Barriers to Students’ Physical Activity: A Systematic Review Protocol

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Protocol

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Abstract

Background Physical inactivity is a prevalent issue affecting both adolescents and adults, and the factors that negatively influence engagement in physical activities are called barriers. To our knowledge, no systematic review has been conducted on the most common barriers to physical activity among students. Therefore, this study defines a systematic review protocol to map the existing evidence on the prevalence of barriers to physical activity among high school and college students. Methods The protocol will be based on PRISMA items. The studies will be obtained from four electronic databases (CINAHL, Embase, PubMed, and Scopus), regardless of restrictions per year. Only those studies shall be considered that are published in English. Studies that have identified barriers to physical activity among high school and university students will be included. The studies will be selected based on their titles and abstracts, and then two independent reviewers will review them carefully. Disagreements will be resolved by a third reviewer. All the steps will be performed in Rayyan software. Methodological quality will be assessed by the GRADE methodology, and the risk of bias will be assessed using the Downs and Black checklist. Discussion This systematic review will synthesize the evidence concerning the barriers to physical activity among adolescents and adults, high school, and college students. The findings of this systematic review may stimulate the development of actions, programs, and public policies aimed at overcoming or mitigating these barriers. This intervention will improve physical activity levels and decrease sedentariness. Registration The registration of this systematic review has been requested to the International Prospective Register of Systematic Reviews (PROSPERO) database but is still pending approval.

Introduction

For the World Health Organization (1), health is “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” The current major public health challenge is chronic non-communicable diseases, such as cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases, which are the leading causes of deaths globally, accounting for over 70% of mortality worldwide (2). Therefore, the practice of regular (3), physical activities (4) is a relevant factor in the protection against chronic non-communicable diseases (5,6).

Recent discoveries have shown the physical and psychological benefits associated with the practice of physical activities. Physical benefits include maintenance of body weight, lowered blood pressure (7), improved bone health and strength (8), and increased muscle strength and function (9). Psychological benefits include reduced risk of dementia (10,11), improved cognition, improved brain function, improved academic performance (12), reduced depression and depressive symptoms in young people (13), and unique mental health support (14). With so many benefits resulting from the regular practice of physical activities (15,16), it should be readily applied by the students; however, that is not the case in the current scenario.
Most young people do not fulfill the minimum recommended physical activity levels. Over 81% of the world’s adolescents are considered physically inactive (17). Moreover, the practice of physical activity has been found to decrease with age and this decline seems to commence at the beginning of adolescence (18), with a sharper fall between late adolescence and early adulthood (19–21). A recent study regarding young people in Norway revealed that students exercised less in 2018 in comparison to 2014 and that the prevalence of obesity increased substantially from 2010 as opposed to 2018, and approximately 20% of students met the recommended criteria for frequency, intensity, and duration of exercise (22). Another major problem associated with physical inactivity is sedentary behavior.

Several factors interfere both positively and negatively with the regular practice of physical activity. Factors that prevent or hinder the practice of physical activities are called “barriers” (23). The barriers are related to historical, individual, behavioral, and environmental aspects (24–26). The main barriers identified for students are exam stress, long hours of study, lack of time (27), demotivation, and the inability to eat healthily (28).

This systematic review aims to identify the barriers to physical activity among students so that physical activity and health promotion programs are facilitated. This research will provide public authorities with important information that can increase the effectiveness of their interventions, thus improving health and quality of life and reducing health costs.

**Methods**

This protocol was developed based on the PRISMA (29) items. Its registration in PROSPERO(30) is still pending approval. Registration was requested to increase transparency, reproducibility, and prevent duplication of efforts. This systematic review aims at identifying the barriers to physical activity in students.

**Identification of the research question**

The main question of this research pertains to the barriers of physical activity already identified among high school and university students of both genders aged 10 to 30 years?

**Identification of relevant studies**

Studies published in English in four databases without time restrictions shall be examined. The search was conducted in three health sciences databases, CINAHL, Embase and PubMed, and one multidisciplinary database, Scopus. The main keywords are “student” (population), “barriers” (mediating variables), and “physical inactivity” (outcome). Below is presenting the logical structure of the search strategy and all keywords and Boolean operators used in the databases:
Eligibility Criteria

Qualitative and observational studies published in English without time restrictions will be included. Selected studies must have assessed the barriers to physical activity in high school and/or university students, adolescents, or adults of both genders aged 10 to 30 years. This age range was defined to meet the World Health Organization's definition of adolescence, which encompasses individuals aged 10 to 19 years and includes the term "young adult," which includes individuals aged 19 to 24 years. The extension to 30 years of age is justified by the fact that the average age of university students has increased in recent years.

The exclusion criteria are the following: systematic reviews; reports or case studies; opinion articles; studies that include people with physical and mental disabilities, groups with chronic diseases, pregnant women, and nursing mothers. Moreover, studies conducted in specific or traditional communities (e.g., rural, indigenous, refugee, isolated, and aboriginal) will be excluded because they have their own forms of social organization.

Study selection

The search strategy results will be imported into Mendeley software, where duplicate articles will be identified and excluded. The first stage of selection will be based on the titles and abstracts, with each study being evaluated according to previously established eligibility criteria. After this stage, the full text of the articles will be read to confirm their eligibility. All steps will be performed using Rayyan software, which allows rapid exploration and filtering of studies eligible for systematic reviews (31), and will be conducted independently by two reviewers (R.M.F.S. and C.R.M.). Disagreements will be resolved by a third reviewer (M.N.).

Data Extraction
The following data will be extracted from the selected studies: study title, study objective, year of publication, country of origin, population (male and female), age group of the population, and study results (identified barriers). Two identical spreadsheets will be used for extracting data, one for high school students and another for university students.

Methodological quality and bias risk assessment

The recommendations of the GRADE methodology shall be employed to assess the methodological quality of the included articles (32). GRADE is a methodology that classifies the quality of evidence into four categories: very low quality, low quality, moderate quality, and high quality, for achieving transparency and simplicity. As it is a methodologically rigorous and user-friendly classification system, it has been widely adopted around the world.

The adapted version of the Downs and Black checklist (33) will be used to assess the risk of bias (34), as it is one of the most commonly used tools in systematic reviews. The studies will be scored considering five aspects: presentation, external validity, internal validity - bias, internal validity - confounding, and statistical power for inferences. The methodological quality and the risk of bias will be assessed independently by two reviewers (R.M.F.S. and C.R.M.). Disagreements will be resolved by a third reviewer (M.N.) and the data synthesis strategy will consider the prevalence of the identified data in the studies. In addition to the proposed primary analyses, if sufficient barriers are identified, the sample may be divided into groups or subgroups through examples such as gender and age.

Discussion

This systematic review protocol will include the search for publications regarding the barriers to physical activity among students, adolescents, and adults. This information is extremely relevant when considering that globally, a significant percentage of adolescents and adults do not fulfill the minimum level of physical activity necessary to enjoy potential benefits (5). Some limitations are expected, and if no study meets our eligibility criteria, the review will be reported as an “empty review.” However, even an “empty review” is relevant as it may stimulate appropriate future investigations (35).

If we identify studies that meet our eligibility criteria, they will be used for mapping evidence, thus serving as an up-to-date repository for public health policymakers. This research will mainly contribute to policies aimed at contesting sedentarism and encouraging the regular practice of physical activities. Therefore, the results of this systematic review will elucidate what the prevailing barriers by gender and age group are, and may stimulate the development of actions, programs, and public policies aimed at overcoming or reducing these barriers. Such intervention shall enhance physical activity levels and decrease sedentariness.

Abbreviations
Declarations

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Authors’ contributions

C.R.M., M.N., and R.M.F.S. conceived the idea of the study and contributed to the design of the research. All authors contributed to the writing, editing, and approval of the final protocol.

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Does not apply.

Availability of data and materials

Does not apply.

Ethical approval and consent to participate

Does not apply

Consent for publication

Does not apply

Conflicts of interest

The authors declare no conflicts of interest.
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