

Effect of physical activity on emotional intelligence in children aged 7-14: systematic review

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Authors' Contribution:

- A Study Design
- B Data Collection
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Dictionary:

Emotional intelligence – ability to recognize the meanings of emotion and their relationships, and to reason and problem-solve on the basis of them [9].

Physical activity – any bodily movement produced by skeletal muscles that results in energy expenditure [31].

Bar-On EQ-I – BarOn Emotional Quotient-Inventory [32]

EIS – Emotional Intelligence Scale [33]

GEI – Global Emotional Intelligence [15]

SEM – structural equation modeling [18]

Abstract:

Background and Study Aim: Previous studies have reported an association between physical activity (PA) and emotional intelligence (EI). However, the existing evidence remains inconclusive. This systematic review aims is synthetic approach to knowledge about the relationship between PA and EI in children aged 7-14, as well as the study methodologies that were used.

Material and Methods: The search and analyses were prepared in accordance with PRISMA guidelines. The selected studies had to meet the following criteria: English-language, peer-reviewed original research, published between 2011 and 2025, children aged 7-14 years as participants. This systematic review included 9 studies comprising 4898 participants in total, selected from three databases: Scopus, Web of Science, and PubMed, up to January 2026.

Results: EI was positively correlated with PA. Emotional intelligence was a mediator of the relationship between physical activity and resilience, and the relationship between physical activity and prosocial behaviour.

Conclusions: Similar results were observed regardless of cultural context and methodology of included studies, showing importance of physical activity for school-aged children and its link to their mental well-being.

Keywords: Generation Alpha, mental health, physical education, social support

1. Introduction

Physical activity (PA) is essential for children's physical development and for their emotional and social functioning [1]. There is a positive association between children's physical activity and their motor and cognitive development; however, many studies were reported to be of low methodological quality [2]. At the same time, Generation Alpha is the first cohort raised fully immersed in digital technology and are therefore assumed to differ cognitively from previous generations [3]. Contemporary children engage in regular physical activity less frequently, which is associated with the attractiveness of digital technologies, changes in lifestyle, and the declining role of physical education in shaping movement habits [4]. The vast majority of children from Generation Alpha have difficulties with performing basic gymnastic exercises [5]. If they perceive such an activity as boring, they quickly disengage and seek alternative forms that are promoted within online environments [6].

Maintaining regular physical activity is easier when children enjoy it and have opportunities to build social relationships [7]. Physical exercise is associated with adolescents' social-emotional competence, and this relationship is mediated by both social support and peer relationships [8]. Emotional intelligence (EI) can be defined as the 'ability to recognize the meanings of emotion and their relationships, and to reason and problem-solve on the basis of them' [9, 10]. There is evidence that components of EI, such as self-regulation, empathy, motivation, and self-awareness, are predictors of academic achievement among primary school students [11]. Adolescents with higher levels of EI reported feeling more accepted and less rejected by other teenagers [12].

PA is an environmental protective factor that supports resilience by strengthening coping abilities and stress resistance in children [13]. Resilience is an important component of mental health and well-being in children, and regular participation in organised sports is associated with higher levels of resilience [14]. Furthermore, physical exercise has a clear positive effect on social-emotional competence of adolescents [8]. Those engaging in 1-2 hours of daily PA exhibited higher overall Global Emotional Intelligence scores than their peers reporting less than 30 minutes of activity [15].

Despite growing concern in the decreasing level of physical activity in children, the available findings remain inconclusive. Furthermore, Alpha Generation children are insufficiently researched and represented, comparing to Generation Z. Additionally, methodological variety, intermediary variable and cultural context make it even more difficult to compare results between studies. Taking into account the above situation, there is a clear need for a systematic review of the available findings related to relationship between physical activity and emotional intelligence in children.

This systematic review aims is synthetic approach to knowledge about the relationship between PA and EI in children aged 7-14, as well as the study methodologies that were used.

2. Materials and Methods

Search strategy

Based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) [16], the literature search for this review was conducted in the Web of

Science, Scopus, and PubMed databases. Google Scholar was not included due to its limited reproducibility and less advanced search options compared to the other databases. Publications in English from 2011 to 2025 were searched. Keywords referring to (A) physical activity, (B) emotional intelligence, and (C) children or (D) psychological well-being were used (Table 1).

Table 1. Keywords and Boolean operators used in the database search.

Keyword groups			
A	B	C	D
Physical activity	Emotional intelligence	Children	Psychological wellbeing
OR exercise	OR emotional awareness	OR students	OR socioemotional development
OR sport participation	OR emotion regulation	OR school-aged	OR social skills
OR motor activity	OR empathy	OR Generation Alpha	OR mental health

Selection strategy

After a computer-based search, the results were screened by their titles and abstracts to remove duplicates and studies not relevant to the review. Full texts of potentially eligible articles were then assessed according to the inclusion and exclusion criteria. Only peer-reviewed original research articles were included. Studies published in languages other than English, focusing on professional athletes, or addressing topics unrelated to physical activities and emotional intelligence were excluded. Publications without available full texts and abstracts, as well as conference papers, doctoral dissertations, and book chapters, were also excluded.

Eligibility criteria

The following inclusion criteria were applied to minimize the potential biases in the process of article selection: studies involving children aged 7-14 years, assessing the relationship between physical activity and emotional intelligence, and also presenting at least one outcome measure related to emotional, social, or cognitive functioning, along with a description of instruments used. Both observational and interventional studies were considered, including randomized controlled trials, cross-sectional, and longitudinal studies.

To ensure methodological quality and internal validity, only studies with clearly defined inclusion criteria, transparent data collection procedures and appropriate statistical analysis were included. The majority of selected articles met all of these criteria.

Data extraction

The following information was extracted from each included study: the first author's name and year of publication, country, study type, sample size, age range, and sex of participants. Information regarding the method and instruments of measuring physical activity and emotional intelligence was also collected. For each study, the main findings were recorded, including the type and strength of the relationship between physical activity and emotional intelligence based on PRISMA model (Figure 1).

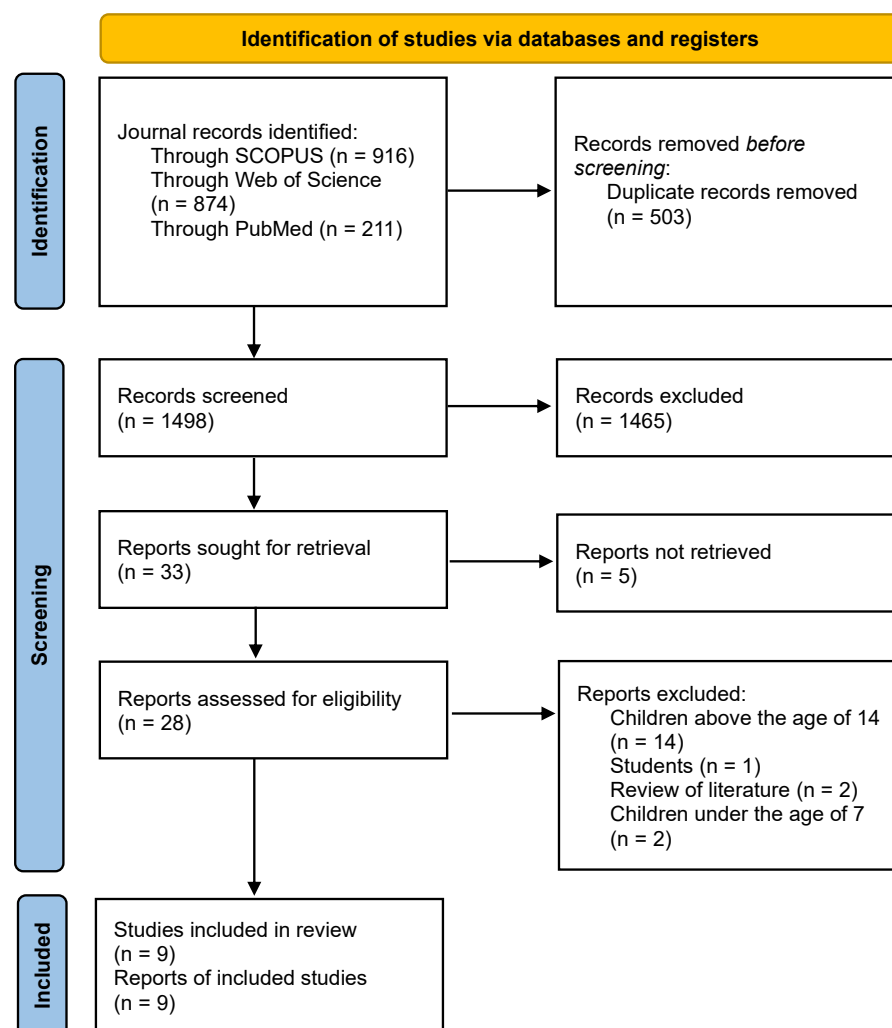


Figure 1. PRISMA flow diagram of study selection.

3. Results

After identification, compliance with inclusion and exclusion criteria as well as with the items mentioned for the quality of studies nine empirical studies were included in the review. A detailed characteristic of the included publications is provided in Table 2. Most of the analysed studies were cross-sectional ($n = 7$), the remaining two employed a quasi-experimental or pre- and post-intervention design. The study samples included children aged 9 to 14 years, with group sizes ranging from 36 to 2029 participants. There were a total of 4898 participants, 2425 boys and 2473 girls. In all includes studies, the highest number of participants was 2029 [15], while the lowest was 36 [17]. The studies included in the review were conducted primarily in China [18-20] and Spain [21-24]. The remaining studies were conducted in Canada [15] and Colombia [17].

Physical activity was most commonly measured using self-report questionnaires such as IPAQ- PARS-3 or tools collecting data on the frequency, intensity and duration of activity. One study used objective test of physical fitness and capacity. In another study, physical activity was implemented as a program of exercise breaks without direct measurement of activity levels.

Emotional intelligence was measured using questionnaires such as the Bar-On i: YV, TMMS-24 and the Emotional Intelligence Scale, adapted to the specific language used in the study population. Some studies analysed overall emotional intelligence score, while others focused on specific components, such as emotion regulation, empathy and resilience.

Table 2. General characteristics of publications qualified for analysis.

Author(s) (year)	Country	Study Design	Sample (age, N)	Physical activity measure	Emotional intelligence measure	Main outcome related to EI
Cecchini et al. 2019 [21]	Spain	Cross-sectional study	245 secondary education students between 12-14 years ($M = 12.43 \pm 0.50$); 116 boys and 129 girls	International Physical Activity Questionnaire (IPAQ)	Questionnaire of perceived Emotional Intelligence in Sports	Positive correlations emerged between EI and the variables that measure MVPA
Rivera-Pérez et al. 2020 [22]	Spain	A one group, pre-test-post-test pre-experimental design	40 primary education students between 10-12 years ($M = 10.87 \pm 0.85$); 19 boys and 21 girls	3x2 Achievement Goals Questionnaire in Physical Education	Emotional Intelligence Questionnaire in Physical Education	After the intervention, a moderate, statistically significant effect in the field of emotion control and regulation and emotional empathy
Muñoz-Parreño et al. 2021 [23]	Spain	A quasi-experimental pre-test/post-test	166 primary education students between 9 and 12 years ($M = 10.9 \pm 0.70$); 92 boys and 74 girls	No direct PA measurement; 20 periods of weekly ABs (a period of 5-10 minutes, 3-5 times a day for 17 weeks)	Bar-On EQ-i: YVTM: The Youth Version validated into Spanish	None statistically significant differences between experimental and control group in the general emotional intelligence level
Hui et al. 2022 [18]	China	Cross-sectional survey study with mediation analysis (SEM)	1053 students ($M = 14 \pm 0.96$ years); 534 boys and 519 girls	Liang Deqing's Physical Activity Rating Scale-3 (PARS-3)	Emotional Intelligence Scale (Chinese version)	EI as a mediator in the PA and prosocial behaviours relationship
Sanz-Martín et al. 2023 [24]	Spain	Cross-sectional and descriptive-correlational	293 children between 11-12 years ($M = 11.45 \pm 0.31$); 147 boys and 146 girls	Questionnaire was used to measure time of weekly physical activity	The Trait Meta Mood Scale (TMMS-24)	No statistically significant correlation between PA and EI components; statistically significant correlations occurred between all EI dimensions
Gabour et al. 2024 [15]	Canada	Cross-sectional observational study	2029 students between 10-13 years	PA was measured using intensity classifications (moderate and vigorous), duration (minutes) and frequency	EQ-i: YV brief version (Emotional Quotient Inventory Youth Version, Brief)	Statistically significant correlation between the majority of the five domains of GEI and PA
Montenegro Bonilla et al. 2024 [17]	Colombia	Cross-sectional correlational study	36 male soccer players ($M = 12.65 \pm 0.48$)	Objective physical performance tests	Bar-On EQ-i: YV questionnaire	Significantly higher levels of EI in athletes with higher sports levels
Bai et al. 2025 [19]	China	Cross-sectional observational study	416 students ($M = 13.35$); 216 boys and 200 girls	Frequency of participation in a typical week (ranging from 0 to 8 times) in light physical activity (LPA), moderate physical activity (MPA), and vigorous physical activity (VPA) during leisure time for a minimum of 15 minutes per session.	The Wong and Law Emotional Intelligence Scale (some items modified and translated into Chinese)	Lack of direct relationship between PA and EI; statistically significant, indirect effect PA and EI; mediating role of social support
Jiang et al. 2025 [20]	China	Cross-sectional study	620 primary school students ($M = 9.99 \pm 1.02$); 277 boys and 343 girls	Physical Activity Rating Scale (PARS-3)	Chinese version of the Emotional Intelligence Scale (EIS)	Positive correlation between PA and EI; EI as a partially mediator in PA-resilience relation

4. Discussion

Among the included studies, EI was positively correlated with PE [21, 15, 17]. This is supported by the results of a study with a sample over 800 students, which demonstrated that emotional intelligence has a significant positive effect on physical activity engagement and that achievement motivation works as a mediator between emotional intelligence and physical activity engagement [25]. Another mediator of this relationship is social support, which was pointed out by Bai et al. [19]. Similar conclusions appear in the study by Wang et al. [27], who indicated peer attachment as a partial mediator in the relationship between physical activity and socio-emotional competences. These findings suggest a dual role of physical education programs in schools: supporting both the physical and psychological well-being of children. Structured physical activity in schools should be given more attention at the curriculum design level, as it indirectly supports broader educational outcomes, given the well-established association between EI and academic as well as social functioning.

The results of the included studies showed that emotional intelligence was a mediator of the relationship between physical activity and resilience [21] and the relationship between physical activity and prosocial behaviour [19]. These findings are consistent with the results of the study by Wang et al. [27], in which adolescents who engaged in more MVPA (moderate-to-vigorous physical activity) and showed higher levels of emotional intelligence, rated their health status higher. This highlights that physical education lessons should be designed not only around pure fitness performance but also around opportunities for cooperation and peer interaction. These opportunities may, in turn, enhance the developmental impact of PA lessons beyond their physical benefits.

Findings in one study on active breaks showed no significant intergroup differences on emotional intelligence [23], but significant differences between groups in selected cognitive functions. Similar observations are presented by Graham et al. [28], who demonstrated acute effects of short (i.e., 5-20 min) classroom-based physical activity breaks on executive functioning and psychological states in children. However, the results of the study by Rivera-Pérez et al. [22] showed a statistically significant moderate effect of emotion control and regulation and empathy after the completion of the cooperative learning intervention programme associated with physical education. Physically active lessons can improve such cognitive functions in elementary children as inhibitory control and short-term memory, as well as spatial orientation, and spatial reasoning [29]. Replacing sedentary time with more physically active lessons can significantly contribute to meeting the PA guidelines by children (i.e., 20% of the daily recommended PA per single lesson) [30]. The results provide valuable insights for teachers and specialists and may be useful in combating the decreasing percentage of physically active students. Physical activity in schools should not be treated as an isolated health-promoting component, but an important factor in developing social competencies and EI in children. It should therefore be consciously integrated into the curriculum, in a way that takes into account not only PA's intensity and duration, but also the social context that surrounds it.

5. Conclusions

Physical activity is important not only for the children's emotional competences, but also for their cognitive and social development. Similar results were observed regardless of cultural context and methodology of included studies. This suggests that physical activity is a universal, fundamental need, especially for school-aged children. Future research should focus on applicable measurements and standardized indicators of physical activity. Particular attention must be given to mediating variables, such as resilience, self-efficacy and social support. It is important from the point of view of the contemporary perception of children's physical activity, which is inextricably linked to their mental well-being.

Data Availability Statement: The data supporting this study's findings are available from the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflicts of interest.

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