
INFLUENCE OF PHYSICAL EXERCISE ON PHYSICAL AND MENTAL HEALTH OF TEACHERS

Xiupeng Gao¹, Yiwei Yin^{2}*

Abstract

The physical and mental health of teachers directly bears on the teaching effect. This paper aims to disclose how physical exercise affects the physical and mental health of teachers. A questionnaire survey was carried out on situations of teachers in a certain area. The physical and mental health, and job burnout of each subject were evaluated by the self-rated health assessment scale. The statistical analysis shows that male teachers have better mental health yet poorer physical health than female teachers, and both male and female teachers need to improve their physical health; the mental and physical health of teachers are affected in different degrees by the type of sports, the exercise frequency and the exercise duration; insufficient or excessive exercise is not conducive to physical and mental health. The research results highlight the importance of physical and mental health among teachers, and provide relevant improvement principles.

Key words: Teachers, Job Burnout, Physical and Mental Health, Physical Exercise.

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INTRODUCTION

With the development of social economy, science and technology, and education, the society has continuously raised the requirements for individuals and groups engaged in education and teaching (Miller & Hoffman, 2009; Sheehan, Herring, & Campbell, 2018). In education, teaching, and scientific research works, teachers are mental labor workers and practitioners in science and technology practice and talent training, and they are playing an important role in the development of talent training and education (Agans, Säfvenbom Davis et al., 2013; Evseev, 2017; Han & Weiss, 2005). In their daily work and life, teachers are facing various pressures and they need to solve the problems of students in various aspects such as their education, career development, and families. Long-term mental stress and problems will make teachers

produce job burnout situations and influence their physical and mental health and mental status, and thereby lowering their life quality (Franklin, Kim, Ryan et al., 2012; Weston, Anderson-Butcher, & Burke et al., 2008). The above problems will result in different degrees of adverse effects on the physical and mental health of the teacher group, which will eventually lead to a decline in the quality of education and teaching. Therefore, we need to pay enough attention to the physical and mental health of teachers.

With the development of the society, people's cognition of disease and awareness of disease prevention are enhancing day by day, and our citizens are beginning to value health security (Schwarzer & Hallum, 2010; Kokkinos, 2007). Studies have shown that sports and physical exercises are one of the most effective measures to improve immunity and prevent various diseases. Reasonable and appropriate physical exercises can also improve people's mental state, relieve various stresses and enhance psychological pleasure and comfort (Mearns & Cain, 2003; Tang, Au, & Schmitz, 2001;

¹Zhengzhou Normal University, Zhengzhou 450000, China.

²Yibin University, Yibin 644000, China.

E-Mail: yinyiwei427@sina.com

Carlson & Thompson, 1995). Physical exercise can cultivate optimistic attitude, and a positive psychological state helps to improve the defense abilities of human body; moreover, a healthy body is also beneficial to the individual's mental health. Therefore, to some extent, physical exercise is helpful to the physical and mental health of practitioners, and can prevent them from having job burnout or alleviate their feelings of such kind (Yu, Wang, Zhai et al, 2015, Brewer & McMahan, 2009). As a result, the teacher group needs to do physical exercises of proper amounts.

It is of great significance to study the influence of physical exercise and sports on the physical and mental health and job burnout of teachers. Therefore, this paper adopts questionnaires and statistical analysis methods to investigate the physical and mental health status and physical exercise conditions of some teachers in a certain area, and further analyzes the influence of physical exercise on the mental health, physical health and job burnout of teachers. This study provides a theoretical support for enhancing the physical and mental health of teachers, and it's conducive to the development of education to a certain extent.

PHYSICAL EXERCISE AND PHYSICAL AND MENTAL HEALTH CONDITIONS OF TEACHERS

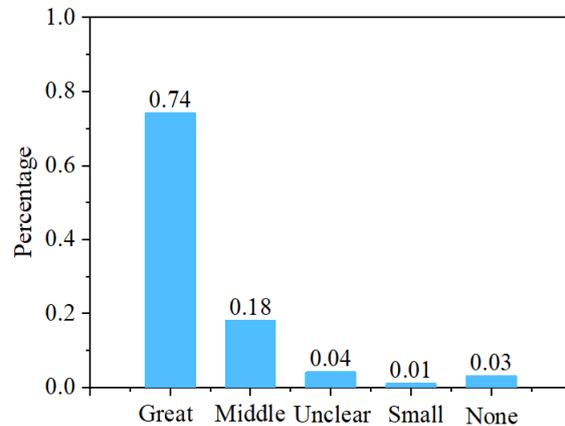
Physical exercise situations of teachers

Physical exercise can not only strengthen the body health, but also prevent the disease. Men considers strong as beautiful, while women think slim is beautiful. Sports can satisfy people's aesthetic needs. Teachers tend to do physical exercises for the purpose of relieving stress; since the teacher profession has greater stress, the purpose of physical exercise not only lies in keeping fit, but also helps to relieve tension and release stress.

Physical exercise is helpful to the individuals' physical and mental health to a certain extent. If teachers could correctly understand the relationship between physical exercise and physical and mental health, then they would have sufficient motivation and purpose to do physical exercises, cultivate good exercise habits, determine exercise plans, and complete physical and mental exercises, thus reducing the occurrence of job burnout. The survey results of teachers' cognition of the relationship between physical exercises and physical and mental

health are shown in Figure 1.

Figure 1. Teachers' cognition of the relationship between physical exercise and physical and mental health



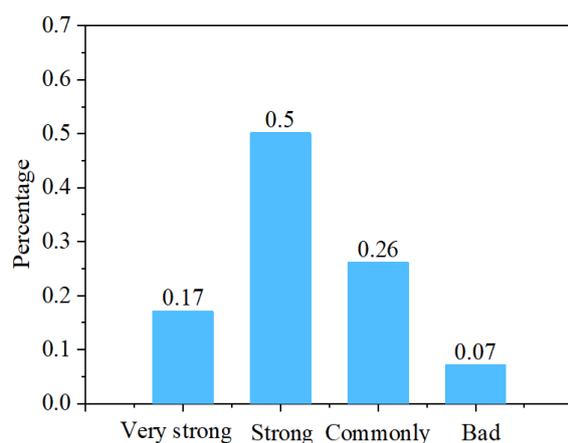
The results in the figure show that teachers who believe that physical exercise has a lot to do, or has a certain relationship with the physical and mental health account for 92%, indicating that most teachers have a positive view of physical exercise and can correctly recognize that physical exercise has a great influence on physical and mental health. Only 4% of teachers hold a relatively negative point of view, indicating that for a small part of teachers, their cognition of physical exercise has certain deviations, and they are in lack of sports knowledge. Therefore, it is necessary to re-educate the teachers and increase their sports knowledge, so that they could have a clear understanding of sports and actively participate in physical exercise, keep physical fitness, and reduce or avoid the psychological situation of job burnout.

After the teachers have formulated the exercise plan, they need to have good self-control ability to overcome the external interference and complete the exercise plan. The survey results of the teachers' self-control ability are shown in Figure 2.

The results in the figure show that teachers who consider themselves have a strong or very strong self-control ability account for 17% and 50%, respectively, and account for 67% in all. Teachers who think themselves have a common or a bad self-control ability account for 33%, so it can be seen that there are nearly 1/3 of the teachers who can't well control their own

behaviors, and they failed to overcome the interference and to do physical exercises. Therefore, it's recommended that the school leaders should organize more sports events, fully mobilize the teacher faculty's initiative in physical exercises, exercise their fighting wills in sports, and urge them to cultivate the good habit of physical exercises.

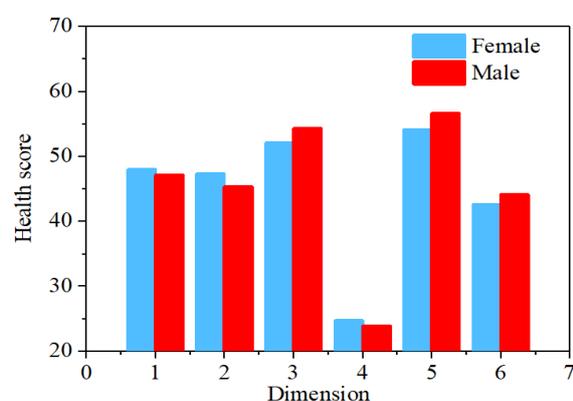
Figure 2. Teachers' self-control ability



Physical and mental health of teachers and their job burnout situation

This study used the *self-rated health assessment scale* to assess the health and job burnout of middle school teachers in Hunan Province. This scale starts from the physical and mental health to evaluate the teachers' physical and mental health conditions respectively. The survey results are shown in Table 1. To compare the results more intuitively, the data is the table is shown in histograms, see Figure 3.

Figure 3. Comparison of health assessment of male and female teachers



From the results in the figure we can see that, in their daily life, the body functions of male teachers are worse than that of female teachers, while in terms of organ functions, the scores of female teachers are lower than that of male teachers. In general, male teachers have lower overall health scores than female teachers, this is mainly because male teachers have bad habits such as smoking and drinking, while female teachers prefer more beautiful appearance, so they pay more attention to physical exercises and shape keeping, therefore, the physical conditions of female teachers are better than that of male teachers. The physical condition of teachers will affect their job burnout situations, teachers with worse physical condition are more likely to have job burnout situation and produce negative psychology. Therefore, it is recommended that teachers should participate in physical exercises more often in their daily life to strengthen their physical fitness.

Table 1. Self-rated health assessment scale

Index	Dimension	Female	Male
Good health	1 Daily life	48.0	47.1
	2 Physical activity	47.3	45.3
	3 Organ function	52.1	54.3
Mental health	4 Cognitive function	24.7	23.9
	5 Negative emotions	54.1	56.6
	6 Positive emotions	42.6	44.1
Total score		268.8	271.3

The results in the table also show that, in terms of positive and negative emotions, the scores of male teachers are all higher than that of female teachers, indicating that male teachers can adapt to the surrounding environment more easily and they have confidence in the future; in contrast, female teachers are more prone to nervousness, depression and other bad emotions, as well as the job burnout situation. In terms of cognitive function, the scores of female teachers are slightly higher than that of male teachers, in terms of cognition level, the two groups are relatively close; in term of total score of mental health, the score of male teachers is higher than that of female teachers, indicating that the mental health conditions of male teachers are better than that of female teachers. As the men in the house, male teachers have

exercised their ability in resisting stress, and men have more channels to release their stress; women should constantly adjust their lifestyles, rationally resolve their own pressures and adhere to sports exercises, so as to strengthen their mental health.

INFLUENCE OF PHYSICAL EXERCISE ON THE PHYSICAL AND MENTAL HEALTH OF TEACHERS

Influence of physical exercise on the physical and mental health of teachers

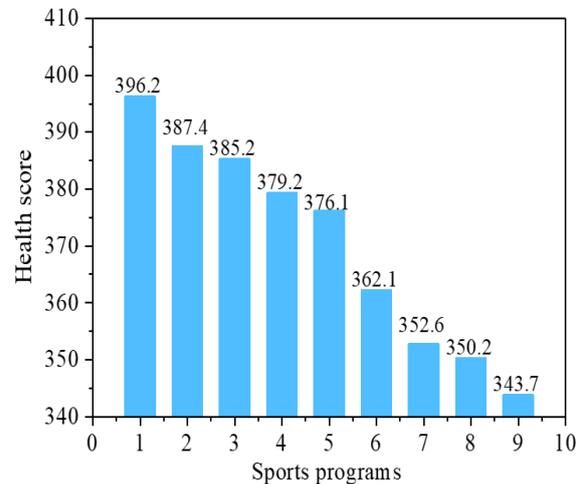
There are many types of sports, and each sports program exercises different parts of the body. Teachers should correctly select the most proper sports program for their own, so that they could better exercise themselves within a limited time and enhance their physical fitness. In order to investigate which sports program has the best effect on the health of teachers, the health scores of various sports programs have been compared, and the results are shown in Table 2.

The health scores are ranked from high to low, and the histograms are shown in Figure 4.

As can be seen from Figure 4, among the sports programs performed by teachers, the programs with top three health scores are: yoga & aerobics, rafting & mountain-climbing, Wushu & Qigong; these three kinds of sports have higher scores mainly because "yoga & aerobics" and "Wushu & Qigong" not only require skilled movements, but also need to memorize, so they can exercise the body and intelligence at the same time, and these sports can exercise the whole body. As for the "rafting & mountain-climbing", this sports program can increase the close contact between the body and the nature, so that people can release their pressure in

nature and enhance their physical and mental health.

Figure 4. Health scores for different sports programs



As can be seen in Table 2, the top three sports types selected by teachers are "basketball & football", "running & walking", and "table tennis & badminton". Many people selected "basketball & football" and "table tennis & badminton" mainly because these sports are group sports, through which they can not only exercise their body, but also promote communication between people and enhance their friendship. The reason for quite a few teachers to select "running & walking" is because these sports are convenient and simple, the requirement for the venue is not high, and one can either exercise alone or exercise in groups. Although many teachers have chosen these sports programs, their health scores are

Table 2. Statistical results of health status of teachers in different sports programs

Serial number	Sports programs	Number	Health average	standard deviation	Maximum	Minimum
1	Yoga, aerobics	24	396.2	7.32	437	367
2	Rafting, Mountain-climbing	26	387.4	4.21	424	355
3	Wushu and Qigong	14	385.2	11.42	426	342
4	Skating	16	379.2	6.34	418	334
5	Basketball, football	87	376.1	7.43	421	320
6	Swimming	21	362.1	2.27	429	304
7	Running, walking	78	352.6	6.58	413	296
8	Chess and card	10	350.2	8.93	416	285
9	Table tennis, badminton	69	343.7	5.38	401	275
10	Total	38.33	370.3	6.65	420.56	319.78

not high, indicating that the sports selected by the teachers do not match with their health scores, and the sports they chose are not the most beneficial programs to their physical and mental health.

Influence of exercise frequency and duration on the physical and mental health of teachers

The exercise frequency can improve the physical and mental health of individuals. The setting of exercise frequency mainly depends on three factors: the individual's sleep quality, the physical quality and the nutritional status. The individual's recovering ability directly affects the frequency of exercise, and the arrangement of each exercise cycle should be determined according to one's own conditions, so that every muscle in the body can be exercised. In order to study the influence of exercise frequency on the health of teachers, one-way analysis of variance was performed to test the differences between different exercise frequencies, and the results are shown in Table 3.

It can be seen in Table 3 that different exercise frequencies have different degrees of influence on the health of teachers, and there are significant differences for exercise for more than 5 times a week, exercise for 1-2 times a week, and exercise for 3-4 times a week ($P < 0.05$), and taking exercise for more than 5 times a week can significantly increase the health scores of teachers. As can be seen in Figure 5, the health score of the teacher's exercise increases with the increase of the frequency of exercise, and is positively correlated. Therefore, it is recommended that

school teachers can enhance their physical health by increasing the frequency of exercise. By reasonably controlling the exercise frequency, the physical and mental health conditions of teachers who had less exercise could be improved.

The amount of exercise is usually measured by exercise duration. The longer the exercise duration, the greater the amount of exercise. The exercise time was segmented for single factor analysis to study the influence of exercise duration on the health of teachers. The research results are shown in Table 4.

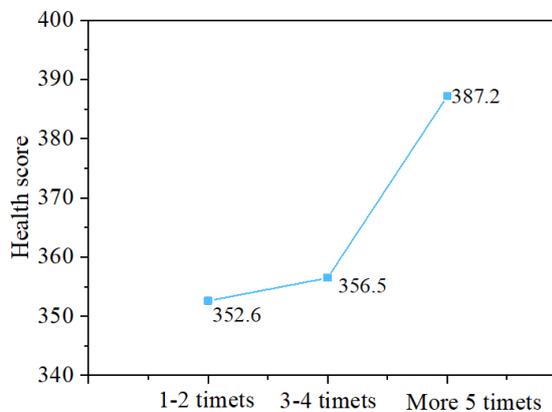
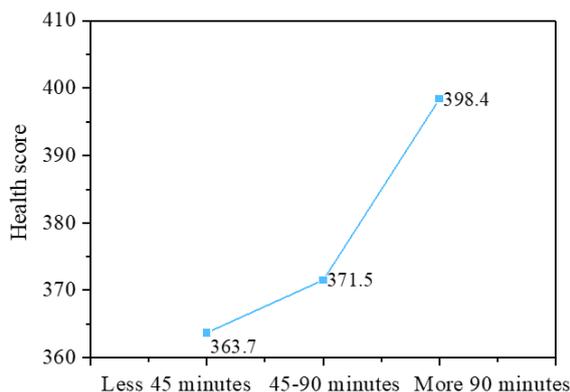
Table 4 shows that there is a significant difference in health scores between exercising for 45-90 minutes each time and exercising for less than 45 min each time ($P < 0.05$), also, there is a significant difference in health scores between exercising for more than 90 minutes each time and exercising for less than 45 minutes each time, and it can be concluded that the health score for exercising for less than 45 minutes each time is the lowest. As can be seen from Figure 6, with the increase of the exercise duration, the teachers' health score increases gradually as well, and longer exercise duration time has obvious improvement effects on insomnia and lack of energy. Therefore, we can conclude that exercise duration has a great impact on health, and the longer the exercise duration, the higher the health score. As a result, it's recommended that the exercise duration of each time of the teachers should be prolonged to some extent, so as to improve their health level and comprehensively improve their physical qualities and health conditions.

Table 3. Influence of exercise frequency on health of teachers

Number of exercises (A)	Number of exercises (B)	Average difference (A-B)	Standard deviation	Significance (P)
1-2 times	3-4 times	1.046	12.203	0.921
	More than 5times	-24.872	12.783	0.047
3-4 times	1-2 times	-1.062	12.402	0.932
	More than 5times	-23.875	11.023	0.028
More than 5times	1-2 times	23.835	12.834	0.047
	3-4 times	24.172	11.021	0.028

Table 4. Comparison of the influence of different exercise duration times on health status

Time (A)	Time (B)	Average difference (A-B)	Standard deviation	Significance (P)
Less than 45 minutes	45-90 minutes	6.421	20.863	0.084
	More than 90 minutes	-27.926	21.234	0.183
45-90 minutes	Less than 45 minutes	-6.632	20.239	0.012
	More than 90 minutes	-55.266	15.246	0.115
More than 90 minutes	Less than 45 minutes	27.472	23.843	0.018
	45-90 minutes	39.028	25.462	0.356

Figure 5. Health scores of teachers with different frequencies of exercise**Figure 6. Health scores of teachers for different exercise duration times**

CONCLUSIONS

This paper statistically analyzed the physical and mental health and physical exercise situations of some teachers in a certain area, and explored the influence of sports types, exercise frequency and exercise duration on the physical

and mental health of the teachers. The main conclusions are as follows:

(1) Compared with female teachers who have the same teaching situation or work situation, male teachers have relatively poor physical health conditions, while their mental health status are relatively good, and they are less prone to the job burnout situation; however, the physical and mental health conditions of both male and female teachers need to be further improved.

(2) For different sports programs, their influences on the individuals' physical and mental health conditions are different, and the influence degrees of exercise frequency and duration are different as well; for the current situation of the teacher group, they can increase the exercise duration time; however, only the right amount of exercise is good for health, so individual teachers should choose the appropriate program and range of exercise according to their own conditions.

(3) The physical and mental health of teachers is affected by work pressure, social pressure, life stress, physical exercise and other aspects. The society and the schools should give certain care and help to teachers, so as to improve their awareness of physical and mental health, and enhance physical exercises.

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