

Effectiveness Of School Health Promotion Activities On Physical Activity Changes In High School Students With Disabilities: A Systematic Review And Meta-Analysis

Yi-Miao Liu¹, Hung-En Liao^{1, *}

¹ *Department of Healthcare Administration, Asia University, Taichung, Taiwan*

^{*} *Corresponding Author: Associate Professor Hung-En Liao*

Research Overview

This systematic review and meta-analysis evaluated the effectiveness of school-based health promotion programs (HSPSI) on physical activity among students with disabilities. Analyzing 10 studies, results showed significant improvements in muscular endurance and systolic blood pressure, though grip strength and diastolic blood pressure showed no significant statistical differences.

Research Purpose

In the modern era, sedentary lifestyles have become a global health concern, particularly for adolescents with disabilities. These individuals often face physiological limitations, developmental delays, and communication barriers that lead to significantly lower participation in physical activities compared to their peers. Consequently, they are at a higher risk for chronic diseases and physical fitness degradation.

Schools serve as a primary environment for students and possess the necessary infrastructure and social support systems to implement health interventions. The purpose of this study is to investigate whether school-based health promotion school interventions (HSPSI) can effectively improve physical activity levels and health-related physical fitness among high school students with disabilities. By synthesizing existing literature, this research aims to evaluate the actual effectiveness of current campus interventions to provide an evidence-based reference for future special education health policies.

Research Methods

This study adhered to the PRISMA 2009 statement for reporting systematic reviews and meta-analyses. The theoretical framework was guided by the WHO Ottawa Charter for Health Promotion (1986), emphasizing the creation of supportive environments within schools to enhance student health literacy.

Comprehensive searches were conducted across five major academic databases: PubMed, Ovid MEDLINE(R) ALL, Journals@Ovid, Cochrane Library, and Scopus. The initial search yielded 847 records. After removing duplicates and screening titles/abstracts, studies were excluded if they did not involve high school students with disabilities or lacked specific physical activity indicators. Ultimately, 10 studies were included in the qualitative synthesis, with 3 studies providing sufficient quantitative data for meta-analysis.

The population (P) consisted of high school students with disabilities (e.g., Intellectual Disability). The intervention (I) included school-based health promotion programs such as progressive rope skipping or circuit training. The comparison (C) involved control groups not participating in specific programs. Outcomes (O) measured included muscular endurance (1-min sit-ups), muscle strength (grip strength), and blood pressure (SBP, DBP). Quality was assessed using the JBI Critical Appraisal Tools, and statistical analysis was performed using Review Manager 5.4.

Results and Discussion

The meta-analysis revealed significant improvements in muscular endurance (1-min sit-up test; Mean Difference [MD] = 5.23, 95% Confidence Interval [CI] [1.80, 8.65], $P = 0.003$) and Systolic Blood Pressure (SBP; $P = 0.007$) for the HPSPI group compared to controls. This confirms that planned school-based exercise interventions can effectively strengthen core muscle groups and improve cardiovascular health markers.

However, Grip Strength ($P = 0.10$) and Diastolic Blood Pressure (DBP; $P = 0.07$) did not reach statistical significance. The findings suggest that while school-based structured environments are ideal for promoting physical activity, future interventions may require higher intensity or longer durations (exceeding 12 weeks) to influence grip strength and diastolic blood pressure significantly.

Students with disabilities often exhibit high levels of sedentary behavior due to lower self-efficacy and motor development limitations. School-based interventions provide a structured support system that offsets these barriers. Future research should expand sample sizes and include diverse disability categories to strengthen the evidence level for tailored school health policies.

Keywords: School health promotion, Students with disabilities, Physical activity, High school

Oral Presentation

The findings will be presented via an oral session, highlighting the quantitative impact of school interventions on physical health metrics and discussing the practical implications for inclusive physical education curriculum design.