

Investigating the Role of Physical Education in Chinese Universities to Produce Skillful Athletes

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Abstract

Physical education is a term often used as a connotation for physical fitness. A physical education curriculum is necessary for producing skillful athletes. This study examines the impact of physical education on skillful athletes with respect to factors like Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, with Physical Activity in a moderating role of fitness. Respondents of this study were students of physical education in Chinese universities. Data of this quantitative research study was collected through the drop-down survey method by adopting a convenient sampling technique. The data was cross-sectional so Smart PLS software was used for analysis. Results revealed that factors related to physical education like (Diet, Courses/Practices, Stress Management, Drinking/Smoking, Physical Activities in Childhood, Physical Activity) have a positive and significant impact on producing the skillful athletes in Chinese universities. It was also found that fitness of athletes moderates the relationship between these factors and skillful athletes in Chinese universities. This study recommends that for producing skillful athletes, the Chinese universities must also focus on other related factors of physical education like Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, Physical Activity along with curriculum and other subjects.

Keywords: Fitness, Diet, Courses/Practices, Stress Management, Drinking/Smoking, Skillful Athletes, Physical Activities in Childhood, Physical Activity

1. Introduction

Physical education plays an important role in the sports and development of the athletes in any nation. Physical education creates the good health, increases well-being and the quality of life as well. The knowledge about physical education is delivered in institutions through courses and curriculum that help the students to become familiar with their fitness and prerequisite physical day to day activities. Physical education is not only an important step to build a healthy life style for students in schools, colleges and at university levels, but also to become aware of physical competence, health-related fitness, self-responsibility and enjoyment.

Different factors are related to the physical education in schools, colleges and universities other than the curricular ones. These factors are Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, and general physical activity. These factors of physical education have a significant impact on the health and fitness of those students who aspire to become

skillful athletes in near future (Maslennikov, Soloviev, Vakalova, Zaiko, & Dmitriev, 2019). In today's era, sports in general and skilled athletes in particular play a significant role in the socio-economic development of a nation. Active contribution in sports improves the public health and efficiency, decreases medical expenditures, imbues discipline in character, generates great leaders, and enhances social cohesion. This social cohesion improves mental and physical health as well as the productivity of individuals at workplaces and also reduces the crime rate.

Sports and production of skilled athletes are also important for the Chinese community. For achieving all these benefits of skilled athletes and active sports, China wants to produce skilled athletes at the universities though currently sports in China is on decline due to availability of fewer skilled athletes (Melin, Heikura, Tenforde, & Mountjoy, 2019). Figure 1 shows the low performance of sports in the Chinese economy.

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Figure 1: Sports Industry Outlook (2019)
Source: China's National Bureau of Statistics 2019

There are several factors responsible for this low contribution of sports in economy of China such as millennial happening, technology integration, and overcoming odds and most important are a low number of skillful athletes for sports. Due to this reason, the Chinese government wants to focus on the production of skillful athletes at school, college and university levels by paying attention to the physical education of students (Murali, Netha, & Reddy, 2020). This study is conducted for Physical education in Chinese universities producing skillful athletes.

2. Literature review

Physical education is knowledge delivered in institutions through the courses and syllabus which help the students for their fitness and activeness for the day to day activities. Exercise equally benefits the children, adults and old age people. There are different exercises for different age groups. For example in the curricula of primary and middle age groups such activities are included which makes them able to run and catch. It helps them to improve the skills to remain active. These activities involve the sports like baseball, basketball, race, gymnastics, karate and weight balancing. At later stages, the high school curriculum focuses on other types of skills which benefit the students for long time (Byaruhanga et al., 2020). These skills are called life time skills. For these types of skills, sports like tennis and aerobic dance are very important. These skills shape the body and make the muscles strong for life time.

Physical education also makes students aware of the benefits of physical exercise. The school environment therefore involves physical and mental health activities. On one hand, these activities help to analyze the skills and behavior of students; on the other hand, they are also used to identify the fields of interest of students suiting his personality. Above all, physical education also contributes to developing students' thinking style and decision making. These activities, last but not the least, expand into finding a suitable career for them (Erdogan & Topuz, 2020).

Physical education plays an important role in the high school curriculum as it shapes a student's later life. It is an integral part of regular education at all levels (Fairbrother, Curtis, & Kirkcaldy, 2020). At higher education level these activities are also encouraged which benefits the students and create professional in the field. In addition to multiple benefits of physical education to perform different types of life activities some students adopt this field as their profession. They find more interest in the field of sports and pursue it as a career (Erdogan & Topuz, 2020). There are many sports persons who were initially inducted in schools for other fields of education but due to their interest in physical education they adopted the sports and physical education as their profession.

There are several related factors of physical education like diet, courses/practices, stress management, drinking/smoking, physical activities in childhood, physical activity in general that need a lot of attention during the education phase of a student. Though studies

are found in previous literature in the domain of physical education (Solli, Sandbakk, Noordhof, Ihalainen, & Sandbakk, 2020) and in the Chinese context too (Trigueros et al., 2020) but hardly any study has been carried out with respect to physical education focusing on the factors mentioned above.

Hence a need was felt to explore the impact of these related factors on the life and career of students. This would also fill up the literature gap and prove a theoretical contribution to this domain. Practically, too, this study will act a good reference and a guiding manual for the management and administration of schools, colleges and universities as well as the government of China. There are useful insights in this study to frame curriculum and policies on the related factors of physical education like Diet, Courses/Practices, Stress Management,

Drinking/Smoking, and Physical Activities in Childhood, Physical Activity.

3. Theoretical framework

Based on the previous literature and with the aim to fill up the research gap, a theoretical framework of this study was prepared (Figure 2). It has been argued in previous writings that in order to produce skillful athletes, physical education should go beyond books and curricular activities. There is also a need to focus on practices and fitness of students. For studying these practices, a few related factors were identified for the current study like Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, Physical Activity.

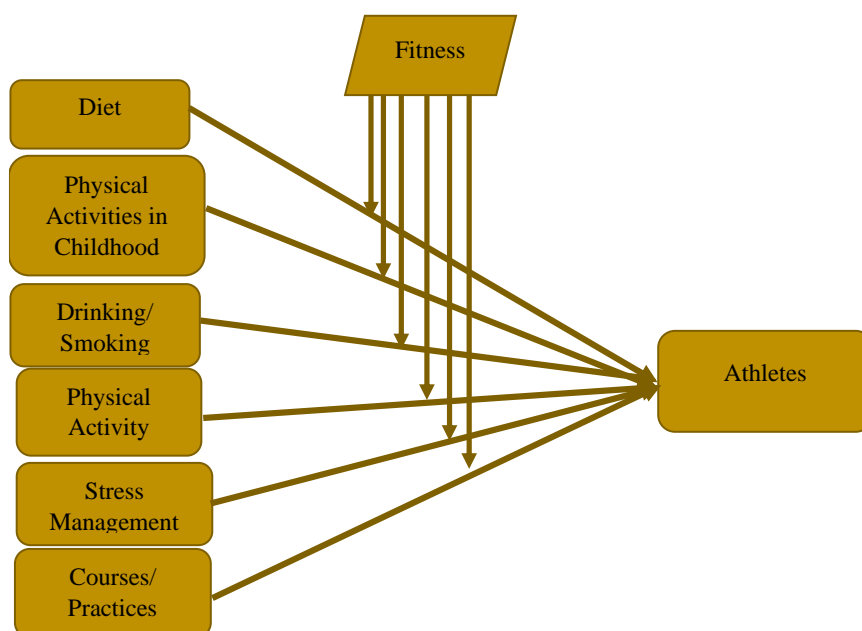


Figure 2. Theoretical framework of the study shows the relationship between Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, Physical Activity, fitness and skillful athlete

The following objectives were designed for the current study:

1. To examine the impact of physical education factors like Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood and Physical Activity for producing skillful athletes in the Chinese universities.
2. To investigate the moderation impact of fitness between the relation of physical education factors and skillful athletes in the Chinese universities.

These objectives aimed at studying the physical education in Chinese universities and explore how to produce skillful athletes.

4. Methodology

This section presents the research approach, population, sample and the statistical tool applied to collect data for testing the hypotheses of this study. The units of analysis of this current study were the university athletes and students of physical education department in these universities. The convenient sampling technique was used to identify the sample of the study. According to Comrey and Lee (1992), 300 sample size is ideal for studying variables like Diet,

Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, Physical Activity, fitness and skillful athletes.

The data for this study was collected through the drop down survey method. In this method, the research drops the questionnaire at respondents' place and describes the purpose of data collection. The respondents are also ensured that the collected data will be used only for the study purpose. After two to three days the filled in questionnaires are collected from the respondents place. While scrutinizing the questionnaires, those showing the outliers and missing values are removed from the collected data and the remaining ones are used for further analysis.

A quantitative research design was adopted to conduct this research. The questionnaire was designed on 5 point Likert scale with strongly agree and strongly disagree as the semantic pace. The questionnaire included the questions related to demographic details of the sample respondents like gender, age, qualification and their favorite game. The questionnaire also included questions related to the variables of the study like Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, Physical Activity, fitness and skillful athletes. These questions were adopted from previous studies. A few hypotheses were also stated related to these factors which acted variables of this study. The data was analyzed using the Smart PLS software.

5. Variables and Hypotheses

5.1 Diet, Fitness and Skillful Athletes

The kind of food that a person habitually eats is known as diet. Another definition of diet is that it a particular course of food to which person restricts him/her for weight loss. Some people also restrict themselves to a particular food of course in order to gain weight. This suggests that diet is a special course of food that a person takes for a particular purpose. Diet is also referred to as food and drink that a person consumes in order to get mental and physical nourishment. Nutrition involves more than simply eating a "good" diet—it is also about nourishment (Ubago-Jiménez, Zurita-Ortega, Román-Mata, Puertas-Molero, & González-Valero, 2020). Diet is also associated with fitness. The condition of being fit and healthy is called fitness. Fitness means to be suitable for the role that an individual is required to perform. Studies have revealed that nutrition and diet are very helpful for fitness and good health. It is also found that some people on diet are more conscious about the food they eat by calculating the calories.

Skillful athletes are those who possess extra ordinary skills, good health and a perfectly fit body. They also perform well

in their life and remain active on their job (Godoy-Cumillaf et al., 2020). These athletes require a special type of diet and fitness to perform athletic activities. One of the objectives of the study is to find the impact of diet and fitness to become skillful athletes. Hence, to investigate the relationship between diet and fitness, the following hypotheses were formulated:

H1: Diet has significant impact on Skillful Athletes.

H2: Fitness has significant impact on Skillful Athletes.

H3: Fitness moderates the relationship between Diet and Skillful Athletes.

5.2 Courses/Practices, Fitness and Skillful Athletes

The courses for diet are prescribed manuals designed by experts for in order to achieve a particular health goal. These manuals are designed according to the users' requirement. These courses vary from person to person according to the physical requirement of the body and the required shape. These courses are also a kind of prescription to follow as diet manuals and to become a healthy person. These courses can also be used to gain or lose weight or to give a shape to the body during any physical fitness practices. Using these courses in routine for diet or fitness is called practice (Moral-García, Agraso-López, Ramos-Morcillo, Jiménez, & Jiménez-Eguizábal, 2020). These practices perform several functions including suggesting the required level of calories and how to keep the person healthy and strong.

There have been many studies conducted in the past on physical fitness (López-Gil, Brazo-Sayavera, García-Hermoso, & Yuste Lucas, 2020). People want to be fit and healthy and so they are health conscious at home. However, in the field of sports, in order to become skillful athletes, it is important to follow a certain course and physical fitness program. One of the objectives of the study is to find the relationship between courses/practices and fitness for the Skillful Athletes. Hence the following hypotheses were framed:

H4: Courses/Practices have a significant impact on Skillful Athletes

H5: Fitness moderates the relationship between Courses/Practices and Skillful Athletes.

5.3 Stress Management, Fitness and Skillful Athletes

Stress is the feeling of emotional and physical tension. These are negative feelings that annoy a person. Stress could be due to many reasons. It can come from any thought, event or situation. Stress makes a person

frustrated, nervous or angry about something that he dislikes. Stress management is the technique to control such negative emotions through different ways and spectrums. Studies have proven that stress negatively impacts life and decreases productivity. In a study, it is also concluded that stress destroys creativity and creates anxiety. It not only affects the feelings but also impacts physical health and hence stress management is a prime necessity (Moral-García et al., 2020).

There are generally two types of stress: acute stress and chronic stress. Acute stress is for a certain term while the chronic stress lasts for a long time. In acute stress, a person's performance is less affected and it damages less but the chronic stress is more harmful. Studies have suggested that stress weakens the immune system causes severe health problems. Organizations work to manage stress at the workplace. It has been concluded that organizations with good stress management perform very well and have better efficiency of employees. It is equally important for players as well. Stress management can make them feel relaxed. A satisfied and relaxed player can focus well on the game and produce better results (Milic et al., 2020).

The foregoing discussion suggests that there is a relationship between stress management and skillful athletes. To verify the assumption, the following hypotheses were formulated:

H6: Stress Management has significant impact on Skillful Athletes.

H7: Fitness moderates the relationship between Stress Management and Skillful Athletes.

5.4 Drinking/Smoking, Fitness and Skillful Athletes

Drinking and smoking are such evil practices that decrease the physical as well as mental health of individuals. Both are injurious to health as they decrease the production of necessary hormones in body which leads to diminishing the efficiency and effectiveness of individuals. For athletes, drinking and smoking also reduces their stamina and performance since their muscles get insufficient oxygen and get fatigued more quickly (Trigueros Ramos et al., 2020). Smokers suffer from shortness of breath more often than nonsmokers, as their heart demands more oxygen than their lungs are able to supply. Alcohol reduces reaction time and ruins precision, symmetry, hand-eye synchronization, exactitude, stability, judgment, information processing, focus, stamina, strength, power and speed for up to 72 hours (three days). An alcoholic individual makes slow recovery from all these problems.

Previous studies have argued that drinking and smoking make a negative impact on the exercise and physical activities pattern of individual (Xiang, Liu, Li, & Guan, 2020). Hence alcohol consumers and smokers cannot become good sportsmen and skillful athletes. This led to the designing of the following hypotheses:

H8: Drinking/Smoking has significant impact on Skillful Athletes.

H9: Fitness moderates the relationship between Drinking/Smoking and Skillful Athletes.

5.5 Physical Activities in Childhood, Fitness and Skillful Athletes

Physical activities are important for the health and fitness of children. These physical activities in early childhood improve the physical and mental health of children and prevent them from catching diseases. Physical activities polish the motor skills of children and also enhance their concentration and thinking skills (Xu & Hu, 2020). If their mental and physical health is sound, children can become good and skillful athletes. Previous studies have argued that in order to build skillful and efficient athletes, it is essential to focus on the physical activities like gaming from very early childhood. Physical activities in childhood make a positive and significant impact on the fitness and help them become skillful athletes. Hence it is important to include physical education during the childhood study programs and provide children a good platform of physical fitness. Such physical education during childhood makes a direct and indirect impact on their health and help them to become skillful athletes (Al-Anazi, 2020). Such direct and indirect impact has been proved in previous literature.

On this basis, the following hypotheses were made:

H10: Physical Activities in Childhood make a significant impact on Skillful Athletes.

H11: Fitness moderates the relationship between Physical Activities in childhood and Skillful Athletes.

5.6 Physical Activity, Fitness and Skillful Athletes

A physical activity is simply defined as the movement of body through skeletal muscles which consumes the body energy. A physical activity should be reasonable and energetic in intensity. It may be in the form of performing some work, moving and walking. Physical activity on regular basis increases the fitness level of individuals. It prevents individuals from diseases like heart, cancer and stroke. A physical activity means doing exercise and getting physical fitness. Studies have argued that physical activities

if performed on regular basis increase the efficiency of players or athletes (Byaruhanga et al., 2020).

Physical education is the platform where students learn different physical activities to be fit and become the strong and efficient athletes. Physical activities not only enhance the learning skills and academic performance (Dong & Wang, 2020) of students but also improve their physical body makeup and muscular structure. Studies have argued that brain is responsible for both mental and physical processes of the human body. If brain is healthy, an individual remains fit throughout his/ her life span.

Based on this, the following hypotheses are framed:

H12: Physical Activity has significant impact on Skillful Athletes.

H13: Fitness moderates the relationship between Physical Activity and Skillful Athletes.

6. Data Analysis

The data statistics presented in Table 1 are the collected data without outliers and missing values. Outliers and missing values cause problems in data analysis, so it was necessary to remove these outliers and missing values from the collected final data.

Table 1 Data Statistics

| | No. | Missing | Mean | Median | Min | Max | SD | Kurtosis | Skewness |
|------|-----|---------|-------|--------|-----|-----|-------|----------|----------|
| DI1 | 1 | 0 | 3.443 | 4 | 1 | 5 | 1.151 | -0.566 | -0.476 |
| DI2 | 2 | 0 | 3.443 | 4 | 1 | 5 | 1.167 | -0.698 | -0.437 |
| DI3 | 3 | 0 | 3.469 | 4 | 1 | 5 | 1.461 | -1.079 | -0.606 |
| PAC1 | 4 | 0 | 3.474 | 4 | 1 | 5 | 1.171 | -0.614 | -0.48 |
| PAC2 | 5 | 0 | 3.404 | 4 | 1 | 5 | 1.183 | -0.736 | -0.408 |
| PAC3 | 6 | 0 | 3.434 | 4 | 1 | 5 | 1.26 | -0.725 | -0.572 |
| DS1 | 7 | 0 | 3.36 | 4 | 1 | 5 | 1.278 | -0.92 | -0.407 |
| DS2 | 8 | 0 | 3.263 | 4 | 1 | 5 | 1.253 | -0.942 | -0.347 |
| DS3 | 9 | 0 | 3.386 | 4 | 1 | 5 | 1.301 | -0.941 | -0.421 |
| DS4 | 10 | 0 | 3.461 | 4 | 1 | 5 | 1.258 | -0.815 | -0.469 |
| PA1 | 11 | 0 | 3.504 | 4 | 1 | 5 | 1.11 | -0.487 | -0.495 |
| PA2 | 12 | 0 | 3.588 | 4 | 1 | 5 | 1.35 | -0.897 | -0.586 |
| PA3 | 13 | 0 | 3.553 | 4 | 1 | 5 | 1.185 | -0.606 | -0.54 |
| SM1 | 14 | 0 | 3.557 | 4 | 1 | 6 | 1.291 | -0.958 | -0.385 |
| SM2 | 15 | 0 | 3.487 | 4 | 1 | 6 | 1.145 | -0.63 | -0.382 |
| SM3 | 16 | 0 | 3.408 | 4 | 1 | 5 | 1.223 | -0.896 | -0.328 |
| SM4 | 17 | 0 | 3.364 | 3 | 1 | 6 | 1.247 | -0.817 | -0.24 |
| CP1 | 18 | 0 | 3.425 | 4 | 1 | 5 | 1.112 | -0.483 | -0.38 |
| CP2 | 19 | 0 | 3.425 | 4 | 1 | 5 | 1.1 | -0.42 | -0.407 |
| CP3 | 20 | 0 | 3.461 | 4 | 1 | 5 | 1.278 | -0.759 | -0.558 |
| CP4 | 21 | 0 | 3.404 | 4 | 1 | 5 | 1.258 | -0.873 | -0.439 |
| FIT1 | 22 | 0 | 3.285 | 3 | 1 | 5 | 1.268 | -0.971 | -0.303 |
| FIT2 | 23 | 0 | 3.487 | 4 | 1 | 5 | 1.272 | -0.838 | -0.485 |
| FIT3 | 24 | 0 | 3.531 | 4 | 1 | 5 | 1.137 | -0.585 | -0.482 |
| FIT4 | 25 | 0 | 3.596 | 4 | 1 | 5 | 1.349 | -0.871 | -0.627 |
| SA1 | 26 | 0 | 3.544 | 4 | 1 | 5 | 1.204 | -0.716 | -0.491 |
| SA2 | 27 | 0 | 3.5 | 4 | 1 | 6 | 1.265 | -0.912 | -0.353 |
| SA3 | 28 | 0 | 3.601 | 4 | 1 | 6 | 1.182 | -0.659 | -0.467 |
| SA4 | 29 | 0 | 4.118 | 4 | 1 | 5 | 0.945 | 0.684 | -0.991 |
| SA5 | 30 | 0 | 4.096 | 4 | 1 | 5 | 0.917 | -0.105 | -0.776 |

FIT: Fitness, DI: Diet, CP: Courses/Practices, SM: Stress Management, DS: Drinking/Smoking, SA: Skillful Athletes, PAC: Physical Activities in Childhood, PA: Physical Activity

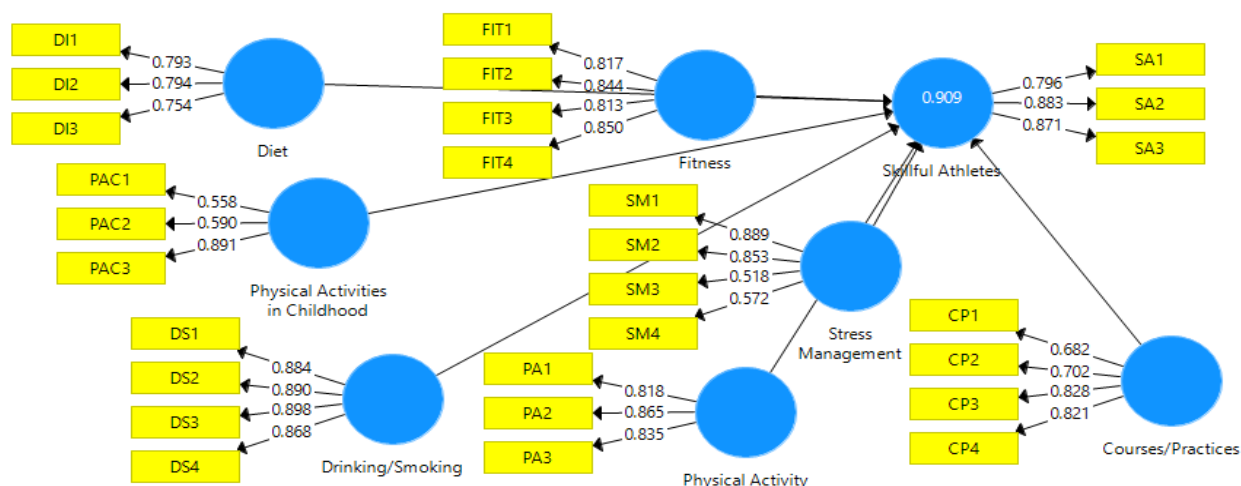


Figure 3. Measurement Model

Measurement model assessment was used with the help of Smart PLS for checking the reliability and validity of data. For the reliability of data, value of factor loading, value of alpha, composite reliability and value of average variance extracted (AVE) were measured (Hair, Hollingsworth, Randolph, & Chong, 2017). The value of factor loading shown in Table 2 is greater than 0.7. The value of alpha, composite reliability and AVE are presented in Table 3. The threshold value for alpha is 0.7 and for composite

reliability and AVE is 0.5. All presented values are greater than their threshold values. For analyzing the convergent validity, the value of HTMT was used. According to Chin (1998), value of HTMT should be less than 0.9. The values of HTMT are depicted in Table 4. All these values are derived from Figure 3.

Factor Loadings

| | Courses/Practices | Diet | Drinking/Smoking | Fitness | Physical Activities in Childhood | Physical Activity | Skillful Athletes | Stress Management |
|-------|-------------------|-------|------------------|---------|----------------------------------|-------------------|-------------------|-------------------|
| CP 1 | 0.682 | | | | | | | |
| CP 2 | 0.702 | | | | | | | |
| CP 3 | 0.828 | | | | | | | |
| CP 4 | 0.821 | | | | | | | |
| DI1 | | 0.793 | | | | | | |
| DI2 | | 0.794 | | | | | | |
| DI3 | | 0.754 | | | | | | |
| DS 1 | | | 0.884 | | | | | |
| DS 2 | | | 0.890 | | | | | |
| DS 3 | | | 0.898 | | | | | |
| DS 4 | | | 0.868 | | | | | |
| FIT 1 | | | | 0.817 | | | | |
| FIT 2 | | | | 0.844 | | | | |
| FIT 3 | | | | 0.813 | | | | |
| FIT 4 | | | | 0.850 | | | | |
| SM 1 | | | | | 0.889 | | | |
| SM 2 | | | | | 0.853 | | | |
| SM 3 | | | | | 0.518 | | | |
| SM 4 | | | | | 0.572 | | | |
| PAC 1 | | | | | 0.558 | | | |
| PAC 2 | | | | | 0.590 | | | |
| PAC 3 | | | | | 0.891 | | | |
| PA 1 | | | | | | 0.818 | | |
| PA 2 | | | | | | 0.865 | | |
| PA 3 | | | | | | 0.835 | | |

| | Courses/Practices | Diet | Drinking/Smoking | Fitness | Physical Activities in Childhood | Physical Activity | Skillful Athletes | Stress Management |
|-----|-------------------|------|------------------|---------|----------------------------------|-------------------|-------------------|-------------------|
| FIT | | | | 0.81 | | | | |
| 1 | | | | 7 | | | | |
| FIT | | | | 0.84 | | | | |
| 2 | | | | 4 | | | | |
| FIT | | | | 0.81 | | | | |
| 3 | | | | 3 | | | | |
| FIT | | | | 0.85 | | | | |
| 4 | | | | | | | | |
| PA | | | | | | | | |
| 1 | | | | | 0.818 | | | |
| PA | | | | | | | | |
| 2 | | | | | 0.865 | | | |
| PA | | | | | | | | |
| 3 | | | | | 0.835 | | | |
| PA | | | | | | | | |
| C1 | | | | | | 0.558 | | |
| PA | | | | | | | | |
| C2 | | | | | | 0.59 | | |
| PA | | | | | | | | |
| C3 | | | | | | 0.891 | | |
| SA1 | | | | | | | 0.796 | |
| SA2 | | | | | | | 0.883 | |
| SA3 | | | | | | | 0.871 | |
| SM | | | | | | | | |
| 1 | | | | | | | | 0.889 |
| SM | | | | | | | | |
| 2 | | | | | | | | 0.853 |
| SM | | | | | | | | |
| 3 | | | | | | | | 0.518 |
| SM | | | | | | | | |
| 4 | | | | | | | | 0.572 |

FIT: Fitness, DI: Diet, CP: Courses/Practices, SM: Stress Management, DS: Drinking/Smoking, SA: Skillful Athletes, PAC: Physical Activities in Childhood, PA: Physical Activity

Table 3.
Reliability and Convergent Validity

| | Alpha | rho_A | CR | (AVE) |
|----------------------------------|-------|-------|-------|-------|
| Courses/Practices | 0.776 | 0.81 | 0.846 | 0.58 |
| Diet | 0.795 | 0.796 | 0.824 | 0.609 |
| Drinking/Smoking | 0.908 | 0.908 | 0.935 | 0.783 |
| Fitness | 0.85 | 0.852 | 0.899 | 0.69 |
| Physical Activities in Childhood | 0.732 | 0.815 | 0.729 | 0.584 |
| Physical Activity | 0.791 | 0.794 | 0.878 | 0.705 |
| Skillful Athletes | 0.809 | 0.816 | 0.887 | 0.724 |
| Stress Management | 0.731 | 0.834 | 0.809 | 0.528 |

Table 4.
HTMT

| | Courses/P ractices | Di et | Drinking/ Smoking | Fit ness | Physical Activities in Childhood | Physical Activity | Skillful Athletes | Stress Managemen t |
|-------------------------------------|-----------------------|----------|----------------------|-------------|-------------------------------------|----------------------|----------------------|--------------------------|
| Courses/Practices | | | | | | | | |
| Diet | 0.811 | | | | | | | |
| Drinking/Smoking | 0.808 | 0.484 | | | | | | |
| Fitness | 0.833 | 0.492 | 0.633 | | | | | |
| Physical Activities in Childhood | 0.511 | 0.493 | 0.704 | 0.716 | | | | |
| Physical Activity | 0.869 | 0.472 | 0.536 | 0.547 | 0.67 | | | |
| Skillful Athletes | 0.878 | 0.55 | 0.808 | 0.4 | 0.668 | 0.534 | | |
| Stress Management | 0.645 | 0.26 | 0.786 | 0.5 | 0.894 | 0.629 | 0.811 | |

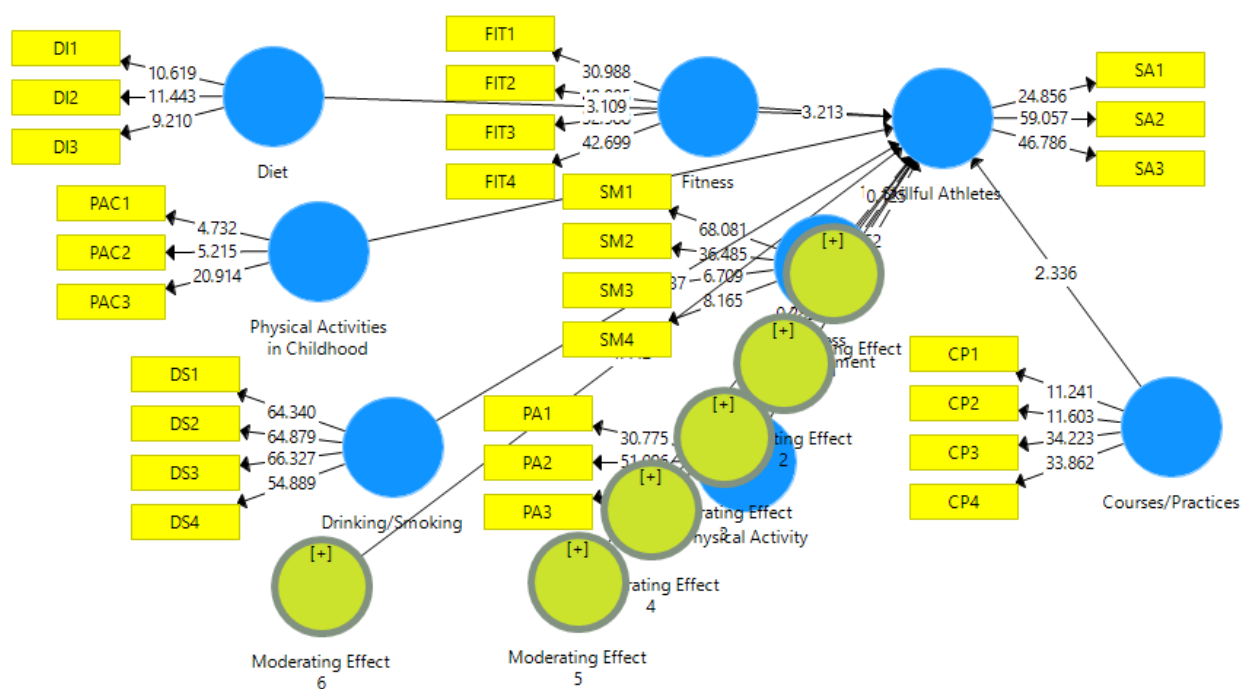


Figure 4. Structural Model

After checking the reliability and validity of data, bootstrapping was carried out through Smart PLS (Henseler, Ringle, & Sinkovics, 2009). This bootstrapping is generated in Figure 4 which shows a direct effect between variables (Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, Physical Activity, fitness and skillful athletes).

Table 5 reveals the t-values of direct effect between variables. These results suggest that drinking/smoking and physical activities in childhood have no relation with skillful athletes, because their t-values are less than 1.96 (1.737 and 0.346) respectively. All the remaining t-values are greater than 1.96, which reveals that all other hypotheses are accepted.

Table 5
Direct Effect Results

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (O/STDEV) | P Values |
|---|---------------------|-----------------|----------------------------|--------------------------|----------|
| Courses/Practices -> Skillful Athletes | 0.019 | 0.021 | 0.008 | 2.336 | 0.033 |
| Diet -> Skillful Athletes | 0.09 | 0.086 | 0.029 | 3.109 | 0.002 |
| Drinking/Smoking -> Skillful Athletes | 0.124 | 0.123 | 0.071 | 1.737 | 0.083 |
| Fitness -> Skillful Athletes | 0.143 | 0.142 | 0.044 | 3.213 | 0.001 |
| Physical Activities in Childhood -> Skillful Athletes | 0.017 | 0.018 | 0.048 | 0.346 | 0.73 |
| Physical Activity -> Skillful Athletes | 0.536 | 0.538 | 0.08 | 6.716 | 0 |
| Stress Management -> Skillful Athletes | 0.514 | 0.51 | 0.044 | 11.763 | 0 |

Table 6 reveals the indirect effect (moderation) between variables (Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, Physical Activity, fitness and skillful athletes). Given t values like (3.89 and 2.442) reveal that fitness moderates the relationship between physical activity and skillful athletes as well as between the courses/practices and skillful

athletes. Remaining t values are less than 1.96 which shows that no moderation exists between Diet, Stress Management, Drinking/Smoking, and Physical Activities in Childhood and skillful athletes.

Table 6
Moderation

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (O/STDEV) | P Values |
|--|---------------------|-----------------|----------------------------|--------------------------|----------|
| Moderating Effect 1 -> Skillful Athletes | 0.004 | 0.004 | 0.028 | 0.125 | 0.901 |
| Moderating Effect 2 -> Skillful Athletes | 0.03 | 0.032 | 0.04 | 0.752 | 0.452 |
| Moderating Effect 3 -> Skillful Athletes | 0.078 | 0.08 | 0.02 | 3.89 | 0 |
| Moderating Effect 4 -> Skillful Athletes | 0.014 | 0.01 | 0.048 | 0.285 | 0.776 |
| Moderating Effect 5 -> Skillful Athletes | 0.01 | 0.007 | 0.045 | 0.222 | 0.824 |
| Moderating Effect 6 -> Skillful Athletes | 0.069 | 0.068 | 0.029 | 2.442 | 0.025 |

5. Discussion

This study examines the role of physical education in Chinese universities to produce skillful athletes. Physical education is although a term used for physical fitness but it also includes other factors like Diet, Courses/Practices, Stress Management, Drinking/Smoking, and Physical Activities in Childhood, Physical Activity. A few hypotheses were framed to test the objectives of this study which mainly dealt with finding the impact of these physical education factors for producing skillful athletes in the Chinese universities and to investigate the moderation effect of fitness between the relation of physical education factors and skillful athletes the Chinese universities.

The collected data from respondents' of the questionnaire tool from the students of physical education in Chinese universities were analyzed with the help of PLS SEM software. Results demonstrated that physical education related factors like (Diet, Courses/Practices, Stress Management, and Physical Activity) have a positive and significant impact on skillful athletes in Chinese universities. Moreover other factors like Drinking/Smoking, and Physical Activities in Childhood have no impact on producing skillful athletes in Chinese universities. The increase in the physical education related factors like (Diet, Courses/Practices, Stress Management, and Physical Activity) also increased the production of skillful athletes in Chinese universities. However, the

increase or decrease in other factors of physical education like Drinking/Smoking, and Physical Activities in Childhood have no impact on producing skillful athletes in Chinese universities. These findings are consistent with another study (Berki, Piko, & Page, 2020).

Likewise, an increase in the fitness level of individual also increases the skillful athletes. Fitness was found to be moderating the relationship between the physical activity, courses/practices and skillful athletes in Chinese universities. Furthermore, no moderation was found existing between Diet, Stress Management, Drinking/Smoking, and Physical Activities in Childhood and skillful athletes. This is consistent with the findings of the study (Latinjak, Torregrossa, Comoutos, Hernando-Gimeno, & Ramis, 2019) that also accepted that fitness has a positive and significant impact on skillful athletes

6. Conclusion

The main aim of this study was to examine the Physical education in Chinese universities producing skillful athletes. The factors that were included in this study in the context of physical education were (Diet, Courses/Practices, Stress Management, Drinking/Smoking, Physical Activities in Childhood, Physical Activity). This study examines the impact of these physical education factors on skillful athletes with moderation of fitness since physical education is an important prerequisite for physical fitness. Respondents of this study were students of physical education in Chinese universities. Convenient sampling technique was used to identify the respondents of this quantitative research study and data was collected through the drop-down survey method and analyzed through Smart PLS software.

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Results revealed that factors related to physical education like (Diet, Courses/Practices, Stress Management, Drinking/Smoking, Physical Activities in Childhood, Physical Activity) have a positive and significant impact on producing skillful athletes in Chinese universities. Fitness of athletes also moderates the relationship between these factors and skillful athletes in Chinese universities. This study recommends that for producing skillful athletes, universities of China must focus on these factors along with other courses in the curriculum.

7. Implications

The current study is about Physical education in Chinese universities producing skillful athletes. It plays an important role in sports or in developing the athletes. Physical education creates good health, increases well-being and also increases the quality of life (Almeida-Neto et al., 2020). Different factors are related to physical education in schools, colleges and universities other than books. These related factors are (Diet, Courses/Practices, Stress Management, Drinking/Smoking, Physical Activities in Childhood, Physical Activity). This study explored the impact of these related factors in Chinese universities and also the moderation effect of fitness with these factors.

This study has theoretical implication because this type of study with these variables has not been conducted in previous literature. Practically, this study suggests the management and administration of schools, colleges and universities to focus on the related factors of physical education along with books and curriculum. This study also suggests that the government and private sports departments should focus on these factors at school, colleges and universities level to produce skillful athletes.

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