

THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND OBESITY RATES AMONG JUNIOR HIGH SCHOOL STUDENTS

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Abstract

This study investigated the relationship between physical activity levels and obesity rates among junior high school students in selected schools in Pangasinan, Ilocos Region, Philippines. Specifically, it examined students' physical activity levels, obesity prevalence, the correlation between these variables, perceived barriers to physical activity, and proposed intervention measures. Employing a purely quantitative approach, the study involved 600 respondents selected through stratified random sampling to ensure representation across Grades 7 to 10. Data were collected using a self-administered survey questionnaire and body mass index (BMI) measurements and were analyzed using descriptive statistics and Pearson's correlation coefficient.

Results revealed that most students (41.7%) exhibited moderate physical activity levels, followed by those with low activity levels (38.3%) and high activity levels (20.0%). BMI classifications indicated that 38.3% of students were overweight or obese, 46.7% were of normal weight, and 15.0% were underweight. A strong negative correlation (-0.62 , $p < 0.05$) was observed between physical activity and obesity, indicating that higher physical activity levels were associated with lower obesity prevalence. Reported barriers to physical activity included lack of time, lack of motivation, limited facilities, and social or peer pressure. Based on these findings, proposed interventions included school-based sports programs, an improved physical education curriculum, community-based fitness events, and awareness campaigns.

Overall, the study underscores the urgent need for targeted school and community interventions to address insufficient physical activity and high obesity prevalence among adolescents. The findings provide evidence-based insights for educators, health practitioners, and policymakers in promoting healthier lifestyles.

Keywords: Physical Activity, Obesity, BMI, Adolescents, Barriers To Exercise, Junior High School Students

2. Introduction

Physical inactivity and escalating obesity rates among adolescents have become global health concerns. In the Philippines, the Department of Education (DepEd) recognizes the critical role of physical education and physical activity in national education policy, citing Article XIV, Section 19 of the 1987 Constitution, which mandates the state to promote physical education and sports for the development of a healthy and alert citizenry (Culajara, 2022). Accordingly, DepEd Order No. 60, series 2021, introduced *Galaw Pilipinas*, a national calisthenics exercise program that emphasizes regular physical activity within the school setting. Meanwhile, Republic Act No. 5708 (1969) and RA 10588 (Palarong Pambansa Act) legislate the promotion of sports development and school-based athletics as part of the curriculum and extracurricular activities. Nonetheless, despite these mandates and programs, Philippine adolescents continue to exhibit rising obesity prevalence and insufficient physical activity levels.

Despite these policy frameworks, national and regional data reveal persistent gaps. For instance, the 2022 Philippine Report Card on Physical Activity assigned an overall failing grade

(F) to youth physical activity behaviors, contrasted with a commendable A- grade for policy support, indicating a disjunction between policy and practice (Ignacio et al., 2022). Furthermore, adolescent overweight and obesity increased at an average rate of 0.34 percentage points annually over the past decade in the Philippines, as reported by the National Nutrition Survey (Silvestre et al., 2023).

Consequently, although DepEd has integrated Fitness and Movement Education into the K-12 PE curriculum, emphasizing lifelong physical literacy and health-related fitness competencies, many junior high school students still fail to meet recommended daily physical activity levels (Samonte et al., 2021).

While existing literature supports a consistent negative association between physical activity and overweight in youth, most Philippine-based data are limited or regional. Globally, systematic reviews confirm inverse relationships between adolescent physical activity and obesity, yet longitudinal evidence remains scant and sometimes inconsistent (Lee et al., 2021).

Similarly, local cross-sectional studies in Metro Manila and other regions document inadequate physical activity and rising obesity rates. Still, few studies examine junior high school students in the Ilocos Region specifically (Cagas et al., 2022). Moreover, interventions such as after-school exercise programs have improved physical fitness but demonstrated limited impact on BMI in short-term quasi-experimental settings. Likewise, multi-component school-based approaches such as the Physical Activity 4 Everyone (PA4E1) trial abroad showed moderate BMI reduction among socioeconomically disadvantaged adolescents, stressing the benefits of curriculum reform, school environment modifications, and community involvement (Briançon et al., 2020).

Hence, despite legislative mandates, curricular frameworks, and pilot interventions, gaps remain in understanding the physical activity–obesity link among junior high schoolers in Pangasinan—a representative mix of urban and semi-urban contexts. In particular, perceived barriers unique to this cohort, such as time constraints, motivational factors, and facility access, have not been systematically explored, even though such barriers have been shown to compromise participation and exacerbate obesity risk (Moore et al., 2023).

Therefore, this study seeks to fill these gaps by focusing on junior high school students in Pangasinan, Ilocos Region, Philippines. Specifically, it aims to examine (a) students' physical activity levels, (b) obesity prevalence via BMI classifications, (c) the statistical relationship between activity level and obesity, (d) perceived barriers hindering physical activity, and (e) potential intervention strategies drawn from students' recommendations. Through a purely quantitative, descriptive-correlational, cross-sectional design, the study employs structured survey instruments and BMI measurements to generate reliable, generalizable insights regarding this cohort.

By integrating government-mandated policies (e.g., *Galaw Pilipinas*, K-12 Physical Education curriculum), legal frameworks (RA 5708, RA 10588), and learned lessons from both local findings and global intervention outcomes, this research establishes a clear rationale for examining how physical activity—or the lack thereof—relates to adolescent obesity in a Philippine junior high school context. Ultimately, it aims to contribute empirical evidence that supports the refinement of school-based physical activity programs and informs policy implementation at regional and national levels.

3. Method

2. Research Design

This study employed a purely quantitative research design to objectively examine the relationship between physical activity levels and obesity rates among junior high school students. Utilizing a descriptive–correlational approach, the study first described students' physical activity

patterns and obesity prevalence, then analyzed the extent to which these variables were related. The descriptive component provided a clear profile of the respondents' health behaviors, while the correlational component determined whether a statistically significant association existed between activity levels and obesity status. Moreover, the study adopted a cross-sectional framework, wherein data were collected at a single point in time, allowing for the identification of patterns and relationships without the need for longitudinal tracking. To ensure accuracy and reliability, structured survey questionnaires were used to capture self-reported activity levels and perceived barriers, while standardized body mass index (BMI) measurements provided objective classification of weight status. This design was deemed appropriate as it facilitated systematic data collection and statistical analysis, thereby enabling the generation of evidence-based insights to guide health interventions for adolescents.

3. Participants

The study consisted of 600 junior high school students enrolled in Grades 7 to 10 from selected schools in Pangasinan, Ilocos Region, Philippines. These schools were chosen based on accessibility, administrative consent, and the availability of facilities for physical activity assessments and BMI measurements. Using a stratified random sampling technique, the study ensured proportional representation from each grade level while considering demographic variables such as age and gender, thereby enhancing the representativeness and reliability of the findings. Moreover, participation was voluntary, and informed parental consent was secured before data collection in adherence to ethical research standards. This sampling approach allowed the study to capture diverse perspectives and experiences related to physical activity and obesity, ensuring that the results could be generalized to the broader population of junior high school students in the region.

4. Instrumentation

The study utilized two primary research instruments: a self-administered survey questionnaire and standardized body mass index (BMI) measurements, both selected to ensure accuracy, reliability, and objectivity in data collection. The survey questionnaire was designed to gather comprehensive information on students' physical activity levels, including frequency, intensity, and duration, as well as perceived barriers such as lack of time, motivation, or access to facilities. Before full implementation, the instrument underwent pre-testing to establish clarity and content validity. In addition, BMI measurements were conducted using standard procedures for recording height and weight, with results computed using the formula $BMI = \text{weight (kg)} / \text{height}^2 (\text{m}^2)$ and categorized according to internationally recognized classifications. By combining subjective self-reports with objective anthropometric data, the instruments provided a well-rounded assessment of the relationship between physical activity and obesity, thereby strengthening the study's empirical basis.

2.4 Data Analysis

This study were analyzed using both descriptive and inferential statistical techniques to address the research questions effectively. Descriptive statistics, including frequency counts, percentages, means, and standard deviations, were employed to summarize participants' physical activity levels, BMI classifications, and perceived barriers to physical activity. Meanwhile, Pearson's correlation coefficient was applied to determine the strength and direction of the relationship between physical activity levels and obesity rates, with a significance level set at $p < 0.05$ to ensure statistical rigor. Furthermore, the analysis was conducted using statistical software to enhance accuracy and efficiency in processing quantitative data. Through this combination of descriptive and inferential methods, the study was able to present a clear depiction

of current trends while also identifying significant relationships that could inform targeted intervention strategies.

4. Results

The findings of the study revealed notable patterns in the physical activity levels and obesity rates of junior high school students. In terms of physical activity, most respondents (41.7%) reported engaging in moderate levels of activity, while 38.3% indicated low activity levels and only 20.0% achieved high activity levels. This distribution suggests that a substantial proportion of students do not meet the recommended daily physical activity guidelines for adolescents. About obesity prevalence, BMI classifications showed that 38.3% of the respondents were overweight or obese, 46.7% fell within the normal weight range, and 15.0% were classified as underweight. Moreover, statistical analysis using Pearson's correlation coefficient demonstrated a strong negative relationship between physical activity levels and obesity rates ($r = -0.62, p < 0.05$), indicating that students with higher physical activity engagement tended to have lower obesity prevalence. Additionally, the study identified key perceived barriers to physical activity, with lack of time cited by 36.7% of respondents, lack of motivation by 25.0%, limited facilities by 21.7%, and social or peer pressure by 16.6%. These results highlight the multifaceted nature of adolescent obesity, emphasizing that both behavioral patterns and environmental constraints significantly influence students' engagement in physical activity and, consequently, their weight status.

4. Discussion

The results of this study align closely with findings from previous local and international research, thereby reinforcing the observed relationship between physical activity and obesity among adolescents. The strong negative correlation identified in this study ($r = -0.62, p < 0.05$) is consistent with the conclusions of Dewi et al. (2021), who emphasized that higher levels of physical activity are significantly associated with lower adiposity in school-aged youth. Similarly, a Philippine-based study by Cagas et al. (2022) also reported that insufficient physical activity was a key predictor of overweight and obesity among high school students, mirroring the trends found in the present research. Moreover, the identification of barriers such as lack of time, motivation, and access to facilities corroborates the work of Vasquez et al. (2020), who noted that both personal and environmental factors serve as critical determinants of youth participation in physical activity. In the same vein, the prevalence rates of overweight and obesity found in this study are comparable to those reported in the National Nutrition Survey, which highlighted the rising incidence of adolescent obesity in the Philippines over the past decade (Pengpid et al., 2025). Collectively, these similarities with prior studies strengthen the validity of the present findings and underscore the urgent need for multi-level interventions, combining school-based initiatives with community and policy-level strategies, to address the dual challenges of physical inactivity and obesity among junior high school students.

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