Original Article

Analysis of Perceived Barriers to Leisure Time Physical Activity in University Students

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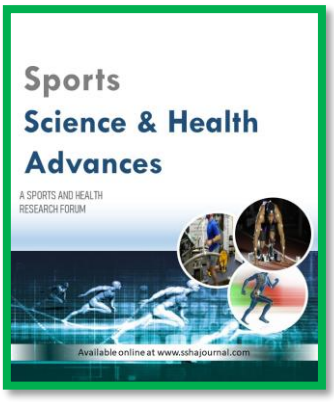

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Abstract

Background. Engaging in physical activities is essential for maintaining both physical and mental health; however, university students often neglect this due to academic pressures and the allure of modern technology. **Objectives**. This study investigated the perceived impediments to leisure-time physical activity involvement among university students, focusing on gender and academic Discipline disparities in stress, motivation and physical activity participation. **Materials and methods**. A sample of 505 non-athlete students aged 20 to 26 years was purposively selected from the Central University of Punjab. Random sampling technique was used to select a sample of 250 males and 255 females, with 234 subjects from the science discipline and 271 from the humanities discipline. Data were collected using standardized instruments: the Behavioural Regulation in Exercise Questionnaire (BREQ-3) by Cid et al. (2018) for assessing motivation, the Perceived Stress Scale-4 (PSS-4) by Cohen et al. (1983) for measuring stress, and the short form of the International Physical Activity Questionnaire (IPAQ) by Craig et al. (2003) for evaluating physical activity participation. **Results**. The Mann-Whitney U test was conducted to analyze the scores for Stress, Motivation, and Physical Activity Participation. The results indicated that there was no significant differences in stress levels ($U = 31420.50$, $p > 0.05$) between male (mean rank = 254.82) and female (mean rank = 251.22) students. Similarly, no significant differences were found in stress levels ($U = 30794.000$, $p > 0.05$) with mean ranks of humanities (249.63) and science (256.90), motivation ($U = 31698.0$, $p > 0.05$) with mean ranks of humanities (253.03) and Science (252.96), physical activity participation ($U = 30375.5$, $p > 0.05$) with mean ranks of humanities (248.09) and science (258.69) between humanities and science discipline students at 0.05 level of significance. Whereas significant difference was observed in motivation ($U = 27424.5$, $p < 0.05$) with mean ranks of male (235.20) and female (270.45), physical activity participation ($U = 26939.50$, $p < 0.05$) with mean ranks of male (272.74) and female (233.65), between male and female students at 0.05 level of significance. **Conclusions**. It is concluded that male and female students experienced stress up to the same extent. In contrast,

students in the humanities and science disciplines had similar levels of stress, motivation, and participation in physical activity. However, physical activity participation was greater in male students than female students, although female students were found to have greater motivation than male students.

Keywords: Perceived Barriers, Leisure-Time Physical Activity, Motivation, Stress

Introduction

Engaging in physical activity during leisure time is essential for maintaining overall health and well-being, particularly among university students who often face high levels of academic stress and sedentary lifestyles. The college years represent a critical developmental stage, marking the transition from adolescence to adulthood, during which students establish habits that may persist throughout their lives (Arnett, 2000). Unfortunately, this period is also characterized by a high prevalence of mental health disorders, with students experiencing symptoms of common mental illnesses (Blanco et al., 2008; Hunt & Eisenberg, 2010; Verger et al., 2010). Studies indicate that a significant portion of undergraduate students fail to meet a standard level of physical activity (Alkhawaldeh et al., 2024; Blake et al., 2017; Maselli et al., 2018). Whereas the World Health Organization's (WHO) recommended levels of physical activity suggest adults achieve at least 150 minutes of vigorous or 300 minutes of moderate aerobic activity weekly (Bull et al., 2020); (WHO). Alarmingly, approximately 80% of young individuals globally do not meet these guidelines (Guthold et al., 2020).

The lack of regular physical activity contributes to the increasing burden of non-communicable diseases (NCDs) (World Health Organization, 2020), which not only reduces productivity and results in lost workdays but also creates vulnerabilities in multiple domains such as social, emotional, cognitive, and physical health (Ferreira Silva et al., 2022). For children and adolescents, these vulnerabilities negatively impact school readiness (Bell et al., 2016) and academic outcomes (Barnett et al., 2018; Redondo-Flórez et al., 2022). Conversely, regular physical activity has been shown to offer numerous benefits (Almaqhawi, 2022; Anderson & Durstine, 2019; Thivel et al., 2018), including improved physical health (Cerletti et al., 2020), such as better weight management and obesity (Jakicic et al., 2018), lower blood pressure (Alidadi & Jalili, 2019), enhanced bone health (Lombardi et al., 2019), and increased muscle strength and function (Cruz-Jentoft & Sayer, 2019). Psychological benefits include reduced risks of dementia (Livingston et al., 2017; Tari et al., 2019), improved cognition (Mandolesi et al., 2018) enhanced academic performance (Donnelly et al., 2016), improve mental health (Rodríguez-Romo et al., 2022) and reduced depression (Dale et al., 2019). These benefits underscore the vital role of physical activity in preventing chronic diseases and supporting both mental and physical health, making it a crucial focus for promoting well-being among university students.

University students often face high levels of academic stress (Misra et al., 2000), which can significantly impact their engagement in leisure time physical activities (Amr et al., 2011). Stress, a prevalent factor during the transition from adolescence to adulthood, has been shown to act as a barrier to adopting healthy lifestyle behaviors, including regular exercise with academics (Dusselier et al., 2005). Motivation significantly influences human behavior, particularly in health-related activities like exercise. Research highlights diverse motivators and barriers shaping these behaviors. For example, (Firth et al., 2016) examined physical and psychological motivators for exercise among individuals with severe mental illness. (Sylvester et al., 2018) found that exercise variety could fulfil unmet psychological needs, driving participation. (ECCLES, 2009) emphasized the role of personal and collective identities in shaping behavioral choices, while (Kilpatrick et al., 2005) uncovered gender-specific motivational patterns in sport and exercise. Together, these studies illuminate motivation's complex role in promoting health behaviors.

Material and Methods

Participants

A cross-sectional sample of 505 students from the Central University of Punjab, Bathinda, was recruited for this study. The sample comprised individuals from two distinct academic disciplines: humanities and science. To ensure the homogeneity of the sample, participants were required to be non-athletes and not affiliated with the Department of Physical Education. The distribution of participants included the Humanities stream: 271 students (53.66% of the total sample) and the Science stream: 234 students (46.34% of the total sample). Gender representation was nearly balanced, with Male participants: 250 students (49.50% of the total sample) and Female participants: 255 students (50.50% of the total sample). Inclusion criteria mandated that participants fall within the age range of 21 to 27 years. A Random sampling technique was employed to ensure that the selection process was unbiased and that the sample accurately represented the demographics of the student population and fit the specified inclusion criteria. This approach was intended to enhance the generalizability of the study findings across the broader student body.

Tools

The International Physical Activity Questionnaire - Short Form (IPAQ-SF) was used to measure students' physical activity levels. The IPAQ-SF is a validated tool designed to assess the physical activity of individuals over the last seven days (Craig et al., 2003). It includes seven (7) questions covering four (4) activity domains: vigorous-intensity activities, moderate-intensity activities, walking, and sitting. Physical activity levels are categorized into three (3) levels based on MET-min per week: low, moderate, or high. The Behavioral Regulation in Exercise Questionnaire (BREQ-3) was utilized to measure motivation towards exercise. The BREQ-3, based on self-determination theory, includes 24 items divided into six (6) subscales: amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic regulation (Markland & Tobin, 2004; Cid et al., 2018). Responses are given on a five-point (5-point) Likert scale ranging from 0 ("not true for me") to 4 ("very true for me"). The relative autonomy index (RAI) is calculated to indicate the degree of self-determined motivation. The Perceived Stress Scale (PSS-4) was employed to assess stress levels. The PSS-4, developed by Cohen et al. (1983), is a brief, validated tool consisting of four (4) items designed to measure the degree to which situations in one's life are appraised as stressful. Each item is scored on a five-point (5-point) Likert scale from 0 ("never") to 4 ("very often"), with higher scores indicating higher perceived stress.

Statistical Analysis

After obtaining the scores of each of the subject on physical activity participation, motivation and stress, the data was analysed using IBM SPSS software (version 25). Assumptions of normality of data were violated, and the Mann-Whitney U test was used to compare the mean ranks of physical activity, stress, and motivation between male and female, science and humanities students at a 0.05 significance level.

Results

The Mann-Whitney U-Test results from Table-1 indicate that a significant difference was found in physical activity participation ($U = 26939.5$, $p<0.05$), motivation ($U = 27424.5$, $p<0.05$) between male and female students at 0.05 level of significance. These findings indicate that male and female students have different levels of physical activity participation and motivation. However, no significant difference was found in stress levels ($U= 31420.5$, $p> 0.05$) between male and female students, which does not reach the significance threshold of 0.05. This suggests that both males and females experience stress up to a similar extent. Same can be seen in figure-1.

Table 1 Gender-wise Mean Ranks, Sum of Ranks, N and Mann-Whitney U-Value of Physical Activity Participation, Motivation and Stress

Variables	Gender	Mean Ranks	Sum of Ranks	N	Mann-Whitney U-Value	Sig.
Physical Activity	Male	272.74	68185.50	250	26939.50	p<0.05
	Female	233.65	59579.50	255		
Motivation	Male	235.20	58799.50	250	27424.50	p<0.05
	Female	270.45	68965.50	255		
Stress	Male	254.82	63704.50	250	31420.50	p>0.05
	Female	251.22	64060.50	255		

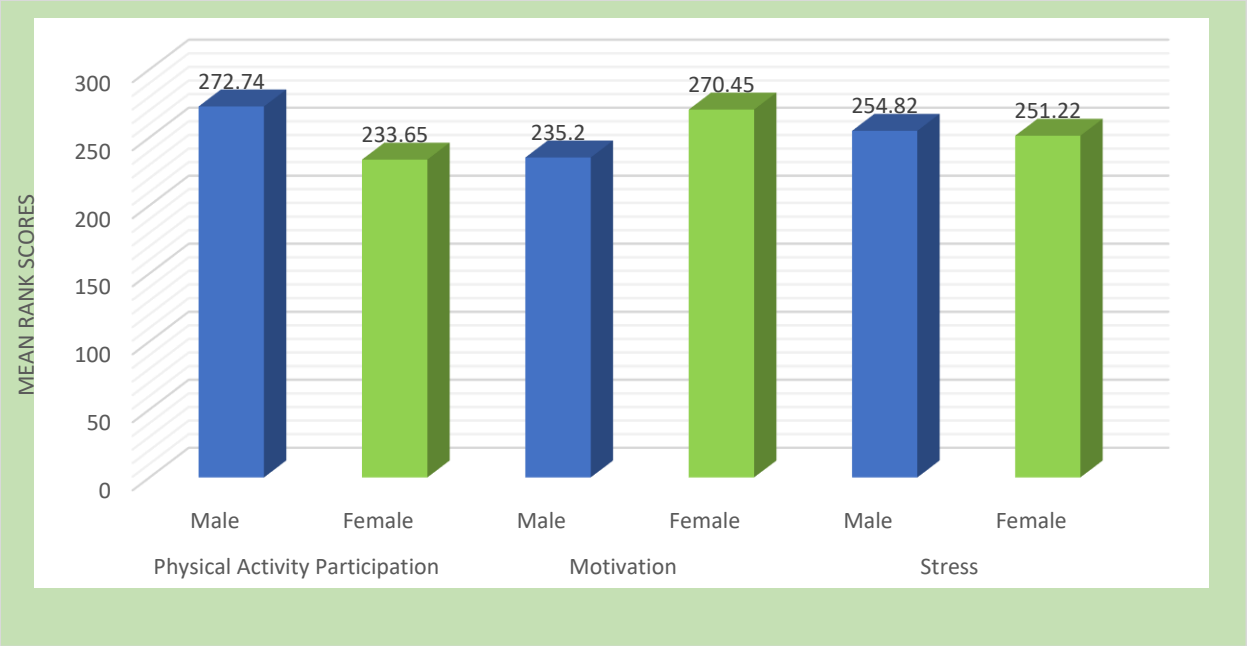

Figure 1 Illustration of Mann Whitney U-Test Value for Physical Activity Participation, Motivation and Stress for gender

Mann-Whitney U-Test results from Table 2 show that no significant difference was found in physical activity participation (U= 30375.50, p> 0.05), motivation (U= 31698.00, p> 0.05) and stress levels (U= 30794.00, p> 0.05) between students of science and humanities courses. Further, it shows that none of these results reach the significance threshold and indicate that physical activity participation, motivation and stress levels are similar between students from both disciplines. Same can be seen in figure-2.

Table 2 Course-wise Mean Ranks, Sum of Ranks, N and Mann-Whitney U-Value of Physical Activity Participation, Motivation and Stress

Variables	Course	Mean Rank	Sum of Rank	N	Mann-Whitney U-Value	Sig.
Physical Activity	Humanities	248.09	67231.50	271	30375.50	p>0.05
	Science	258.69	60533.50	234		
Motivation	Humanities	253.03	68572.00	271	31698.00	p>0.05
	Science	252.96	59193.00	234		
Stress	Humanities	249.63	67650.00	271	30794.00	p>0.05
	Science	256.90	60115.00	234		

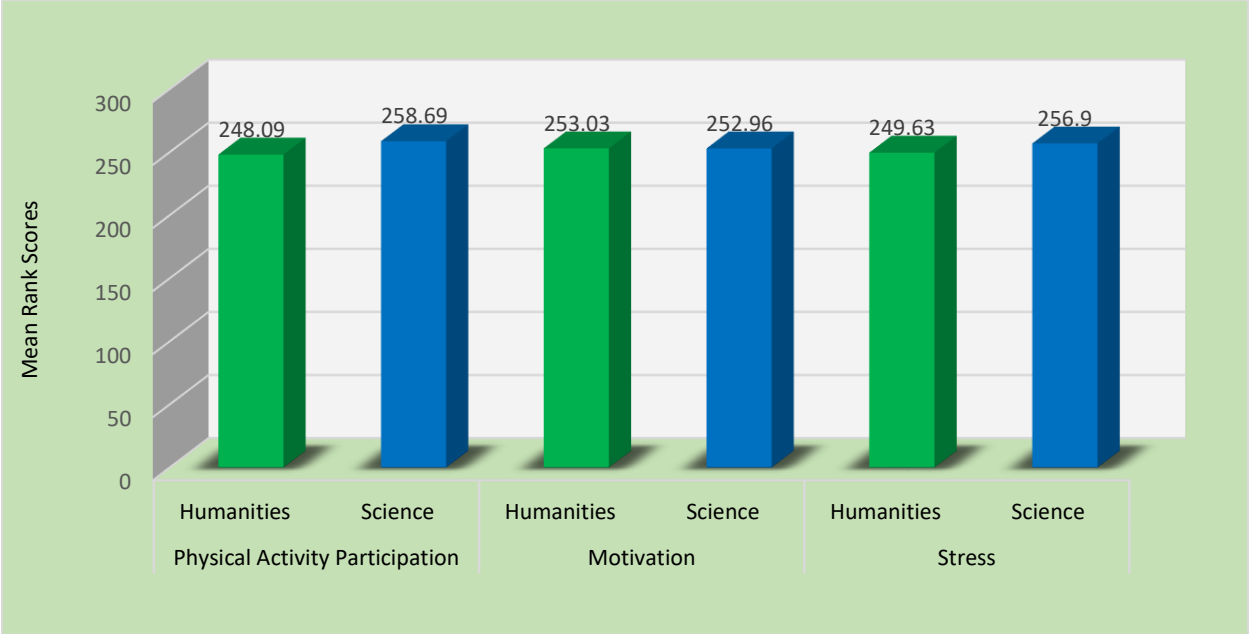

Figure 2 Illustration of Mann Whitney U-Test Value for Physical Activity Participation, Motivation and Stress for Science and Humanities Students

Discussion

The findings of the present study shows that male and female students had the same level of stress. This indicates that both genders face similar challenges such as academic pressure, time constraints, social challenges, and health concerns (Papas et al., 2007). Stress can lead to anxiety, depression, and other mental health issues. University students already face academic pressures, and additional stressors can exacerbate these conditions. Exercise and other physical activities produce endorphins, reduce cortisol, provide distraction, and improve self-esteem (Salmon, 2001). However, it is observed that motivation was found greater in females than males and it may be due to the fact that female students are more concern about their physique due to social expectations, and access to resources such as fitness classes, women's sports teams, female-focused exercise programs, more self-focused, self-determined, and self-centered toward their careers and academic performance which can enhance motivation (Kilpatrick et al., 2005). Physical activity enhances mood and cognitive function, such as enhancing memory and problem-solving skills (Hillman et al., 2008). In terms of physical activity, it is observed that males are more engaged in physical activity than females, which indicates that females face more challenges such as safety concerns, time constraints, and lack of accessible facilities (Cerin et al., 2010). Studies support that female often display higher levels of intrinsic motivation, which drives their engagement in various academic and extracurricular activities despite external limitations (Ryan & Deci, 2000). Furthermore, societal and cultural expectations can influence the perceived accessibility and appropriateness of physical activity for females, leading to less participation despite higher motivation (Eccles, 2009). Males, on the other hand, have more opportunities to participate in physical activity due to fewer time constraints, competitive nature, peer influence, and the desire to achieve health and fitness goals (Sallis et al., 2000).

Similarly, in course-wise mean ranks comparison of physical activity participation, motivation and stress no significant difference was found between students of science and humanities. These findings imply that factors such as insufficient time as a barrier to physical activity, lack of motivation towards physical activity, and perceived stress are consistent across students in both disciplines. Supporting this, Cerin et al. (2010) identified that the degree of leisure time physical activity correlates with perceived barriers such as

time and lack of motivation. Furthermore, the likelihood of abstaining from leisure time physical activity is associated with poor health, lack of facilities, and lack of motivation. The results of present study align with other studies that highlight how academic pressures and institutional constraints impact students regardless of their field of study. Academic pressure, time constraints, and hostel restrictions are prevalent across both science and humanities courses, contributing to the observed similarities in weekly physical activity participation, motivation, and perceived stress. Yusoff (2011) found that academic stress is a common issue among students in different fields, which affects their physical activity levels and overall mental health. Bedewy and Gabriel (2015) reported that time management issues and academic demands are critical stressors for university students across various disciplines. El Ansari and Stock (2010) highlights that both science and humanities students experience significant levels of stress, which affects their physical activity and health behaviors. The uniformity in these experiences is likely a result of the standardized environment and schedule that university life imposes, which reduces variability among students in different disciplines.

Addressing these common barriers through targeted interventions could significantly benefit students by enhancing their overall well-being and academic performance. Interventions such as time management workshops, motivational programs tailored for physical activity, and stress management seminars could help mitigate these barriers. By recognizing and addressing the shared challenges faced by both science and humanities students, universities can foster a more supportive environment that promotes better mental and physical health outcomes, ultimately leading to improved academic success. This comprehensive approach acknowledges the interconnected nature of stress, motivation, and physical activity, emphasizing the need for holistic solutions in educational settings. Further research, by El-Gilany et al. (2008), underscores the importance of targeted interventions that address the unique yet overlapping needs of different student groups to promote their health and academic performance. Moreover, Melnyk et al. (2014) suggest that cognitive-behavioral interventions can significantly reduce stress and improve academic performance in university students, reinforcing the need for comprehensive support systems.

Conclusion

In conclusion, the study reveals significant gender differences in motivation and physical activity levels, emphasizing the need for targeted interventions to address these disparities. Providing more resources and support for female participants to engage in physical activities could help bridge the gap between their high motivation and less participation in physical activities. Encouraging a more inclusive environment and addressing cultural and societal barriers will be crucial in enhancing physical activity levels among female students. The results of the study reveal that students of science and humanities have the same level of stress, motivation, and physical activity. This may be because students in both disciplines face the same academic pressure and similarities in time constraints. Therefore, universities need to provide proper sports facilities and the university administration may adjust the daily class timings so that students have sufficient time to engage in physical activities to promote a healthy lifestyle and wholesome development of personality. Present study provides a robust framework for understanding the perceived barriers to leisure-time physical activity among university students, informing future interventions and policies.

Conflict of Interest: There is no conflict of interest.

Funding Information: The authors declare that the research was conducted in the absence of any commercial or financial relationships

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