

A Study on Physical Health Promotion of Primary and Secondary School Students Based on Schools: A Case Study of Qingdao City

Xianxin Meng

Adamson University, 900 San Marcelino Ermita, Manila, Filippine

Keywords: Physical health, sports learning motivation, physical education textbooks, Physical health evaluation.

Abstract: Based on the results of the physical health sampling of primary and secondary school students in Qingdao from 2016 to 2022, the physical health status of primary and secondary school students in Qingdao has been declining year by year. Under the impact of the epidemic in 2020, the downward trend is particularly clear. The School of Physical Education of Qingdao University undertakes the task of studying the physical health promotion of primary and secondary school students in Qingdao. Through literature review, investigation and interview, it is found that the physical health problems of primary and secondary school students are related to the lagging health concept of society and family and the relative shortage of social and school sports resources. Students are under great pressure to enter school and addicted to electronic products, which further reduces the time of students' sleep and physical activities. Students spend most of the day at school, and school-based physical health promotion for middle and primary school students has the advantages of strong controllability, higher efficiency, and lower costs. It is suggested that the school use scientific educational theory and technology to improve the level of physical education teaching, explore students' sports motivation from the cognitive level, rather than simply taking interest as the motivation of physical education learning. It is suggested to create excellent physical education textbooks to provide systematic guidance for students' physical education learning and help students form the lifelong sports concept of "health first", It is suggested to provide students with physical health evaluation report, guide students' physical health self-evaluation and management, and form the educational joint force of family and school, so as to finally achieve the purpose of promoting the physical health of secondary and primary school students.

1. Introduction

Physical Education College of Qingdao University has been undertaking the task of physical fitness monitoring for middle and primary school students in Qingdao. The monitoring data show that the overall physical health monitoring results of primary and secondary school students in Qingdao show a downward trend from 2016 to 2022, and the physical health level of adolescents in

Qingdao is worrying. From 2020 to 2022, under the influence of the epidemic, the physical health level of primary and secondary school students in Qingdao decreased significantly.

From 2016 to 2022, the physical health monitoring results of middle and primary school students in Qingdao showed the following characteristics:

1. The obesity rate of students is on the rise, and the indicators of physical function and quality are on the decline, especially in 2020.

2. The physical health monitoring results of students in grade 2 and 5 were the best, and the physical health level of students in grade 8 and grade 11 declined successively according to the physical health monitoring data.

3. In schools with a relatively large number of students and insufficient space for student activities, the results of physical fitness monitoring are obviously backward.

Once again, data and facts prove:

Students' physical health level is closely related to students' physical activities;

The physical health problems of middle school students are particularly prominent;

Students' physical health level is limited by exercise space.

Middle and primary schools are a critical period when the physical and mental indicators of a person are undergoing rapid development. The state attaches great importance to the healthy development of students' physical and mental health. On August 31, 2020, the State issued the Opinions on Deepening the Integration of Physical Education and Promoting the Healthy Development of Adolescents (hereinafter referred to as the Opinions), pointing out that it is necessary to deepen the integrated development of physical education with Chinese characteristics, promote the coordinated development of cultural learning and physical exercise among adolescents, and promote their healthy growth, willpower and personality. Cultivate socialist builders and successors who develop morally, intellectually, physically, aesthetically, and industrially in an all-round way. According to the guiding spirit of the Opinions, the proportion of physical education in school education has been further increased.

On June 23, 2021, the General Office of the Ministry of Education has issued a notice on the "Guidelines for Teaching Reform in Physical Education and Health (Trial Implementation)" (hereinafter referred to as the Guidelines), to further deepen the reform of physical education, guide physical education teachers in primary and secondary schools throughout the country to scientifically, standardized, and high-quality physical education classes, and better help students "enjoy fun, strengthen their physique, improve their personality, and temper their willpower" in physical exercise, promote the comprehensive development of physical and mental health of young students.

The Education Bureau of Qingdao attaches great importance to the physical health of teenagers in Qingdao, and organizes physical education experts of colleges and universities and teachers of primary and secondary schools to hold talks for many times, so as to improve the physical health of teenagers in Qingdao and promote the healthy development of students' physical and mental health. Through the discussion, we found that the school is clear about the causes of students' physical health problems and the goals to be achieved. However, the road to the goals is tortuous, especially in physical education. It is generally believed that the rise of obesity rate and the decline of physical health level must be caused by the lack of exercise, coupled with unhealthy diet and living habits, so it is OK to improve the diet structure and increase the exercise time. But the solution is far from simple. Through the investigation and research, it is found that the one-hour sunshine sports and large recess activities popularized in primary school can effectively increase the exercise time of students. Because primary school students are naturally lively and active, increasing the exercise time can effectively increase the amount of exercise of students, which has a significant effect on improving the physical function and physical quality of students. In junior high school and senior

high school, the physical and psychological development of students changes dramatically, coupled with the pressure of college entrance, so that some students are sensitive and introspective, and deal with the physical education they don't like negatively; With the popularity of electronic products, digital addiction [1] has further compressed students' physical activity time. Simply improving exercise time has limited effect on students' physical health.

Commissioned by the Education Bureau of Qingdao City, Physical Education College of Qingdao University conducted research on how to improve the physical health status of adolescents in Qingdao. We adopted the methods of questionnaire survey, interview, physical fitness testing, etc., so as to have a more comprehensive grasp of the physical health status of adolescents in Qingdao and have a basic understanding of the physical education status of schools. Now is still the emergency period of the global epidemic, in the context of social sports facilities and field resources are relatively insufficient, schools are the main places for students to exercise. Adolescents spend much of their day in schools, where the environment is safer and more controlled, and where interventions in student physical activity are more efficient and less costly. According to the guiding spirit of "Opinions" and "Outline", schools should use scientific educational theories and techniques to improve the level of physical education in schools, help students develop the idea of "health first" lifelong sports, and ultimately improve the level of physical health of students.

2. Literature Review

2.1. Influencing Factors of Adolescent Physical Health

The latest "National Students' Physical Health Survey Report" shows that the physical health status of teenagers has not been significantly improved, "bean sprout" shape has become the embodiment of the lack of physical exercise among teenagers, poor eyesight, adolescent hypertension and heart disease have become increasingly common and show a trend of younger people [2]. In the past 30 years, affected by many factors, the physical health of children and adolescents is not optimistic. First, the physical condition of children and adolescents declined for many years. Second, the rate of overweight and obesity is rising rapidly, which is worrying. Third, the rate of myopia among students increased by 11.7 percent in June 2020 compared with the end of 2019. In 2018, the total myopia rate of Chinese children and adolescents reached 53.6%, the overweight rate was 9.6%, and the obesity rate was 6.4%, indicating that the incidence of myopia and obesity was still increasing year by year in the past three years.

On May 29, 2019, the Education Department of Jiangsu Province released the 2018 physical health test data of adolescent students. In terms of body shape, the height and chest circumference of students in each school section in Jiangsu continue to maintain an increasing trend; In terms of physiological function, the mean vital capacity and body mass index of vital capacity were improved. In terms of physical fitness, students' running speed, endurance and lower limb explosive power have declined to varying degrees [3]. This result is consistent with the change trend of adolescent physical health monitoring results in Qingdao in 2018.

The factors affecting the physical health of adolescents are generally considered to be the result of national policies, school education, family education and social environment. From our national policy, the country attaches great importance to adolescents' physical health condition, but there are many problems in the implementation of the policy. According to a social survey, more than 89 percent of urban teenagers are not allowed to go outdoors after school, and students are almost at a standstill from 4 p.m. to 9 p.m. Doing homework, playing video games, and watching TV become the children's living conditions. In addition, parents do not do sports and some families indulge their children's diet, which aggravate the occurrence of students' physical health problems [4]. Other literature shows that the academic pressure of adolescents leads to the reduction of physical activity

and sleep time, and the popularity of electronic devices further reduces the physical activity and sleep time of adolescents [1,5], and leads to the emergence of sedentary and other harmful behaviors, which further worsens the physical health status of adolescents.

In terms of the sports resources that the society can provide for teenagers, the exercise facilities and activity space suitable for teenagers in the community sports environment are the key to influence the participation of teenagers in sports. In the school physical education environment, physical education teaching resources and teachers' teaching ability are the key factors that affect young students' participation in physical education. At present, both community sports environment and school sports teaching resources are relatively short of resources to meet the full sports needs of teenagers [3,6].

To sum up, the factors affecting teenagers' physical health can be concluded as follows: the scientific concept of health has not been established in the whole society; The bad life style of teenagers is not widely paid attention to; Society, families and schools can provide young people with limited physical education resources such as venues, facilities and teachers to improve physical health. These are the important reasons for restricting young people's health exercise. Under the influence of the epidemic, the space for physical activity of young people is further reduced, and the physical health problems are becoming more serious.

2.2. Research on Measures to Promote Adolescent Physical Health

In recent years, Chinese scholars and experts on the promotion of adolescent physical health research, found that under the promotion of policies, schools and parents pay more attention to, students' physical health level can be significantly improved [7]. In families, children perform better at sports if their parents believe in the importance of physical activity. At present, there are difficulties in the integration of home-school physical education for teenagers, and the urgency of entering school and the delay of health make school physical education an absolute disadvantage. Schools should provide professional guidance to encourage parents to play the main responsibility of family physical education, and schools and parents should form the maximum joint force in education to avoid unnecessary internal friction [8].

Liu Rong pointed out that in order to change the state of physical fitness of middle school students in Jinan, students' interest in physical exercise should be increased first, effective measures should be taken to improve the effect of exercise, and pointed out that the main front of physical exercise for students is school, where physical education teaching and extracurricular sports activities are used to enhance physical fitness and achieve the purpose of physical fitness [9]. In particular, to promote the physical health of middle school students, physical education should be carried out according to the characteristics of students [10]. Teaching should not be separated from the concept of school physical education to lifelong physical education. If the lack of lifelong physical education awareness of students is only for the purpose of improving students' physical health, and the lack of imparting and reserve of physical fitness knowledge of middle school students, then only temporary problems will be solved [11].

In addition, strengthening the implementation of policies, improving traditional ideas, giving full play to the publicity effect of the media, cultivating a healthy lifestyle and improving the sports environment are important measures to improve the physical health of teenagers. "When the young are strong, the country is strong." A strong country must first strengthen education, and strong education is necessary to strengthen the body. The national policy provides policy guarantee and guidance for schools to promote the physical health of adolescents.

3. Promote Students' physical Health Based on the School

3.1. Improve Students' sports Motivation

From the analysis in the previous chapter, we found that the lag of family and social concepts and the shortage of sport-related resources limit the development of adolescents' physical health. Social concepts and status quo can not be changed in a short time, but as the most vital existence in the society, students have infinite possibilities. If the school can improve the sports motivation of the students, it will greatly promote the physical education results of the school and effectively improve the level of physical health of the students.

The theory of self-determination motivation has been proved to have a positive impact on students' physical learning, such as motor skills, pleasure, effort, physical activity, future willingness to participate in physical activity or physical education and cognitive learning [12]. Students' motivation level plays a very important role in the formation of students' "self-body concept" dimension (health, appearance, physical strength, physical strength, self-esteem). Students' self-body concept level has a significant positive correlation with the level of physical activity intention, and a significant negative correlation with bad health behaviors such as sitting for a long time [13].

Our school education has always paid much attention to students' learning motivation, but unfortunately, we usually describe students' learning motivation simply as "interest" [14], which is always to improve students' learning motivation by attracting students' interest. For primary school students, arouse students' interest is better to operate, simple games can effectively let students move. But for middle school students, the teaching process blindly consider students' interests, equal to the essentials. Simple games are not enough to arouse students' interest, but will make students feel naive. A lot of boring and repetitive exercises are needed to enhance the physical strength, an important physical quality index. If the school blindly increases the time and intensity of students' exercise, it will easily cause resistance among students, and students will not enjoy the fun. Instead, they formed an aversion to physical education courses.

Self-determination motivation is a kind of potential of experiential choice, which means that individuals make free choices for their own actions on the basis of fully recognizing individual needs and environmental information [12]. It can be seen that in physical education teaching, if students want to improve the motivation of learning physical education, first let students fully understand the "personal needs and environmental information". According to the current survey, students generally lack the basic knowledge of health sports, and have not formed a scientific connection between personal physical quality and health level and sports.

"The Great Learning" says, "If you want to correct your heart, you must first be sincere about your intentions. If you want to be sincere about your intentions, you must first be aware of them. Knowledge is based on the substance. The substance is then known, the knowledge is then sincere, the intention is then sincere, the mind is then positive, and the mind is then self-cultivation." In the final analysis, physical education is far from enough for students' cognitive education. Students must understand the basic knowledge of health sports, master the relevant theories of sports to promote health, and form a scientific understanding of their own physical quality and health level, in order to establish the scientific and health concept of lifelong sports "health first". In this way, self-determination motivation will play a key role in students' sports learning, so that students can "enjoy fun, enhance physical fitness, improve personality, temper will" in sports.

3.2. Elaborate Sports Teaching Materials

Although the national curriculum standard of "Physical education and health" is clearly formulated, it has not been effectively implemented [15]. In fact, PE teaching materials have not been effectively used in PE teaching. Physical education and health curriculum is a combination of knowledge and skills. Physical education textbooks not only reflect the national curriculum standard of "Physical education and health curriculum", but also shoulder the task of conveying the lifelong sports and health concept of "health first" to students.

As the saying goes, sports teaching is incomplete without sports teaching materials. Excellent sports teaching materials will keep pace with The Times and reflect the essence of sports teaching:

Excellent physical education textbooks help students understand their own body scientifically, find their strengths and weaknesses, guide students to carry out scientific exercise and make progress according to their own physical characteristics, rather than because of difficulties in individual sports, easily deny themselves, thus losing interest in sports;

Excellent physical education textbooks can also help students improve their motivation to learn physical education and make up for the shortage of physical education teacher resources. Students can carry out purposeful and planned sports through the relevant knowledge, theories, methods and skills provided by the textbooks. In this way, students can have clearer purpose and meaning in sports and their autonomous sports motivation will be improved. Students' willingness to do physical activity will continue to exist after they leave school.

Physical education textbooks can guide students to conduct self-education. The textbooks provide students with the latest health research theories and results, and guide students to discuss various health-threatening lifestyles and how students should manage their physical health based on their own situation and the information provided by the textbooks.

Physical education textbooks can guide students to popularize physical health knowledge to society and family, make students themselves become the popularizer, advocate and practitioner of physical health knowledge, improve students' sense of social responsibility and sense of ownership, and virtually enhance students' motivation to improve their physical health.

It is urgent to create excellent physical education materials, otherwise the education concept of "health first" will become an empty talk. In our country, the whole name of the physical education course is "Physical education and health" course, because it involves sports and health, the higher requirement of the compilation of physical education textbooks is put forward. The compilation of textbooks should not only include experts in physical education and high-level sports talents, but also include experts in sports medicine, nutrition, life science, biology and other health-related issues to provide the latest theories and achievements of physical health.

Textbooks should focus on the important elements of physical health, such as "physical strength". For example, in the 21st century, in the face of the declining athletic ability of primary and secondary school students in Japan, obesity and bad living habits caused by insufficient exercise and other negative influences, the Central Education Council of Japan has given that "physical strength is the source of activity, in addition to maintaining health, and enthusiasm and full of energy also has a lot to do with it, which is the basic element supporting human development and growth". The significance of physical strength is expounded, and the status quo of physical strength and the reasons for low physical strength are analyzed [16].

3.3. Form Students' physical Health Evaluation Report

A comprehensive students' physical health evaluation report is formed every year. According to the National Students' Physical Health Standards, the report gives the results of various indicators in the form, function and quality of students' bodies. Help students clearly understand their own

physical status, further clarify their own physical strengths and weaknesses, according to the report gives appropriate suggestions according to different students' physical status.

Every student has his/her own unique physical characteristics. The health evaluation report should pay attention to the growth and development of students. The physical health assessment report of primary school is recommended mainly for parents, and during middle school, students and parents receive the physical health assessment report of school together. The content of physical health evaluation report should pay attention to the following aspects:

1. The focus of the physical health evaluation report is to help students understand the development and changes of their physical health, rather than the ranking of various physical indicators among students. The physical health evaluation report should form the curve of the physical indicators of students.

2. The physical health evaluation report is the basis for students to conduct self-evaluation and management of their physical health. The report gives targeted suggestions to help students carry out self-management of their physical health in a planned and targeted way.

3. The physical health evaluation report is to help parents understand the physical status of students, to convey health management knowledge to parents, to reduce the impact of bad family living habits on the physical health of students.

4. Conclusion

In the context of the global pandemic, we have unprecedented attention to the relationship between physical health and disease. The physical health of students is closely related to the influence of national policy, social environment, family and school. Students as the main body of our research, we take the main place of students' activities -- school, as the main front of students' physical health intervention. It is believed that with the support of policies and the cooperation of families, schools will better play the advantages of collective education, apply educational rules and teaching techniques to physical education, and play the intermediary role of schools in promoting the healthy growth of students' physique.

In school physical education teaching, we think that the most effective way to promote students' physical health is to improve students' motivation of physical education; As the carrier of sports and health knowledge, excellent physical education textbooks are very important to help students form the lifelong sports concept of "health first". The students' physical health evaluation report, on the one hand, is the basis for students to evaluate and manage their own physical health, on the other hand, it can better form the joint force of school and family education, so that the family can better play the role of guaranteeing the students' physical health development.

References

- [1] Zhu Xihe, Justin A. Haegele, Huarong Liu, and Fangliang Yu. 2021. "Academic Stress, Physical Activity, Sleep, and Mental Health among Chinese Adolescents" *International Journal of Environmental Research and Public Health* 18, and mental Health among Chinese adolescents "International Journal of Environmental Research and Public Health 18, No. 14, 7257. <https://doi.org/10.3390/ijerph18147257>.
- [2] Zhang Xinyuan et al. Current situation and Strategy of Promoting physical health of adolescents in school in post-epidemic era. *Journal of Sports Science*, 2021(7): 215.
- [3] Meng Xiangbo. Study on Determinants of physical health and Intervention Strategies of Adolescent students in Jiangsu Province. *Sports Science and Technology*. 2021 (42):48-50.
- [4] Wu Jian et al. Effective intervention to improve students' physical health. *China Education News*, 2020-02-08 (4).
- [5] Aziz, N.; Nordin, M.J.; Abdulkadir, S.J.; Salih, M.M.M. Digital Addiction: Systematic Review of Computer Game Addiction Impact on Adolescent Physical Health. *Electronics* 2021, 10, 996. <https://doi.org/10.3390/electronics10090996>.

- [6] Jiang Yi, Huang Yan. *The development direction of Physical Training for adolescents under the influence of Physical Education and Health Curriculum Standards*. *Physical Education (Sports Products and Science and Technology)*, 2019(8):154-155.
- [7] Tang Fengjiao. *Analysis on Physical health of Middle School students in Wuhan*. *Journal of Mudanjiang Normal University (Natural Science Edition)* 2014(4): 45 -- 47.
- [8] Qian Yayan, Zhang Jun. *The Dilemma and Reflection on the Role of Family and School in Adolescent Physical Education*. *Contemporary Sports Science and Technology (Expert Forum)* 2021, 11 (11): 20 -- 23.
- [9] Liu Rong, Sun Xiuli. *Investigation and analysis of Physical health Status of Middle School students in Jinan*. *Hubei Sports Science and Technology*, 2011(5):344.
- [10] Gong Xiaochen. *Dynamic Scores of Physical Health Standard Test of Middle School students in Hohhot City*. *Journal of Inner Mongolia Normal University (Education Science Edition)*, 2014, 27 (12): 152 -- 154.
- [11] Feng Haibo, Yang Guoqing, Ji Yu. *Analysis on Physical health status and Influencing factors of Middle School students in Beijing*. *Friends of Science*, 2010(8): 92.
- [12] Hu Xiaoqing, Tang Yan, Huang Xia, et al. *Research progress of Sports Learning Effect from the perspective of Self-determined motivation theory*. *Sports Science*, 2020, 40(04):67-77.
- [13] Pulido, J.J.; Tapia-Serrano, M.A.; Diaz-Garcia, J.; Once-bordon, J.C.; Lopez - Gajardo, M.A. *The Relationship between Students' Physical Self-Concept and Their Physical Activity Levels and Sedentary Behavior: M.A. The relationship between students' physical self - concept and their physical activity levels and sedentary behavior: The Role of Students' Motivation*. *Int. J. Environ. Res. Public Health* 2021, 18, 7775. <https://doi.org/10.3390/ijerph18157775>.
- [14] Ministry of Education of the People's Republic of China. *Curriculum Standard of Physical Education and Health for Compulsory Education (2011 edition)*. Beijing: Beijing Normal University Press, 2012:4.
- [15] Zeng Yushan, Yang Xiudi, Wang Hong et al. *The Deficiency, Construction and Implementation of the Standards of Teaching Effectiveness in Physical Education*. *Journal of Shandong University of Physical Education*, 2020, 36(05):16-22.
- [16] Lu Na et al. *From the perspective of integration of physical education and education, the enlightenment of the evolution of Japanese school physical education policy on the promotion of physical health of Chinese adolescents*. *Journal of Shenyang Institute of Physical Education*, 2021(5): 44.