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## Policy Demands on Promoting Physical Activity for College Students in China

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**Abstract.** In China's current higher education environment, the normalization of sedentary behavior makes college students a typical population with an inactive lifestyle. In order to effectively promote physical activity behaviors among college students, it is necessary to develop physical activity policies for college students in China. By investigating the physical activity level of Chinese college students, this study verifies the necessity of promoting physical activity in college students. Moreover, the present study analyzes the situation of policy demand from three aspects: policy content demand, policy effectiveness demand, and policy non-mandatory demand. The findings show there are policy demands on (1) policy content supplementation in college settings, (2) policy effectiveness based on the assumption of "limited rationality," and (3) giving the freedom of decision-making. This study can provide reliable advice for policymakers on physical activity for college students in China.

**Keywords.** Policy demands, Physical activity, College students

### 1. Introduction

According to WHO (2010), 60% of related factors to individual health and quality of life are correlated to lifestyle; among them, physical inactivity is one of the primary health risk behaviors and an independent risk factor for many major chronic diseases. In the current higher education environment, the normalization of sedentary behavior makes college students a typical population with an inactive lifestyle. A global study reported that the average percentage of inactive college students in 23 countries is 41.4%, with 37% in China (Pengpid et al., 2015).

Public policy is a necessary tool of governance to intervene in the behavior of individuals and the primary way to improve the efficiency and effectiveness of governance. There has yet to be a specific physical activity policy for college students in China. To help policymakers design policies, analyzing the policy demands for promoting physical activity for Chinese college students is necessary. In the present study, the physical activity level profile of Chinese college students will be collected and analyzed, which will help us to verify the extent to which it is necessary to develop a physical activity policy for university students, and the study will analyze the need for the policy from several aspects.

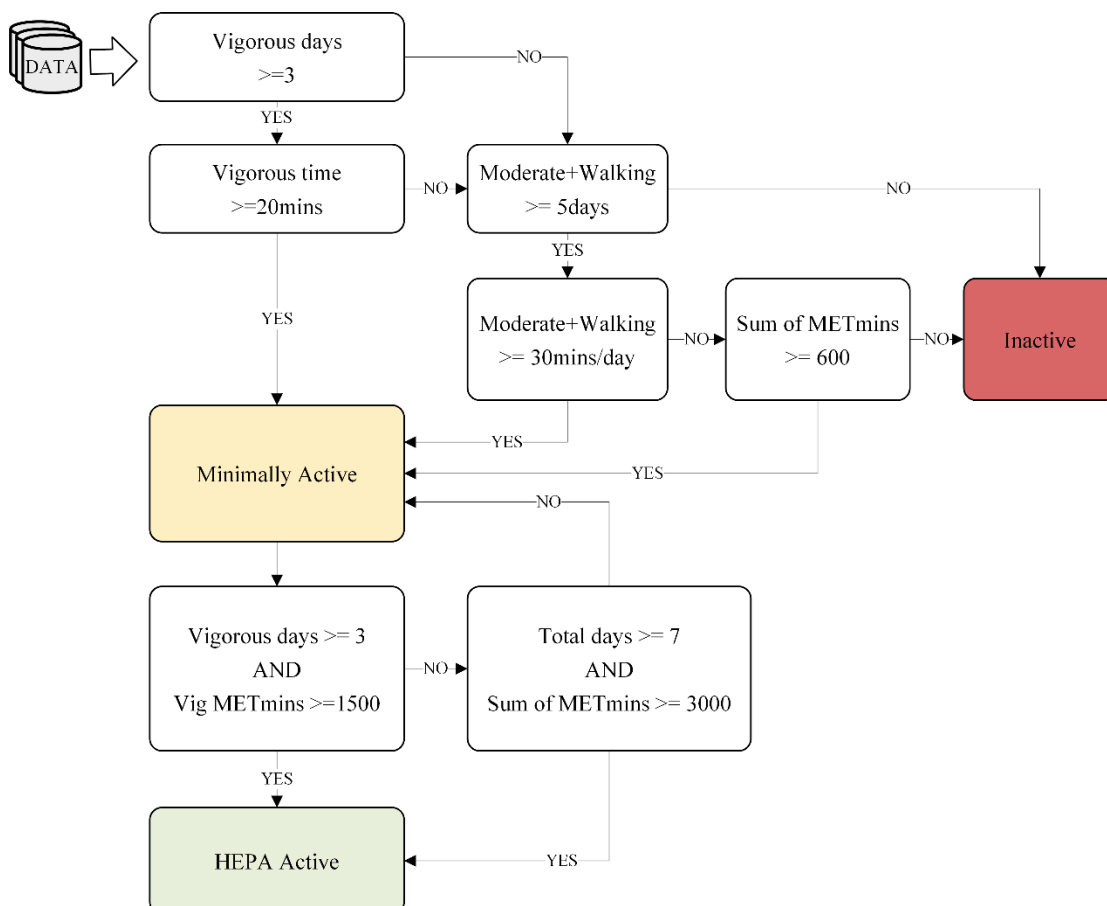
## 2. Methods

### 2.1 Procedure

Questionnaires were sent to 4765 college students from four universities in Northeastern China, with 3143 respondents (66.0%). Data were collected using an online questionnaire by Wenjuanxing, China's most prominent professional platform for online surveys. The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of Bioethics Committee of Northeastern University (EC2022B027).

This study employed the short form of the International Physical Activity Questionnaires (IPAQ) for self-reported surveys on physical activity in college students, which with six items that separately collected the frequency (days/week) and duration (per day) of light-intensity (walking), moderate-intensity, and vigorous -intensity activities performed in the last seven-day period.

By calculating the index of MET-mins, total moderate and walking days, and total days, we could classify the physical activity levels into Inactive, Minimally Active, and HEPA Active by the flow chat of IPAQ, which was shown in Figure 1.



**Figure 1. The Flow Chat of PA levels**

### 2.2 Samples

The sample sizes for the current study (total N = 3143) have been categorized by gender, major, and grade. Of the participants, there are 1610 male (51.2%) and 1533 female

(48.8%). The ratio of the sample in different majors is as follows: social sciences (n=727, 23.1%), medicine (n=612, 19.5%), sports (n=831, 26.4%), and natural sciences (n=973, 31.0%). Samples in different grades: freshman (n=935, 29.7%), sophomore (n=821, 26.1%), junior (n=711, 22.6%), and senior (n=676, 21.5%).

### **3. Results**

#### **3.1 The realistic demand of physical activity policy for college students**

Among the college students in this survey, the number of students Inactive is 363 (11.55%); the number of students in Minimally Active is 2405 (76.52%); and the number of students in HEPA active level is 375 (11.93%). From the data, it can be seen that although more than three-quarters of the students reached the minimum standard of physical activity level, only 11.93% of the college students reached the healthful physical activity level proposed by the World Health Organization in terms of health-oriented governance needs. This shows that the overall level of physical activity among college students needs to be improved.

#### **3.2 The Content demand of physical activity policy for college students**

In December 2021, based on the governance goal of promoting physical activity for the whole population, China released the “Physical Activity Guidelines for the Chinese Population” for the first time, which puts forward healthy physical activity goals for all age groups and key populations, establishes the health concept of “moving is good”, and advocates that individuals should increase their physical activity level and interrupt and reduce sedentary behaviors. With the advocacy of the guideline document, in order to further implement the governance goals, China still needs to formulate targeted policy measures at this stage to effectively increase the physical activity level of various groups of people.

Since the release of the Global Action Plan on Physical Activity 2018-2030 by the World Health Organization, government departments of various countries have successively carried out policy development work to formulate physical activity policies applicable to different life scenarios (e.g., offices, campuses, communities, etc.) to enhance the physical activity levels of various populations (WHO, 2019). Among them, some developed countries have responded earlier to the development of physical activity policies and have proposed targeted policy measures for college student groups in their policies, which are used to improve the inactive lifestyle of college students and to create physical activity behavioral norms on campus.

This study provides a brief list of policy measures to promote physical activity among college students in physical activity policy documents issued in the United States, the United Kingdom, and Canada, as shown in Table 1.

The U.S. National Physical Activity Plan (NPAP), which was developed and released in 2016 under the responsibility of the Board of Directors of the U.S. Alliance for Physical Activity Programs, proposes targeted physical activity policy content for nine social sectors, such as business, community, education, healthcare, and media, etc., and the policy on college students' physical activity. The policy focuses on four main areas: (1) designing physical activity-friendly campuses to increase opportunities for students to exercise and walking; (2) building and maintaining relevant resources to provide students with physical activity opportunities and conditions; (3) offering rich courses and activities and developing evaluation criteria; and (4) adding physical activity-related lectures for college students in health and medical-related professions to cultivate healthy talents sustainably.

The UK's School Sport and Activity Action Plan, which was jointly published in 2019 by the UK Department for Education, Department for Digital, Culture, Media and Sport, and Department of Health and Social Security, puts forward six main policy aspects for college students' physical activity: (1) calling on government agencies to find effective ways to intervene in students' physical activity behaviors through a pilot program; (2) creating a campus physical activity scene and enhancing the enjoyment of the experience to increase opportunities for students to be active; (3) increasing the importance of physical activity among college students and emphasizing the concepts and indicators of physical activity goals; (4) the Ministry of National Education (MNE) providing financial support for colleges and universities to provide incentives for participation in physical activities; (5) the Ministry of National Education (MNE) evaluating the grade of facilities and physical education instruction in colleges and universities; and (6) providing a platform of abundant athletic competitions for all types of college students.

A Common Vision for Increasing Physical Activity and Reducing Sedentary in Canada is a national document introduced in 2018 by the Government of Canada to increase physical activity levels and reduce sedentary behaviors among all citizens. In this policy document, policy measures are proposed for the college student population around (1) improving the rules of the education system to provide students with more opportunities to be physically active and reduce sedentary time; (2) revamping campus environments and building facilities to provide students with safe and convenient walking environments for physical activity, increasing the amount of time spent exercising outdoors, and increasing opportunities to take the walking staircase; and (3) providing high-quality physical education programs to cultivate students' interest in sports and physical literacy.

**Table 1. Examples of physical activity policies for college students**

Nation	Policies (Time)	Examples of policy measures
United States	National Physical Activity Plan (2016)	<ol style="list-style-type: none"> <li>1. Design physical activity-friendly campuses that provide students safe and convenient conditions and opportunities for athletic commute travel.</li> <li>2. Encourage schools to adopt shared-use agreements to increase student access to school physical activity facilities.</li> <li>3. Set standards for evaluating the number of times students participate in after-school physical activity and the amount of activity they do each week.</li> <li>4. to offer a wide range of physical activity programs that benefit physical and mental health.</li> <li>5. Build and maintain sports and recreational resources in colleges and universities, such as sports venues, facilities, and physical activities, to provide students with more opportunities for physical activity.</li> </ol>

		<ol style="list-style-type: none"> <li>6. Incorporate enhancing students' physical activity levels into the long-term development of strategic planning for colleges and universities.</li> <li>7. Add physical activity-related teaching content to the required courses for medical students, which can be used for exercise prescription and condition counseling.</li> <li>8. Focus on fostering interest in physical activity in health-related majors.</li> <li>9. Incorporate physical activity-related content into licensing and board certification exams for clinicians engaged in health promotion.</li> </ol>
United Kingdom	School Sport and Activity Action Plan (2019)	<ol style="list-style-type: none"> <li>1. The Government will launch a pilot activity on physical activity zones on college campuses to test measures and methods that can motivate students to be more active.</li> <li>2. Schools should ensure students have more opportunities to be physically active on their campuses and enhance their enjoyment of physical activities such as taking the stairs and walking.</li> <li>3. The government should increase university students' awareness of the importance of physical activity for health and emphasize the goal of "at least 60 minutes of physical activity per day".</li> <li>4. The Ministry of Education should financially support colleges and universities to support effective incentives for physical activity.</li> <li>5. The Ministry of Education will rate schools on their sports and health services, including sports facilities and physical education services.</li> <li>6. Clarify the avenues for athletic competition and enrich campus athletic competitions so that different types of students can find appropriate opportunities to compete in sports.</li> </ol>
Canada	A Common Vision for Increasing Physical Activity and Reducing Sedentary in Canada: Let's	<ol style="list-style-type: none"> <li>1. Increase opportunities for physical activity and minimize sedentary time in the education system.</li> <li>2. Create bike lanes at schools to provide a safe and convenient environment for students to travel for exercise.</li> <li>3. Design or remodel stairways in campus buildings to make them safe, convenient, and attractive and increase students' opportunities to take the walking stairs.</li> </ol>

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- Get Moving (2018)
4. Incorporate physical activity scenarios on campus to reach physical activity behavioral norms.
  5. Provide a safe outdoor physical activity environment for students and increase opportunities for outdoor physical activity.
  6. Provide a high-quality physical education program that develops students' health concepts and physical literacy.
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According to the above listing of the contents of the physical activity policies and measures for college students in other countries, it can be seen that the physical activity policies for college students are aimed at improving the physical activity level of college students, and not only include the policy contents of promoting sports participation in traditional cognition such as guaranteeing sports facilities, improving the quality of physical education courses, and enriching sports activities. More emphasis is placed on building and creating environments, conditions, and opportunities that promote using pedestrian stairs and physical activities such as walking or cycling on campus. More emphasis is placed on improving the sedentary learning lifestyle in the existing rules of the university education system and building norms of physical activity behavior on campus. More emphasis is placed on clarifying the health-oriented physical activity goals and concepts and improving college students' awareness of the health benefits of physical activity.

China still needs to formulate a specialized physical activity policy. From the definition of the concept of physical activity, physical exercise is an essential part of physical activity, and our government has issued 11 policies related to promoting college students' physical exercise in the past ten years. As a whole, the contents of policies on physical activity for college students mainly include the following aspects: (1) Guaranteeing the quality of physical education teaching; (2) Carrying out a wide range of physical activities and sports competitions; (3) Guaranteeing the time and facilities for physical activity; (4) Establishing the concept of physical activity; (5) Raising the degree of importance attached by schools and students to the physical fitness test; (6) Cultivating college students' lifelong awareness of and skills in sports.

From the point of view of the main content of the policy, based on the existing policy content related to college students' physical activity, there are still policy content demands in the following aspects of China's college students' physical activity policy:

- a. To create an environment for physical activity on campus and increase the opportunities for college students to engage in physical activity behaviors such as exercise trips and walking staircases.
- b. To build a social norm for physical activity on campus and to improve the sedentary lifestyle that is the rule of the current higher education system.
- c. To set up a physical activity goal and pay attention to all forms of dynamic behaviors.

### **3.3 The effectiveness demand of physical activity policy for college students**

The effectiveness of policies depends on the extent to which they can influence behavior. From the results of students' physical fitness test statistics by China's Ministry of Education in 2020, 30% of college students failed in physical fitness, which is significantly

higher than the failure rate in elementary school (6.5%), middle school (14.5%) and high school (11.8%). Such results show that the physical health status of college students in China still needs improvement at this stage, which puts higher demands on the effectiveness of related policies.

At present, most of the existing policies tend to try to motivate people to consciously think about the way they behave and then make choices that are beneficial to their health through ideological education, publicity concepts, behavioral guidelines, and facility guarantees (Cecchini et al., 2010), which are based on the behavioral assumption that when people's intentions and perceptions are altered, they are sure to change their behaviors accordingly. Behavior changes. This is precisely the assumption of traditional economics that individuals act to maximize their long-term best interests and are consistently rational actors, which has been the benchmark for policymaking for a long time. However, these public policies based on traditional economics have often proved inefficient or ineffective in policy evaluations (Shumaker et al., 2008). In the past four decades, advances in behavioral economics, cognitive psychology, and social psychology have revealed that human behavior and decision-making are limitedly rational, that there are systematic behavioral biases, and that several factors such as impulsivity, habituation, limited willpower, and decision-making context may constrain people's rationality.

Physical activity is good for health and has gradually gained people's conceptual and cognitive acceptance. However, such health behaviors are often rationally fully agreed upon but behaviorally challenging to change. Harvard economist David Laibson (2015) explains the key reason why people cannot stick to exercise through the behavioral bias of the human instinctive tendency to procrastinate, i.e. because exercise requires immediate effort. Its benefits must be apparent in the long term, so although people agree conceptually that physical activity is good for health, they cannot implement it in their behavior.

Based on the above discussion, there is a need for the effectiveness of college students' physical activity policies, and how to effectively intervene in college students' physical activity behaviors is the key to guaranteeing the effectiveness of the policies, as well as the difficulty in the process of policy formulation.

### **3.4 The non-mandatory demand of physical activity policy for college students**

In recent years, some colleges and universities have responded positively to the Basic Standards for Physical Education in Colleges and Universities, the Guiding Opinions on Deepening the Mass Extracurricular Physical Exercise Activities of College Students on the Theme of "Going off the Network, Getting out of the Dormitory, and Going to the Playground," and the Opinions on Strengthening School Physical Education to Promote the All-round Development of Students' Physical and Mental Health, etc., for By the reforms and requirements for enriching extracurricular sports activities, the campus running activity was carried out by relying on the running detection software. The campus running activity sets the running task goal for students each semester. It takes the completion status as one of the evaluation contents of physical education class, which further realizes the goal of "integrating inside and outside the classroom."

Some studies have analyzed the implementation effect of school running activities (Feng, 2018), and the results of the study show that the semester's running target, the amount of a single run, the school's sports atmosphere, and the school's emphasis are the main factors affecting students' attitudes toward school running. At the same time, the study also pointed out that the establishment of only running programs and the stipulation of goals and tasks for each semester is mandatory for students to a certain extent, and such a form makes many students

have a certain degree of resistance in the process of completing the running task. At the same time, the undifferentiated amount of running tasks prevented students with poor athletic foundation and weak physical ability from completing the tasks with high quality, which resulted in frustration and poor athletic experience, and students looked forward to non-compulsory incentives rather than compulsory monitoring measures.

In the governance environment of colleges and universities, the use of measures with a certain degree of coercion can significantly affect student behavior; however, from the perspective of sustainable development, a good sense of experience is more likely to inspire and cultivate students to participate in physical activity, and in a non-coercive environment can better establish the concepts and perceptions of health. As a result, there is also a need for non-compulsory physical activity policies for college students in China.

#### **4. Conclusion**

From the above analysis of policy demands, it can be seen that in terms of real needs, under the health-oriented governance goal, the overall level of physical activity of college students in China needs to be improved. Regarding policy demand, there are still some policy content supplementation needs based on the existing relevant policies. Based on the behavioral bias characteristics of physical activity behavior change and the current measures' implementation, it puts forward the demand for policy effectiveness based on the assumption of "limited rationality" and the non-mandatory demand for policies that give the freedom of decision-making.

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