PSYCHOSOCIAL IMPACT OF PHYSICAL EXERCISE ON STRESS MANAGEMENT AMONG UNIVERSITY STUDENTS: A GENDER-BASED COMPARATIVE STUDY

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ABSTRACT

The rising stress levels among university students have become a global concern, affecting academic performance, emotional stability, and overall mental health. This study investigates the psychosocial benefits of physical exercise and its effectiveness in managing stress levels among male and female university students. Utilizing the Perceived Stress Scale (PSS) and a detailed activity log, data was collected from 400 students (200 males and 200 females) across five universities in India. The results demonstrate a strong inverse relationship between physical activity and perceived stress levels, with notable gender-based differences. Male students benefited more from high-intensity exercises like gym and running, while females reported significant improvements in emotional well-being through yoga and moderate forms of physical activity. The study highlights the importance of customized wellness strategies based on gender preferences and physical activity types to reduce academic stress and enhance psychosocial health. Institutions should promote gender-sensitive fitness programs to foster emotional resilience and academic success.

Keywords: Psychosocial well-being, physical activity, stress reduction, gender disparity, university students, mental health, exercise intervention, emotional wellness, student fitness behavior, stress management programs.

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INTRODUCTION

University life is widely regarded as a transformative period that introduces academic challenges, financial burdens, career anxieties, and social adjustments, all of which can result in elevated stress levels among students. Persistent stress can lead to burnout, anxiety disorders, depression, and even suicidal ideation. The psychological burden is further influenced by gender, socio-economic background, and lifestyle habits. Within this context, physical exercise emerges as a non-pharmacological, accessible, and cost-effective intervention for stress reduction. Regular engagement in physical activity has been shown to elevate mood-enhancing neurotransmitters such as serotonin and dopamine, thus alleviating symptoms of anxiety and depression.

However, the psychosocial benefits of physical activity may not be uniformly experienced across genders. Males often gravitate toward competitive or intense exercise routines, whereas females may prefer holistic or meditative forms of activity like yoga and aerobics. Understanding this behavioral divergence is critical for crafting targeted stress-management strategies. This study focuses on evaluating the comparative impact of physical exercise on stress levels between male and female students, with the goal of offering empirically grounded recommendations for university-level wellness policies.

Data Analysis

The research involved a quantitative assessment of 400 university students (200 male, 200 female), aged 18–25. Respondents filled out the Perceived Stress Scale (PSS) and recorded their weekly physical activity types and frequency. The collected data was categorized by gender, type of activity (vigorous, moderate, or low-intensity), and exercise frequency.

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Findings revealed that students exercising four or more times per week had an average PSS score of 15.3, while those who exercised rarely or never recorded scores averaging 23.6. Gender-specific data showed male students benefitted more from vigorous-intensity activities such as gym workouts and running (mean PSS = 14.7), whereas female students displayed better emotional outcomes with yoga, dance, or walking routines (mean PSS = 15.6). A t-test confirmed statistically significant differences between exercisers and non-exercisers ($p < 0.01$), and a two-way ANOVA demonstrated a significant interaction between gender and type of exercise ($F = 5.67$, $p < 0.05$).

These results reinforce the hypothesis that regular physical activity significantly lowers stress levels and that gender-specific preferences influence the magnitude of this psychosocial benefit.

METHODOLOGY

This study adopted a descriptive, cross-sectional design with a mixed-methods approach to quantify the relationship between physical exercise and stress among university students. A stratified random sampling technique ensured proportional representation of male and female students across five major Indian universities from varied disciplines.

Instrumentation included:

1. *Perceived Stress Scale (PSS)*: A standardized, reliable tool for measuring stress across multiple domains.
2. *Weekly Physical Activity Log*: Documenting type, frequency, and intensity of physical exercise undertaken over four weeks.

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DATA COLLECTION PROCESS:

Surveys and activity logs were distributed both online and offline, following institutional ethical approval. Anonymity and confidentiality of responses were maintained throughout the research process. The inclusion criteria required participants to be full-time students between the ages of 18 to 25. The exclusion criteria eliminated students with diagnosed psychological disorders currently under medication.

DATA ANALYSIS TOOLS:

Quantitative data was analyzed using SPSS Version 25. Descriptive statistics, independent sample t-tests, and two-way ANOVA were applied to examine the interaction effects of gender and exercise type on stress levels. This rigorous methodology ensured both the reliability and validity of the findings.

Case Study

To better illustrate the quantitative findings, two real-life case profiles were included to demonstrate the individual psychosocial transformation through physical exercise.

Case 1 – Male Student (Aged 22):

Ravi, an engineering student, reported high stress levels due to academic deadlines and peer competition. His initial PSS score was 28. Upon integrating a regular gym routine (5 days/week of strength and cardio training), his stress score reduced to 14 within two months. Ravi also reported better sleep patterns, higher concentration in lectures, and improved self-esteem.

Case 2 – Female Student (Aged 21):

Ananya, pursuing a degree in sociology, experienced anxiety and emotional exhaustion during examination periods. She adopted a routine of daily 40-minute yoga and meditation sessions. Her PSS score dropped from 26 to 16 after six weeks. She also experienced a decline in panic attacks and gained better emotional regulation.

These case studies demonstrate the transformative impact of gender-aligned physical exercise routines on psychosocial well-being, further validating the survey's statistical findings.

QUESTIONNAIRE

Part A: Demographic Profile

1. Name (Optional): _____
2. Age: _____
3. Gender: Male / Female / Other
4. Course Enrolled: _____
5. Year of Study: _____
6. Institution Name: _____

Part B: Physical Activity Patterns

1. Do you engage in physical activity? (Yes/No)
2. If yes, how many days a week do you exercise?
   - 0
   - 1–2
   - 3–4
   - 5+

3. What type of physical activity do you prefer?
   - Gym
   - Running
   - Yoga
   - Walking
   - Dance
   - Others: _____
4. Average duration of one session (in minutes):
   - <30
   - 30–60
   - 60
5. What changes (if any) have you noticed in your stress levels since starting regular exercise?

Table 1: Weekly Physical Activity Frequency vs. Mean PSS Score

Exercise Frequency	Participants (n)	Mean PSS Score
0 days/week	80	23.6
1–2 days/week	90	21.2
3–4 days/week	120	17.4
5+ days/week	110	15.3

Table 2: Gender-Based Comparison by Exercise Type and Stress Level

Exercise Type	Male PSS Score	Female PSS Score
High-Intensity (Gym)	14.7	18.2
Moderate (Jogging)	16.5	16.1
Yoga/Stretching	17.3	15.6
No Exercise	24.2	23.1

CONCLUSION

The study successfully establishes that physical exercise is an effective intervention for stress reduction among university students. Importantly, it highlights the existence of gender-based variations in the type of physical activity that yields optimal psychosocial benefits. While high-intensity exercises were more effective for male participants, female students benefitted significantly from low to moderate-intensity workouts such as yoga, walking, and stretching. These findings advocate for institutional wellness policies that are inclusive, diversified, and gender-sensitive. The incorporation of structured fitness modules within university curricula can improve mental health outcomes, reduce dropout rates, and enhance academic performance. Future research may explore longitudinal effects, cultural variables, and psychological mediators such as motivation and body image to further refine intervention strategies.

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