THE EFFECTS OF PERCEIVED PHYSICAL EDUCATION POLICY, PHYSICAL ENVIRONMENT, SOCIAL SUPPORT, AND MOTIVATION ON PHYSICAL ACTIVITY AMONG CHINESE UNIVERSITY STUDENTS

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PA	Physical activity
PPEP	Perceived physical education policy
PPE	Perceived physical environment
PSS	Perceived social support
MO	Motivation
BMI	Body mass index
RQ1	Research question one
RQ2	Research question two
RQ3	Research question three
RQ4	Research question four
USM	Universiti Sains Malaysia
USTC	University of Science and Technology of China
HUT	Hefei University of Technology
AU	Anhui University
AAU	Anhui Agricultural University
AMU	Anhui Medical University
AUCM	Anhui University of Chinese Medicine
AJU	Anhui Jianzhu University
HU	Hefei University
HNU	Hefei Normal University
AUA	Anhui University of Arts
CU	Chaohu University
PARS	Physical Activity Rate Scale
PPEPS	Perceived physical education policy Scale
PPES	Perceived physical environment Scale
PSSS	Perceived social support Scale
PAMS	Physical activity Motivation Scale

LIST OF APPENDICES

KESAN POLISI PENDIDIKAN FIZIKAL YANG DIRASAI, PERSEKITARAN FIZIKAL, SOKONGAN SOSIAL, DAN MOTIVASI TERHADAP AKTIVITI FIZIKAL DI KALANGAN PELAJAR UNIVERSITI CINA

ABSTRAK

Kurangnya aktiviti fizikal di kalangan pelajar universiti Cina telah menjadi masalah kesihatan awam yang serius. Kekurangan aktiviti fizikal dikaitkan dengan perkembangan penyakit berterusan seperti penyakit kardiovaskular, bentuk-bentuk kanser tertentu, diabetes jenis 2, dan obesiti. Aktiviti fizikal adalah penting untuk pengurusan berat badan jangka panjang dan juga dianggap sebagai cara yang berkesan untuk mengurangkan gejala berkaitan kemurungan. Aktiviti fizikal yang mencukupi adalah cara penting untuk meningkatkan kesihatan fizikal dan mental pelajar universiti. Kajian ini meneliti aktiviti fizikal dan faktor-faktor yang mempengaruhi dalam kalangan pelajar universiti di Hefei, Provinsi Anhui, China. Kaedah pensampelan rawak telah digunakan untuk mengumpulkan data daripada 1107 responden dari 11 universiti awam di Bandar Hefei, Provinsi Anhui, China. Data tersebut dianalisis menggunakan kaedah kuantitatif dan kualitatif secara berasingan. Pertama, ujian-t, ANOVA, regresi linear sehala, regresi linear berganda, dan analisis kesan moderat dijalankan menggunakan SPSS dalam bahagian kuantitatif, dan kemudian Max QDA digunakan dalam bahagian kualitatif untuk menjalankan analisis tematik. Hubungan antara aktiviti fizikal pelajar universiti di China dan empat faktor yang mempengaruhi (persepsi dasar pendidikan jasmani, persepsi persekitaran fizikal, persepsi sokongan sosial, dan motivasi) dieksplorasi dari perspektif model ekologi sosial dan teori penentuan kendiri. Penemuan kajian menunjukkan bahawa terdapat perbezaan yang

signifikan dalam persepsi dasar pendidikan jasmani, persepsi persekitaran fizikal, persepsi sokongan sosial, motivasi, dan aktiviti fizikal dalam kalangan pelajar universiti mengikut jantina, umur, dan BMI. Persepsi dasar pendidikan jasmani, persepsi persekitaran fizikal, persepsi sokongan sosial, dan motivasi secara signifikan meramalkan aktiviti fizikal. Jantina dan umur tidak mempunyai kesan moderat ke atas hubungan antara aktiviti fizikal dan empat pengaruh tersebut (persepsi dasar pendidikan jasmani, persepsi persekitaran fizikal, persepsi sokongan sosial, dan motivasi). BMI mempunyai kesan moderat yang signifikan ke atas hubungan antara aktiviti fizikal dan empat pengaruh tersebut (persepsi dasar pendidikan jasmani, persepsi persekitaran fizikal, persepsi sokongan sosial, dan motivasi). Adalah disarankan agar pentadbir universiti di China secara aktif mengeluarkan dasar pendidikan jasmani dan memperbaiki persekitaran fizikal. Guru-guru pendidikan jasmani harus memberikan lebih banyak sokongan sosial kepada pelajar universiti. Guru-guru pendidikan jasmani dan pelajar universiti sendiri harus memberi perhatian kepada fungsi penting motivasi dan memberi fokus pada penerokaan motivasi intrinsik pelajar universiti untuk menyertai aktiviti fizikal.

THE EFFECTS OF PERCEIVED PHYSICAL EDUCATION POLICY, PHYSICAL ENVIRONMENT, SOCIAL SUPPORT, AND MOTIVATION ON PHYSICAL ACTIVITY AMONG CHINESE UNIVERSITY STUDENTS

ABSTRACT

The lack of physical activity among Chinese university students has become a serious public health problem. Lack of physical activity has been linked to the development of persistent diseases such as cardiovascular disease, specific forms of cancer, type 2 diabetes and obesity. Physical activity is crucial for long-term weight management and is also considered an effective way to reduce depression-related symptoms. Sufficient physical activity is an important way to improve the physical and mental health of university students. This study examined physical activity and influencing factors among university students in Hefei, Anhui Province, China. A random sampling method was used to collect data from 1107 respondents from 11 public universities in Hefei City, Anhui Province, China. Then it was analysed using quantitative and qualitative methods respectively. Firstly, t-test, ANOVA, one-way linear regression, multiple linear regression, and moderated effects analysis were conducted using SPSS in the quantitative part, and then Max QDA was used in the qualitative part to conduct thematic analysis. The relationship between Chinese university students' physical activity and the four influencing factors (perceived physical education policy, perceived physical environment, perceived social support, and motivation) was explored from the perspective of the social ecological model and self-determination theory. The findings indicated that there were significant differences in perceived physical education policy, perceived physical environment, perceived social support, motivation, and physical activity among university students

by gender, age, and BMI. Perceived physical education policy, perceived physical environment, perceived social support, and motivation significantly influence physical activity. Gender and age had no moderating effect on the relationship between physical activity and the four influences (perceived physical education policy, perceived physical environment, perceived social support, and motivation). BMI had a significant moderating effect on the relationship between physical activity and the four influences (perceived physical education policy, perceived physical environment, perceived social support, and motivation). It is recommended that Chinese university administrators should actively issue physical education policies and improve the physical environment. Physical education teachers should give more social support to university students. Physical education teachers and university students themselves should pay attention to the crucial function of motivation and focus on exploring the intrinsic motivation of university students to participate in physical activity.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This study analyses the relationship between physical activity and influencing factors to influence the physical activity of Chinese university students. This study is based on the socio-ecological model to provide theoretical support, thus settings variables such as perceived physical education policy, perceived physical environment, perceived social support, motivation, and physical activity for quantitative and qualitative analyses.

1.2 Background of Study

Physical activity (PA) is defined as any contraction of skeletal muscle that requires the spending of energy (Piggin, 2020). This includes activities at work, at home, at play or during parenting time (Piggin, 2020). The importance of physical activity has been recognised by many academics in recent years. The practice of physical activity has been proven to help reduce diseases such as obesity, diabetes, ischemic heart disease, high blood pressure and certain types of cancer, such as colon and breast cancer, as well as osteoporosis and depression (Bullard et al., 2019). Lack of physical activity levels is a significant factor in the general disease burden (Budreviciute et al., 2020).

With rapid development in the social and economic fields, people are placing increasing emphasis on their health and well-being. However, lack of physical activity (PA) is still a widely existing global problem that presents a major threat to public health (Aubert et al., 2018). In many countries, most university students cannot engage

in at least 150 minutes of moderate-intensity physical activity per week (Memon et al., 2021). According to the Regulations on University Physical Activity from the Ministry of Education of the People's Republic of China, all university students are required to participate in physical activity(The Ministry of Education of the People's Republic of China, 2022). This phenomenon is particularly evident in China (Ministry of Education of the PRC, 2020). In 2018, According to a survey of 1,339 university students in China conducted by China Youth Net, the results show that more than 30% of university students exercise less than once a week on average (China Youth Net, 2018). The China National Physical Fitness Centre issued the 2020 Survey Report on the Status of National Fitness Activities, which showed that 55.9 per cent of children and adolescents, 30.3 per cent of adults, and 26.1 per cent of older persons regularly participated in physical activity (General Administration of Sport of China, 2022).

It is now acknowledged that there are a variety of factors that contribute to participation in physical activity. Addressing this problem therefore requires a comprehensive strategy. Evidence suggests that the socio-ecological model can be effective in identifying and understanding a variety of intra-individual, interpersonal, community, organizational, and environmental issues that can promote and impede PA, thus affecting the health status of adolescents and adults (Fisher et al., 2018; Martínez-Andrés et al., 2020; Sahranavard Gargari et al., 2018).

According to the division of Chinese scholars, the concept of sport consists of two parts: competitive sports and physical activities (Xiaolong & Baoqiang, 2005). The sport in China has politicised characteristics (J. Zheng, 2015). The rapid growth of the Chinese sports industry has led the Chinese government to formulate and implement a series of policies and laws, such as the Sports Law, the Olympic Brilliance

Strategic Plan, the Five-Year Plan for the Development of Sports in China, and the National Physical Activity Plan. According to the plan for a healthy China (2019-2030), by 2030, the proportion of urban and rural residents reaching the National Physical Fitness Measurement Standard (NPFMS) with a passing grade or above will be no less than 92.17 per cent, respectively. The proportion of those who regularly participate in physical exercise (more than three times a week, more than 30 minutes duration, and more than moderate intensity) will reach 40 per cent and above. (Health and Wellness Commission website, 2019). Every Chinese person is an important participant in this goal in a healthy China.

According to the regulations on school physical education work revised by the Chinese Ministry of Education in 2022, when local governments arrange annual school education funding, they should arrange a certain amount of funding for physical education to ensure that university physical education work is carried out. Universities should organise various extracurricular physical activities for students every day, in addition to arranging physical education classes on the same day. The university holds at least one whole-university sports meet mainly for athletics in each year of study. The National University Games are held once every four years (The Ministry of Education of the People's Republic of China, 2022). However, due to the constraints and influences of traditional education policies, physical education has been ignored for a long time. Physical education is not an examination subject in Chinese university entrance exams, leading Chinese students to put more energy into non-physical education courses. Ensuring that university students engage in one hour of physical activity per day is challenging (Han, 2022).

The built environment includes man-made structures, infrastructure and city

spaces. The physical environment has a deep effect on human health and well-being. A recent study investigates the impact of commuting patterns on health (Mouratidis, 2021). The study highlights how transport choices (an aspect of the built environment) can affect an individual's physical health and mental well-being. It highlights the importance of designing city spaces that promote active and sustainable transport choices. In addition, contact with green spaces in the natural environment has been linked to positive health outcomes. A study explored the health benefits of green spaces, including reduced cardiovascular risk and improved mental health (Wendelboe-Nelson et al., 2019). Understanding the health impacts of the natural environment can increase opportunities for access to green space in different communities.

The physical environments for physical activities of Chinese university students are mainly concentrated in venues. The building scale of Chinese university venues is huge, but the rate of utilization is not high. Some studies show that China has more than 3,000 colleges and universities, with large-scale construction of physical activity venues and complete facilities inside the venues. However, after fulfilling the needs of normal teaching and learning, the utilization rate of university physical activity venues is low, resulting in a waste of resources (Shizhao et al., 2023). And there are other problems in the utilization of university physical activity venues: outdated mode of venue operation, insufficient utilization of venue resources, poor quality of venue services, lack of professional management personnel, and the management system and charging standards of venues are yet to be perfected, which leads to the low utilization rate of venues and low operational efficiency (Man & Ding, 2023). The free opening of university physical activity venues has a positive impact on university students' physical activities (Jieyu, 2023). Chinese universities can

utilize their financial conditions to gradually open their venues to university students free of charge.

Perceived social support not only has an impact on mental health, but also has a significant impact on physical health. Recent research explores the processes by which perceived social support influences health (Wiesmaierova et al., 2019). The study highlighted the role of social relationships in moderating stress responses, immune function and cardiovascular health, emphasising the complex interactions between perceived social support and physical health. In addition, a study examined the impact of perceived social support on health in depth. The study suggests that perceived social support can act as a protective factor against the negative impact of poverty on health (Mishra, 2020). Understanding the role of perceived social support in reducing economic inequality is important in addressing social and health disparities.

There are many studies showing that Chinese university students receive a lot of social support in physical activities. In Chinese universities, physical education teachers discover the potential psychological problems of poor students through the teaching process and engage in appropriate methods and means of intervention, so that students not only learn sports skills but also improve their mental health, not only cultivate interests in sports but also improve their personalities, and even enhance their self-confidence and learn the skills of getting along with others through physical education classes, and so on (Chunlai, 2020). Chinese university physical activity clubs, as a kind of group physical activity organization formed by university students on their own initiative, can effectively stimulate university students to participate in physical activity consciously, proactively and positively, and physical activity clubs can provide more social support for university students to participate in physical

activity and stimulate the motivation of university students to participate in physical activity to ensure that university students can participate in physical activity in a continuous and long-lasting way (Xiugang, 2021). University students are more engaged in cooperative and collective activities, and the process of learning sports knowledge and skills and participating in sports activities is more conducive to interpersonal communication and exchanges, and is conducive to the establishment of a social support network for students, so that they can obtain more social support and learn how to win the skills of social support.

Motivation plays a key role in education, influencing student engagement, perseverance, and academic achievement. A recent study explored the role of teachers in supporting student motivation (D. Zhang et al., 2020). The study emphasised the importance of autonomy-supportive teaching practices to improve students' intrinsic motivation and academic achievement. Recognising students' autonomy and competence needs helps to create a positive learning environment. Additionally, the integration of technology and education has driven the study of how digital tools affect student motivation. A study explored the feasibility of mobile gaming for addressing anxiety (Pine et al., 2020), emphasising the potential of gaming to increase motivation and engagement in educational settings.

Motivation is a driving force in the career field that affects employee performance, job satisfaction, and overall well-being. A study explored the role of intrinsic and extrinsic motivation in the workplace (van Tuin et al., 2020). The study emphasised the importance of integrating employees' intrinsic motivation in developing a sense of mission and engagement. In addition, the impact of leadership style on employee motivation has been the focus of recent research. In their work, Deci

investigated the impact of autonomy-supportive leadership on employee well-being and performance (Ryan & Deci, 2020). The findings indicate that leaders who foster autonomy and provide meaningful feedback contribute to a work environment that enhances intrinsic motivation and overall job satisfaction. There may be differences in motivation among people from different cultures. A study explored cultural differences in autonomous and controlled motivation (Jia, 2020). The study indicates that cultural background shapes an individual's orientation of autonomy and control, emphasising the need to consider cultural nuances when fostering motivation.

The motivation of Chinese university students is very important for participation in physical activities. A study of Chinese university students showed that the motivations for participating in tennis, in order of intensity, were fun motivation, health motivation, social motivation, appearance motivation, and ability motivation (Rui et al., 2024). The main motivation for Uyghur university students to participate in physical activities in a Chinese university is to strengthen their bodies and to have fun, which shows that they have a certain understanding of the significance of sports, but they still pay more attention to the recreational aspect of sports. At the same time, there are still a few students whose motivation for participating in physical activities is to “cope with exams”, which means that some of them are passive in participating in physical activities and do not really recognize the significance of physical activities (Xin & Yanzhao, 2024).

1.3 Problem Statement

With the development of China's economy, the physical activity of Chinese university students has become a serious social issue. According to a number of

surveys conducted by Chinese scholars on a total of 3,406 university students in different regions of China, physical activity among Chinese university students has not reached a satisfactory level. (Anran, 2016; Jie, 2012; Na, 2009; Ruiheng, 2011; Zhijin, 2009). Lack of physical activity can lead to adverse effects on physical health and reduced mental health. Lacking engagement in physical activity has been associated with the development of persistent medical conditions such as cardiovascular disease, specific forms of cancer, type 2 diabetes, and obesity (Miller et al., 2005). Furthermore, physical activity is essential for long-term weight management and is considered an effective means of reducing symptoms associated with depression. Despite these positive effects on enhancing physical and mental health (Miller et al., 2005), most people remain sedentary.

According to the regulations on school physical education work revised by the Chinese Ministry of Education in 2022, when local governments arrange annual school education funding, they should arrange a certain amount of funding for physical education to ensure that university physical education work is carried out. Universities should organise various extracurricular physical activities for students every day, in addition to arranging physical education classes on the same day. The university holds at least one whole-university sports meet mainly for athletics in each year of study. The National University Games are held once every four years (The Ministry of Education of the People's Republic of China, 2022). However, due to the constraints and influences of traditional education policies, physical education has been ignored for a long time. Physical education is not an examination subject in Chinese university entrance exams, leading Chinese students to put more energy into non-physical education courses. Ensuring that university students engage in one hour of physical

activity per day is challenging (Han, 2022).

In fact, the lack of physical activity among Chinese university students is a complex social phenomenon. The impact of a single factor on physical activity cannot be considered alone, but the causes should be found in multiple dimensions. Factors affecting physical activity can exist in intrapersonal resources, interpersonal resources, environmental resources and organisational resources(Fleury & Lee, 2006). Moreover, there are significant differences in physical activity among college students of different genders, ages, and BMIs (Boulton et al., 2018; Lee et al., 2019; Liszewska et al., 2018), and this difference may lead to changes in relationship strengths and weaknesses. These factors interact with each other and combine to influence the physical activity of Chinese university students. Therefore, there is a need to find evidence to prove the relationship between these possible factors and physical activity, thereby suggesting specific guidance and effective interventions for Chinese university students' physical activity. There is too much evidence in non-Chinese locations that these factors can influence physical activity. However, due to the different cultural backgrounds and political systems in China and the previously studied locations, different results may be produced. In order to promote university student participation in physical activity and to reduce the negative effects of physical inactivity. Therefore, using a socio-ecological model(Fleury & Lee, 2006) to explore physical activity among Chinese university students can provide a more comprehensive analysis. In summary this study used perceived physical education policy, perceived physical environment, perceived social support, and motivation as independent variables and gender, age, and BMI as moderating variables.

1.4 Research Objectives

This study is based on the socio-ecological model and self-determination theory to research the relationship between physical activity and influencing factors among Chinese university students. The specific objectives of the study are as follows:

RO1. To examine differences in physical activity, perceived physical education policy, perceived physical environment, perceived social support, and motivation among Chinese university students with different genders, ages, and BMI.

RO2. To identify whether perceived physical education policy, perceived physical environment, perceived social support and motivation influence physical activity among Chinese university students.

RO3. To identify which of perceived physical education policy, perceived physical environment, perceived social support and motivation is the most important influencing factors on Chinese university students' physical activity.

RO4. To examine the moderating effects of gender, age, and BMI in the relationship between physical activity and four influencing factors (perceived physical education policy, perceived physical environment, perceived social support, and motivation) among Chinese university students.

RO5. To examine why there are differences in physical activity, perceived physical education policies, perceived physical environment, perceived social support and motivation among Chinese university students of different gender, age and BMI.

RO6. To identify why perceived physical education policies, perceived physical environment, perceived social support and motivation influence physical activity among Chinese university students.

RO7. To identify why perceived physical education policies or perceived physical environment or perceived social support or motivation are the most important influences on physical activity among Chinese university students.

1.5 Research Questions

This study aims to obtain and analyse information about the perceived physical education policy, perceived physical environment, perceived social support, motivation, and physical activity in university students. Therefore, this study attempts to answer the following questions.

RQ1. What are the differences in perceived physical education policy, perceived physical environment, perceived social support, motivation, and physical activity among Chinese university students with different gender, age, and BMI?

RQ2. Does perceived physical education policy, perceived physical environment, perceived social support, and motivation influence physical activity among Chinese university students?

RQ3. To identify which of perceived physical education policy, perceived physical environment, perceived social support and motivation is the most important influencing factors on Chinese university students' physical activity.

RQ4. What are the moderating effects of gender, age and BMI on the relationship between physical activity and four influencing factors (perceived physical education policy, perceived physical environment, perceived social support, and motivation) among Chinese university students?

RQ5. Why are there differences in perceived physical education policies, perceived physical environment, perceived social support, motivation and physical activity among Chinese university students of different genders, ages and BMI?

RQ6. Why perceived physical education policies, perceived physical environment, perceived social support, and motivation influence physical activity among Chinese university students?

RQ7: Why perceived physical education policies or perceived physical environment or perceived social support or motivation are the most important influences on physical activity among Chinese university students?

1.6 Research Hypothesis

Research hypothesis is very essential to the research process. The absence of a research hypothesis will limit the drawing of conclusions. When conducting statistical analysis, the researcher has a choice between the null hypothesis (H_0) and the alternative hypothesis (H_1). The null hypothesis indicates that there is no significant difference or relationship, while the alternative hypothesis indicates that there is a significant difference relationship (Toledo et al., 2011). There is a lot of evidence in the previous literature to support the existence of relationships between variables. The alternative hypothesis adopted in this study is marked as H_1.

1.6.1 Research Hypothesis 1

$H_1$1 There are significant differences in physical activity, perceived physical education policy, perceived physical environment, perceived social support and motivation among Chinese university students of different gender, age, and BMI.

1.6.2 Research Hypothesis 2

$H_1$2 Perceived physical education policy, perceived physical environment, perceived social support and motivation can influence physical activity among Chinese university students.

1.6.3 Research Hypothesis 3

$H_1$3 Motivation is the most important influencing factor of physical activity among Chinese university students.

1.6.4 Research Hypothesis 4

$H_1$4 Gender, age, and BMI significantly moderate the relationship between four influencing factors (perceived physical education policy, perceived physical environment, perceived social support, and motivation) and physical activity among Chinese university students.

1.7 Significance of the Study

1.7.1 Theoretical Significance

The current social-ecological model and self-determination theory are well established, but there are still many issues that need further research and explanation.

This study uses the social-ecological model and self-determination theory to examine the factors influencing physical activity among Chinese university students, which may provide a sample in a population of Chinese university students. China's unique political system and cultural context may produce different results. Therefore, this study provides a reference for future scholars to further study and expand the social-ecological model and self-determination theory.

1.7.2 Realistic Significance

With the standardization of university organization and management and the improvement of university running level, physical activity is getting more and more attention. However, there are still many problems in the current understanding of the concept of physical activity, the current development of universities, and the development trend. Therefore, studying the policy characteristics, environmental characteristics, social characteristics, and psychological characteristics of Chinese university students' participation in physical activity is of great practical significance for future university administrators, physical education teachers, and university students to improve their physical activity level.

So, it is essential to study the physical activity participation of university students and understand the influencing factors of their involvement in physical activity. Therefore, it is of great practical significance to check the status of university students' physical activity participation, to understand the environmental characteristics, social characteristics, and psychological aspects of their physical activity participation, and to guide the healthy development of campus physical activity.

1.8 Conceptual Framework

In order to better understand the relationship between physical activity and influencing factors and the moderating roles of gender, age and BMI, this study used the socio-ecological model and self-determination theory to theoretically guide this study. Overall physical activity is a complex social phenomenon that receives a combination of organizational, environmental, interpersonal, and intra-personal resources. There are many previous studies emphasizing the effects of physical education policies, physical environment, social support and motivation on physical activity, which corresponds to organizational, environmental, interpersonal and intra-personal resources one by one. And the variability of gender, age and BMI on physical activity may also lead to potential moderating effects. As stated above physical activity is influenced by factors from the inside out and each factor interacts with and is dependent on each other to enhance or diminish physical activity. Self-determination theory motivation explains that as the most internal factor may have the greatest influence on physical activity. However, the specific ways in which each factor influences, which factor is most important, and how internal and external motivations work need to be confirmed by subsequent research. Follow-up quantitative research is used to validate and supplement the socio-ecological model and self-determination theory, while qualitative research is used to explain the results of the quantitative research. Therefore, the conceptual framework of this study is based on these theories and previous literature reviews.

However, China's cultural background and political system may lead to differences from previous theories and studies. China, as a socialist country, produces physical education policies that are very different from those of the Western world.

China's large population and lack of average physical education resources may also lead to differences in the physical environment. Differences in China's national personality and cultural background from other countries may create differences in social support and motivation. All these needs further research for verification and explanation.

Based on the socio-ecological model and self-determination theory, the researcher developed a conceptual framework for this study. The framework begins with perceived physical education policy, perceived physical environment, perceived social support and motivation as independent variables, then physical activity as dependent variable, and finally gender, age and BMI as moderating variables. The solid arrows in the figure indicate the path of influence of IV on DV, i.e., the potential linear relationship between IV and DV. And the dotted arrows indicate the moderating effect of the moderating variables on the path, i.e., the moderating variables may change the direction and strength of the path. Figure 1.1 shows the conceptual framework of this study.

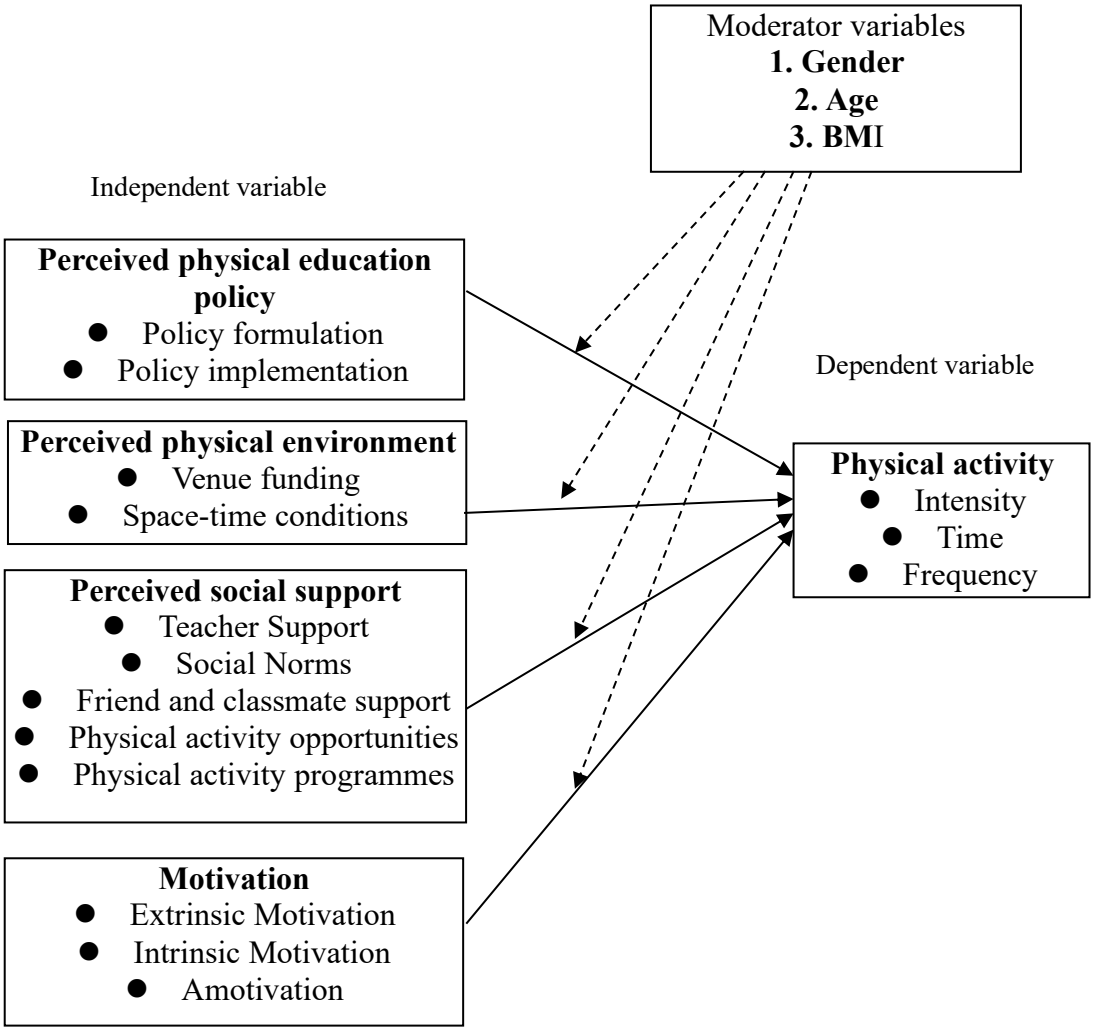

Figure 1.1 Conceptual framework

In summary, the study of the relationship between physical activity and influential factors and the potential moderating effects of gender, age, and BMI can provide a reference for Chinese university administrators and university students to improve physical activity. And China's particular national conditions provide further additions to the development of the social-ecological model and self-determination theory. The conceptual framework developed based on previous theories and literature guided this study to fully understand the cognition and practice of the concept of physical activity among Chinese university students.

1.9 Limitations of the Study

Limitations are due to some elements of the study that are beyond the control of the researcher. Limitations are an important aspect to consider in any research. This study has the following limitations.

1. The population in this study refers only to full-time undergraduate university students between the ages of 18 and 24. It excludes other age group, master's and doctoral students, and part-time students.

2. Due to the large number of items in the questionnaire, participants may be unwilling to answer these questions.

3. The study population was selected from university students in Hefei City, Anhui Province, China. Although university students in Hefei come from various cities in China, the majority of students are from Anhui Province. There are some limitations in trying to generalize Chinese university students.

4. Based on the socio-ecological model, four variables were used in this study to explore the impact on physical activity. This is due to the fact that the four variables were selected as significant contributors in previous studies. However, the influence of other potential variables on physical activity may be overlooked, leading to limitations of the study.

1.10 Operation Definition

Some of the terms have more than one meaning in different contexts, therefore

it is necessary to explain the specific meaning of a number of important terms in the context of this study. These include the terms of physical activity, perceived physical education policy, perceived physical environment, perceived social support, motivation, gender, age and BMI.

1.10.1 Physical Activity

Physical activity refers to a range of activities that have been systematically developed throughout human history to intentionally enhance one's physical attributes. A range of physical activities, including but not limited to walking, running, jumping, throwing, and dancing, are frequently engaged in and collectively referred to as physical activity. These endeavours are commonly denoted as physical activity. The activities encompassed within this category comprise a diverse range of physical pursuits, such as athletics, ball games, swimming, martial arts, aerobics, mountain climbing, ice skating, weightlifting, wrestling, judo, cycling, and numerous additional options (Deqing, 1994). This study will use a physical activity questionnaire to measure the physical activity of Chinese university students through socio-ecological model. The physical activity scale has 3 dimensions respectively intensity time and frequency. Intensity is a subjective indicator of how hard a person feels when engaging in physical activity. Time is the duration of each physical activity engaged in. Frequency is the number of times a person engages in physical activity per month.

1.10.2 Perceived physical education policy

Perceived Physical Education Policy refers to how individuals, such as students, teachers, and parents, interpret and understand the official physical education policies. It reflects their personal perceptions and attitudes towards the PE policies in place.

Physical education policies mainly include physical fitness tests, physical education curriculum, school physical education teachers, physical education venues, extra-curricular physical activities and recreational physical activities in university. University physical education policies have an indirect and direct impact on students' physical activity participation (Kelei, 2019). Perceived physical education policy contains two dimensions, policy development and policy implementation, and is measured through self-reporting. Therefore, the final measurement is actually the perceived physical education policy. Policy development refers to the process of developing a policy by proposing a series of acceptable options or plans to address the problems of student physical activity. Policy implementation is the process of adopting a specific pattern of behaviour through a certain methodology and a combination of instruments in order to achieve policy objectives. In this study, perceived physical education policy was measured through self-report.

1.10.3 Perceived physical environment

The perceived physical environment is the personal perception and feeling of interpreted, understood and experienced physical environment. The physical environment of physical activity refers to physical activity facilities and equipment. The abundance and accessibility of university PA facilities and equipment can affect the physical activity of university students (Kelei, 2019). The perceived physical environment includes two dimensions: space-time characteristics and equipment funding. This study measures the perceived physical environment of the University through a self-report format. Therefore, the final measurement is actually the perceived physical environment. Space-time characteristics refer to the characteristics of the perceived physical environment of physical activity in terms of its distribution in time

and space. Equipment funding refers to the quality of the University's PA venues, lighting, sound and greenery, as well as the financial contributions made by the University to physical activities. In this study, perceived physical environment was measured through self-report.

1.10.4 Perceived social support

Perceived social support is subjective and based on an individual's personal perception and feelings about the support they receive or think they have. Perceived social support in PA is a psychological term that refers to the care or assistance an individual can feel, perceive or receive from others (Kelei, 2019). Perceived social support consists of five dimensions: physical education classes, physical activity opportunities, physical education teachers, interpersonal support, and social norms. Physical education classes are compulsory public courses in which students use physical activity as the main means to achieve the main goal of enhancing physical fitness, health and physical education through a rational physical education and scientific physical activity process. Physical activity opportunities refer to the likelihood of situations that enable students to engage in physical activity. Physical education teachers are professionals who are responsible for teaching physical education and physical safety knowledge and managing the physical health of students in universities. Interpersonal support is an activity or strategy provided by friends and peers that can improve a student's overall interpersonal skills, therefore increasing social interaction with one or more individuals. Social norms are standards of acceptable behaviour in groups that are agreed upon. In this study, perceived social support was measured through self-report.

1.10.5 Motivation

Motivation is the intention, desire and other psychological activities that arise from the act of participating in physical activity. The strength of motivation has a positive impact on whether participants are able to sustain long-term physical activity (Jing, 2014). There are 3 types of PA motivation, which are intrinsic motivation, extrinsic motivation and amotivation. Intrinsic motivation (IM) is usually defined as the participation in physical activity for the sole purpose of experiencing the pleasure and satisfaction that physical activity provides. Extrinsic motivation (EM) is the motivation to participate in physical activity in order to achieve external goals such as receiving praise or recognition, winning a game, and receiving an award or reward. Amotivation is not driven by a desire to participate in the physical activity itself. Amotivation is very similar to the concept of learned helplessness and refers to the feelings of frustration, incompetence, and lack of control that people experience when participating in physical activity. This study measured the level of motivation for physical activity among university students through self-report.

1.10.6 Moderators.

1.10.6(a) Gender

We will use gender characteristics to engage males and females to measure the physical activity behaviour of Chinese university students based on a socio-ecological model. Li Ruiheng et al. showed that males have more physical activity than females. In this study, we use different genders as one of the background information of the questionnaire to determine whether different genders affect Chinese university students' physical activity through a social ecological model (Ruiheng, 2011).

1.10.6(b) Age

Sheng Zhijin et al. reported differences in physical activity among university students of different ages. Physical activity participation rates were higher among junior university students than among senior university students (Zhijin, 2009). Age in this study refers to the age of undergraduate students. The researcher used different ages as one of the background information in the questionnaire to determine whether different ages affect the physical activity of Chinese university students through a social-ecological model.

1.10.6(c) BMI

Body Mass Index (BMI) is a value based on a person's mass (weight) and height. BMI is defined as weight divided by the square of height and is represented in kg/m^2 (WHO, 2023). The main categories of BMI are underweight (less than 18.5), normal weight (18.5 to 24.9), overweight (25 to 29.9), and obesity (30 or more).

1.11 Conclusion

In recent years, the situation of physical activities of Chinese university students are not optimistic. And the lack of physical activity will have negative effects on physical health and mental health. In order to solve the problem of lack of physical activity among Chinese university students, the socio-ecological model is a good viewpoint. This study tries to explore the influencing factors of Chinese university students' physical activity from multiple dimensions, which are perceived physical education policy, perceived physical environment, perceived social support and motivation.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter summarises the literature on physical activity, perceived physical education policy, perceived physical environment, perceived social support, and motivation with an exploration of the links between these variables.

2.2 Physical Activity

2.2.1 Concept of physical activity

Physical activity is any physical movement produced by skeletal muscles that requires energy expenditure (Piggin, 2020). This includes various activities such as walking, exercising, swimming, dancing, working, playing, doing housework, travelling from one place to another and engaging in recreational activities. Physical activity must not be mistaken for physical activity. Physical activity is a subcategory of physical activity, "a planned, structured, repetitive component or components designed to improve or maintain physical health" (Bouça-Machado et al., 2020).

In the past decade, various high-income nations have reported a rise in physical activity levels, which can be attributed to the introduction of national initiatives aimed at promoting physical activity (Sallis et al., 2016). The establishment of a secure and supportive setting for engaging in physical activity has been emphasised, necessitating collaboration across multiple sectors. According to the World Health Organisation, cost-effective strategies and interventions aimed at reducing physical inactivity are centred around policy and environmental changes, mass media campaigns, university and