

Research on Physical Exercise of Postgraduates under the Perspective of Educational Evaluation Reform

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Abstract: In order to promote the effective implementation of the Overall Plan for Deepening the Reform of Education Evaluation in the New Era, this paper conducted an empirical survey from three dimensions, including the real situation of physical exercise during the COVID-19 pandemic period, to re-examine the actual situation and existing problems of post-epidemic postgraduates' participation in physical exercise in Zhanjiang city. And consequently to review the opportunities and challenges faced by strengthening sports evaluation of postgraduates and promoting ideological education, this paper puts forward the corresponding education and empowerment plan and reform direction from five aspects.

1. Introduction

In October 2020, the CPC Central Committee and The State Council issued the General Plan for Deepening the Reform of Education Evaluation in the New Era, which clearly proposed to strengthen the evaluation of sports for college students and explore opening sports courses at all stages of higher education."^[1] In particular, the situation of physical education and health education for postgraduates is becoming increasingly severe in the context of the normalization of COVID-19 prevention and control worldwide. Therefore, it is urgent to attach great importance to postgraduate physical education and comprehensive health education from a strategic perspective. Relevant medical theories mainly include the Thermogenic Model, the activation Model of the hypothalamic-pituitary-adrenal axis, the antidepressant mechanism of monoamine transmitter, and the positive effect mechanism of melatonin^[2]. This paper was originally 13500 words, but can only be highly condensed to 3000 words due to space limitation. Please contact the author if you want to see the complete version.

2. Research object and method

Research subjects: Postgraduates of GuangDong Ocean University(GDOU) and GuangDong Medical University(GDMU).

Research methods: literature method, questionnaire method, interview method, mathematical statistics (SPSS), logical analysis method. The questionnaire of this study was published online, and 569 valid questionnaires were collected. Among them, male students accounted for 42.36% and female students for 57.64%. The subjects covered liberal arts, science, engineering, medical science, agriculture and so on, which were widely representative.

3. Data analysis and results

3.1 Basic cognitive analysis of physical exercise by postgraduates

The data showed that there was a significant gender difference in the importance of physical exercise to physical and mental health of postgraduates ($\chi^2=29.618$, $P < 0.01$), but the proportion of very important and important choice was 84.01%. It shows that they generally recognize the

importance of physical exercise to individual physical and mental health. The top three motivations for exercising were fitness, stress relief and weight loss. More than half of the respondents said they did not do exercise because they were under pressure from scientific research. More than a third admitted they were lazy about their lifestyle. The degree of trust in "physical exercise can promote the secretion of monoamine neurotransmitter (such as dopamine)" of postgraduates was consistent ($\chi^2=0.581$, $P > 0.05$), and the proportion of those who chose to believe was obviously overwhelming (83.13%), indicating that they generally have basic medical knowledge.

3.2 Analysis of postgraduates' self-perception of physical and mental health status

Postgraduates' perception of fatigue, stress, body fat percentage and other symptoms is shown in Table 1:

Table 1 Pearson correlation analysis of postgraduates' perception of fatigue, stress, body fat percentage and other symptoms

	Mean	Standard deviation	15. Is your body often tired?	16. Do you often nervous spirit?	Are your physical strength on the decline?	18. Is your body fat percentage on the rise?
15. Is your body often tired?	2.037	0.614	1			
16. Do you often nervous spirit?	2.158	0.666	0.597**	1		
17. Are your physical strength on the decline?	2.076	0.684	0.563**	0.554**	1	
18. Is your body fat percentage on the rise?	2.223	0.758	0.360**	0.345**	0.463**	1

* $p < 0.05$ ** $p < 0.01$

It can be seen that the perception of frequent physical exhaustion is significantly correlated with the perception of "frequent mental tension", "physical strength is declining" and "body fat rate is increasing", indicating that the perception of frequent physical exhaustion is positively correlated with the latter three issues. The proportion of those who do not feel these four items is less than 30%, indicating that they generally know that they are in sub-health state.

3.3 Analysis on the actual situation of physical exercise for postgraduates during epidemic period

According to statistical data analysis^[3], the frequency of postgraduates participating in physical exercise in GDOU & GMOU is mainly 1-2 times per week, which is lower than the standard of sports population in China (3 times). There was a significant gender difference in all the main periods of physical exercise for postgraduates ($\chi^2=17.953$, $P < 0.01$). Combined with the statistical results of question 26 (currently common physical exercise), the gender difference is shown that male students prefer ball games which the venue requirements are relatively fixed, and female students prefer yoga and walking which the venue requirements are relatively flexible. Thus, It is not difficult to understand why the proportion of boys choosing evening (41.49%) is significantly higher than that of girls. The proportion of female students choosing unfixed is 30.49%, which is significantly higher than that of male students. The liberal arts (54.46%) and medical (65.22%) postgraduate students generally rated that the sports facilities in their schools did not meet their physical exercise needs.

At the end of 2020, e-sports was approved to be included in the Hangzhou Asian Games. To this end, the author tries innovative research and analysis.

We cross-analyze the expenditure of postgraduates on offline sports and online e-sports and find that there are obvious gender differences. For the former, the proportion female students who choose to consume nothing is 75.00%, which is significantly higher than that of male students. The

proportion of male students choosing less than 200 yuan was 33.61%, significantly higher than that of female students. For the latter, 92.07% of female students choose to consume nothing, which is significantly higher than male students. It shows that the postgraduates of these two universities generally treat e-sports rationally.

We believe that it is necessary to specifically research the impact of the most basic sports APP on the physical exercise of postgraduates. On the one hand, the author firstly graded the frequency, time and intensity of physical exercise for postgraduates (full mark is 5 points). The data showed that postgraduates who "always" use sports apps had higher average exercise frequency, duration and intensity (2.357, 1.857 and 2.829 respectively) than the other four frequencies. In order to be more rigorous, the author further conducts variance analysis (Table 2).

Table 2 Variance analysis of the frequency, duration and intensity of physical exercise of postgraduates using sports APP

	30.How often do you use sports apps during exercise (mean ± SD)					F□	p□
	always(n=56)	frequently (n=93)	sometimes (n=149)	Very few (n=165)	never (n=106)		
20.How often do you usually exercise each week?	2.36±1.05	2.43±0.94	2.30±0.71	2.05±0.78	1.97±0.93	5.848	0.000**
21.How long do you usually do each exercise session?	1.86±1.02	1.80±0.70	1.70±0.75	1.59±0.75	1.81±1.08	1.811	0.125
22.What is your current subjective exercise intensity that you usually achieve during physical exercise?	2.84±0.97	2.51±0.75	2.40±0.86	2.23±0.89	2.33±1.06	5.230	0.000**

* $p < 0.05$ ** $p < 0.01$

It is obvious that different frequency of using sports APP has significant difference in physical exercise frequency and intensity ($F=5.848$, $P < 0.01$; $F=5.230$, $P < 0.01$), again verifying that the use of sports apps by postgraduates students can improve the frequency and intensity of physical exercise.

On the other hand, questions 32 to 35 are related to the satisfaction of graduate students using sports apps. Here we assign 5 points, and "strongly agree" gets 5 points in descending order. Then, variance analysis was conducted between these and the frequency of APP use by postgraduates. According to the data, different frequency of postgraduates using sports apps during physical exercise shows significant difference for all questions 32 to 35. In order to be more rigorous, the author further conducted Kendalls correlation test analysis. Data show that the frequency of physical exercise when they use sports APP is higher, the more identity of "APP can provide services and information needed for the physical exercise", and "Visual information such as text, images, video is very interesting those providing by APP", and "APP real-time record and incentive mechanism can promote the postgraduates more actively participate in physical exercise".

4. Countermeasures and suggestions for promoting physical exercise of postgraduates

4.1 Improvement direction of Postgraduate themselves

Try to make full use of sports wear equipment within their economic range, gradually quantify and improve the frequency, duration and intensity of physical exercise within their physical range, and strengthen the sense of achievement and gain.

4.2 Improvement direction of teachers

First of all, graduate supervisors should give their own graduate students enough space and time in terms of physical exercise, form a physical exercise group, and close the relationship of mutual

help and mutual promotion of sports outside of scientific research. Counselors should take the lead in strengthening physical exercise as good teachers and helpful friends, and play an exemplary role for graduate students. On the premise of privacy protection, cooperate with related sports and health teams to establish electronic records of graduate students' physique and health dynamic tracking. It can track and record the physical fitness, pressure, disease, sleep, diet and other conditions of graduate students through network questionnaire, physical fitness measurement, health scale evaluation and other methods, detect and evaluate the physical fitness and health level of graduate students, and provide evaluation results report.

4.3 Improvement direction of schools

The school should issue the implementation opinions on guiding the all-round development of postgraduates morally, intellectually, physically, aesthetically, and laboratorially to highlight the role of baton; Teaching affairs Office and graduate school should appropriately explore opening elective P.E. courses with credits for graduate students, and the assessment of talent cultivation plan should be clearly reflected, as well as the comprehensive assessment should be oriented with extra points on the general benefits and selectivity of physical exercise. Logistic group and other functional departments should speed up the construction of supporting stadiums. In the transitional period of bidding and construction, the existing sports facilities should be managed scientifically in different time periods.

4.4 Improvement direction of family

The concern of parents and other legal guardians for postgraduate students should include physical and mental health. As far as possible to create a good home physical exercise atmosphere, to avoid their own refusal to do physical exercise but condescending to the children must be physical exercise sharp contrast.

4.5 Improvement direction of government

Zhanjiang City is speeding up the construction of provincial sub-center city, to build an important development pole of modern coastal economic belt, in the final analysis, depends on attracting and retaining talents. GDOU and GDMU as the pioneer of southwestern Guangdong province of higher education, especially postgraduate education, deserve a local government in the aspect of sports facilities more inclination of fiscal support, which moistens everything silently cultivating postgraduate students of attachment to the city of love and leave cham with specialty job after graduation.

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