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Physical Activities and Psychological Needs of Physical Education Students

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ABSTRACT

The study examined the levels of physical activity and psychological needs of students enrolled in physical education at Tangshan Normal University. The respondent profile indicated that the sample consisted mainly of female, first-year students aged 17-18, with the majority having a healthy BMI. In terms of physical activity, the pupils exhibited proficient fundamental movement abilities and independence in structuring their fitness regimens. Nevertheless, certain areas that may be enhanced were identified, including the decision to opt for stairs. The analysis revealed no statistically significant differences in the levels of physicalactivity among the students based on their sex, age, BMI, or year level. Regarding psychological needs, the students expressed a robust sense of autonomy, experiencing a sense of freedom to independently make important life choices. Nevertheless, their perceptions of opportunities for self-determination in daily life were somewhat diminished. Regarding competence, pupils experienced acknowledgment from others for their abilities.

KEYWORDS

Physical Activities; Psychological Needs; Autonomy; Competence; Relatedness.

1. INTRODUCTION

Physical education is crucial for fostering physical activity and enhancing the general well-being of students. It offers pupils the chance to participate in organized physical activities, enhance their basic movement abilities, and acquire understanding of health-related fitness. Physical education not only confers physical advantages, but also attends to the psychological requirements of students, encompassing their social, emotional, and cognitive welfare.

The objective of this thesis was to analyze the interaction between physical activity and psychological requirements among students studying physical education. This study sought to explain the intricate relationship between physical and psychological well-being in the context of physical education by examining the factors that impact levels of physical activity and delving into the psychological requirements of students.

The primary aim of this thesis was to examine the demographic attributes of physical education students, encompassing age, gender, body mass index (BMI), and academic year. Analyzing the demographic characteristics of students involved in physical education might offer valuable insights into potential disparities in levels of physical activity and psychological requirements within various subcategories.

The second goal was to evaluate the levels of physical activity among pupils in physical education. This study sought to ascertain the level of student involvement in physical education programs by

analyzing the frequency, intensity, and duration of their physical activity. Furthermore, it aims to detect any notable disparities in levels of physical activity according to demographic parameters such as age, gender, BMI, or academic year.

The third purpose aimed to investigate the psychological requirements of students in the field of physical education. Psychological well-being includes factors such as self-esteem, self-efficacy, motivation, social support, and emotional well-being. This study sought to acquire insights into the psychological variables that contribute to overall well-being in the context of physical education by analyzing the perceived psychological requirements of students and their satisfaction levels in these areas.

Physical exercise is a comprehensive notion that may be studied from different perspectives. Empirical research has focused on the effects of the intensity, duration, and form of physical exercise on individual physical and mental health. For example, moderate to vigorous physical activities were found to considerably improve the physical fitness and performance of diabetic patients (Taylor et al., 2014); individuals who exercised more, especially those who spend 30–60 mins, scored higher on physical health, mental health, and academic performance (Shantakumar et al., 2022); the combination of aerobic exercise and yoga could effectively reduce depression in individuals (Alderman et al., 2016). However, other qualities of physical exercise, such as dedication and adherence, have gotten less attention in research that studies the positive role of physical exercise.

The psychological needs of Physical Education students are crucial for their holistic development and are often overlooked in traditional educational settings. Physical education, with its explicit focus on physical activity and movement, has the ability to meet these psychological needs and improve students' overall psychological well-being. By integrating physical activity into the school curriculum, physical education can enhance positive psychological outcomes, including increased self-esteem, reduced stress and anxiety, improved social skills, and enhanced cognitive performance.

Studies have demonstrated a direct correlation between physical activity and mental well-being. Participating in consistent physical exercise triggers the secretion of endorphins, which are neurotransmitters that enhance sensations of joy and overall mental and emotional wellness. In addition, engaging in physical activity can work as a beneficial channel for managing stress and anxiety, offering students a way to handle the responsibilities of academics and personal life. In addition, physical education classes frequently incorporate collaborative and cooperative activities, fostering social contact and the cultivation of interpersonal skills.

Based on a study conducted by Pan et al. (2022), it has been observed that recent National Youth Physical Fitness Reports indicate a decline in the overall physical fitness levels of college students in China. The primary observations indicate a consistent fall in students' physical activity levels over time, accompanied by a quick increase in obesity rates. Additionally, there is a notable increase in students' height, body weight, and chest circumference, while their lung capacity and strength exhibit a continuous decline. In the context of physical education, the subjective experiences of college students are often overlooked, leading to a lack of understanding regarding the significance of exercise among individuals pursuing higher education. This deficiency can be attributed to various factors. Given the prevailing circumstances, it has become imperative to prioritize the enhancement and cultivation of university students' inclination towards engaging in sports activities. This entails fostering their enthusiasm for sports participation, augmenting their individual motivation to exercise, and bolstering their overall physical fitness.

In a separate investigation carried out by Zhang et al. (2022), a causal relationship between physical activity (PA) and physical fitness (PF) was observed. According to Chaput et al. (2020), the World Health Organization (WHO) advises that young adults engage in a minimum of 60 minutes of moderate-to-vigorous physical activity (MVPA) daily to get the most favorable health outcomes. However, it is widely observed that there is a notable decrease in physical activity among college students on a global scale (Hallal et al., 2012). According to a study conducted by Chen et al. (2020),

a significant proportion of Chinese university students, specifically 82.5% of 18-year-old males and 89.8% of 21-year-old females, exhibit physical inactivity, failing to meet the physical activity guidelines set by the World Health Organization. Furthermore, it has been observed through a nationwide study that there has been a significant rise in the occurrence of overweight and obesity among university students in China (Tian et al., 2016; Jiang et al., 2018). According to the Report of Nutrition and Chronic Disease Status of Chinese Residents (2020), there has been an average increase in body weight among Chinese individuals aged 18-24 years. Specifically, Chinese males in this age group have had an average weight gain of 3.4 kg, while Chinese women have experienced an average weight gain of 1.7 kg, when compared to data from 2015. The aforementioned information is concerning, as there exists a strong association between inadequate levels of physical activity (PA) and several negative outcomes such as being overweight, experiencing chronic diseases, facing mental health issues, and encountering unfavorable social and cognitive health consequences (Aubert et al., 2018, 2021). Hence, it is imperative to ascertain the present state of physical activity (PA) among Chinese university students, while also finding appropriate measures to encourage their engagement.

As a Physical Education teacher, the researcher has witnessed how students enjoy doing activities, which according to them is a reprieve from the demands of academic work. It is a fact that the right amount of physical activity not only improves physical health but improves the psychological well-being of individuals as well.

SDT, also known as Self-Determination Theory, is a comprehensive theory that encompasses human motivation, health, and wellness. It was developed by Deci and Ryan in 1985 and has been further expanded upon by Ryan and Deci in 2017 and 2020. Based on Self-Determination Theory (SDT), every individual possesses three fundamental psychological needs. Fulfilling these needs promotes personal growth, development, integration, and overall well-being, irrespective of factors such as age, gender, socioeconomic level, and circumstances.

The need for autonomy refers to the desire to act based on personal endorsements, being self-regulated, and having a sense of willingness. Competence involves feeling effective in achieving outcomes, interacting with the environment, and experiencing growth. Relatedness encompasses having a sense of close relationship with others and feeling a sense of belonging to a group.

Studies in the field of physical education (PE) and healthy behaviors have demonstrated that fulfilling these fundamental psychological requirements leads to intrinsic motivation towards activities, increased engagement in healthy behaviors, a desire to continue participating in these activities, and overall well-being. On the other hand, if basic requirements are not met or if they are hindered, it leads to a lack of motivation, disengagement, decreased performance, and a state of ill-being (Behzadnia et al., 2018; Leo et al., 2022; Ntoumanis et al., 2021; Vasconcellos et al., 2020).

Furthermore, according to the self-determination theory, psychological need satisfaction refers to the fulfillment of three fundamental needs: autonomy, competence, and relatedness. These needs are crucial for human development and contribute to psychological well-being and personal growth when they are met (Deci & Ryan, 2002). The initial element of psychological need fulfillment, autonomy, encompasses individuals exercising their agency in decision-making, recognizing their own authority, and enjoying the liberty and accountability to make choices independently, unaffected by external influences. Competence, as another component, pertains to an individual's perception of their capability to take action, indicating their self-sufficiency. The third component, known as relatedness, pertains to the positive social connections that an individual has formed with others. The significance of satisfying these three primary psychological demands is emphasized in persons who lead an engaged life, strive to reach their full potential, and possess the capacity to effectively navigate challenges and stress-inducing stimuli (Deci & Ryan, 2002; Ryan & Deci, 2000).

Research has demonstrated that meeting psychological needs has a positive influence on students' academic achievements (Gutiérrez et al., 2018; Zhou et al., 2021). It also enhances their academic

motivation (Gnambs & Hanfstingl, 2016), self-efficacy (Sun et al., 2020; Wang & Tsai, 2020), school performance, and school attachment (Liu & Flick, 2019). Gutiérrez et al. (2018) argue that perceived autonomy support plays a crucial role in enhancing students' academic self-efficacy and school participation, hence contributing to their overall performance. Aldrup et al. (2017) found that psychological need satisfaction acts as a mediator between stress and well-being. Additionally, research has shown that meeting psychological needs can reduce stress (Zhou et al., 2020), anxiety (Maralani et al., 2016), and depression (Emery et al., 2015) among students. Zhou et al. (2021) highlighted that the fulfillment of fundamental psychological needs enhances positivity and academic achievement among teenagers. Psychological need satisfaction has a direct impact on an individual's academic and social life.

In another study conducted, it stated that physical exercise commitment is the psychological state in which an individual has a strong desire and determination to continue engaging in physical activities. Adherence, on the other hand, refers to an individual's behavioral inclination to stick to a predetermined exercise schedule for a specific duration. Recently, researchers have extensively studied the elements that influence commitment and adherence to physical exercise. They have approached this topic from several angles in order to boost participation in physical intervention programs and indirectly enhance both physical and mental health (Kang et al., 2020; Evans et al., 2022). Nevertheless, the impact of one's dedication and adherence to physical exercise on their mental well-being, namely their life satisfaction, has been explored by researchers such as Jiang et al. (2018) and Sullins (2019).

In summary, physical exercise is crucial for fulfilling the psychological needs of pupils in physical education. Physical education programs can foster an environment that enhances students' motivation, engagement, and overall psychological well-being by encouraging autonomy, competence, and relatedness. Integrating consistent physical exercise into the school curriculum offers students the chance to cultivate healthy routines, enhance their physical well-being, and enjoy the various psychological advantages linked to physical activity.

2. STATEMENT OF THE PROBLEM

The study aimed to describe the Physical Activity and Psychological needs of Physical Education Students at Tangshan Normal University.

Specifically, the study sought answers to the following questions:

(1)What is the profile of the respondents in terms of:

1)Sex

2)Age

3)Year level

4)Course/program

5)Body mass index

(2)What is the level of Physical activities of Physical Education Students in terms of :

1)Physical mobility

2)Fitness activities

(3)Is there a significant difference between the physical activities of the physical education students when their profile is taken as test factor?

(4)What is the level of psychological needs of PE students in terms of

1)Autonomy

2)Competence

3)Relatedness

(5)Is there a significant difference between the psychological needs of the physical education students when their profile is taken as test factor?

(6)What wellness program may be proposed based on the result of the study?

3. HYPOTHESIS

(1)There is no significant difference between the profile of the respondents and their level of physical activities.

(2)There is no significant difference between the profile of the respondents and their psychological needs.

4. SCOPE AND DELIMITATION

The respondents of this study are the college students Tangshan Normal University in Hebei, China taking up Physical Education classes. This study will consider every aspect of students' personal information. Each of the respondents will be given some questionnaires to answer within the range of this study which focused on Physical Activity and psychological needs of the Physical Education students in Tangshan Normal University.

5. RESULTS, ANALYSIS, AND INTERPRETATION

(1) Profile of the Respondents.

Table 1. age

Age	Frequency	Percentage
Below 17 Years Old	0	0.00%
17 - 18 Years Old	127	63.50%
19 - 20 Years Old	52	26.00%
21 Years Old and Above	21	10.50%
Total	200	100.00%

Table 1 shows the profile of the respondents specifically in terms of age. Based on the table 0 out of 200 or 0.00% of the total respondents were below 17 years old, 127 out of 200 or 63.50% of the total respondents were 17 - 18 years old, while 52 out of 200 or 26.00% of the total respondents were 19 - 20 years old, and 21 out of 200 or 10.50% of the total respondents were 21 years old and above.

An overview of the respondents' age distribution is given by the analysis in Table 1. It shows that the majority of respondents (63.50%) were between the ages of 17 and 18, with none of them being younger than 17. The remaining respondents (10.50%) were 21 years of age and older, while a lesser percentage (26.00%) belonged to the 19–20 age bracket.

PE in China takes forms of class teaching, extra-curriculum activity, after-school training and sports competitions, hiking, traveling and others, of which class teaching is the basic.

PE course is the main form of PE in educational institutions of different types and at different levels. It is a compulsory course from primary school to the second year of undergraduate program in institutions of higher learning with 2 or 3 class hours per week in institutions of higher learning.

Table 2. sex

Sex	Frequency	Percentage
Male	77	38.50%
Female	123	61.50%
Total	200	100.00%

Table 2 shows the profile of the respondents specifically in terms of sex. Based on the table 77 out of 200 or 38.50% of the total respondents were males, while 123 out of 200 or 61.50% of the total respondents were female.

The table demonstrates the categorization of the respondents into two distinct groups: males and females. According to the data, females make up a greater percentage of the total respondents, accounting for 123 out of 200 respondents, or 61.50%. Conversely, the male population constitutes a lesser fraction, with 77 out of 200 participants, or 38.50%. This indicates that the survey or study had a greater proportion of female respondents in comparison to male respondents.

According to a study by Pan et al, 2019, activities promoting female physical education in schools have changed the marginalized state of women's physical education development, enhanced government control over women's bodies, and encouraged women's personal development and the rebuilding of gender space in physical education. However, there was also the problem of women's bodies being alienated, which somewhat undermined the true objective of female physical education programs in schools.

Table 3. BMI

BMI	Frequency	Percentage
Underweight	11	5.50%
Normal	164	82.00%
Overweight	25	12.50%
Obese	0	0.00%
Total	200	100.00%

Table 3 shows the profile of the respondents specifically in terms of Body Mass Index (BMI). Based on the table 11 out of 200 or 5.50% of the total respondents were underweight, 164 out of 200 or 82.00% of the total respondents were normal, while 25 out of 200 or 12.50% of the total respondents were overweight, and 0 out of 200 or 0.00% of the total respondents were obese.

To summarize, the analysis of Table 3 indicates that the vast majority of the participants (82.00%) possessed a normal BMI, signifying a weight within the healthy range. A lesser percentage of participants were classified as underweight (5.50%) or overweight (12.50%). All of the respondents were not classified as obese.

According to a study conducted by Qin et al in 2022, body mass index (BMI) is internationally recognized as an indicator of health and is commonly employed to assess malnutrition, overweight, and obesity. Research has demonstrated that a rise in BMI heightens the likelihood of developing cardiovascular illness, including hypertension, myocardial infarction, lung disease, and sleep apnea syndrome. Furthermore, research has demonstrated that BMI is a reliable indicator of the physical well-being of typical university students. Furthermore, there is a favorable correlation between physical fitness and physical activity. Several research have examined the correlation between BMI and various aspects of physical fitness in children and adolescents.

Table 4. year level

Year Level	Frequency	Percentage
1st Year	127	63.50%
2nd Year	51	25.50%
3rd Year	21	10.50%
4th Year	1	0.50%
Total	200	100.00%

Table 4 shows the profile of the respondents specifically in terms of year level. Based on the table 127 out of 200 or 63.50% of the total respondents were 1st year students, 51 out of 200 or 25.50% of the total respondents were 2nd year students, while 21 out of 200 or 10.50% of the total respondents were 3rd year students, and 1 out of 200 or 0.50% of the total respondents were 4th year students.

Table 4 analysis indicates that a significant proportion of the respondents (63.50%) were first-year students. The percentage of participants declined as the academic year progressed, with 25.50% including second-year students, 10.50% comprising third-year students, and a mere 0.50% comprising fourth-year students.

In China, the primary goal of a college education is to help students establish the groundwork for their future growth, provided they meet the standards of professional excellence and perfection.

As a result, professional education is not the main emphasis of Chinese college education; students' capacity to adjust to social work is also given significant attention. Students must therefore possess excellent physical and psychological attributes. College physical education has gained increasing attention in recent years as a crucial course to assist students develop their physical education abilities, exercise, and improve their psychological quality. However, it is challenging to make ground-breaking advances in physical education in colleges and universities because of the influence of traditional educational conceptions and models.

6. CONCLUSION

(1) The majority of responders, who were mostly in their late teens, were marginally more likely to be female. Furthermore, the data indicates that a considerable proportion of the participants sustained

a BMI within a healthy range. It suggests that female respondents may have been more interested in or participated in the survey than male respondents, as seen by the fact that the majority of respondents were slightly more likely to be female.

(2) Regarding physical activity, the majority of pupils in physical education expressed agreement or strong agreement.

The students were in accord, with a greater degree of agreement regarding how fitness activities should be in line with individual beliefs and values.

(3) The absence of statistically significant variations suggests that students participating in physical education had comparatively constant levels of physical activity across various demographic categories. This implies that variables like year level, sex, BMI, or age might not have a major effect on the sample's overall level of physical activity.

(4) Age, sex, BMI, or year level do not statistically significantly affect the psychological needs of Physical Education students, as evidenced by the lack of statistically significant changes in demands. This implies that psychological requirements in the framework of physical education are common and constant among the many demographic subsets of this student body.

(5) Regarding their psychological needs, the majority of pupils in physical education agreed with remarks made. This implies that students in this demographic understand and appreciate the role that psychological health plays in their physical education experiences.

(6) Students said that persons they know well acknowledged their abilities. This suggests that satisfying peers' psychological needs and receiving positive reinforcement and recognition from mentors, teachers, and peers are important. It implies that their general well-being in the context of physical activity is influenced by affirming social ties and a sense of validation.

7. RECOMMENDATIONS

(1) It is crucial to use a variety of recruitment techniques in order to guarantee a fairer representation of age groups and genders. To reach a broader participant pool, this can involve connecting with a wide range of social groups, utilizing numerous communication methods, and working with community centers, colleges, and schools.

(2) Physical education programs should make an effort to provide students with individualized physical activity options that meet their different interests and preferences, acknowledging the significance of individual ideas and values. This may entail offering a range of physical activities and letting students select ones that align with their values and personal views.

(3) Even if general levels of physical activity may be solid, it's crucial to understand that each demographic group still contains unique individuals. Physical education can be tailored to each student's specific needs, interests, and skills by using a customized approach. This may entail giving students access to a range of physical activities and letting them select ones that best suit their interests and skill levels.

(4) Acknowledge the interdependence of physical and psychological well-being. Physical education programs should not solely concentrate on enhancing physical fitness, but also give priority to the comprehensive development of children. This can be accomplished by integrating activities that foster mental health, self-confidence, adaptability, and emotional welfare.

(5) Promote a constructive social atmosphere in physical education programs by fostering inclusiveness, respect, and mutual support among students. Execute tactics that foster favorable engagements, collaboration, and harmonious working relationships. This can foster a sense of inclusion and fortify interpersonal connections, so enhancing students' psychological well-being.

(6) A physical and psychological wellness plan is proposed based on the results of this study. This wellness plan aims to enhance the physical and psychological well-being of Physical Education students.

REFERENCES

[1] An, Y.; Yang, J.; Niu, S.J.; Wang, J. Health First: The Sustainable Development of Physical Education in Chinese Schools. Sustainability 2022, 14, 3133. https://doi.org/ 10.3390/su14053133.

[2] Behzad Behzadnia, Fariba Mollaei Zangi, Fahmieh Rezaei & Mahta Eskandarnejad (2023): Predicting students' basic psychological needs, motivation, and wellbeing in online physical education: a semester-term longitudinal study, International Journal of Sport and Exercise Psychology, DOI: 10.1080/1612197X.2023.2237051.

[3] Brand, Ralf. Theories to Explain Exercise Motivation and Physical Inactivity: Ways of Expanding Our Current Theoretical Perspective. Front. Psychol., 21 May 2019.Sec. Movement Science. Volume 10 - 2019 | https://doi.org/ 10.3389/fpsyg.2019.01147.

[4] Brazo-Sayavera J, Aubert S, Barnes JD, González SA, Tremblay MS (2021) Gender differences in physical activity and sedentary behavior: Results from over 200,000 Latin-American children and adolescents. PLoS ONE 16(8): e0255353. https://doi.org/10.1371/journal.pone.0255353.

[5] Cheng Zhang, Yong Liu, Shuang Xu. Exploring the Level of Physical Fitness on Physical Activity and Physical Literacy Among Chinese University Students: A Cross-Sectional Study. Front. Psychol., 16 March 2022. Sec. Health Psychology.Volume 13 - 2022 | https://doi.org/10.3389/fpsyg.2022.833461.

[6] Demetriou, Y., Reimers, A.K., Alesi, M. et al. Effects of school-based interventions on motivation towards physical activity in children and adolescents: protocol for a systematic review. Syst Rev 8, 113 (2019). https://doi.org/10.1186/s13643-019-1029-1.

[7] Estabrooks, P., & Carron, A. V. (1998). The Conceptualization and Effect of Control Beliefs on Exercise Attendance in the Elderly. Journal of Aging and Health, 10(4), 441-457. https://doi.org/10.1177/089826439801000403.

[8] Gagné, M. (2003). Autonomy support and need satisfaction in the motivation and well-being of gymnasts. Journal of applied sport psychology, 15(4), 372-390.

[9] Jiang, S., Peng, S., Yang, T., Cottrell, R. R., & Li, L. (2018). Overweight and Obesity Among Chinese College Students: An Exploration of Gender as Related to External Environmental Influences. American journal of men's health, 12(4), 926–934. https://doi.org/10.1177/1557988317750990.

[10] Leisterer S, Gramlich L. Having a Positive Relationship to Physical Activity: Basic Psychological Need Satisfaction and Age as Predictors for Students' Enjoyment in Physical Education. Sports. 2021; 9(7):90. https://doi.org/10.3390/ sports9070090.

[11] Li, F., Liu, J., Qiu, F., Liu, H., Xin, S., & Yang, Q. (2022). Changes in mental health levels among Chinese physical education college students from 1995 to 2019. Frontiers in psychology, 13, 1034221. https://doi.org/10.3389/fpsyg. 2022.1034221.

[12] Manzano-Sánchez, D., Gómez-Mármol, A., & Gómez-López, M. (2023). Body Mass Index: Influence on Interpersonal Style, Basic Psychological Needs, Motivation, and Physical Activity Intention in Physical Education-Differences between Gender and Educational Stage. Behavioral sciences (Basel, Switzerland), 13(12), 1015. https://doi.org/10.3390/bs13121015.

[13] Pan, M.; Ying, B.; Lai, Y.; Kuan, G. Physical Exercise among College Students in China. Encyclopedia. Available online: https://encyclopedia.pub/entry/33468 (accessed on 12 May 2024).

[14] PAN Lixia. Power, Body and Gender: A Study on the Activities of Chinese Modern Women's School Physical Education[J]. Journal of Shanghai University of Sport, 2019, 43(2): 63-68. DOI: 10.16099/j.sus.2019.02.009.

[15] Pan M, Ying B, Lai Y, Kuan G. Status and Influencing Factors of Physical Exercise among College Students in China: A Systematic Review. International Journal of Environmental Research and Public Health. 2022; 19(20):13465. https://doi.org/10.3390/ijerph192013465.

[16] Prado-Botana, M., Carretero-García, M., Varela-Garrote, L., & Fraguela-Vale, R. (2023). Satisfaction of Basic Psychological Needs as Predictors of Motivation towards Physical Education in Primary Education: Influence of Gender and Physical Self-Concept. International journal of environmental research and public health, 20(24), 7186. https://doi.org/10.3390/ijerph20247186.

[17] Qin, G., Qin, Y., & Liu, B. (2022). Association between BMI and health-related physical fitness: A cross-sectional study in Chinese high school students. Frontiers in public health, 10, 1047501. https://doi.org/10.3389/fpubh. 2022. 1047501.

[18] Richard M. Ryan, Geoffrey C. Williams, Heather Patrick & Edward L. Deci. (2009). Self-Determination Theory and Physical Activity: The Dynamics of Motivation in Development and Wellness. Hellenic Journal of Psychology, Vol. 6 pp 107-124.

[19] Shantakumar, Swamy & Sahabdeen, Huzaifah & Abidin, Fawzul & Perumal, Gaajeen & Kumar, Naveen. (2022). Association of type and duration of exercise with the mental and physical health and academic performance of Medical undergraduate students- Cross-sectional study. Bangladesh Journal of Medical Science. 21. 135-139. 10.3329/bjms.v21i1.56339.

[20] Shin, J., & Gwon, H. (2023). Effects of Basic Psychological Needs on Physical Self-Efficacy and Attitudes toward PE in Korean Middle-School Physical Education. Healthcare (Basel, Switzerland), 12(1), 91. https://doi.org/10.3390/healthcare12010091.

[21] Silva, D. J. d., Barbosa, A. O., Barbosa Filho, V. C., & Farias Júnior, J. C. d. (2022). Is Participation in Physical Education Classes Related to Physical Activity and Sedentary Behavior? A Systematic Review. Journal of Physical Activity and Health, 19(11), 786-808. Retrieved May 10, 2024, from https://doi.org/10.1123/jpah.2022-0084.

[22] Tao, X., Shao, Y., Xu, D., Huang, Y., Yu, X., Zhong, T., Wang, L., Chung, S. K., Chen, D., Yu, L., & Xiao, Y. (2022). Dietary Patterns and Nutrient Intake in University Students of Macao: A Cross-Sectional Study. Nutrients, 14(17), 3642. https://doi.org/10.3390/nu14173642.

[23] Taylor, Denise. Physical activity is medicine for older adults, Postgraduate Medical Journal, Volume 90, Issue 1059, January 2014, Pages 26–32, https://doi.org/10.1136/postgradmedj-2012-131366.

[24] Teixeira, P.J., Carraça, E.V., Markland, D. et al. Exercise, physical activity, and self-determination theory: A systematic review. Int J Behav Nutr Phys Act 9, 78 (2012). https://doi.org/10.1186/1479-5868-9-78.

[25] Vallerand, R. J. (2000). Deci and Ryan's Self-Determination Theory: A View from the Hierarchical Model of Intrinsic and Extrinsic Motivation. Psychological Inquiry, 11(4), 312–318. http://www.jstor.org/stable/1449629.

[26] Wang Qingbao College of physical education, Baicheng Normal University Baicheng, Jilin province, China, Advances in Economics, Business and Management Research, volume 82.

[27] Xiang, C., Zhao, J., Tengku Kamalden, T.F. et al. The effectiveness of child and adolescent sports engagement in China: an analysis of China's results for the 2016–2022 Global Matrix report cards on physical activity. Humanit Soc Sci Commun 10, 949 (2023). https://doi.org/10.1057/s41599-023-02466-4.

[28] Zang, J., Ng, S.W. Age, period and cohort effects on adult physical activity levels from 1991 to 2011 in China. Int J Behav Nutr Phys Act 13, 40 (2016). https://doi.org/10.1186/s12966-016-0364-z.

[29] Zheng W, Shen H, Belhaidas MB, Zhao Y, Wang L, Yan J. The Relationship between Physical Fitness and Perceived Well-Being, Motivation, and Enjoyment in Chinese Adolescents during Physical Education: A Preliminary Cross-Sectional Study. Children. 2023; 10(1):111. https://doi.org/10.3390/children10010111.

[30] Zhang, Y., Ren, M., & Zou, S. (2022, July 29). Effect of Physical Exercise on College Students' Life Satisfaction: Mediating Role of Competence and Relatedness Needs. Frontiers in Psychology. https://doi.org/10.3389/fpsyg.2022.930253.