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The Impact of Physical Education in Higher Education on the Physical and Mental Health of Graduate Students

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ABSTRACT

Objective: The primary objective of this study is to evaluate the influence of physical education within higher education on the physical and mental well-being of graduate students. **Method:** A survey was conducted involving 200 graduate students from China. Furthermore, the study aimed to explore diverse cultural experiences and foster meaningful social connections. Some students engaged in physical activities to enhance their physical appearance or academic performance. **Results:** The research utilized the SCL-90 inventory to compare the mental health profiles of graduate students, revealing that 70% were inclined towards sports and exercise, while 30% showed no interest. This variance could be attributed to inadequate sports management structures, lack of requirement for physical activity among graduate students, and resource limitations. Graduate program enrolees exhibited higher levels of both psychological and physical ailments. Despite relatively minor differences, factors such as obsession, sadness, and anxiety showed statistically significant variations. This study underscores the positive impact of regular physical exercise on mental health, particularly in mitigating symptoms of sadness and anxiety. **Conclusion:** The findings emphasize the importance of promoting physical activity among graduate students to enhance their overall well-being and mental health. Higher education institutions can contribute to reducing student stress and fostering a healthier, happier student body by addressing barriers to participation and developing structured physical education programs.

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Introduction

The transformative impact of higher education on students' lives is profound, offering avenues for intellectual, personal, and academic growth. This is particularly evident in the experiences of graduate students, who are deeply immersed in rigorous coursework, research endeavours, and career readiness pursuits. Amidst the academic challenges inherent in higher education, it is essential to recognize the potential substantial influence that physical education could exert on the physical and mental welfare of graduate students.

This investigation delves into the intricate interplay between physical and mental health, transcending the realms of athletics and fitness. Graduate students encounter unique challenges in maintaining healthy lifestyles due to the juggling of demanding schedules, academic commitments, and research responsibilities. Thus, it becomes imperative to grasp the potential of physical education in alleviating the mental and physical burdens associated with graduate school. This comprehensive inquiry examines the multifaceted relationship between graduate students and physical education within the context of higher education. Physical exercise yields significant benefits, including stress reduction, maintenance of overall health, and mitigation of issues such as obesity and cardiovascular ailments. Furthermore, the report elucidates how regular physical activity can enhance cognitive function and academic performance while fostering valuable social connections and support networks.

Moreover, the analysis delves into the link between combating sedentary lifestyles and promoting physical fitness, underscoring the pivotal role of higher education in instilling discipline and active living habits in a society plagued by sedentarism and its adverse health consequences. Beyond the tangible physical advantages, the study explores the psychological benefits of physical education, facilitating the cultivation of equilibrium, confidence, and self-esteem among graduate students (Rasberry et al., 2011). It also examines the long-term health benefits associated with maintaining an active and healthy lifestyle while pursuing higher education (Strong et al., 2005).

However, the need to find a moment for the physical health of the student should be a priority since the benefits it will find, not only guaranteeing immediate positive consequences in the present, but becoming an investment that will generate profits for the long term. Physical activity and health are closely linked; given this reality, future professionals (physicians, engineers, teachers, musicians, etc.) who before undergoing daily activities or personal preoccupations, adduce having little time to dedicate up to six hours a day to reading their books, thesis and essays studies, should reflect on the little idea that is developed for the appropriate time of the minutes that will give the necessary time to add to their activities of learning and later fulfill their profession when, in addition to having acquired notions and principles for which they were instructed, have had a well-developed body and, therefore, with the necessary endurances to avoid diseases and decrease their deficiencies when establishing the routines necessary to fulfill the ends they should demand.

The time that is lived in the contemporary world is characterized by an accelerated rhythm, where time is a necessary and indispensable element to move forward the different activities that humanity requires to perform. This is the situation in which the

university students of the 21st century (children, teenagers, young people and even the elderly) live. The time they have to fulfill their classroom obligations, engage in extracurricular activities and find time to maintain their physical health (avoiding sedentary lifestyle) is constantly reduced. That is the reason why the university student does not see the need to enroll in physical education courses, on the way to fulfilling the obligation to take the corresponding credits if they have to dedicate time to doing exercises. Then, the main thinking is: studying, practicing sports, making physical activity and maintaining physical health are incompatible activities with higher education and even less, there should be a relation between physical education and mental health.

This meticulous examination underscores the paramount importance of physical education within the landscape of graduate students' higher education. It underscores the profound impact of this facet of schooling on students' holistic well-being, encompassing both physical and emotional health, extending beyond the confines of the school's athletic facilities. The integration of physical education programs into graduate studies is increasingly indispensable as institutions strive to nurture accomplished, well-rounded graduates, profoundly shaping students' educational journeys.

Thus, guided by these considerations, the primary objective of the study is to evaluate the influence of physical education in higher education on the physical and mental well-being of graduate students.

Literature Review

Stanley and Mettilda Buvaneswari (2022) undertook an inquiry to examine the impact of stress and coping mechanisms on the resilience of social work students, employing a comparative and longitudinal research design among Chinese cohorts. The study aimed to elucidate the scope and characteristics of stress, resilience, and coping strategies among social work students vis-à-vis their counterparts in other academic disciplines. Additionally, it sought to discern any temporal variations in these attributes among social work students. Central to the investigation were inquiries into the interrelationships among these pivotal variables and the identification of which specific characteristics most significantly predict the resilience levels of social work students.

In a separate investigation, Subudhi, Srinivasan and Mohapatra (2018) conducted a study on mental health literacy among college students, with a focus on assessing the level of cognitive well-being education among university students. The study sample comprised 40 participants, and data collection involved the utilization of a questionnaire instrument. The analysis was conducted using statistical software for social sciences, specifically SPSS version 16.0.

Khan et al. (2014) undertook an investigation to examine whether psychological resilience and subjective well-being play a role in shaping parental involvement and problem-solving abilities among students from Malaysia and China. The primary aim of this study was to explore the elements of mental fortitude and individual wellness that contribute to coping with perceived academic stress among engineering students in university settings. The study sample comprised 400 participants, and data collection involved the administration of a questionnaire as a survey instrument. Data analysis included the utilization of F-test statistics for statistical examination.

Coffey et al. (2014) conducted a cross-national comparative study focusing on stress, well-being, and support networks among social work students in the United Kingdom and China. The primary objectives of this research were twofold: firstly, to compile data for the inaugural examination in the UK, aiming to either centralize or enhance the health and well-being provisions available to social work students facing stressors; and secondly, to contrast the experiences of social work students in these two distinct cultural contexts. The research employed a comparative research design as outlined by Chomitz et al. (2009). The study sample consisted of 76 participants from the United Kingdom and 235 from China. Data collection utilized a questionnaire instrument, and subsequent inferential analysis was conducted to draw conclusions from the gathered data.

Intense physical activity exerts notable effects on key synapses within the central nervous system associated with arousal (norepinephrine), the "reward and pleasure system" (dopamine), and anxiety regulation (serotonin). Moreover, exercise elicits the release of two distinct neurochemicals known as opioids and endocannabinoids, which collectively induce sedative, anxiolytic, euphoric, and analgesic effects in individuals (Li et al., 2022). Evidence suggests that up to 24 hours post-exercise cessation, optimal mood states and attenuated stress responses persist (Van Dusen et al., 2011).

Furthermore, it has been demonstrated that prefrontal cortex-mediated executive functions, such as attentional focus, procedural, semantic, and social memory, cognitive flexibility, verbal fluency, spatial orientation, and inhibitory control, can endure for up to two hours following the cessation of an exercise regimen (Tomporowski et al., 2008).

Biddle and Asare (2011) examine the mechanisms through which toddlers acquire sports proficiency and the ramifications of physical education on their psychological and physiological well-being. The study delves into the developmental trajectory of pre-schoolers' athletic abilities, with a particular focus on their physical resilience and stamina, elucidating the influence of pedagogical interventions in this domain. Additionally, the research highlights the significantly positive psychological outcomes associated with early exposure to structured sports training among preschool-aged children (Ahamed et al., 2007).

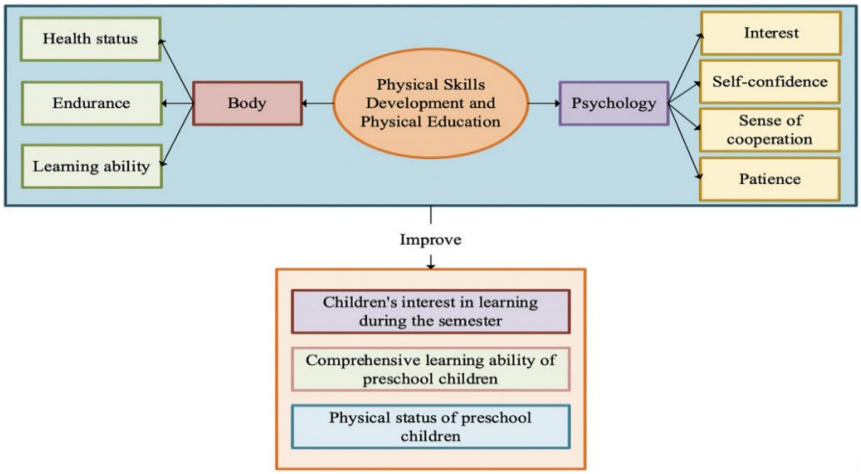

Figure 1: *The Impact of Physical Skills and Physical Education on Pre-schoolers (Wang et al., 2023).*

Individual differences in perceived stress, psychological well-being, and basic psychological needs satisfaction are particularly relevant in university contexts, given that university is a stressful period. Therefore, Physical Education might act as a protective factor against levels of perceived stress and psychological well-being. The practice of Physical Education serves as important leisure-time activity that might reduce perceived stress. In a previous study, sport and physical activity were found to be effective in managing individual stress factors, in so far as their psychological impact on anxiety and depression.

The practice of Physical Education during university studies can therefore become an effective way to promote habitual physical activity, leading to continued physical activity in adult life. This approach might be encouraged during university studies, particularly in the face of an increasing mental health crisis among higher education students.

Research Methodology

Research Participants

A sample of 200 undergraduate alumni was randomly selected from three academic institutions in China, comprising 80 females and 120 males, as depicted in the data presented in Table 1.

Table 1

Participants in the Survey Were Distributed Among the Following Institutions

	University 1	University 2	University 3	Total
Males	40	40	40	120
Females	26	27	27	80
Total	66	67	67	200

Research Instruments

The SCL-90 (Symptom Checklist-90), a widely employed assessment instrument utilized both in China and internationally, constituted a pivotal component of this study. Comprising 90 items grouped into 9 factors, the SCL-90 is renowned for its capacity to accurately and comprehensively capture various syndromes. Endorsed and updated for use in China, this instrument boasts an effectiveness index ranging from 0.77 to 0.99, reflecting its high degree of precision and utility in assessment. Each item within the questionnaire is rated on a five-point scale, with the average score computed for each factor indicating the level of mental well-being, with higher averages suggesting diminished well-being and lower averages indicative of heightened well-being.

In the statistical analysis of this study, particular attention was given to two key metrics derived from the SCL-90: the Composite Symptom Index (CSI) and the Variable Score. The CSI, often referred to as the general average in Chinese, is calculated by dividing the sum of all item scores by 90, providing an aggregate measure of symptomatology. Meanwhile, the Variable Score offers insight into the severity of symptoms associated with each

individual variable, thereby facilitating a nuanced understanding of symptomatology and its distribution characteristics.

Data Collection

Primary Data Sources

Survey Overview: A cohort of 200 graduates hailing from three distinct Chinese universities was surveyed. Data collection primarily relied on a questionnaire, administered to each participant individually and anonymously. The questionnaire utilized the SCL-90, a widely recognized instrument renowned for its assessment of mental health, both domestically within China and internationally. Comprising nine domains encompassing a total of 90 questions, the questionnaire aimed to evaluate various syndromes and overall mental health status.

Expert Consultations: Fifteen professionals in physical education instruction and twelve specialists in school psychology contributed to the expert interviews conducted for this study. The primary reservoir of qualitative information for this investigation stemmed from these interviews, providing nuanced perspectives on the mental health and overall well-being of graduate students. The expert viewpoints served to enrich our understanding of the primary data gleaned from the survey responses.

Secondary Data Sources

In the Chinese research context, secondary data analysis holds paramount significance as it offers opportunities to leverage pre-existing data sources, thereby facilitating the generation of insightful findings and adeptly addressing research inquiries.

Utilizing National Surveys: Several nationwide surveys and reports focusing on education, health, and mental well-being have been undertaken in China. Researchers have the opportunity to access data from surveys conducted by the Chinese government or by reputable organizations such as the National Family Health Survey (NFHS) and the National Sample Survey Organisation (NSSO).

Academic and Institutional Publications: A plethora of Chinese universities and academic institutions regularly publish research reports and studies focusing on the mental health and well-being of students. These resources offer valuable insights into the challenges and concerns encountered by graduate students. Esteemed academic institutions renowned for their investigations in this domain include the National Institute of Mental Health and Neurosciences.

Public Health Datasets: The Ministry of Health and Family Welfare of the Chinese government provides comprehensive data pertaining to mental health trends and the provision of mental health-related healthcare services.

Results and Discussion

The central focus of the survey revolved around the participation of graduate students in athletic endeavours and physical exercise routines.

Table 2

A Survey About the Inclination to Engage in Physical Activities and Sports

	Number	Percentage
Yes	140	70%
No	60	30%
Total	200	100%

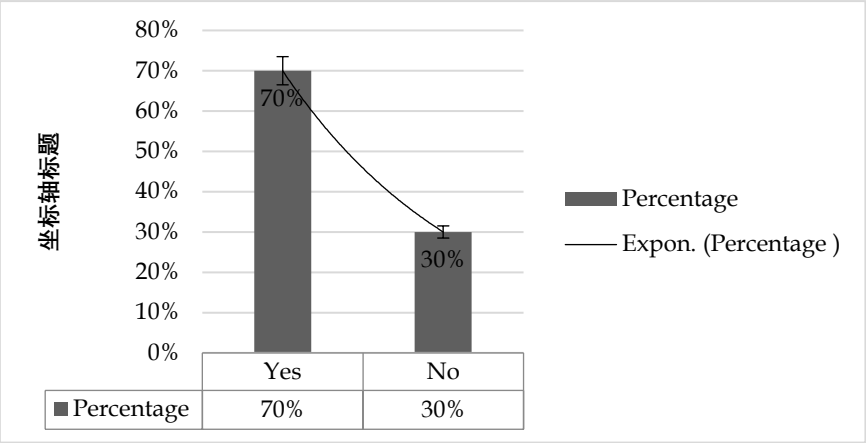

Figure 2: *A Survey About the Inclination to Engage in Physical Activities and Sports.*

The study aimed to assess the enthusiasm of graduate students towards participating in physical exercise and sports. The results, depicted in Table 2 and Fig 2, furnish significant novel insights into students' preferences within this domain. Out of the 200 participants, a considerable majority of 140 students demonstrated a positive inclination towards involvement in physical activity and sports. This cohort exhibited a distinct propensity for engaging in physical activities, constituting 70% of the total respondents.

Conversely, the findings from the survey revealed that a notable segment of the graduate student cohort, comprising 60 individuals, expressed a lack of interest in engaging in sports or physical exercise. This contingent, constituting 30% of all respondents, constitutes a substantial proportion of students who may exhibit limited enthusiasm towards participation in physical activities.

Preliminary Analysis

Three factors are identified as influential in shaping the attitudes and behaviours of graduate students towards sports and exercise. Firstly, inadequate planning, supervision, and administration of physical education programs at the collegiate level emerge as the predominant factor contributing to the substantial incongruity between actual engagement in physical activity and the desire to participate. According to the study data, fewer than 10% of Chinese institutions offer physical education as an elective course. Within Guangdong Territory, only two schools incorporate physical education into their curriculum. Consequently, the dearth of resources available to college graduate students hinders their ability to partake in sports and fitness activities, leading to low rates of participation and physical inactivity.

Secondly, the Ministry of Education does not mandate the provision of in-person physical education classes for graduate students, leading colleges to neglect the exercise preferences of this demographic. The intrinsic motivation for physical activity lies in the cultivation of exercise habits. Structured exercise routines and organized sports activities have the potential to foster the development of this habit. Unfortunately, college physical education curricula often overlook the cultivation of this internal drive within the graduate student cohort.

Thirdly, the limited engagement of this specific student demographic is partially attributable to resource constraints, including inadequate equipment and space availability. The rapid expansion of the student body in colleges has exacerbated this issue. With a constrained budget, the existing inadequate equipment facilities are stretched to accommodate the growing student demand. Consequently, graduate students, already marginalized, find themselves further marginalized in terms of access to systematic exercise opportunities. These challenges significantly diminish the interest and motivation of this demographic to participate in physical activity.

The intrinsic drive that compels individuals to partake in sports and physical exercise is commonly known as their exercise motive. It embodies the psychological underpinnings and subjective rationale that sustain such inclinations. Physical activity and sports participation are manifestations of this motivational force. The rationales behind graduate students' involvement in physical activity and sports are delineated in Table 3 and Figure 3.

Table 3

Survey on Graduate Students' Reasons for Playing Sports and Exercising

Item	Ranking	Frequency	Average Index
Physical and Mental Health	1	50	2.63
Diverse Cultural life	2	45	2.23
Social Interaction	3	35	0.41
Pursuit of beauty	4	30	0.35
Pass exams	5	25	0.26
Others	6	15	0.22

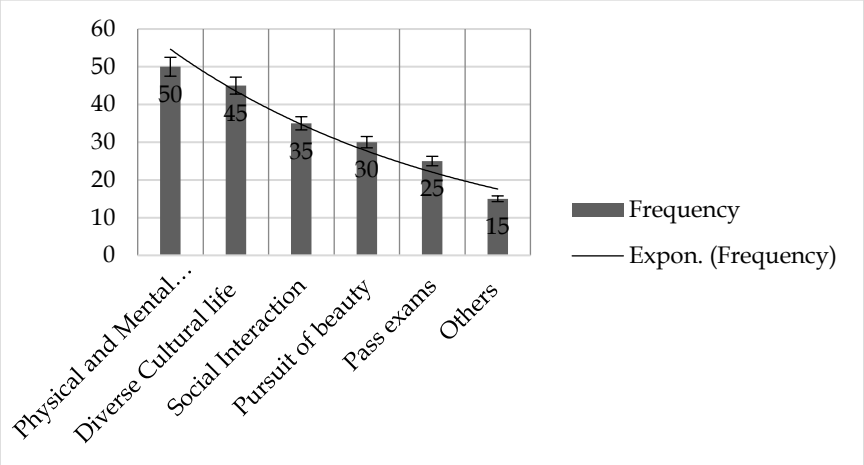

Figure 3: *Survey on Graduate Students' Reasons for Playing Sports and Exercising.*

The findings from a study investigating the factors influencing graduate students' engagement in sports and physical activity are presented in Table 3. This table illustrates both the mean index and the frequency of various factors influencing their participation in physical activities. The predominant and most prevalent motivation appears to be the pursuit of overall physical and mental well-being, as evidenced by a substantial score of 1. Half of the sample, comprising fifty graduate students, identified this as a significant driver for their involvement in sports and physical activity. With an average rating of 2.63, it is evident that this group places a considerable emphasis on the maintenance or enhancement of both their physical and mental well-being. Following closely behind, with a score of 2, is the desire for diverse cultural experiences, emerging as the second most prevalent motivation. Forty-five students indicated that they engaged in sports and exercise to enrich their cultural experiences. With an average value of 2.23, this factor evidently exerts a notable influence. Social connection motivation ranks third, albeit with a much lower average score of 0.41.

This indicates that, while it may not be the primary motivator for the majority, 35 students engage in sports and physical activity as a means to foster social connections and interpersonal interactions. Conversely, the aspiration to excel in examinations and the pursuit of aesthetic ideals were ranked fourth and fifth, respectively, resonating with thirty and twenty-five students. However, these variables exhibited lower average indices, suggesting that graduate students are comparatively less motivated by them. Last but not least, the survey's open-ended questions facilitated the identification of several additional motivations, which were enumerated by 15 students. Despite encompassing a diverse array of rationales, this "others" category yielded a collective average index of 0.22.

Table 4

Surveys on Sporting Activities and Workouts That Graduate Students

Item	Ranking	Frequency	Average Index
Tennis	1	55	1.23
Basketball	2	40	1.71
Soccer	3	35	1.05
Badminton	4	30	1.13
Aerobics dances	5	25	0.57
Others	6	15	0.31

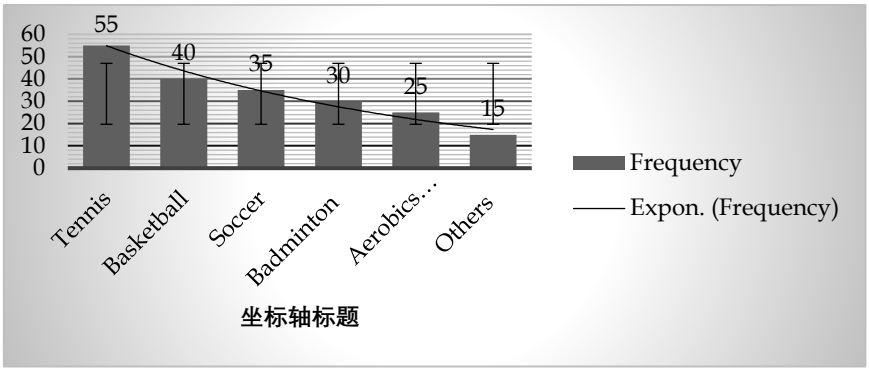

Figure 4: *Surveys on Sporting Activities and Workouts That Graduate Students.*

Table 4 provides insights into the preferences and popularity of sports and exercises among graduate students, showcasing various activities, their rankings, and average indices. Tennis emerges as the most favoured activity, with 55 participants, garnering an average rating of 1.23. Basketball follows closely behind with 40 participants and an average rating of 1.71. Football ranks third with 35 participants and an average rating of 1.05. Badminton and aerobic dances rank fourth and fifth, respectively, with 30 and 25 participants each. Additionally, fifteen students reported engaging in "other" sports, with a collective average index of 0.31, suggesting their presence, albeit less prominent than the top activities.

Table 5

Study on the Amount of Time Chinese Graduate Students Spend Exercising and Playing Sports

	F	Percentage
0-6 Months	72	36%
6-12 Months	74	37%
More than 12 Months	54	27%

Table 5 provides an insightful overview of the time allocation Chinese graduate students devote to sports and exercise. The data indicates variability in their engagement levels over time. The largest proportion, constituting 37% of respondents, reported actively participating in sports and exercise for a duration of six to twelve months, suggesting a notable influx of newcomers to these activities, possibly motivated by a desire to enhance their physical well-being. Conversely, 36% of respondents reported engaging in sports and exercise for less than six months, indicative of recent initiates to physical activity. In contrast, 27% of respondents reported engaging in sports and exercise for over a year, reflecting a sustained commitment to maintaining an active and healthy lifestyle over an extended period.

Table 6

For Graduate Students Worldwide, Variable Average and Standard Deviation Using SCL-90 in Comparison to the National Pattern

SCL-90 Variables	Domestic Pattern	Graduate Students	P
Somatization	1.29 ± 0.35	1.62 ± 0.32	$p < 0.01$
Obsession	1.75 ± 0.45	1.71 ± 0.45	$p < 0.05$
Sensitivity to human relationship	1.35 ± 0.75	1.52 ± 0.33	$p > 0.05$
Depression	1.64 ± 0.68	1.63 ± 0.74	$p < 0.05$
Anxiety	1.44 ± 0.45	1.42 ± 0.74	$p < 0.05$
Hostility	1.74 ± 0.78	1.52 ± 0.35	$p > 0.05$
Horror	1.79 ± 0.65	1.74 ± 0.37	$p > 0.05$
Paranoia	1.62 ± 0.48	1.65 ± 0.54	$p < 0.05$
Psychic disorder	1.74 ± 0.47	1.85 ± 0.75	$p < 0.01$
Total average	1.35 ± 0.50	1.65 ± 0.34	$p < 0.05$

Table 6 presents a comparative analysis of SCL-90 variables between graduate students on a global scale and the national average. Graduate students exhibit a higher average score of 1.62 ± 0.32 for the variable of somatization compared to the national average of 1.29 ± 0.35. This discrepancy, supported by a p-value of less than 0.01 and statistical significance, suggests a higher prevalence of somatic symptoms among graduate students than the national standard.

Notably, average scores for preoccupation, sadness, and anxiety among graduate students closely align with the national norm. While p-values less than 0.05 indicate statistically significant differences for these variables, their practical significance may be marginal.

In contrast, p-values exceeding 0.05 indicate that factors such as sensitivity to human interactions, anger, fear, and paranoia exhibit no significant disparities between graduate students and the national standard. Notably, graduate students demonstrate a higher score on the psychological disorder variable (1.85 ± 0.75) compared to the domestic norm (1.74 ± 0.47), a difference supported by a p-value of less than 0.01, signifying statistical significance. Furthermore, the overall average, encompassing all SCL-90 variables, also demonstrates a statistically significant difference between graduate students and the national trend, with a p-value below 0.05. While the national standard exhibits an average of 1.35 ± 0.50, graduate students display a higher overall average of 1.65 ± 0.34.

Exercise's Beneficial Effects on Mental Health

It has long been posited that physical activity serves as a form of mental therapy, "exercising the heart" as it were. Engaging in physical exercise is believed to have the potential to uplift mood and restore mental well-being. Within the academic setting, students encounter stress, despondency, and mental distress amidst the rapid pace of contemporary life. Consequently, involvement in physical activity may facilitate a shift in their negative emotions, thoughts, and behaviours, thereby aiding in the alleviation of discomfort. According to a survey conducted in the United States, 80% of the 1750 clinicians surveyed affirmed that participation in physical activity is among the most effective strategies for alleviating depression, with 60% suggesting its efficacy in reducing anxiety (Davis et al., 2011). Overall, graduate students invariably contend with significant pressures stemming from societal shifts, which may precipitate feelings of depression and anxiety. To address these challenges, this specific demographic could benefit from opportunities to decompress, mitigate potential mental health issues, and access treatment. Higher education institutions could play a pivotal role in this regard by offering well-structured physical education curricula, organizing enriching extracurricular activities, and providing platforms and opportunities for students to engage in diverse physical pursuits.

Consideration of psychological traits is imperative in student mental health care. Literature review findings (Chaddock et al., 2010) suggest a significant, and at times substantial, correlation between physical exercise, cognitive function, and dementia. At this developmental stage, students demonstrate abstract thinking abilities and grasp abstract concepts, displaying creativity through imaginative drawings and captivating storytelling. Hence, fostering a positive environment during the educational process is essential. College educators play a vital role in guiding students to experience truth, goodness, and diligence in their daily lives, nurturing these positive attributes within the classroom setting.

To evaluate our approach, basic linear regression analysis was conducted using a scripted version of SPSS. Table 4 illustrates the results of linear regression, forecasting the correlations to validate the direct effects of the factors. The linear regression analysis reveals a significant proportion of variance explained in the relationship between sports involvement and quality of life ($R2 = 0.03$, $\beta = 0.88$, $p < 0.001$). Similarly, a substantial amount of variance is elucidated in the relationship between sports involvement and well-being ($R2 = 0.01$, $\beta = 0.11$, $p < 0.001$).

A conducive educational environment characterized by healthiness, positivity, and compassion nurtures favourable psychological growth in students. This study examines the influence of physical skill training on the psychological well-being of students, focusing particularly on pre-schoolers' curiosity, self-assurance, collaboration awareness, and patience. Figure 5 presents the evaluation results regarding the impact of instructing students in physical skills on various aspects of their mental well-being.

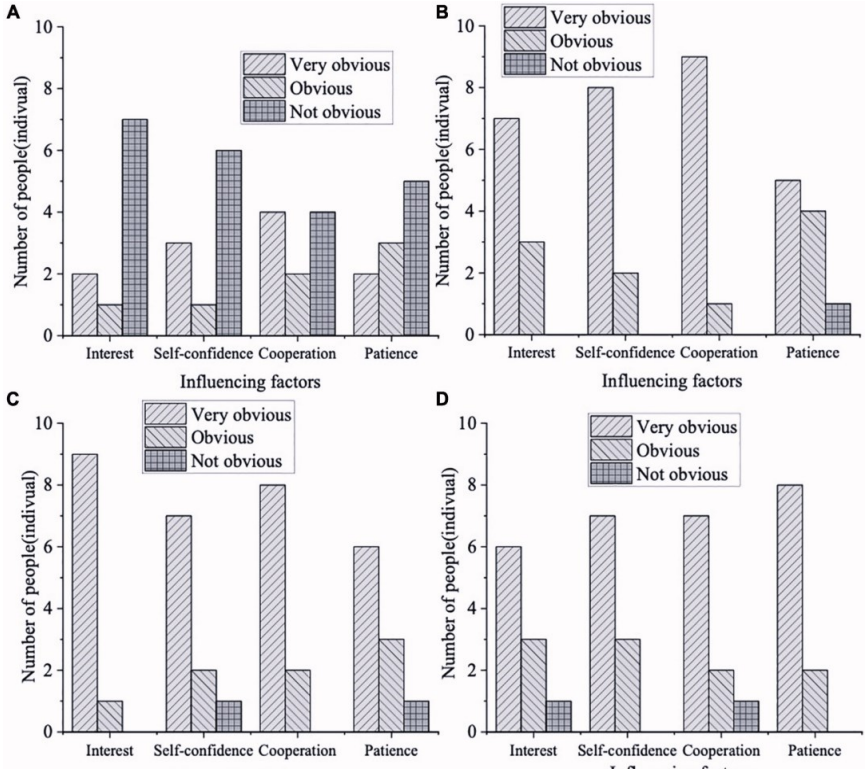

Figure 5: *Assessment of the Impact of Teaching Physical Skills on the Mental Aspects of Pre-Schoolers [Panels (A–D) Depict Basketball, Badminton, Archery, and Swimming, Respectively].*

Influence of Attitudes and Motivations

The substantial majority favoring sports and exercise may be driven by an increased awareness of the benefits associated with physical activity. According to the results, the primary motivations—pursuit of physical and emotional well-being, followed by social interaction and cultural enrichment—reflect broader trends observed in the general population. These motivations are in line with Self-Determination Theory (SDT), which emphasizes the roles of autonomy, competence, and relatedness in fostering intrinsic motivation towards health-promoting behaviors. Furthermore, the lesser but still present motivations related to vanity or academic purposes suggest a multifaceted approach to engaging in physical activity, where personal appearance and academic incentives also play roles, albeit to a lesser extent.

It is important to note the cultural and social dynamics that might influence these motivational factors. For instance, cultural enrichment through sports can be particularly appealing in diverse academic environments where international students seek common grounds with local peers. Similarly, social interactions facilitated through team sports like basketball and soccer may provide crucial support networks that are beneficial for mental health, particularly in the often isolating nature of graduate studies.

Impact of Sports and Exercise on Mental Health

The relationship between physical activity and mental health is well-documented, with exercise being a proven modifier of stress, anxiety, and depression. In the context of graduate students, who often face high levels of stress and mental health challenges, the engagement in physical activities can serve as a vital coping mechanism. The data showing a predominant engagement in sports like tennis and team sports suggests that both individual and group activities are valued for their mental health benefits, providing both solitary time for introspection and community engagement for social support.

Barriers to Participation

Despite the clear benefits, the significant proportion of students showing disinterest in physical activities suggests systemic barriers that prevent wider participation. The lack of mandates for physical education in graduate programs, coupled with inadequate planning and management, may contribute to a lack of accessible opportunities for students. Moreover, the resource limitations mentioned—such as insufficient facilities or equipment—can be a major deterrent, particularly in institutions where funding for sports and recreation may not be prioritized. It is also worth considering the role of academic pressures that may overshadow the perceived importance of physical activity. For students overwhelmed by research, coursework, and professional development activities, finding time for exercise may be seen as a lower priority, suggesting a need for educational policies that integrate physical health with academic schedules more seamlessly.

Recommendations for Policy and Practice

Based on these insights, several recommendations can be proposed to enhance the integration of sports and physical activity into graduate students' lives. Firstly, institutions should consider mandating minimal levels of physical activity participation or offering more structured physical education programs tailored to graduate students' schedules and interests. Additionally, improving resources for physical activities—such as better-equipped facilities and more varied programs—could address some of the physical barriers to participation.

Furthermore, creating awareness and educational programs that highlight the mental health benefits of regular physical activity could shift attitudes and increase engagement among those who are currently disinterested. Programs designed to integrate physical activity with academic and social schedules, possibly through interdisciplinary sports events or group fitness challenges, could foster a more inclusive and supportive environment.

Physical education programmes in higher education institutions have been revealed to have a positive effect on the mental health of graduate students, decreasing symptoms of depression and anxiety. Additionally, getting involved in arts actions and spending time in nature such as through therapeutic horticulture, can support in enhancing both mental and physical health. Therapeutic horticulture is to encourage engagement and involve in a wide variety of nursed operations. This seeks to improve social health and the well-being of college students, lessens education-related stress, and minimizes depression and anxiety. Programs in various high-education platforms as well as ubiquitous exercise sessions might cause sudden overeating habits to diminish University sports activities for higher education institutions also for pupils to improve their physical condition, improve mental health, and develop their motivational attributes, in which to review educators' vocational and mental abilities by taking into account cognition. These inwards can aim at solving destructive mental issues and reinforcing potential health. Physical education to them can be made by taking into account the emotional health of university students and their social sustainability characteristics

Their collective progression can be linked to graduate students more commonly. Physical education programs in higher education institutions have been shown to play an important role in guiding students to establish a good overall consciousness and in promoting their all-round development so that they are granted tointeract, study, and innovate actively and holistically in new contexts

Physical education is typically carried out through different physical activities, contest-related jobs, and sports activities, and is suitable for all ages, having qualified to significantly consolidate and promote health and enhance the resistance to disease. It will also, in which, interactively maximize optimum individual ability, appropriate competition, deliberation, and legitimate principles to form appropriate behavior hypersensitivities and deterntated problems. Physical education has all its energies educational underpinnings but has to be a specialized, reasonable approach to applications with a certain workout structure, directivity, and interest later on.

Assessing and Monitoring Physical and Mental Health Outcomes

Individual differences in perceived stress, psychological well-being, and basic psychological needs satisfaction are particularly relevant in university contexts, given that university is a stressful period. Therefore, Physical Education might act as a protectiv factor against levels of perceived stress and psychological well-being. The practice of Physical Education serves as important leisure-time activity that might reduce perceived stress. In a previous study, sport and physical activity were found to be effective in managing individual stress factors, in so far as their psychological impact on anxiety and depression. In the present study, it was also observed that those students who had practiced gym for longer periods of time had higher ERI, i.e., a larger decrease in perceived stress, and a minimum increase in satisfaction.

The findings of our program support the existing literature, which indicates that physical activity should be encouraged among students, especially in higher education, where students are often less involved in physical activities than their peers with no university education. Physical Education seems to be suitable for university students because it is an organized activity that can be easily scheduled, allowing students to meet their daily occupations and needs.

Conclusion

The study investigated graduate students' inclination towards sports and exercise, their motivations, preferred activities, duration of engagement, and the impact of exercise on their mental health. Findings offer novel insights into the well-being and physical activity levels of this student cohort. A significant majority, constituting 70% of the sample, demonstrated a positive attitude towards physical activity and sports, while 30% expressed disinterest. Several factors contribute to this divergence, including inadequate planning and management of physical education programs, absence of mandates for graduate students to participate in such programs, and limitations in resources. Motivations for sports participation varied, with the primary drivers being the pursuit of physical and emotional well-being, followed by social interaction and cultural enrichment. While some students engaged in sports for vanity or academic reasons, these motives were less prevalent. Tennis emerged as the most favoured sport among graduate students, followed closely by basketball, soccer, and badminton, each offering distinct appeal reflecting students' diverse preferences.

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