

A snapshot of Physical Education in Italian primary schools: assessing the resources available for an instrument of health promotion

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Abstract

Background. Regular physical activity is crucial in preventing chronic diseases. International health authorities recommend that children and adolescents engage in at least 60 minutes of moderate to vigorous physical activity per day to achieve health benefits. Offering regular exercise opportunities to young people can promote the development of healthy lifestyles. In 2021, a new regulation introduced up to two compulsory hours of Physical Education per week in Italy and established that Physical Education should be entrusted to adequately trained teachers. The present study aimed to assess, from the perspective of the new teachers, the resources available for Physical Education in Italian primary schools.

Methods. A questionnaire-based cross-sectional study was conducted among primary school Physical Education teachers during the year 2022-2023. Their opinion about the school resources were analyzed in light of their demographic characteristics and work experience.

Results. Out of the 118 participating teachers, 96 (81.3%) reported the presence of a gym in their school. Participants expressed satisfaction with the size and windows of the gym, particularly for the schools of the North, as well as the adequacy of outdoor

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spaces. However, lower levels of satisfaction for locker rooms and gym small equipment emerged, especially among those teachers with less work experience.

Conclusions. *The introduction of the Physical Education teacher figure in Italian primary schools was an important step for health promotion in our country. However, some aspects related to the structural resources should be considered in future policies.*

Introduction

Physical activity (PA) was recently defined as “people moving, acting and performing within culturally specific spaces and contexts, and influenced by a unique array of interests” (1).

According to scientific evidence, PA practiced in children and adolescents has multiple beneficial outcomes such as cardiorespiratory fitness, academic performance, cognitive functioning, and social and mental health (2-5).

The recent guidelines published by the World Health Organization (WHO) and several other European international health agencies guidelines suggested that children and adolescents from 5 to 17 years of age should perform at least an average of 60 minutes of moderate to vigorous physical activity (MVPA) per day to obtain healthy benefits (6-8). To promote movement experiences in different settings, the WHO member States are invited to identify effective multi-sectoral approaches, with the involvement of the health, sports, and education sectors, paying particular attention to the need of counteracting the rapid decline in PA levels and the consequent decline in motor skills during developmental age (9).

During childhood and youth, the practice of physical education (PE) at school offers excellent opportunity to learn and practice skills that can improve long-term fitness and health the course of life. All European countries recognize the importance of PE at school including PE classes as part of everyone curricula both primary and secondary schools. As stated by the “National indications for the curriculum of nursery school and the first cycle of education” by the Italian Ministry of School in 2012, PE in the first cycle of school (i.e., primary school) should promote knowledge of oneself and one’s potential in the constant relationship with the environment, the others and the objects. It contributes to the formation of the students’ personality through knowledge and awareness of their own bodily identity as well as the continuous need for movement as constant care of one’s person and one’s well-being (10).

However, the percentage of children attending primary school in Italy who met the recommended levels of PA is lower than 19.9% (11). The report on PE practice published by the European Commission in 2013 showed Italy in a low rank position, with no mandatory PE classes and trained teachers in primary schools. PE teaching was assigned to other teachers, sometimes supported by graduate assistants in PE on the basis of a project initiative (12).

With the introduction of the law no. 234/2021, up to two mandatory hours per week of PE were finally introduced in the fifth class of the Italian primary schools starting from the 2022/2023 school year and in the fourth class starting from the 2023/2024 school year (13). The new law in force established for the first time the assignment of PE teaching to properly trained teachers.

In a public health perspective, the new regulation can represent an important health promotion strategy. However, in order to ensure that the new teachers can fulfill their role and children can really benefit from this action by increasing their PA level and enhance their skills, it is fundamental that schools are able to provide even adequate facilities and equipment for PE teaching (14). Given this consideration, the present study was aimed to assess, from the point of view of the new teachers, the resources available for PE in the Italian primary schools.

Methods

Study design and procedures

This cross-sectional study was performed by the Working Group “Movement Sciences for Health” of the Italian Society of Hygiene, Preventive Medicine and Public Health between May and July 2023 across the whole Italian territory. A web-based questionnaire was used to collect teachers’ data and opinions. Teachers were invited to participate through the website of the Italian Confederation of the Associations of Physical Education Teachers (CAPDI & LSM) and social media. Before completing

the questionnaire, participants were asked to provide their informed consent to the collection and treatment of personal information. The study was approved by the Research Committee of the University of Rome "Foro Italico" (approval n. CAR 165/2023). All the procedures followed the principles of the Declaration of Helsinki.

Participants

Only teachers who were engaged in teaching PE in Italian primary school during the school year 2022-2023 were specifically invited to participate. Estimating a total population of 14,804 teachers (at least one for each Italian primary school) (15), a sample of at least 375 teachers would have been required assuming a 95% confidence level and a 50% response proportion.

Questionnaire

A link to an anonymous questionnaire structured in a Google form was provided to the teachers. The questionnaire included a brief description of the aim of the study and two subsequent sections. The first section was aimed at collecting socio-demographic information: gender, age, type of degree, region of the school they worked in during the school year 2023-24, number of previous years of PE teaching performed in primary, middle or high schools. The second section was aimed at exploring the presence of gyms, outdoor places dedicated to PE and swimming pools in the school they worked in. Furthermore, participants were asked to provide their opinion about suitability of available places, availability of great or small gym equipment, adequacy of locker rooms, toilets and fenestration, and to express an overall judgment about the teaching performed in the last school year. A Likert 5-point scale was used to collect their satisfaction, with 1 = "very dissatisfied" and 5 = "very satisfied".

Statistical analyses

A descriptive analysis was performed on the participants' sociodemographic characteristics and reported information about the available resources. Quantitative data were expressed as mean values \pm Standard Deviation (SD) or median and Inter-Quartile Range (IQR) considering their distribution, while categorical variables were summarized as number and percentage of respondents for each category. Kendall's and Spearman's correlation analyses were performed to highlight possible associations between participants' characteristics and their judgments about school resources for PE and teaching performed. A

value of $p=0.05$ was assumed as level of significance. Statistical analyses were performed using the Statistical Package for Social Science (SPSS) version 28.0 (IMB; Armonk, NY, USA).

Results

A total of 118 teachers (62.7% females, mean age 39.2 ± 10.2 years) participated in the survey. Table 1 shows the main characteristics of the sample.

Ninety-six (81.3%) of the teachers reported the presence of a gym in the school in which they worked in the last year. Only three of them declared that the gym was not feasible. In 85 cases (88.5%) the school gym was reported to be used by local associations after school time, and 53 (62.3%) of them had separated entrances. No swimming pools were present in the schools in which participants worked. Outdoor spaces for PE were reported by 41 (34.7%) respondents. Thirteen of these were reported for schools which did not have a gym available.

As for the judgments expressed towards the suitability of school structures and equipment for PE, the lower satisfaction was expressed for locker rooms and gym equipment, while the higher satisfaction was declared towards gym dimensions and fenestration, and outdoor spaces adequacy (Table 2).

In the correlation analyses, male gender was shown to be related with better judgment about gym equipment and toilets, while a negative correlation was found between school allocation in Center/Southern regions and opinion about gym fenestration (Table 3). Having previously worked in a primary school was positively related with the opinion about the availability of small equipment, locker rooms adequacy and gym fenestration.

The sample expressed a highly positive overall judgment regarding their own teaching experience (mean satisfaction value 3.97 ± 0.99). In the correlation analysis, their satisfaction level did not correlate with any of the variables examined.

Discussion

Lights and shadows regarding PE teaching in Italian primary schools emerged from this survey. First of all, more than 80% of the respondents reported the presence of a gym in the school, and this number is higher than the 40.8% reported in 2018 for all Italian schools (16). Furthermore, outdoor spaces for PE were

Table 1 - Main characteristics of participants.

| Variable | N (%) |
|--------------------------------------|-----------|
| Geographical area | |
| North | 60 (50.8) |
| Center | 25 (21.2) |
| South | 33 (28.0) |
| Previous teaching in primary schools | |
| no | 28 (23.7) |
| yes | 90 (76.3) |
| years (mean±SD) | 6.5±7.7 |
| Previous teaching in middle schools | |
| no | 64 (54.2) |
| yes | 54 (45.8) |
| years (mean±SD) | 2.8±3.0 |
| Previous teaching in high schools | |
| no | 62 (52.5) |
| yes | 56 (47.5) |
| years (mean±SD) | 2.4±3.6 |

reported for the majority of the schools where a gym was lacking. However, it should be noted that around 20% of participants reported no gym, no one reported swimming pools, and 65% reported no available outdoor spaces for PE, which represents a critical issue especially considering that in 2021 about 330 million euros were allocated by the Italian government in a school sports infrastructure plan aimed at improving the safety of existing spaces and building new gyms in the schools (17).

As for the judgments about the available resources, they were generally at an average rating. Participants expressed lower satisfaction for locker rooms and gym equipment and higher satisfaction towards gym dimensions and fenestration, and outdoor spaces adequacy. Gender and previous teaching experiences in the primary school were found to be related with these judgments. These findings could be related

Table 2 - Personal judgment about the adequacy of gym and outdoor spaces of the school for physical education.

| Variable | Opinion (mean±SD; median, IQR) |
|--|--------------------------------|
| Suitability of gym dimensions | 3.69±0.97; 4, 3-4 |
| Suitability of great gym equipment | 2.62±1.16; 3, 2-3 |
| Availability of small equipment in the gym | 3.24±1.20; 3, 2-4 |
| Adequacy of locker rooms in the gym | 2.60±1.35; 3, 1-4 |
| Adequacy of gym toilets | 2.79±1.26; 3, 2-4 |
| Adequacy of gym fenestration | 3.30±1.23; 3, 2-4 |
| Suitability of outdoor spaces | 3.51±1.12; 3, 3-5 |

Table 3 - Results of the Kendall's or Spearman's correlation analyses performed between participants' characteristics and their judgments about school resources for physical education.

| Variable | Kendall's tau-b/Spearman's Rho <i>p value</i> | | | | | | |
|---|--|------------------------------|------------------------|-------------------------------|------------------------------|------------------------|------------------------|
| | Age | Gender | Education | Geographical area | Primary school teaching | Middle school teaching | High school teaching |
| Suitability of gym dimensions | 0.044 <i>0.671</i> | -0.019 <i>0.868</i> | -0.005 <i>0.949</i> | -0.022 <i>0.811</i> | 0.076 <i>0.524</i> | 0.036 <i>0.813</i> | -0.200 <i>0.199</i> |
| Suitability of gym equipment | -0.074 <i>0.472</i> | 0.243 0.009 | 0.065 <i>0.449</i> | -0.075 <i>0.398</i> | 0.044 <i>0.714</i> | 0.167 <i>0.268</i> | -0.008 <i>0.962</i> |
| Availability of little sport tools in the gym | 0.084 <i>0.417</i> | 0.042 <i>0.652</i> | -0.104 <i>0.220</i> | -0.068 <i>0.441</i> | 0.285 0.014 | 0.168 <i>0.265</i> | -0.082 <i>0.603</i> |
| Adequacy of locker rooms in the gym | -0.052 <i>0.613</i> | 0.145 <i>0.116</i> | 0.127 <i>0.133</i> | -0.094 <i>0.285</i> | 0.257 0.028 | 0.121 <i>0.422</i> | -0.078 <i>0.618</i> |
| Adequacy of gym toilets | 0.034 <i>0.740</i> | 0.209 0.024 | 0.053 <i>0.533</i> | -0.107 <i>0.227</i> | 0.187 <i>0.113</i> | 0.135 <i>0.370</i> | -0.031 <i>0.844</i> |
| Adequacy of gym fenestration | 0.162 <i>0.116</i> | 0.048 <i>0.601</i> | -0.084 <i>0.320</i> | -0.252 0.004 | 0.338 0.003 | 0.290 <i>0.051</i> | 0.204 <i>0.189</i> |
| Suitability of outdoor spaces | -0.019 <i>0.906</i> | -0.186 <i>0.200</i> | -0.028 <i>0.834</i> | -0.036 <i>0.791</i> | 0.032 <i>0.861</i> | 0.308 <i>0.213</i> | 0.172 <i>0.481</i> |

with a different individual perception of some environmental aspects. It should be noted also that the opinion regarding the adequacy of fenestration was inversely related to the geographical area of the school. Although an association was found only regarding this aspect, it should be considered that it could be related with the worst condition of school buildings which was previously reported for Central and Southern Italian regions (16). Further research should explore in depth these geographical differences.

The analyzed structural aspects should be considered in future policies regarding health promotion at school. In fact, although facility provision alone may not be enough to support higher levels of physical activity among children, as this also depends on adequate supervision and instruction, the availability of facilities and equipment is associated with more physical activity opportunities, especially for disadvantaged groups (18-20). Therefore, an improvement in structural conditions and equipment of school gyms should proceed hand in hand with the application of the new legislation concerning PE. Our investigation did not explore how teachers faced the lack of facilities or equipment during their work. Therefore, we cannot speculate on how this aspect affected the renewed PE teaching. Future studies should analyze this possible relationship.

A general positive judgment was expressed by participants regarding their teaching experience. Interestingly, these judgments were independent of individual characteristics and geographical area. This is in line with the findings of a scoping literature aimed at identifying the predictors of PE teachers' satisfaction, which showed that workplace and interpersonal relationships, more than demographic variables, may influence how teachers experience their work (21).

This study has some limitation. First of all, the sample cannot be considered representative of the whole population of teachers involved in PE teaching in the Italian primary schools during the year examined. The number of participants was not sufficient to reach the needed statistical power and the proportion of respondents from northern Italy was slightly higher than the expected value of 43.9% (15). Second, the information related to the available resources should be interpreted with caution, since they were self-reported and not objectively assessed.

However, this study has the merit of having provided a snapshot of the introduction of the PE teachers in Italian primary schools, which represented an important step for health promotion in our country.

Since PE hours contribute to the achievement of the recommended amount of daily MVPA (22), it is hoped that this strategy can have positive effects on PA levels and physical fitness of Italian children. Future research should be addressed at assessing these effects to verify the effectiveness of this strategy and its possible extension to the lower school years.

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Data availability: The datasets used during the study are available upon reasonable request from the corresponding author.

Ethical Approval: Data were collected in completely anonymous form. However, nurses were asked to give informed consent prior to participating in the study and completing the questionnaires. The study protocol was in line with the Declaration of Helsinki.

Conflict of Interest: The authors declare that they have no conflicts of interest.

Riassunto

Un'istantanea dell'insegnamento di educazione fisica nelle scuole primarie italiane: valutazione delle risorse disponibili per uno strumento di promozione della salute

Premessa. Un'attività fisica regolare svolge un ruolo importante nella prevenzione delle malattie croniche. Le autorità sanitarie internazionali raccomandano che i bambini e gli adolescenti svolgano almeno 60 minuti di attività fisica da moderata a vigorosa al giorno per ottenere benefici di salute. Offrire regolari opportunità ai giovani di fare movimento può facilitare lo sviluppo di stili di vita sani. Nel 2021 in Italia è stata emanata una nuova normativa che stabilisce l'introduzione di fino a due ore settimanali obbligatorie di educazione motoria e l'affidamento dell'insegnamento a docenti adeguatamente formati. Il presente studio è stato finalizzato a valutare, dal punto di vista dei nuovi insegnanti, le risorse disponibili per l'insegnamento di educazione motoria nelle scuole primarie italiane.

Metodi. Uno studio trasversale basato su un questionario è stato svolto tra gli insegnanti di educazione motoria nella scuola primaria italiana nell'anno scolastico 2022-2023.

Risultati. Novantasei (81,3%) dei 118 insegnanti partecipanti hanno segnalato la presenza di una palestra nella scuola in cui hanno lavorato nell'ultimo anno, con un buon livello di gradimento per le dimensioni e le finestrature, soprattutto per le scuole del Nord, e per l'adeguatezza degli spazi esterni, e un minore gradimento per gli spogliatoi e le attrezzature delle palestre, riportato soprattutto da docenti con minore esperienza di insegnamento.

Conclusioni. L'introduzione dell'insegnante di educazione fisica nelle scuole primarie italiane ha rappresentato un passo importante per la promozione della salute in Italia. Tuttavia, alcuni aspetti relativi alle strutture disponibili andrebbero considerati nelle future azioni.

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