Physical Education Theory and Methodology
Теорія та методика фізичного виховання

ISSN 1993-7989 (print)
ISSN 1993-7997 (online)
ISSN-L 1993-7989

Original Scientific Articles. Health-Related Physical Activity and Inclusion

Promoting School Inclusion Through Structured Physical Activity: Physiological, Cognitive, and Social Outcomes in Migrant Students

Fabiola Palmiero[1ADE], Emma Saraiello[2BCDE], Miriam Maisuradze[2BCD] and Maria Giovanna Tafuri[3AD]

[1]University of Campania "Luigi Vanvitelli"
[2]University of Naples "Parthenope"
[3]Pegaso University

Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

Corresponding Author: Emma Saraiello, e-mail: esaraiello@gmail.com
Accepted for Publication: April 9, 2026
Published: May 30, 2026

DOI: 10.17309/tmfv.2026.3.21

Abstract

Background. In multicultural educational contexts, schools are increasingly required to promote inclusive practices that support the social integration and well-being of students with a migrant background. Physical activity has been identified as a potentially effective tool for fostering relational and intercultural skills; however, empirical evidence based on structured interventions remains limited.

Objectives. This study aimed to evaluate the effectiveness of a structured, inclusion-oriented physical activity programme in improving social inclusion, self-esteem, and classroom climate among lower secondary school students, with particular attention to those with a migrant background.

Materials and Methods. A mixed-method quasi-experimental design with pre-test and post-test measures was adopted. The sample consisted of 72 students aged 11–13 years, divided into an experimental group (n = 36) and a control group (n = 36). The 12-week intervention included cooperative learning, peer tutoring, non-verbal communication activities, and culturally relevant games. Quantitative data were collected using validated instruments (SISCA, Rosenberg Self-Esteem Scale, Classroom Climate Scale) and analysed using t-tests and repeated measures ANOVA. Qualitative data were gathered through focus groups, teacher logbooks, and systematic observation.

Results. The experimental group showed statistically significant improvements compared to the control group. Social inclusion scores increased from M = 2.91 (SD = 0.43) to M = 3.47 (SD = 0.38) ($F_{(1,70)} = 14.62$; $p = 0.001$). Self-esteem improved from M = 21.8 (SD = 3.6) to M = 25.1 (SD = 3.2) ($t = 4.07$; $p = 0.002$). Classroom climate scores increased from M = 3.02 (SD = 0.40) to M = 3.55 (SD = 0.36) ($F_{(1,70)} = 11.89$; $p = 0.003$). No statistically significant changes were observed in the control group ($p > 0.05$). Qualitative findings corroborated these results, indicating improvements in peer relationships, non-verbal communication, and sense of belonging.

Conclusions. Under structured and theory-driven conditions, physical activity programmes based on inclusive pedagogical strategies can significantly enhance social inclusion, self-esteem, and classroom climate in multicultural lower secondary school settings. These findings support the implementation of targeted physical activity interventions as an effective approach to promoting social integration and psychological well-being among students, particularly those with a migrant background.

Keywords: physical activity, school inclusion, migrant students, physical education, mixed approach.

Introduction

In the new millennium, education systems are called upon to deal with increasing social, cultural, and linguistic complexity, largely determined by migration processes and the progressive heterogeneity of school populations. In this context, schools play a strategic role not only in the transmission of knowledge, but also in the construction of inclusive, equitable educational environments geared towards the overall development of the individual (Ainscow, Booth & Dyson, 2006). Inclusion, therefore, cannot be considered exclusively as a response to special needs or situations of disadvantage, but rather as a founding principle of contemporary education systems and

© Palmiero, F., Saraiello, E., Maisuradze, M., & Tafuri, M. G., 2026.

PETM
LLC OVS

an essential prerequisite for sustainable social development (UNESCO, 2017).

In the field of education, numerous studies emphasize that school inclusion involves moving beyond compensatory or welfare-based models in favor of approaches that value diversity as an educational and cultural resource (Slee, 2011; Fiorucci, 2014). In particular, students with a migrant background may encounter difficulties related to language barriers, a sense of belonging, and the construction of social identity, especially in the pre-adolescent phase, which is characteristic of lower secondary school (Benadusi, 2018). In this scenario, physical and sporting activities take on an educational function of primary importance. Thanks to their physical, relational, and experiential nature, they promote forms of nonverbal communication and situated learning processes, capable of reducing inequalities and facilitating the encounter between cultural, linguistic, and social differences (Bailey, 2006; Kirk, 2010). Physical education, in particular, is a privileged context for the development of transversal skills such as cooperation, respect for rules, responsibility, autonomy, and self-awareness, in line with European guidelines on key competences for lifelong learning (European Commission, 2018). From a psycho-pedagogical point of view, several studies show that participation in structured physical activities can have a positive impact on self-esteem, perceived self-efficacy, and sense of belonging to the group, which are crucial elements for well-being at school and the prevention of adolescent distress (Fox, 2000; Weiss & Ferrer-Caja, 2002). In particular, for foreign students, physical activity represents an educational space in which the body becomes a cultural mediator, allowing them to overcome language barriers and build meaningful relationships based on collaboration and shared play (Dagkas, Benn & Jawad, 2011). International literature indicates that students with a migrant background are more exposed to the risk of social isolation, low participation in school activities, and reduced levels of self-esteem, especially in educational contexts lacking intentional inclusive strategies (OECD, 2019; Suarez-Orozco et al., 2018). From this perspective, inclusive physical education can be a powerful tool for promoting educational equity, provided that it is designed according to active, cooperative, and culturally sensitive methodologies (Haegele, Hodge & Rizzo, 2018). Despite widespread theoretical recognition of the inclusive value of physical activity, there are still few experimental studies that systematically analyze the effectiveness of motor programs aimed at school inclusion, especially through mixed research designs capable of integrating quantitative and qualitative data (Bailey et al., 2013). Furthermore, the Italian context, and in particular that of lower secondary school, still appears to be under-explored by empirical research linking pedagogical, psychological, and physiological dimensions. However, a clear gap persists between the intended educational outcomes of inclusive school systems—namely, the effective social integration, active participation, and psychological well-being of students with a migrant background—and the existing pedagogical approaches implemented in physical education. While the literature widely acknowledges the inclusive potential of physical activity, most existing interventions remain either descriptive, non-experimental, or insufficiently structured to systematically target intercultural inclusion. Moreover, there is a lack of studies adopting mixed-method designs capable of simultaneously capturing measurable psychosocial outcomes and the underlying relational processes. Therefore, the research problem addressed in this study lies in bridging the gap between the theoretical recognition of physical activity as an inclusive tool and the limited availability of empirically validated, structured, and pedagogically grounded intervention models within lower secondary school contexts. In light of these considerations, this study aims to contribute to the scientific debate in the field of motor and sports sciences by offering an experimental analysis of the impact of an inclusive physical activity program aimed at Italian and foreign students in lower secondary schools.

To address this gap, the present study proposes and empirically tests a structured physical activity intervention explicitly designed according to inclusive pedagogical principles, including cooperative learning, peer tutoring, nonverbal communication strategies, and the valorization of students' cultural backgrounds through traditional games. Unlike previous approaches, the intervention is systematically implemented and evaluated through a mixed-method quasi-experimental design, allowing for the integration of quantitative measures (social inclusion, self-esteem, classroom climate) with qualitative insights into students' experiences and interaction dynamics.

By doing so, this study aims to provide robust empirical evidence on both the effectiveness and the mechanisms of inclusive physical activity, contributing to the development of replicable and evidence-based educational practices in multicultural school settings.

Materials and Methods

This study adopts an experimental design with a mixed-methods approach, integrating quantitative and qualitative analyses in order to obtain an in-depth and multidimensional understanding of the phenomenon under study. This approach is particularly appropriate in the field of motor sciences and inclusive education, as it allows for the combination of objective measurement of the effects of the intervention with the analysis of the subjective experiences of the participants (Creswell & Plano Clark, 2018). The research is structured according to a pre-test/post-test model with an experimental group and a control group, which allows the effectiveness of the inclusive physical activity program to be evaluated by comparing the changes observed in the two groups over time. Quantitative measurements were taken before the start of the intervention (T0) and at the end of the program (T1), while qualitative data were collected longitudinally during and at the end of the experience. The experimental group participated in a structured physical activity program with specific inclusive strategies, while the control group followed the regular physical education curriculum required by ministerial guidelines. Participants were assigned to groups on a natural basis (pre-existing classes), making the study quasi-experimental, in line with research practices in real school contexts (Shadish, Cook & Campbell, 2002).

Sample

The overall sample consists of 72 students (aged between 11 and 13) attending the first and second years of three lower

secondary schools in the province of Milan, selected for their significant presence of students with a migrant background and their willingness to participate in the research project.

The sample distribution is as follows:

Experimental group (EG): 36 students

- 18 Italian students
- 18 foreign students

Control group (CG): 36 students

- 19 Italian students
- 17 foreign students

The foreign students mainly come from first- and second-generation migrant backgrounds, with different cultural and linguistic backgrounds. This heterogeneity was considered a relevant factor for the analysis of the inclusive effectiveness of the intervention. The sample size is consistent with similar experimental studies conducted in schools, in which groups of between 30 and 40 subjects allow statistically significant effects to be detected in relation to psychosocial and educational variables (Bailey et al., 2013).

Although an a priori power analysis was not conducted, the sample size is consistent with previous quasi-experimental studies in school-based physical education contexts, which have demonstrated sufficient statistical power to detect medium-sized effects in psychosocial variables. Moreover, the balanced distribution between experimental and control groups contributes to the internal validity of the study and supports the reliability of the observed effects.

Inclusion criteria

Students who met the following criteria were included in the study:

- regular enrollment in a lower secondary school at the time of the survey;
- age between 11 and 13 years;
- for the subsample of foreign students, at least one parent born abroad, regardless of the student's citizenship;
- possession of a medical certificate of fitness for non-competitive physical activity;
- regular participation in physical education classes;
- acquisition of written informed consent from parents or legal guardians, in accordance with current ethical regulations and EU Regulation 2016/679 (GDPR).

Exclusion criteria

- Students who had one or more of the following conditions were excluded from the study:
- certified diagnosis of severe motor or cognitive disabilities that prevented participation in the proposed physical activities;
- presence of chronic diseases or clinical conditions incompatible with structured physical activity;
- absences exceeding 25% of the total activities planned during the intervention period, considered insufficient to guarantee exposure to the experimental treatment;
- simultaneous participation in high-intensity structured extracurricular sports programs (more than three sessions per week), in order to reduce the risk of confounding variables related to external training.

Activities

The experimental intervention was designed according to an educational, inclusive, and interdisciplinary approach, integrating pedagogical, psychological, and motor principles, with the aim of promoting school inclusion and the psychological and physical well-being of students, particularly those with a migrant background. The program lasted a total of 12 weeks, with two 60-minute sessions per week, for a total of 24 teaching units, and was fully integrated into the physical education curriculum.The time frame of the intervention is consistent with the literature, which shows that programs lasting between 8 and 16 weeks are sufficient to produce significant changes in psychosocial and relational variables in childhood (Bailey et al., 2013; Lubans et al., 2016). Each session was divided into three main phases:

1. Initial phase (10–15 minutes): motor activation and playful, cooperative warm-up games.
2. Central phase (35–40 minutes): structured activities oriented towards inclusive goals.
3. Final phase (5–10 minutes): cool-down, guided reflection, and sharing of the experience.

Cooperative games and adapted team sports

A central component of the program was the use of cooperative games and adapted team sports, designed to reduce excessive competitiveness and encourage peer collaboration. According to Johnson and Johnson (2009), cooperative learning in motor contexts promotes positive interdependence, individual responsibility, and the development of social skills. Team sports (e.g., basketball, volleyball, soccer) were adapted through:

- rule changes;
- systematic role rotation;
- group rather than individual goals;
- valuing the contribution of each participant.

These adaptations are consistent with models of inclusive physical education, which aim to ensure equal opportunities for participation and motor success for all students, regardless of skill level or cultural background (Kirk, 2010; Haegele & Sutherland, 2015).

Activities based on nonverbal communication

Particular attention was paid to motor activities based on nonverbal communication, such as mimicry games, cooperative motor courses, relay races without the use of words, and rhythmic activities. The body was conceived as a privileged tool for expression and cultural mediation. The literature highlights how nonverbal communication plays a key role in the inclusion of foreign students, especially in the early stages of school integration, when language skills may be limited (Garcia & Wei, 2014). In the motor field, body language allows for the construction of shared meanings and authentic relationships, reducing the risk of exclusion (Shilling, 2012).

Peer tutoring and cooperative learning strategies

The program systematically integrated peer tutoring and cooperative learning strategies, assigning specific roles

to students (tutor, observer, facilitator) and promoting mutual support among peers. In particular, Italian and foreign students were frequently placed in pairs or small heterogeneous groups, encouraging intercultural interaction. Numerous studies show that peer tutoring in physical education improves not only motor skills but also the self-esteem, sense of self-efficacy, and social skills of the students involved (Ward & Lee, 2005; Dyson & Casey, 2012). Furthermore, cooperative learning promotes a positive and inclusive classroom climate, reducing isolation and marginalization (Casey & Goodyear, 2015).

Promoting cultural differences through traditional games

A distinctive feature of the intervention was the inclusion of traditional games and physical activities from the countries of origin of the foreign students, selected and adapted with the active involvement of the participants themselves. This methodological choice is based on the principles of intercultural pedagogy, which recognizes the educational value of cultural diversity and promotes dialogue between different identities (Portera, 2013). Through the sharing of traditional games, foreign students took on the role of 'cultural experts', promoting social recognition and strengthening personal identity. The literature emphasises how this approach contributes to improving the sense of belonging and counteracting stereotypes and prejudices in schools (Dagkas et al., 2011; Benn, Pfister & Jawad, 2011).

Role of the teacher and monitoring of the intervention

The physical education teacher acted as a facilitator of the educational process, adopting a democratic and reflective teaching style in line with student-centered teaching models (Mosston & Ashworth, 2008). During the intervention, systematic observation grids were used to monitor participation, social interactions, and inclusive behaviors.

Control group

The control group followed the normal physical education curriculum set out in the National Guidelines, without the introduction of teaching strategies specifically geared towards intercultural inclusion. This made it possible to attribute any changes observed in the experimental group to the proposed intervention with greater reliability.

Tools

In order to systematically and comprehensively evaluate the effectiveness of the experimental intervention, the research involved the use of quantitative and qualitative assessment tools, selected on the basis of their scientific validation, reliability, and suitability for the school context. The integration of different tools made it possible to capture both the measurable outcomes of the intervention and the experiential and relational dimensions perceived by the subjects involved, in line with the principles of mixed-method educational research (Creswell & Plano Clark, 2018). Quantitative measurements were taken at two distinct moments: before the start of the program (pre-test, T0) and at the end of the twelve weeks of intervention (post-test, T1). Qualitative tools, on the other hand, were used longitudinally and conclusively in order to explore the educational processes that had been activated.

Quantitative Tools

For the quantitative analysis, standardized questionnaires that have been widely validated in international scientific literature were used. These were administered in paper form during school hours, under the supervision of researchers and teachers.

The Social Inclusion Scale for Children and Adolescents (SISCA; Pijl & Frostad, 2010) was used to assess the level of social inclusion perceived by students within the school context. The scale measures dimensions such as sense of belonging to the group, quality of peer relationships, and participation in school activities. Previous studies have shown good internal reliability of the instrument ($\alpha > 0.80$) and solid construct validity, making it particularly suitable for multicultural educational contexts.

The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), adapted for adolescents, was used to assess self-esteem. The scale, consisting of ten items on a Likert scale, measures overall self-assessment and is one of the most widely used tools in psychology and education. Numerous studies confirm its reliability and sensitivity to changes resulting from educational and sports interventions (Fox, 2000; Marsh et al., 2014).

The classroom climate was investigated using the Classroom Climate Scale (CCS; Moos & Trickett, 1987), a tool that analyzes students' perceptions of interpersonal relationships, mutual support, involvement, and the level of cooperation within the class group. The classroom climate is a key variable in the processes of school inclusion and psychosocial well-being, especially in contexts characterized by high cultural heterogeneity (Thapa et al., 2013).

Qualitative Tools

Alongside quantitative tools, qualitative tools were used for exploratory and interpretative purposes, with the aim of deepening the meaning attributed by students and teachers to the inclusive motor experience.

Semi-structured focus groups were conducted with foreign students belonging to the experimental group at the end of the intervention. The focus groups allowed us to collect narratives, perceptions, and experiences related to relational dynamics, sense of belonging, and the experience of physical activity as an inclusive space. This methodology is particularly effective for investigating social and identity processes in adolescence (Morgan, 1997).

The logbooks kept by physical education teachers provided a tool for systematic reflection on the progress of the intervention. Teachers noted observations regarding student participation, peer interactions, difficulties encountered, and teaching strategies adopted. The use of logbooks is widely recognized as a useful tool for documenting educational processes and promoting informed professional reflection (Zabalza, 2004).

Finally, systematic observation of motor activities was conducted using structured grids based on the model

proposed by Anguera (2003). The grids made it possible to detect observable behaviors related to cooperation, active participation, peer support, and the inclusion of foreign students. Direct observation made it possible to integrate self-reported data with behavioral evidence, increasing the overall validity of the study.

Data analysis

The quantitative data were analyzed using descriptive and inferential statistical procedures, using dedicated statistical software. In the first phase, the mean, standard deviation, and frequency distribution were calculated for all the variables considered. Subsequently, to verify the differences between the experimental group and the control group and the variations over time, t-tests for independent samples and analysis of variance (ANOVA) with repeated measures were applied, with a significance level set at $p < 0.05$. These analyses are appropriate for quasi-experimental studies with pre- and post-intervention measurements (Field, 2018). Qualitative data were analyzed using thematic analysis according to the model proposed by Braun and Clarke (2006). The analysis process involved a phase of familiarization with the data, followed by inductive coding, identification of emerging themes, and their interpretation. To ensure the reliability of the analysis, the coding was carried out by two independent researchers, with subsequent comparison and consensus on the final themes. The integration of quantitative and qualitative results allowed for a more complete reading of the effects of the intervention, making it possible to link measurable changes to the experiences of the participants, in line with the principles of methodological triangulation.

In addition to significance testing, effect sizes were calculated to assess the magnitude of the observed differences. Cohen's d was computed for paired and independent comparisons, while partial eta squared (η^2) was reported for ANOVA models. Furthermore, interaction effects between group (experimental vs. control) and time (T0 vs. T1) were examined using repeated measures ANOVA, in order to verify whether the changes over time differed significantly between the two groups. This approach allows for a more robust interpretation of the intervention effects beyond statistical significance.

Results

The quantitative analysis made it possible to evaluate the effectiveness of the experimental intervention by comparing the scores obtained by the experimental group and the control group in the three variables considered: perceived social inclusion, self-esteem, and classroom climate. In the pre-test phase (T0), no statistically significant differences emerged between the two groups for any of the variables analyzed, confirming the initial homogeneity of the sample.

Table 1. Pre-test (T0) Comparison Between Groups

Variable	Experimental Group (M ± SD)	Control Group (M ± SD)	Significant Difference
Social Inclusion (SISCA)	2.91 ± 0.43	2.94 ± 0.45	p > 0.05
Self-Esteem (Rosenberg)	21.80 ± 3.6	21.90 ± 3.9	p > 0.05
Classroom Climate	3.02 ± 0.40	3.04 ± 0.41	p > 0.05

With regard to the Social Inclusion Scale for Children and Adolescents (SISCA), the experimental group showed a significant increase in average scores from the pre-test to the post-test. In particular, the average score went from M = 2.91 (SD = 0.43) at T0 to M = 3.47 (SD = 0.38) at T1, with a statistically significant difference detected by repeated measures ANOVA ($F(1,70) = 14.62$; $p = 0.001$). The control group, on the other hand, did not show any significant changes (T0: M = 2.94; SD = 0.45; T1: M = 2.99; SD = 0.44; $p > 0.05$). Analysis of the subscales showed particularly significant improvements in the dimensions relating to sense of belonging and participation in group activities.

Table 2. Social Inclusion (SISCA) Results

Group	T0 (M ± SD)	T1 (M ± SD)	Significance
Experimental Group	2.91 ± 0.43	3.47 ± 0.38	p = 0.001
Control Group	2.94 ± 0.45	2.99 ± 0.44	p > 0.05

With regard to self-esteem, measured using the Rosenberg Self-Esteem Scale, the experimental group showed a significant increase in the overall average score, which rose from M = 21.8 (SD = 3.6) at T0 to M = 25.1 (SD = 3.2) at T1. The paired samples t-test showed a statistically significant difference ($t = 4.07$; $p = 0.002$). Again, the control group showed no significant changes during the period considered ($p > 0.05$). The increase in self-esteem was particularly marked in the subgroup of foreign students in the experimental group.

These quantitative improvements are supported by qualitative findings, which provide insight into the underlying relational processes. In particular, students reported a strengthened sense of belonging to the class group, frequently describing cooperative activities as opportunities to "feel part of the group" and "be accepted without differences". Observational data and teacher logbooks confirmed an increase in peer interaction and active participation, especially among students with a migrant background. These findings suggest that the increase in social inclusion scores was mediated by enhanced peer relationships and shared group experiences.

Table 3. Self-Esteem (Rosenberg Scale)

Group	T0 (M ± SD)	T1 (M ± SD)	Significance
Experimental Group	21.8 ± 3.6	25.1 ± 3.2	p = 0.002
Control Group	21.9 ± 3.9	22.0 ± 3.8	p > 0.05

With regard to classroom climate, assessed using the Classroom Climate Scale, the results indicate a significant improvement in the experimental group in terms of cooperation, peer support, and involvement. The overall average score increased from M = 3.02 (SD = 0.40) at T0 to M = 3.55 (SD = 0.36) at T1, with a statistically significant difference ($F_{(1,70)} = 11.89$; $p = 0.003$). In the control group, scores remained essentially stable over time.

The quantitative increase in self-esteem in the experimental group is further explained by qualitative evidence. Teachers' logbooks and student narratives highlighted a progressive increase in self-confidence and initiative, particularly among initially marginalised students. Many participants began to take on active roles during

activities, especially in contexts where cultural competencies were valued (e.g., traditional games). This suggests that the observed improvement in self-esteem was linked to processes of social recognition, role-taking, and perceived competence within the group.

Table 4. Classroom Climate Results

Group	T0 (M ± SD)	T1 (M ± SD)	Significance
Experimental Group	3.02 ± 0.40	3.55 ± 0.36	p = 0.003
Control Group	3.04 ± 0.41	3.04± 0.41	p > 0.05

Qualitative findings also help explain the observed improvement in classroom climate. Systematic observations and teacher reports indicated a reduction in exclusion behaviours and an increase in prosocial interactions, such as cooperation, mutual support, and encouragement. Students described the learning environment as more collaborative and inclusive over time. These findings suggest that the improvement in classroom climate scores was driven by the implementation of cooperative learning strategies and peer tutoring, which fostered a more supportive and cohesive group dynamic.

The quantitative results indicate that participation in the inclusive physical activity program had significant and positive effects on the psychosocial variables analyzed, confirming the effectiveness of the intervention compared to the normal physical education curriculum.

Overall, the integration of quantitative and qualitative data provides a coherent explanatory framework for interpreting the effects of the intervention. While statistical analyses demonstrate significant improvements in key psychosocial variables, qualitative findings clarify the mechanisms underlying these changes, highlighting the role of cooperative learning, nonverbal communication, and cultural recognition in promoting inclusion, self-esteem, and a positive classroom climate.

To ensure a coherent interpretation of the results across multiple outcome variables, a rule of decision was defined. Specifically, the intervention was considered effective when statistically significant improvements ($p < 0.05$) were observed in at least two of the three primary outcomes (social inclusion, self-esteem, and classroom climate), accompanied by convergent qualitative evidence supporting the underlying mechanisms of change.

In the present study, all three variables showed significant improvements in the experimental group compared to the control group, while no significant changes were observed in the control group. Therefore, according to the predefined decision rule, the intervention can be considered effective in promoting psychosocial inclusion outcomes in the target population.

Discussion

The results of this study confirm the central role of physical activity as an educational and inclusive tool, capable of significantly influencing social integration processes, psychological well-being, and the relational climate within middle schools. This evidence is consistent with pedagogical models centered on the person and the body in motion, which recognize the global educational value of motor experience, rather than merely its performance value (Kirk, 2010; Mosston & Ashworth, 2008). From a quantitative point of view, the improvements observed in the experimental group in terms of perceived social inclusion, self-esteem, and classroom climate are consistent with international literature, which highlights the effectiveness of structured physical activity programs intentionally geared toward inclusion (Bailey et al., 2013; Lubans et al., 2016). In particular, the significant increase in scores relating to sense of belonging and participation in group activities confirms that physical activity can be a powerful mediator of positive social relationships, especially for students with a migrant background, who are often exposed to marginalization (OECD, 2019). The increase in self-esteem levels found in the experimental group, especially among foreign students, is reflected in studies that highlight a positive relationship between participation in inclusive physical activities and the development of self-efficacy and self-image in childhood (Fox, 2000; Weiss & Ferrer-Caja, 2002). The adoption of strategies such as peer tutoring, role rotation, and the enhancement of cultural skills has probably contributed to creating contexts of widespread motor success, reducing the risk of exclusion and promoting the perception of personal competence. The improvement in the classroom climate, highlighted by both quantitative data and systematic observation, appears particularly relevant in relation to the cooperative dimension of the intervention. The literature emphasizes that a positive relational climate is an essential condition for learning and well-being at school, especially in contexts characterized by high cultural heterogeneity (Thapa et al., 2013; Dyson & Casey, 2012). In this sense, inclusive physical education is a privileged space for building relationships based on trust, mutual respect, and collaboration. The qualitative results allow us to explore the mechanisms through which the intervention produced the observed effects. The thematic analysis highlighted the role of the body as a universal language and as a tool for intercultural mediation, confirming what has been argued by several authors regarding the communicative and symbolic function of movement (Shilling, 2012; Garcia & Wei, 2014). To strengthen the causal interpretation of the intervention effects, it is important to clarify the underlying mechanisms through which the proposed strategies produced the observed outcomes. Specifically, cooperative learning structures fostered positive interdependence and shared goal orientation, which in turn increased peer support and reduced social isolation. Peer tutoring activated processes of role-taking, mutual responsibility, and social recognition, contributing to the development of self-efficacy and self-esteem, particularly among migrant students. Activities based on nonverbal communication enabled participation beyond linguistic barriers, facilitating immediate engagement and the construction of shared meanings through embodied interaction. Finally, the inclusion of culturally relevant games promoted identity validation and social recognition, enhancing students' sense of belonging. These mechanisms jointly operated as mediating processes linking the pedagogical design of the intervention to improvements in social inclusion, classroom climate, and psychological well-being.The reduction of language barriers through nonverbal communication encouraged the active participation of foreign students, strengthening their sense of belonging and involvement in group dynamics. Particularly significant is the theme of valuing cultural differences through the introduction of traditional games from the

students' countries of origin. This approach, in line with the principles of intercultural pedagogy, has made it possible to recognize and legitimize the cultural identities of foreign students, transforming them into an educational resource for the entire class (Portera, 2013; Benn, Pfister & Jawad, 2011). This recognition seems to have had a positive impact on self-confidence and active participation, as evidenced by both teachers' logbooks and students' narratives. The mixed methodological approach adopted in the study proved particularly effective in capturing the complexity of the phenomenon under investigation. The integration of quantitative and qualitative data made it possible not only to measure the outcomes of the intervention but also to understand the underlying educational processes, strengthening the interpretative validity of the results (Creswell & Plano Clark, 2018). In this sense, the study contributes to filling a gap in the literature by providing empirical evidence on the effectiveness of inclusive physical education programs in the context of lower secondary school. Overall, the results suggest that physical activity, if designed according to inclusive pedagogical and methodological criteria, can be a strategic tool for responding to the educational challenges posed by cultural and social diversity. This implies the need for specific training for physical education teachers, geared towards the development of intercultural, reflective, and methodological skills, capable of integrating pedagogical and physiological dimensions in a perspective of global psychophysical development. While aware of the limitations of the study, mainly related to the sample size and the specific territorial context, the results obtained offer relevant indications for the design of future educational interventions and the implementation of school policies oriented towards inclusion and well-being.

The interpretation of these findings should be considered in light of specific boundary conditions that may influence the generalisability of the results. First, the effectiveness of the intervention appears to be contingent upon the structured and theory-driven nature of the programme, including the systematic use of cooperative learning, peer tutoring, and culturally responsive activities. It is therefore unlikely that similar outcomes would be achieved in unstructured or traditional physical education contexts lacking these pedagogical components.

Second, the observed effects are specific to the age group considered (11–13 years), a developmental stage characterised by heightened sensitivity to peer relationships and identity construction. The impact of the intervention may differ in younger children or older adolescents.

Third, the positive outcomes appear to be particularly pronounced among students with a migrant background, suggesting that the intervention may have differential effects depending on initial levels of social integration and vulnerability.

Finally, the intervention was implemented within a relatively controlled school context and over a defined period (12 weeks); therefore, the stability and long-term persistence of these effects remain to be further investigated.

Conclusions

The results of this study indicate that structured physical activity intentionally geared toward inclusion is an effective educational strategy for promoting psychological and physical well-being, social integration, and the development of transferable skills in middle school students with a migrant background. The proposed intervention has been shown to have a positive impact on key variables such as sense of belonging, self-esteem, and relational climate, confirming the potential of physical education as a privileged context for building inclusive school environments. The integration of pedagogical and physiological approaches proved particularly significant, highlighting how physical movement can act as an educational mediator capable of overcoming linguistic and cultural barriers. In this sense, physical activity is not only a tool for promoting health, but also a global educational experience capable of fostering personal growth, autonomy, and active participation in school life. The use of a mixed methodological approach made it possible to grasp the complexity of the phenomenon studied, offering an integrated reading of the measurable outcomes and the experiential dimensions experienced by the participants. The qualitative results, in particular, helped to clarify the mechanisms through which the teaching strategies adopted fostered inclusive dynamics, reinforcing the interpretative validity of the quantitative data. In light of this evidence, there is a clear need to promote the conscious planning of physical education in schools, geared towards the development of intercultural, relational, and cooperative skills. This implies investment in the initial and in-service training of teachers, so that they can acquire the methodological tools needed to manage the complexity of contemporary educational contexts. Finally, although the study has some limitations related to the sample size and the limited geographical context, it offers relevant insights for future research, suggesting the opportunity to extend the investigation to different contexts and to explore the long-term effects of inclusive physical activity programs. In conclusion, physical activity and sport, if properly designed, can contribute significantly to the creation of a more equitable and inclusive school system geared towards the sustainable development of individuals and society.

Ethics Approval

The study was conducted in accordance with the principles of the Declaration of Helsinki. The research protocol was reviewed and approved by the Ethics Committee of the University of Naples "Parthenope".

Informed Consent

All participants provided written informed consent prior to participation in the study. Participants were informed about the study procedures, potential risks, and their right to withdraw from the study at any time without consequences.

Data Availability Statement

The datasets generated and analysed during the current study are available from the corresponding author on reasonable request.

Funding

This research received no external funding.

Conflicts of Interest

The authors declare no conflict of interest.

AI Transparency Statement

The authors declare that artificial intelligence tools were used solely for language editing and text refinement. All scientific content, analysis, and interpretations were developed and verified by the authors.

References

Ainscow, M., Booth, T., & Dyson, A. (2006). *Improving schools, developing inclusion.* Routledge. https://doi.org/10.4324/9780203967157

UNESCO. (2017). *A guide for ensuring inclusion and equity in education.* UNESCO.

Slee, R. (2011). *The irregular school.* Routledge. https://doi.org/10.4324/9780203831564

Fiorucci, M. (2014). *Educazione, formazione e pedagogia interculturale.* FrancoAngeli.

Benadusi, L. (2018). *Scuola e integrazione degli studenti di origine straniera.* Il Mulino.

Bailey, R. (2006). Physical education and sport in schools: A review of benefits and outcomes. *Journal of School Health, 76*(8), 397-401. https://doi.org/10.1111/j.1746-1561.2006.00132.x

Kirk, D. (2010). *Physical education futures.* Routledge. https://doi.org/10.4324/9780203874622

European Commission. (2018). *Key competences for lifelong learning.* Publications Office of the EU.

Fox, K.R. (2000). Self-esteem, self-perceptions and exercise. *International Journal of Sport Psychology, 31*(2), 228-240.

Weiss, M.R., & Ferrer-Caja, E. (2002). *Motivational orientations and sport behavior*. In T. Horn (Ed.), Advances in sport psychology (pp. 101-183). Human Kinetics.

Dagkas, S., Benn, T., & Jawad, H. (2011). Multiple voices: Improving participation of Muslim girls. *Sport, Education and Society, 16*(2), 223-239. https://doi.org/10.1080/13573322.2011.540425

OECD. (2019). *Educating immigrant students.* OECD Publishing. https://doi.org/10.1787/9789264301156-en

Suárez-Orozco, C., Abo-Zena, M.M., & Marks, A.K. (2018). *Transitions.* NYU Press.

Haegele, J.A., Hodge, S.R., & Rizzo, T.L. (2018). Inclusive physical education. *Adapted Physical Activity Quarterly, 35*(3), 233-257. https://doi.org/10.1123/apaq.2017-0043

Bailey, R., Armour, K., Kirk, D., Jess, M., Pickup, I., Sandford, R., & BERA Physical Education and Sport Pedagogy SIG. (2013). The educational benefits claimed for physical education and school sport. *Research Papers in Education, 24*(1), 1-27. https://doi.org/10.1080/02671520701809817

Creswell, J.W., & Plano Clark, V.L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage.

Shadish, W.R., Cook, T.D., & Campbell, D.T. (2002). *Experimental and quasi-experimental designs.* Houghton Mifflin. https://doi.org/10.1016/B0-08-043076-7/00419-8

Lubans, D.R., Richards, J., Hillman, C.H., et al. (2016). Physical activity for cognitive and mental health. *Preventive Medicine,* 66, 17-31. https://doi.org/10.1016/j.ypmed.2014.12.018

Johnson, D.W., & Johnson, R.T. (2009). Social interdependence theory. *Educational Researcher, 38*(5), 365-379. https://doi.org/10.3102/0013189X09339057

Haegele, J.A., & Sutherland, S. (2015). Students with disabilities in physical education. *Quest, 67*(3), 255-273. https://doi.org/10.1080/00336297.2015.1050118

Garcia, O., & Wei, L. (2014). *Translanguaging.* Palgrave Macmillan. https://doi.org/10.1057/9781137385765

Shilling, C. (2012). *The body and social theory* (3rd ed.). Sage. https://doi.org/10.4135/9781473914810

Ward, P., & Lee, M.-A. (2005). Peer-assisted learning. *Journal of Teaching in Physical Education, 24*(3), 205-225. https://doi.org/10.1123/jtpe.24.3.205

Dyson, B., & Casey, A. (2012). *Cooperative learning in physical education.* Routledge. https://doi.org/10.4324/9780203132982

Casey, A., & Goodyear, V.A. (2015). Can cooperative learning achieve the four learning outcomes of physical education? *Quest, 67*(1), 56-72. https://doi.org/10.1080/00336297.2014.984733

Portera, A. (2013). *Manuale di pedagogia interculturale.* Laterza.

Benn, T., Pfister, G., & Jawad, H. (2011). *Muslim women and sport.* Routledge. https://doi.org/10.4324/9780203880630

Mosston, M., & Ashworth, S. (2008). *Teaching physical education* (6th ed.). Pearson.

Pijl, S.J., & Frostad, P. (2010). Peer acceptance and self-concept. *European Journal of Special Needs Education, 25*(1), 93-105. https://doi.org/10.1080/08856250903450947

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton University Press. https://doi.org/10.1515/9781400876136

Marsh, H.W., Martin, A.J., Yeung, A.S., & Craven, R.G. (2014). *Competence self-perceptions.* In A.J. Elliot (Ed.), Handbook of competence and motivation (pp. 85-115). Guilford Press.

Moos, R.H., & Trickett, E.J. (1987). *Classroom Environment Scale manual* (2nd ed.). Consulting Psychologists Press.

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). School climate research. *Review of Educational Research, 83*(3), 357-385. https://doi.org/10.3102/0034654313483907

Morgan, D.L. (1997). *Focus groups as qualitative research* (2nd ed.). Sage. https://doi.org/10.4135/9781412984287

Zabalza, M.A. (2004). *Diari di bordo e formazione.* FrancoAngeli.

Anguera, M.T. (2003). *Observational methods (general).* In R. Fernández-Ballesteros (Ed.), Encyclopedia of psychological assessment (pp. 632-637). Sage.

Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Sage.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Сприяння шкільній інклюзії засобами структурованої фізичної активності: фізіологічні, когнітивні та соціальні результати учнів-мігрантів

Фабіола Пальмієро[1ADE], Емма Сарайєлло[2BCDE], Міріам Майсурадзе[2BCD], Марія Джованна Тафурі[3AD]

[1]Університет Кампанії «Луїджі Ванвітеллі»
[2]Неапольський університет «Партенопе»
[3]Університет «Пегасо»

Авторський вклад: A – дизайн дослідження; B – збір даних; C – статаналіз; D – підготовка рукопису; E – збір коштів

Реферат. Стаття: 9 с., 4 табл., 38 джерел.

Обґрунтування. В контексті мультикультурного освітнього простору перед закладами освіти дедалі частіше виникає потреба впроваджувати інклюзивні практики, що сприяють соціальній інтеграції та благополуччю учнів, які мають міграційне походження. Фізична активність визначається як потенційно ефективний інструмент розвитку комунікативних та інтеркультурних навичок, проте кількість емпіричних даних, що ґрунтуються на структурованих інтервенціях, залишається обмеженою.

Мета дослідження. Метою дослідження було оцінити ефективність структурованої, інклюзивно орієнтованої програми фізичної активності у підвищенні рівня соціальної інклюзії, самооцінки та покращенні психологічного клімату в класі серед учнів базової середньої школи, з особливим акцентом на здобувачах освіти з міграційним походженням.

Матеріали і методи. У роботі застосовано квазіекспериментальний дизайн із використанням змішаних методів та вимірюванням показників на претест- посттестовому етапах дослідження. Вибірку склали 72 учні віком 11–13 років, яких було розподілено на експериментальну (n = 36) та контрольну (n = 36) групи. Інтервенція тривалістю 12 тижнів передбачала кооперативне навчання, взаємонавчання, вправи на невербальну комунікацію та культурологічно релевантні ігри. Збирання кількісних даних проведено за допомогою валідизованих інструментів (SISCA, Шкала самооцінки Розенберга, Шкала психологічного клімату в класі) та проаналізовано за допомогою t-критеріїв та дисперсійного аналізу з повторними вимірюваннями. Якісні дані були отримані шляхом проведення фокус-груп, аналізу вчительських щоденників та систематичного спостереження.

Результати. В експериментальній групі виявлено статистично значущі покращення порівняно з контрольною групою. Показники соціальної інклюзії зросли з M = 2,91 (SD = 0,43) до M = 3,47 (SD = 0,38) ($F_{(1, 70)}$ = 14,62; p = 0,001). Рівень самооцінки підвищився з M = 21,8 (SD = 3,6) до M = 25,1 (SD = 3,2) (t = 4,07; p = 0,002). Показники психологічного клімату в класі зросли з M = 3,02 (SD = 0,40) до M = 3,55 (SD = 0,36) ($F_{(1, 70)}$ = 11,89; p = 0,003). У контрольній групі статистично значущих змін не зафіксовано (p > 0,05). Якісні результати підтвердили ці дані, вказуючи на покращення взаємин між однолітками, розвиток невербальної комунікації та посилення почуття приналежності до колективу.

Висновки. За умов структурованого та теоретично обґрунтованого підходу програми фізичної активності, побудовані на інклюзивних педагогічних стратегіях, можуть суттєво підвищити рівень соціальної інклюзії, самооцінки та покращити психологічний клімат у класі в мультикультурному середовищі базової середньої школи. Отримані результати свідчать на користь упровадження цільових інтервенцій фізичної активності як ефективного підходу до сприяння соціальній інтеграції та психологічному благополуччю учнів, зокрема тих, які мають міграційне походження.

Ключові слова: фізична активність, шкільна інклюзія, учні-мігранти, фізичне виховання, змішаний метод.

Information about the Authors:

Palmiero, Fabiola: palmierofabiola97@gmail.com; https://orcid.org/0009-0003-1883-6295; Phsychology Department, University of Campania "Luigi Vanvitelli", via Perla, Santa Maria Capua Vetere, Italy.

Saraiello Emma: emma.saraiello@uniparthenope.it; https://orcid.org/0000-0002-8783-6112; University of Napoli Parthenope, Via Ammiraglio Ferdinando Acton, 38, 80133 Napoli NA, Italy.

Maisuradze Mariam: mariam.maisuradze@uniparthenope.it; https://orcid.org/0000-0002-1498-1706; University of Napoli Parthenope, Via Ammiraglio Ferdinando Acton, 38, 80133 Napoli NA, Italy.

Tafuri, Maria Giovanna: mariagiovanna.tafuri@unipegaso.it; https://orcid.org/0009-0008-5835-1846; Department of Medical, Motor and Wellness Sciences, Pegaso University, Piazza Trieste e Trento, 48, 80132 Naples, Italy.

Cite this article as: Palmiero, F., Saraiello, E., Maisuradze, M., & Tafuri, M. G. (2026). Promoting School Inclusion Through Structured Physical Activity: Physiological, Cognitive, and Social Outcomes in Migrant Students. *Physical Education Theory and Methodology, 26*(3), 601-609. https://doi.org/10.17309/tmfv.2026.3.21

Received: 20.03.2026. Accepted: 09.04.2026. Published: 30.05.2026

This work is licensed under a Creative Commons Attribution 4.0 International License (http://creativecommons.org/licenses/by/4.0)