

A Comparative Analysis of High and Low Physical Activity Levels among Children from 2023 “OKkio alla SALUTE” Survey

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INTRODUCTION

Physical activity (PA) in childhood is widely recognized as a critical determinant of long-term health, contributing to cardiovascular function [1], cognitive development [2], and overall quality of life [3], [4]. However, insufficient PA during childhood is a significant public health concern, associated with increased risk of obesity [5], cardiovascular disorders [6], and type 2 diabetes [7]. The World Health Organization (WHO) recommends that children aged 5-17 years engage in at least 60 minutes of moderate-to-vigorous physical activity (MVPA) daily and vigorous physical activity (VPA) at least three times per week [8]. Despite these guidelines, a considerable proportion of children fail to achieve these targets [9]. Understanding the factors influencing children’s PA patterns, including socio-demographic, parental, and lifestyle characteristics, is essential for developing effective public health interventions [10].

OBJECTIVES

This study aimed to assess the levels of PA among Italian children aged 8-9 years, evaluating their compliance with the 2020 WHO recommendations for MVPA and VPA [8]. Additionally, it aimed to explore potential statistical associations between PA levels and socio-demographic, familial, and lifestyle factors.

METHODS

A cross-sectional, population-based study was conducted using data from the 2023 round of the “OKkio alla SALUTE” surveillance system, involving 42,873 third-grade chil-

dren (aged 8-9 years) across Italy. Data were collected from March to June 2023 through stratified cluster sampling, with classes as primary sampling units. Information on PA, dietary habits, screen time, and socio-demographic characteristics was collected via parent, teacher, and student questionnaires. PA levels were categorized as follows: MVPA (≥ 5 days a week) and VPA (≥ 3 days per week). Logistic regression models were used to evaluate the association between PA levels and independent variables, adjusting for the complex survey design, including dietary habits [11] (such as fruit and/or vegetables daily consumption, breakfast daily consumption), sedentary behaviour, parental education [12], and financial status [13], using a nationally representative sample.

RESULTS

Of the 42,873 children surveyed, 51.3% were boys, and 48.7% were girls. Among these, 63.5% were aged 8 years, and 36.5% were aged 9 years. Regionally, 50.6% resided in the North, 20.5% in the Centre, and 28.9% in the South. Nutritional habits showed that 59.8% consumed fewer than two servings of fruit and/or vegetables daily, while 68.8% had breakfast every day. In terms of sedentary behavior, 55.3% spent less than two hours per day in front of screens. Parental education varied, with 33.2% of mothers and 21.4% of fathers holding high qualifications. Financial status was good for 49.6% of families, while 5.0% faced significant economic difficulties.

PA data revealed that 30.2% engaged in VPA at least three days per week, while 32.9% met the MVPA criteria for at least five days per week. Boys were more likely to engage in both VPA (63.7%) and MVPA (54.1%) than girls. Higher parental education was positively associated with VPA but negatively related to MVPA: for example, children with

highly educated mothers (33.2%) and fathers (21.4%) were more likely to engage in VPA at least three days per week, while children with parents with lower education levels were less active. In contrast, a higher proportion of children with medium or low parental education engaged in MVPA for at least five days per week, indicating a complex relationship between educational level and PA. Children with better financial status were also more likely to be active, aligning with the descriptive statistics.

Logistic regression models confirmed these descriptive findings, indicating that gender, parental education, dietary habits, and lower sedentary behavior were consistent predictors of PA. Overall, these models validate the observed descriptive trends, confirming that socio-demographic and behavioral factors are critical determinants of PA.

CONCLUSIONS

This study confirms significant socio-demographic and behavioral disparities in PA levels among Italian children, with gender, parental education, and dietary habits emerging as critical determinants. These findings highlight the importance of tailored public health strategies to promote PA in early childhood, addressing socio-economic barriers and encouraging healthy lifestyle choices to reduce the long-term burden of physical inactivity [14], [15], [9], [16].

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