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How sports lead to the physical fitness in China?

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Abstract
The objective of this study is to address the role of sports in physical fitness. To achieve this objective, the relationship between sports, stress control, physiological motivation and physical fitness was examined. To check these relationships, seven hypotheses were proposed. Data were collected from players related to the various games in China such as football, hockey, basketball etc. The primary data were collected with the help of questionnaire. Partial Least Square (PLS) was used for data analysis. It is found that; sports have positive effect on physical fitness. Sports also has positive effect on stress control. Furthermore, sports have positive effect on physiological motivation. The stress control has positive effect on physical motivation. Finally, physiological motivation also has positive effect on physical fitness. Therefore, this study shows that sports has important contribution towards physical fitness. Sports increases the physiological motivation with the help of stress control and physiological motivation. Both the stress control and physiological motivation has positive role to transfer the effect of sports on physical motivation.
Keywords: Sports, stress control, physiological motivation, physical fitness

Introduction

Physical fitness can be described as the state of health and well-being and, more importantly, the capability to perform aspects of sports, occupations as well as daily activities. Physical fitness is normally achieved with the help of proper nutrition (Soares-Miranda et al., 2017), moderate-vigorous physical exercise, and appropriate rest. However, physical fitness can also be achieved with the help of activities related to the sports. Various previous studies confirmed that physical fitness has important to maintain (Esmail et al., 2020; Millet, Millet, & Candau, 2001). To maintain a certain level of physical fitness is most important for the routine work.

To perform routine work activities, the role of physical fitness is most important which must be maintained. Employees working among various organizations must have physically fit to perform their duties. However, if a person is not fit, he or she will not be able to perform various job activities. To achieve higher performance in job, the employees of organizations must be physically fit. Furthermore, to perform daily activities for human body, the physical fitness is important to achieve higher performance. Number of studies have been carried out in literature which proved that physical fitness has important contribution to performance (Chen et al., 2021; Lee et al., 2020).

However, low level of physical fitness creates several problems. It creates several problems for individuals as well as organizations. For the individuals, it creates problems in daily activities. The individuals having low level of physical fitness, cannot perform daily activities in a proper way which also create several other problems. Generally, low physical fitness level among the people shows negative outcomes. In addition to this, low physical fitness creates several problems for the organizations in shape of inconsistent performance by the employees. As employee's performance is one of the most important parts to achieve higher organizational performance (Hafiz & Sary, 2020; Muñoz-Pascual & Galende, 2020). Therefore, achievement of good physical fitness level is most important.

A significant level of physical fitness can be achieved with the help of various activities related to the sports. Activities related to the sports can maintain a good level of fitness which may influence the human activities. Generally, it shows positive effect on the human activities and increases the quality of activities. As given in the literature, sports has important relationship with the fitness (Gui, Chen, Caldeira, Xiao, & Chen, 2017). Therefore, sports can increase the physical fitness. Chinese people can enhance the physical fitness with the help of sports related activities. In addition to this, sports man has direct and indirect effect on the physical fitness. Indirectly, stress control is an important role. Sports has important relationship with the stress. Generally, sports related activities can reduce the level of stress among the people which may lead to the physical fitness. As stress has major role among the performance of individuals (Vartanian et al., 2018). Sports has relationship to affect the stress level which further has relationship with the physical fitness. In addition to the stress control, physiological motivation also has contribution to physical fitness. Similar with the stress control, physiological motivation also has important relationship with sports which lead to the physical fitness.

The objective of this study is to address the role of sports in physical fitness. In this direction, the relationship between sports, stress control, physiological motivation and physical fitness was examined to check the effect of sports on physical

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fitness. Several studies are available on physical fitness and sports (Pérez-Cruzado & Cuesta-Vargas, 2016; Srikanth, Petrie, Greenleaf, & Martin, 2015), however, the role of stress control and physiological motivation is not addressed between sports and physical fitness. Therefore, this is interesting study to find the mediating role of stress control and physiological motivation between sports and physical fitness.

2. Literature Review

Sport pertains to any form of competitive physical activity or game that aims to use, maintain or improve physical ability and skills while providing enjoyment to the participants. The current study is discussing various sport games such as football, hockey, basketball etc. In China, sport is very common, and people are involved in various sport activities. These sport games are involved at national as well as international level. Along with the various other nations, China is also playing important role in sport worldwide (Ullah et al., 2021; Wen, 2020). The performance of Chines sport industry is increasing day by day.

Sport has important role in every country because it has direct relationship with the health of the people. The sport activities at domestic level has vital importance for the people. As sports related activities has positive role in physical fitness. Generally, sports related activities increase the physical fitness of the players. Sports has the ability to influence stress control which further lead to the physical fitness. Similarly, sport has positive role in physiological motivation of the people which also lead to the better physical fitness. The relationship between sports, stress control, physiological motivation and physical fitness is highlighted in Figure 1.

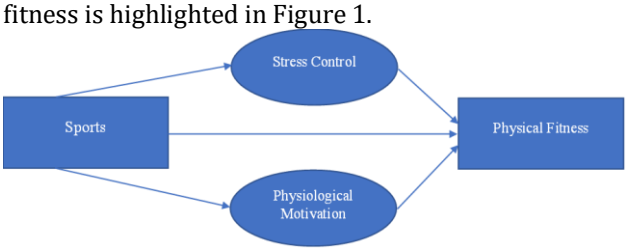


Figure 1. Framework of the study showing the relationship between sports, stress control, physiological motivation and physical fitness.

2.1 Sports and Physical Fitness

Physical fitness is a state of health along with the well-being and, more precisely, the capability to achieve aspects of sports, occupations as well as various daily activities. Physical fitness is usually attained through proper nutrition, moderate-vigorous physical exercise, and sufficient rest. A physical exercise for physical fitness can be attained with the help of sports. Physical fitness is one of the factors which is influenced by the activities related to the sports. A person which is involved in sports related activities generally remain physical fit. Therefore, there is an important relationship between sports and physical fitness. As it is mentioned in previous studies that physical fitness is most important part of any individual (Filgueira et al., 2021; Santos et al., 2021) which can be achieved with the help of sports. Therefore, following hypothesis is proposed;

Hypothesis 1. Sports has relationship with physical fitness.

2.2 Sports and Stress Control

Stress is one of the factors which has important effect on the physical fitness of people. Although, it is one of the states of mind, however, state of mind also has effect on physical fitness. Because it also has phycological effect on the state of mind which effect negatively on the physical fitness. As stress is a sense of expressive or physical tension. It can come from any type of thought that makes a person feel irritated, angry, or anxious. Stress is the body's response to a challenge or any type of demand. In short bursts, stress can be positive, such as when it helps you evade threat or meet a deadline. It is highlighted in previous studies that stress has relationship with the health of the people (Chan et al., 2019; Westerlund et al., 2010). In this direction, sports can play an important role. Sports has the ability to control the level of stress. A person which is involved in sports related activities generally have low level of stress. Therefore, sports have the ability to control stress level which lead to the following hypothesis;

Hypothesis 2. Sports has relationship with stress control.

2.3 Stress Control and Physical Fitness

To control the level of stress has important relationship with the physical fitness. Generally, a relaxed mind can utilize a body better for various tasks. However, a stressful mind can decrease the performance of overall body. The performance of human body is also based on the level of stress. The person having high level of stress may perform lower than the person has low level of stress. As there is an important connection between stress and human body (Pradhan et al., 2021). Therefore, increase in the level of stress may decrease the physical fitness of an individual. However, decrease in stress level may increase the physical fitness. Therefore, it is really important to control the level of stress to maintain physical fitness. The control of stress may lead to the better physical fitness. Hence, the below hypothesis is proposed;

Hypothesis 3. Stress control has relationship with physical fitness.

2.4 Sports and Physiological Motivation

Physiology is the investigation that how the body of human works in various situations (Santangelo et al., 2020). It defines the chemistry as well as physics behind elementary body functions of an individual, from how molecules work in cells to how classifications

of organs work together. It assists us recognize what happens in a healthy body in normal life and what goes incorrect when someone gets sick. Therefore, it has strong relationship with physical body of a human. Similar to this, physiological motivation is the state in which human have higher level of motivation to perform any task or any activity at any time. As physiology has relationship with motivation (Rompilla Jr, Hittner, Stephens, Mauss, & Haase, 2021), that is the reason it has important connection with the human body. Generally, physiological motivation can be enhanced with the help of physical exercise. Sports is one of the most important physical exercise. Therefore, sports have important relationship with physiological motivation. Thus, following hypothesis is proposed;

Hypothesis 4. Sports has relationship with physiological motivation.

2.5 Physiological Motivation and Physical Fitness

Motivation is one of important states of mind for a human which effect positively on human daily activities. Motivation has the ability to promote human inner satisfaction which lead to the physical fitness. Motivation has relationship with the physical fitness. Therefore, physiological motivation also has significant relationship with the physical fitness. Sports has positive role to promote physiological motivation which lead to higher physical fitness. The relationship between motivation and physical fitness is already available in the literature. Various previous studies mentioned that motivation and physical fitness has relationship (Drenowatz, Hinterkörner, & Greier, 2021; Nanda & Sari, 2021). Therefore, it is hypothesized that;

Hypothesis 5. Physiological motivation has relationship with physical fitness.

Above discussion shows that; sports have significant relationship with stress control and physiological motivation. It also has significant relationship with physical fitness. Both the stress control and physiological motivation has relationship with physical fitness. Therefore, in this situation, by following the instructions of Baron and Kenny (1986), stress control and physiological motivation can be used as mediating variable between sports and physical fitness. Hence, following indirect hypotheses are proposed;

Hypothesis 6. Stress control mediates the relationship between sports and physical fitness.

Hypothesis 7. Physiological motivation mediates the relationship between sports and physical fitness.

3. Method

The current study designed a questionnaire to collect primary data. As this study is based on the quantitative research (Westerman, 2006), therefore, firsthand data were collected with the help of questionnaire. Thus, the relationship between sports, stress control, physiological motivation and physical fitness was examined by using a survey questionnaire. Data were collected from players related to the various games in China such as football, hockey, basketball etc. In this study, a correctional research designed was preferred and data were collected from one point of time instead of longitudinal research design.

Questionnaire were distributed among the players of various games in China such as football, hockey, basketball etc. Questionnaires was used because it is one of the important instruments to collect the data. While using a questionnaire, Likert scale was preferred in this study because Likert scale is important to obtain the opinion of people. Various previous studies also preferred to use Likert scale due to several benefits (Lubke & Muthén, 2004). Total 500 questionnaires were used for data collection. Therefore, 500 questionnaires were distributed among the players of various games with the help of convenience sampling. Convenience sampling is an important type of non-probability sampling that includes the sample being drawn from that part of the population that is close to hand which is also recommended in previous studies in the literature. Finally, 230 questionnaires were received and used in data analysis. Data analysis was performed with the help of Partial Least Square (PLS).

4. Data Analysis and Results

Data analysis of the study is started with the Partial Least Square (PLS) algorithm to examine the reliability as well as validity. However, before to report PLS algorithm to examine the reliability and validity, this study assessed the data to fix the errors such as missing value, outlier and normality. The results for missing value, outlier and normality are given in Table 1. It is highlighted that none of the variable has missing value and outliner. The last column of the Table 1 shows the normality of data which is not require in the current study because this study using PLS which is suitable to run both normal and non-normal data. PLS algorithm is given in Figure 2 which shows the factor loadings.

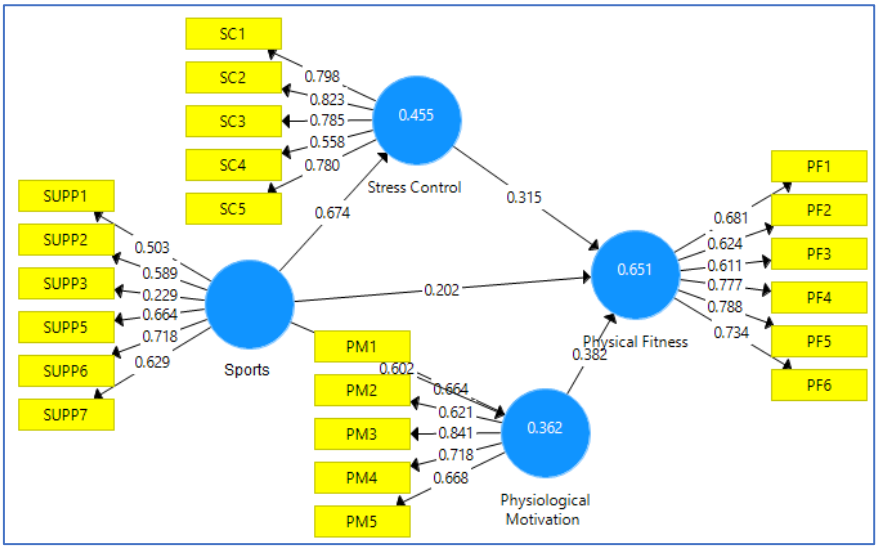
Table 1. *Data Statistics*

	No.	Missing	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
SUPP1	1	0	1.462	1	1	5	0.685	6.998	2.119
SUPP2	2	0	1.673	2	1	4	0.557	1.452	0.423
SUPP3	3	0	1.729	2	1	4	0.615	0.061	0.376
SUPP4	4	0	1.744	2	1	3	0.626	-0.626	0.253
SUPP5	5	0	2.01	2	1	4	0.65	-0.276	0.101

SUPP6	6	0	1.889	2	1	4	0.693	-0.26	0.334
SUPP7	7	0	1.889	2	1	4	0.64	-0.132	0.218
SC1	8	0	2.281	2	1	5	1.013	-0.56	0.405
SC2	9	0	2.136	2	1	5	0.878	-0.315	0.405
SC3	10	0	2.075	2	1	4	0.862	-0.604	0.375
SC4	11	0	2.07	2	1	5	0.888	-0.338	0.468
SC5	12	0	2.191	2	1	5	1.019	-0.651	0.469
PM1	13	0	2.005	2	1	5	0.726	1.102	0.626
PM2	14	0	2.05	2	1	5	0.714	0.938	0.51
PM3	15	0	2.261	2	1	4	0.803	-0.567	0.076
PM4	16	0	2.171	2	1	5	0.88	0.271	0.505
PM5	17	0	2.045	2	1	5	0.725	0.372	0.329
PF1	18	0	2.085	2	1	5	0.782	1.566	0.74
PF2	19	0	2.171	2	1	5	0.751	1.906	0.784
PF3	20	0	2.08	2	1	4	0.804	-0.95	0.086
PF4	21	0	2.136	2	1	5	0.86	-0.089	0.354
PF5	22	0	1.945	2	1	5	0.834	1.078	0.89
PF6	23	0	1.905	2	1	5	0.824	0.669	0.831

Note: SUPP = Sports; SC = Stress Control; PM = Physiological Motivation; PF = Physical Fitness

Figure 2. PLS Algorithm



Note: SUPP = Sports; SC = Stress Control; PM = Physiological Motivation; PF = Physical Fitness

It is shown in Figure 3 that sports is measured by using seven scale items, stress control is measured by using five scale items, physiological motivation is also measured by using five scale items and finally, physical fitness is measured by using six scale items. The factor loadings of all the scale items is examined as shown in Figure 3 which indicates that all the scale items have factor loadings above 0.5 which is measured threshold level. As recommended by previous studies that PLS algorithm is most suitable method to examine the factor loadings to assess the reliability (F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser, 2014; J. Hair, Hollingsworth, Randolph, & Chong, 2017; J. F. Hair, 2010; J. F. Hair, Sarstedt, Pieper, & Ringle, 2012; Hair Jr, Hult, Ringle, & Sarstedt, 2016). Additionally, Alpha and composite reliability is given in Table 2.

Table 2. Convergent Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Physical Fitness	0.796	0.807	0.855	0.508
Physiological Motivation	0.746	0.769	0.831	0.5
Stress Control	0.804	0.809	0.867	0.57

Sports	0.781	0.724	0.735	0.534

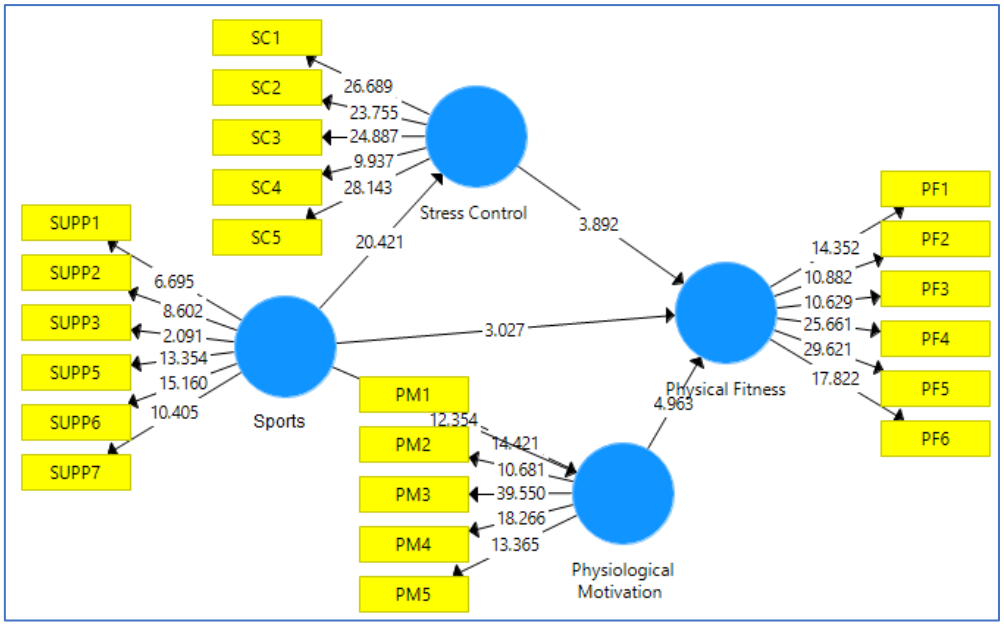
Furthermore, convergent validity is given in Table 2. Convergent validity is achieved with the help of CR average variance extracted (AVE). CR should be above 0.7 and AVE should be above 0.5 (Henseler, Ringle, & Sinkovics, 2009). The values of all variables above 0.7 for CR and above 0.5 for AVE shows that convergent validity is achieved. Finally, the current study examined the discriminant validity (Fornell & Larcker, 1981; Henseler, Ringle, & Sarstedt, 2015) by using cross loadings.

Table 3. *Discriminant Validity*

	Physical Fitness	Physiological Motivation	Stress Control	Sports
PF1	0.681	0.479	0.455	0.37
PF2	0.624	0.451	0.388	0.363
PF3	0.611	0.472	0.533	0.463
PF4	0.777	0.624	0.584	0.537
PF5	0.788	0.565	0.624	0.527
PF6	0.734	0.545	0.536	0.438
PM1	0.462	0.664	0.417	0.33
PM2	0.432	0.621	0.33	0.323
PM3	0.644	0.841	0.65	0.566
PM4	0.499	0.718	0.693	0.51
PM5	0.572	0.668	0.564	0.342
SC1	0.533	0.619	0.798	0.576
SC2	0.54	0.585	0.823	0.57
SC3	0.531	0.591	0.785	0.503
SC4	0.549	0.429	0.558	0.441
SC5	0.651	0.661	0.78	0.438
SUPP1	0.346	0.321	0.369	0.503
SUPP2	0.364	0.42	0.479	0.589
SUPP3	0.124	0.095	0.122	0.229
SUPP5	0.451	0.415	0.434	0.664
SUPP6	0.482	0.421	0.455	0.718
SUPP7	0.357	0.288	0.36	0.629

Note: SUPP = Sports; SC = Stress Control; PM = Physiological Motivation; PF = Physical Fitness

Figure 3 shows the PLS bootstrapping. PLS bootstrapping is one of the most suitable method to examine the relationship between variables (Barroso, Carrión, & Roldán, 2010; Henseler et al., 2014). Therefore, it was used to examine the relationship between sports, stress control, physiological motivation and physical fitness. The direct effect of sports was examined on stress control and physiological motivation. Similarly, the direct effect of stress control and physiological motivation was examined on physical fitness. Results of the study are given in Table 4. It shows that sports have significant positive effect on stress control and physiological motivation. Stress control has positive effect on physical motivation. Physiological motivation has positive effect on physical fitness. Moreover, it is evident from the results that sports have direct effect on physical fitness which is positive and significant.



Note: SUPP = Sports; SC = Stress Control; PM = Physiological Motivation; PF = Physical Fitness

Figure 3. PLS Bootstrapping

Table 4. *Results of Direct Effect*

	(O)	(M)	(STDEV)	T Statistics	P Values
Physiological Motivation -> Physical Fitness	0.382	0.376	0.077	4.963	0
Stress Control -> Physical Fitness	0.315	0.322	0.081	3.892	0
Sports -> Physical Fitness	0.202	0.204	0.067	3.027	0.003
Sports -> Physiological Motivation	0.602	0.607	0.049	12.354	0
Sports -> Stress Control	0.674	0.676	0.033	20.421	0

Moreover, indirect effect is given in Table 5. Two indirect effect was examined in this study. The first indirect effect of stress control was examined between sports and physical fitness. The second indirect effect of physiological motivation was examined between sports and physical fitness. Similar to the direct effect, the minimum threshold level for t-value was 1.96. Both indirect effect are significant. It is also shown in Figure 4.

Table 5. *Results of Indirect Effect*

	(O)	(M)	(STDEV)	T Statistics	P Values
Sports -> Physiological Motivation -> Physical Fitness	0.23	0.228	0.047	4.939	0
Sports -> Stress Control -> Physical Fitness	0.213	0.218	0.057	3.761	0

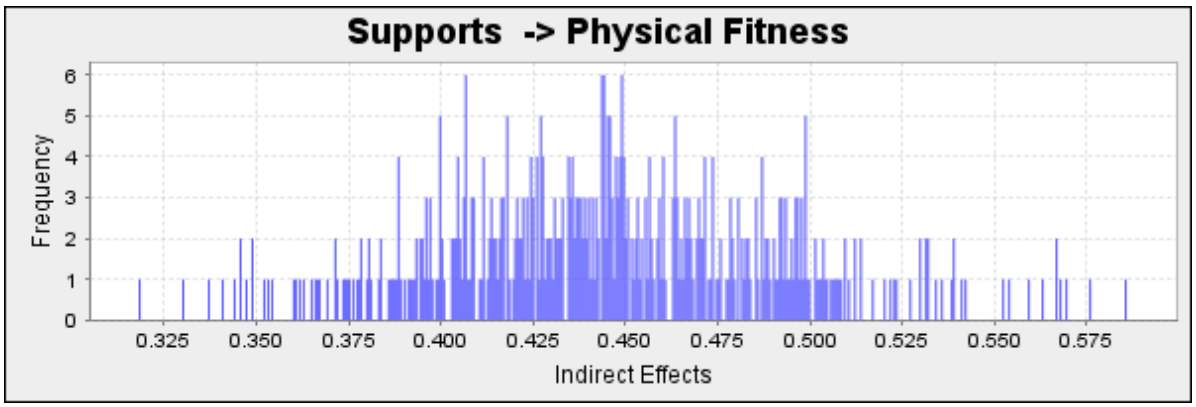


Figure 4. Indirect Effect Histogram

5. Conclusion

The objective of this study was to address the role of sports in physical fitness. Therefore, the relationship between sports, stress control, physiological motivation and physical fitness was examined. By collecting primary data from the players in China, primary data were collected from and analyzed with the help of statistical software. Results of the study found that; sports have positive effect on physical fitness. Increase in sports has the potential to increase physical fitness among people. Sports also has positive effect on stress control. With the increase in the sports activities also increases the control on the level of stress which has positive role to promote physical fitness. Additionally, sports have positive effect on physiological motivation. The physiological motivation also play an important role in physical fitness, as this study shows that increase in physiological motivation increases the physical fitness. Therefore, sports have important contribution to control stress level and physiological motivation. On the other hand, she stresses control has positive effect on physical fitness. It shows that increase in stress control increases the physical fitness. Similarly, finally, physiological motivation also has positive effect on physical fitness. Consequently, this study shows that sports has important contribution towards physical fitness. Sports increases the physiological motivation with the help of stress control and physiological motivation. Both the stress control and physiological motivation has positive role to transfer the effect of sports on physical motivation. Hence, physical fitness can be maintained with the help of sports related activities.

6. Implications

6.1 Theoretical Implications

The current study has major contribution to the literature. Because this is very first study which examined the effect of sports on physical fitness in the presence of stress control and physiological motivation. The unique relationship between sports, stress control, physiological motivation and physical fitness is not studied in previous studies. Particularly, the role of role of stress control through sports is not studied in previous studies. The mediating role of stress control is also not checked between sports and physical control. Furthermore, this study also examined the role of physiological motivation between sports and physical fitness. Therefore, theoretically, this study has new relationship which were not tested by the previous studies. Especially, the effect of physiological motivation was not examined by the previous studies on physical fitness. Along with this, the effect of stress control is also first type examined in the literature.

6.2 Practical Implications

This study also has important role to provide several strategies to enhance physical fitness. The practitioners can promote physical fitness by making various strategies by examining the results of the current study. As this study proved that sports are quite helpful to enhance physical fitness, therefore, people can improve their physical fitness with the help of sports. Furthermore, this study also suggested that people can enhance the physical fitness with the help of stress control and stress can be controlled with the help of sports. In addition to this, practitioners can promote physiological motivation through sports which has the potential to increase physical fitness. Hence, this study providing several insights to enhance physical fitness with the help of sports.

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