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Full Length Research Paper

Relationship Between Stress Management, Physical Fitness, and Academic Success in Physical Education Students A Study

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Abstract
The academic success of physical education students is not solely dependent on cognitive ability, but is also significantly influenced by stress management and physical fitness. This study investigates the interrelationship between stress management practices, levels of physical fitness, and their collective impact on academic achievement among physical education students. A mixed-method approach was employed, involving standardized stress management scales, physical fitness assessments, and analysis of grade point averages (GPA). The results highlight that students with higher stress management skills and better physical fitness consistently demonstrate superior academic outcomes compared to their counterparts. Findings reveal that stress management acts as a mediating variable between physical fitness and academic success, emphasizing the holistic role of wellness in academic performance. The paper concludes that integrating structured stress management training and regular physical activity programs into the curriculum could significantly enhance both well-being and academic performance of physical education students.

Introduction

Academic success in higher education is influenced by multiple factors that extend beyond intellectual ability or classroom engagement. For students of physical education, who balance rigorous physical training with academic demands, the role of stress management and physical fitness becomes even more critical. In today's competitive academic environment, the pressures of examinations, assignments, extracurricular responsibilities, and personal challenges often lead to heightened levels of stress, which can negatively impact learning outcomes, motivation, and overall performance.

Physical fitness, on the other hand, has been shown to improve not only physical health but also cognitive functioning, memory retention, and emotional stability. A healthy body contributes to a healthy mind, enabling students to cope with stress effectively and focus better on academic tasks. This interplay between physical wellness and psychological resilience underscores the need to examine how stress management strategies and physical fitness together influence academic success in physical education students.

Previous studies have demonstrated that unregulated stress often results in burnout, fatigue, and diminished academic performance. Conversely, students who actively adopt stress management techniques such as relaxation, time management, mindfulness, or regular exercise tend to achieve higher academic results. Similarly, higher levels of physical fitness are associated with improved concentration, mental clarity, and productivity, all of which are essential for excelling in both academic and practical components of physical education.

Literature Review

The relationship between stress management, physical fitness, and academic success has been widely studied across disciplines, though limited research specifically targets students of physical education. This section reviews existing studies and theoretical perspectives that highlight the relevance of these constructs.

- **George & Mallery (2019):** Provided statistical tools (SPSS) for analyzing relationships between stress, fitness, and academic outcomes in research.
- **Park & Sprung (2013):** Conducted a meta-analysis and found that quality sleep (a stress-buffer and fitness factor) is positively correlated with academic success.
- **Nonis & Hudson (2010):** Reported that students with good study habits and healthy lifestyles, including regular fitness, perform better academically.
- **Kitsantas, Winsler & Huie (2008):** Argued that self-discipline, goal-setting, and persistence developed through physical training contribute to higher academic achievement.
- **Gómez-Pinilla (2008):** Explained that physical exercise enhances brain function, plasticity, and memory, linking fitness directly with improved learning and cognition.
- **Curcio, Ferrara & De Gennaro (2006):** Demonstrated that sleep loss and stress negatively impact learning capacity and memory consolidation, ultimately lowering academic performance.
- **Eilam & Aharon (2003):** Suggested that students who combined structured planning strategies with physical activity achieved better outcomes.

- **Zimmerman (2002):** Highlighted the role of self-regulation in learning, showing that students who actively manage their behavior and stress perform better academically.
- **Trockel, Barnes & Egget (2000):** Found that sleep, nutrition, and exercise significantly predict first-year college students' academic performance.

Research Gap

A review of the existing literature highlights several important findings regarding stress, physical fitness, and academic performance. While prior studies have established that effective stress management and healthy lifestyle habits influence student achievement, certain research gaps still persist:

- **Limited focus on Physical Education students** – Although Bruner & Bennett (2020) emphasized the role of lifestyle behaviors on student achievement, and Park & Sprung (2013) highlighted sleep and academic performance, most research has focused on general students rather than *Physical Education students*, who face unique academic and physical demands.
- **Isolated study of variables** – While Kitsantas et al. (2008) studied self-regulation and academic success, and Gómez-Pinilla (2008) linked nutrition to brain function, most studies analyzed *stress management* (Curcio et al., 2006; Park & Sprung, 2013) or *physical fitness* separately. The *combined and interactive effect* of stress management and physical fitness on academic outcomes remains underexplored.
- **Regional gap in Indian context** – Existing literature, such as Bruner & Bennett (2020) and Hattie (2009), is predominantly Western. There is limited empirical evidence from *Indian states like Jharkhand*, where socio-economic and lifestyle conditions differ significantly.
- **Need for holistic frameworks** – Zimmerman (2002) and Kitsantas et al. (2008) emphasize self-regulation and time management, but few models integrate *psychological (stress), physiological (fitness), and academic (performance) variables* together in a holistic framework.
- **Scarcity of longitudinal data** – Earlier studies like Misra & McKean (2000) and Britton & Tesser (1991) relied on cross-sectional data, which makes it difficult to establish long-term causal relationships between stress management, physical fitness, and academic success.

Objectives

The present study aims to explore the interconnected role of **stress management** and **physical fitness** in determining the **academic success of physical education students**. The objectives have been framed to provide clarity and direction to the research:

- To assess the level of stress experienced by physical education students and its impact on their academic performance.
- To examine the role of stress management strategies (such as time management, relaxation techniques, and self-regulation) in enhancing academic outcomes.
- To measure the physical fitness levels of students and study their influence on academic achievement.

Hypotheses

Based on the objectives and literature review, the following hypotheses are proposed:

H1: There is a significant negative relationship between stress levels and academic success among physical education students.

H2: Physical fitness has a positive and significant impact on the academic performance of physical education students.

H3: The combined effect of stress management and physical fitness significantly predicts academic success among physical education students.

Research Methodology / Tools Used

1. Research Design

The present study adopts a **descriptive and correlational research design** to examine the relationship between stress management, physical fitness, and academic success. This design is appropriate as it allows the researcher to study natural variations in behavior and performance without experimental manipulation, while also exploring the associations among variables.

2. Population and Sample

- **Population:** Students enrolled in undergraduate and postgraduate programs in **Physical Education colleges and universities in Ranchi, Jharkhand**.
- **Sample Size:** A total of **100 students** were selected.
- **Sampling Technique:** Stratified random sampling was employed to ensure equal representation across academic levels and gender.
- **Sample Distribution:**
  - 60 students from undergraduate courses (B.P.Ed.)
  - 40 students from postgraduate courses (M.P.Ed.)
  - Representation of both male and female students

4. Tools and Instruments

1. **Perceived Stress Scale (PSS-10):** A standardized tool widely used for measuring stress levels.
2. **Stress Management Questionnaire (Self-Designed):** A structured questionnaire focusing on time management, relaxation practices, and coping techniques, validated through a pilot test in Ranchi institutions.
3. **Physical Fitness Tests:**

- **Endurance Test** – Cooper's 12-minute run/walk test
- **Strength Test** – Push-ups and sit-ups (one-minute test)
- **Flexibility Test** – Sit and reach test
- **Body Mass Index (BMI)** – To assess weight-to-height ratio as a general health index

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4. **Academic Records:** GPA and examination scores obtained from university records with student consent.
5. **Software Used: IBM SPSS (George & Mallery, 2019)** for statistical analysis.

6. Statistical Techniques Used

- **Descriptive Statistics:** Mean, Standard Deviation, Range
- **Pearson's Correlation (r):** To study the relationship between stress, fitness, and academic success
- **Regression Analysis:** To examine the combined predictive power of stress management and physical fitness on academic success
- **t-test / ANOVA:** To test differences based on gender and academic level (UG vs PG)

Analysis

The data collected from 100 Physical Education students in Ranchi, Jharkhand was analyzed using **SPSS**. Both descriptive and inferential statistics were applied to test the hypotheses.

1. Descriptive Statistics of Variables

Variable	Mean	SD	Minimum	Maximum
Stress Management Score	72.45	8.21	55	90
Physical Fitness Score	76.38	7.94	60	92
Academic Success (GPA)	7.48	0.85	6.0	9.2

Interpretation:

- The mean **Stress Management Score** (72.45) indicates that students are moderately effective in managing stress.
- The **Physical Fitness Score** (76.38) shows above-average fitness among students, as expected from physical education participants.
- The mean **GPA (7.48)** reflects satisfactory academic performance, with some students achieving high distinction.

2. Correlation Analysis

Variables	Stress Management	Physical Fitness	Academic Success
Stress Management	1	0.41**	0.52**
Physical Fitness	0.41**	1	0.47**
Academic Success (GPA)	0.52**	0.47**	1

($p < 0.01$, significant)

Interpretation:

- Stress Management has a **positive correlation ($r = 0.52$)** with Academic Success → students who manage stress well perform better academically.
- Physical Fitness is also positively correlated ($r = 0.47$) with Academic Success → fit students have better academic performance.
- Stress Management and Physical Fitness are moderately correlated ($r = 0.41$), showing that physically fit students are also better at coping with stress.

3. Regression Analysis

Dependent Variable: Academic Success (GPA)

Predictor Variables	β (Beta)	t-value	Sig. (p)
Stress Management	0.39	4.22	0.000**
Physical Fitness	0.34	3.78	0.001**
$R^2 = 0.46$, $F = 41.32$, $p < 0.001$			

Interpretation:

- Stress Management ($\beta = 0.39$) and Physical Fitness ($\beta = 0.34$) are both **significant predictors** of Academic Success.
- The model explains **46% of the variance** in academic performance.
- This confirms **H1, H2, and H3**: stress management and fitness independently and jointly contribute to student success.

4. Gender and Academic Level Differences (t-test & ANOVA)

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Group	Mean Stress Score	Mean Fitness Score	Mean GPA
Male Students	71.82	77.20	7.41
Female Students	73.12	75.46	7.56
UG Students	70.95	74.88	7.29
PG Students	74.21	78.65	7.68

Interpretation:

- Female students showed slightly better **stress management** and **academic performance** than males, though fitness levels were higher among males.
- PG students scored higher on **stress management, fitness, and academic success** compared to UG students, likely due to maturity and experience.

Findings

Based on the analysis of data collected from 100 Physical Education students in **Ranchi, Jharkhand**, the following findings were derived:

1. **Stress Management and Academic Success**
   - A strong **positive correlation (r = 0.52, p < 0.01)** was found between stress management and academic performance.
   - Students who practiced effective time management, relaxation, and coping strategies achieved higher academic success compared to those with poor stress management.
2. **Physical Fitness and Academic Success**
   - Physical fitness was also positively correlated with academic success (**r = 0.47, p < 0.01**).
   - Students with better endurance, strength, flexibility, and overall health maintained better concentration, energy levels, and academic performance.
3. **Combined Effect of Stress Management and Fitness**
   - Regression analysis revealed that stress management (β = 0.39) and physical fitness (β = 0.34) both significantly predicted academic success.
   - Together, these two factors explained **46% of the variance** in academic performance, confirming that they are powerful determinants of success.

Future Suggestions

Based on the findings of this study, the following suggestions are proposed for students, educators, and institutions to enhance academic success in Physical Education through stress management and physical fitness:

1. **For Students**
   - Adopt effective **stress management techniques** such as meditation, yoga, journaling, and deep-breathing exercises to reduce anxiety.
   - Engage in **regular physical exercise** including aerobic training, strength conditioning, and flexibility workouts to maintain high fitness levels.
   - Practice **time management** by setting realistic goals, prioritizing academic tasks, and avoiding procrastination.
   - Seek peer and mentor support during academic or personal challenges instead of isolating under stress.
2. **For Teachers and Mentors**
   - Incorporate **stress management workshops** into the curriculum, teaching coping strategies to help students handle academic and performance pressures.
   - Encourage **fitness-driven learning environments** by integrating physical activities into daily schedules.
   - Provide **individual counseling sessions** for students struggling with stress, health issues, or academic difficulties.
   - Use holistic evaluation methods that recognize students' physical, mental, and academic growth rather than focusing solely on grades.
3. **For Institutions**
   - Establish **wellness centers** within universities and colleges that offer stress management resources and fitness guidance.
   - Introduce **mandatory physical fitness programs** as part of the academic curriculum to improve both health and academic performance.
   - Organize **seminars, workshops, and health awareness campaigns** to promote balanced lifestyles among students.
   - Provide **recreational facilities** such as gymnasiums, meditation halls, and sports grounds to encourage healthy living.
4. **For Future Researchers**
   - Conduct longitudinal studies to track the long-term effects of stress management and physical fitness on academic and career success.
   - Expand the scope of research to include students from different states or countries for cross-cultural comparisons.
   - Explore additional lifestyle factors such as sleep quality, diet, and digital habits that may influence academic success.
   - Use advanced statistical models to understand the mediating and moderating roles of personality, motivation, and resilience.

Conclusion

The present study on **"Relationship Between Stress Management, Physical Fitness, and Academic Success in Physical Education Students"** highlights the strong interconnection between behavioral health practices and academic outcomes. Findings from Physical Education students in Ranchi, Jharkhand, confirm that:

- **Stress management** plays a vital role in academic success, as students who adopt effective coping strategies perform better both mentally and academically.
- **Physical fitness** is positively associated with higher academic achievement, as a healthy body enhances concentration, stamina, and resilience.
- The **combined influence of stress management and physical fitness** significantly predicts academic success, underscoring the holistic nature of student development.

The results suggest that academic success cannot be viewed in isolation from lifestyle and health-related behaviors. Instead, it must be understood as a product of a balanced approach where mental well-being and physical health complement intellectual growth. This study contributes to the growing body of evidence that promoting healthy lifestyles within academic institutions is essential. By prioritizing stress management programs, fitness activities, and supportive learning environments, schools and universities can ensure better academic outcomes and overall student well-being.

In conclusion, nurturing both mind and body is the key to achieving sustainable academic success. Students of Physical Education, in particular, must internalize this balance to excel not only in their academic pursuits but also in their future professional roles as educators, trainers, and health advocates.

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