion criteria. These studies were analyzed according to their objectives, methodological designs, theoretical frameworks, and the interventions' characteristics, strategies, and main results.

Regarding the research method, no studies qualitatively assessing the interventions were found. All studies adopted a quantitative design, implemented pre- and post-test measurements using instruments, and 70% assessed the interventions' effectiveness and effects. This finding confirms the predominance of quantitative methods described in the literature (Martins & Wechsler, 2020; Taylor et al., 2017). Mixed-method studies with well-defined, deliberate, and well-founded assessments might add new perspectives to existing research, indicating relevant aspects to the planning, development, implementation, and effectiveness of school-based socio-emotional skills programs.

The literature seldom presents studies with follow-up assessments (Cipriano et al., 2023). This review found only two studies with follow-ups implemented six months after the intervention ended (Coelho et al., 2017; Pannebakker, 2019). The medium- and long-term monitoring of participants is greatly relevant in mapping the interventions' results and implications. The results from follow-ups implemented 6 months to 18 years after the interventions showed improved socio-emotional skills related to attitudes and indicators of well-being in children and adolescents who participated in school-based SEL programs (e.g., obtaining a degree, adopting safe sexual behaviors, less involvement in crimes, among others) (Taylor et al., 2017).

Regarding the theoretical framework adopted, interventions based on the CASEL (Collaborative for Academic, Social, and Emotional Learning) were the most prevalent (30%) (Cefai et al., 2022; Colomeischi et al., 2022; Dowling et al., 2019). This model encompasses five dimensions of skills – self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020), and is widely adopted and indicated as a standard. Other models, such as P21 (Partnership for 21st Century Learning) and Life Skills (UNESCO), propose additional aspects and sets of socio-emotional skills, which calls for the development of a taxonomy to enable a more precise categorization of terms, contents, and notions that, depending on the model addressed, have different or similar meanings (Cipriano et al., 2023; Duarte & Araújo, 2022).

The various foundations and strategies reaffirm the need for in-depth research and studies to verify the programs' effectiveness and efficacy, consolidating flexible universal interventions to meet the specificities of different populations, contexts, and cultures. Cefai et al. (2022) addressed six European countries, adopting different strategies to implement the program in schools depending on the schools' location, considering the protective measures imposed during the COVID-19 pandemic. Paricio et al. (2020) considered the characteristics of the population when developing strategies for implementing the intervention in rural schools in Spain, recognizing adaptations as a resource that fostered engagement and adherence to the program and obtained improved results in the variables measured. The review conducted by McCallops et al. (2019) indicates that SEL interventions must include culturally responsive practices, i.e., based on the understanding that the participants' performance improves when interventions consider their cultural experiences, such as gender, ethnicity, religion, and socioeconomic class.

A wide variety of intervention characteristics and strategies were found in this review. The literature highlights the importance of the programs' duration. Some studies suggest that shorter interventions (from half to one academic year) tend to present better results (Cipriano et al., 2023; Rubiales et al., 2018), corroborating this review's findings. Shorter programs presented better results. Three extended programs (1 to 2 academic school years) were found (Coelho et al., 2017; Flynn et al., 2018; Pannebakker et al., 2019). The longest program, which lasted two years, did not present statistically significant effects in the first assessment immediately after the

intervention. In the follow-up assessment 20 months later, the adolescents reported a significant increase in one variable, self-efficacy, and a decrease in self-reported depressive symptoms, and the teachers reported that the students presented decreased problematic behaviors (Pannebakker et al., 2019).

Most of the interventions (70%) were conducted by the schools' teachers and presented good results, corroborating the results found by Cipriano et al. (2023), i.e., programs implemented by teachers are more effective than those by non-school professionals. There is a need to support and train teachers and the school community to develop quality socio-emotional skills programs in their institutions. However, adequate planning is required for activities not to overload their school routine, taking into account their own socio-emotional skills repertoires and challenges. The review conducted by Rubiales et al. (2018) found greater effectiveness in interventions conducted by psychologists. This finding could not be verified in this review, as only one study (Coelho et al., 2017) reported on an intervention conducted by a psychologist, and this variable was not evident.

The review's results suggest that school-based interventions on socio-emotional skills are a valid strategy for promoting adolescents' mental health and minimizing risky and maladaptive behaviors besides internalizing and externalizing problems (Cefai et al., 2022; Colomeischi et al., 2022; Dowling et al., 2019; Flynn et al., 2018). The literature supports these findings with an extensive contribution, highlighting socio-emotional skills as assets for the prevention, protection, and psychosocial development of children, adolescents, and adults (Durlak et al., 2022; Falcó et al., 2020; Pedrini et al., 2022; Pollak et al., 2023; Taylor et al., 2017).

Intervention programs are designed to promote socio-emotional skills and prevent developmental problems resulting from failure to acquire such skills (Barbosa et al., 2023; Barbosa & Melo-Silva, 2023; CASEL, 2003). The results found here, corroborated by Durlak et al. (2011) and Cipriano et al. (2023), indicate that school-based socio-emotional skills programs present multidimensional positive effects that extend beyond school environments, influencing intra- and inter-subjectively the participants' daily lives. Implementing school-based socio-emotional skills programs benefits children and adolescents' development and social contexts.

The literature presents a significant diversity of socio-emotional skills training and development programs. If, on the one hand, such diversity can contemplate specific demands, on the other hand, it imposes a methodological challenge, which is to consider inconsistencies in the interventions' foundations, strategies, and assessments (Barbosa et al., 2023; Barbosa & Melo-Silva, 2023; Cipriano et al., 2023; Durlak et al., 2022; Rubiales et al., 2018). Based on the three questions proposed in this review, there are some points to consider when devising and structuring adolescent socio-emotional skills programs. Quantitative studies are prevalent, but a mixed design is relevant for obtaining an in-depth understanding of the phenomenon, accessing the subjectivity, and meeting the needs and particularities of the population involved. Assessments of the results provide parameters for analyzing the effectiveness of interventions, including longitudinal follow-up, and allow for changes in strategies when necessary. The

literature suggests that shorter programs (six months to one academic year) present good results, in addition to being implemented by the schools' teachers with a participatory and experiential approach. Ideally, the topics should be aligned with the theoretical foundations and agree with the implementation strategies to deliver interventions. Implementing an intervention program, that is, how a program or set of practices is delivered, influences how SEL approaches affect student outcomes (Cipriano et al., 2023).

The systematic analysis of the impacts of school interventions and the most effective strategies and content enables the drawing up of guidelines for implementing public policies. This systematic review's findings are expected to support future studies and the development of effective school-based interventions, especially with older adolescents.

This systematic review's limitations include the fact that only studies from the European continent were found, indicating the importance of further studies to obtain a more comprehensive analysis of the demands of distinct sociocultural characteristics and the use of strategies that effectively meet emerging specificities, including the cultural and contextual adaptation of programs to different countries. It is also worth noting that there is a wide range of keywords related to socio-emotional skills programs in the literature, but which are not included in the health descriptor libraries, causing research relevant to the construction of a more comprehensive overview of the topic to be overlooked. Other keywords should be considered in future reviews.

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Contribution of each author to the work:

Ana Paula Navarro de Vasconcellos: Contributed to the conception and design of the study, analysis and interpretation of data, writing and revising the article, and approval of the final version to be published.

Liliana Liviano Wahba: Contributed to the conception and design of the study, analysis and interpretation of data, writing and revising the article, and approval of the final version to be published.

Sofia Marques Viana Ulisses: Contributed to the conception and design of the study, analysis and interpretation of data, writing and revising the article, and approval of the final version to be published.