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The Effect of Four-Week Exercise-Based Stress Management Program in Relieving the Academic Stress of Sedentary Female BS Computer Science Students

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Abstract- This research examines the impact of exercise-based stress management on sedentary female BSCS students at the Polytechnic University of the Philippines. The study has three primary goals: (a) to assess the participants' academic stress levels prior to the intervention; (b) to measure their academic stress levels after the intervention; and (c) to evaluate the significant difference between the post-test results. The research involved six female participants studying for a Bachelor's degree in Computer Science, using the Perception of Academic Stress (PAS) Scale (Bedewy & Gabriel, 2015). Before participating in the exercise program, the participants completed the Physical Activity Readiness Questionnaire (PAR-Q). The intervention, approved by Waehner (2024), included two face-to-face training sessions, each lasting 60 minutes, along with a 30-minute active rest day per week, spanning over four weeks. Results showed that before the intervention, the control group's academic stress was rated M=3.04 ("Neutral"), while the experimental group had a slightly lower rating at M=2.8 ("Neutral"). After the intervention, the control group's academic stress increased to M=3.35 ("Neutral"), while the experimental group reported a decrease, with a stress level of M=3.61 ("Disagree"). There was no significant difference between the post-test results of the groups. In conclusion, the intervention did not show a statistically significant effect; however, the experimental group exhibited noticeably lower academic stress than the control group, particularly in areas such as unrealistic expectations from teachers and parents, struggling to catch up after falling behind, and intense peer competition for grades.

Keywords: Exercise-Based, Exercise Program, Stress, Stress Management, Exercise-Based Stress Management

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INTRODUCTION

Stress, as defined by the World Health Organization (WHO), is a state of worry or mental tension caused by difficult situations, such as the COVID-19 pandemic. Studies have shown that the pandemic has increased anxiety and depressive symptoms, particularly among women, young people, students, and those more susceptible to the virus (Gamonal-Limcaoco et al., 2021). Factors such as household size, marital status, age, gender, education level, and individualism versus collectivism are linked to higher levels of stress (Kowal, et. al., 2020). Stress can be felt when people feel pressure, face significant life changes, feel concerned about anything, have overwhelming obligations, lack sufficient work, activities, or life changes, or go through a phase of uncertainty (Mind Website Article, 2022).

Higher education often places significant stress on students due to academic obligations, social pressures, and financial worries. A study by del Rosario et al. (2022) found that 71% of Polytechnic University of the Philippines (PUP) students experienced stress symptoms most of the time. Computer Science is a demanding academic field, requiring intense focus, advanced problem-solving skills, and long hours. However, the stereotype of computer scientists often portrays them as unhealthy, neglecting physical activity and poor diets. Promoting a balanced, healthy lifestyle is crucial in this high-pressure discipline.

Stress management is essential for students to excel academically and lead healthy, fulfilling lives. A study by Czabała & Miedziun (2016) found that planning exercises, reasoning justifications, problem-solving, and music listening are common strategies for stress coping.

Regular exercise is linked to physical and mental health benefits, including stress reduction. Studies by Hernández et al. (2023) and Elliott et al. (2021) show that women using exercise as a stress management tool have lower perceived stress scores. However, studies show an imbalance between male and female participation in physical activity, with males being more enthusiastic and females experiencing greater stress. Gasiūnienė and Miežienė (2022) found that men participated in sports more frequently, while women and first- year students experienced greater stress. Ednie and Stibor's 2017 study found that male participants had higher total exercise scores and correlated with their exercise patterns. Kim and McKenzie's 2014 study found that minority and female college students have comparatively higher levels of perceived stress.

This study seeks to experimentally assess the effects of exercise-based stress management programs as a means of relieving the academic pressures of sedentary female students enrolled at the Polytechnic University of the Philippines. With the help of this study, the researchers hope to shed light on the possible advantages of using exercise as a stress-reduction technique in a classroom environment. The findings of this research may be instrumental not only for the institution's students but also for the larger educational community since they can help guide the development of strategies that are based on solid research to improve students' well-being and academic success.

LITERATURE REVIEW

Stress and Its Effects on Human Health

Student stress research consistently identifies a number of common causes of academic stress. Time constraints are a major source of stress for students, who face tight deadlines, competing priorities, and the challenge of effectively managing their time. Parental expectations add an extra layer of stress, as students are frequently under pressure to meet or exceed their families' academic standards. Establishing one's identity is a critical developmental task for students, and the pressures of identity formation, social expectations, and fitting in can all contribute to academic stress. Furthermore, the never-ending pursuit of high grades, motivated by academic competition and long-term objectives, raises students' stress levels.

Academic Stress in Students

Researchers have gathered data on students' stress levels using diverse assessment methods. The consistent trend across various scales and inventories emphasizes the notable influence of two primary stressors: the stress linked to exams and the weight of extensive academic workloads. These shared findings underscore the crucial role of evaluations, assessments, and academic demands in contributing to the overall stress experienced by students in different educational

settings. Recognizing and addressing these specific stressors can inform the creation of focused interventions to alleviate the academic pressures affecting student well-being.

Different Forms of Stress Management

As per the existing research findings, various methods have been identified to mitigate or reduce students' stress levels. One approach involves seeking the assistance of a professional counselor, providing a structured and supportive environment for students to manage and cope with stress effectively. Another noteworthy method highlighted in the study is engaging in leisure activities. Participating in recreational pursuits not only serves as a means of relaxation but also contributes to promoting positive emotions and enhancing overall mood, particularly through physical activities. Additionally, the research underscores the role of spirituality as a stress management technique. Practices associated with spirituality are recognized for their potential to provide a sense of calm, purpose, and perspective, offering students an additional avenue to cope with and navigate the challenges of stress in their academic lives.

The Role of Exercise in Reducing Stress in an Academic Setting

Based on the comprehensive findings gathered from various studies, it is consistently evident that involving students in physical activities plays a crucial role in reducing their stress levels. The mechanism behind this stress-reducing effect lies in the release of certain hormones in the body during physical activity. Notably, engaging in exercises triggers the release of endorphins, commonly known as "feel-good" hormones, which contribute to a sense of well-being and improved mood. Additionally, physical activities stimulate the release of cortisol and norepinephrine, hormones associated with stress response regulation. This hormonal interplay serves as a natural and effective way to elevate mood, alleviate stress, and enhance the overall mental and emotional well-being of students, reinforcing the importance of incorporating physical activities into stress management strategies.

METHODOLOGY

(Include ethical permissions and technical information about the study.)
Our demonstration methodology is designed to effectively showcase the functionality, performance, and potential applications of the solution. The approach is structured into the following key phases:

1. Objective Definition

- To assess the effect of a four-week exercise-based stress management program as a means of relieving the academic pressures of sedentary female students enrolled in the Bachelor of Science in Computer Science (BSCS) program at the Polytechnic University of the Philippines.
- To measure the academic stress levels of the participants before and after the intervention in order to determine whether performing exercises is an effective coping mechanism for lowering stress levels.
- To encourage more sedentary people to adopt an active lifestyle
- To shed light on the possible advantages of using exercise as a stress-reduction technique in a classroom environment.

2. Scenario Development

Several studies have presented results that highlight the imbalance of participation between male and female respondents, with the males being noted as being more enthusiastic towards performing physical activity compared to females, and females being noted as experiencing greater stress than males. Previous research also revealed differences between male and female motivations, where results show that male participants had higher total exercise scores and correlated with their exercise patterns compared with female participants, with women exhibiting a more sedentary lifestyle than males. This trend is reflected in prior studies involving predominantly white males, minority, and female college students. Therefore, increasing the number of female participants to ensure a sample that was proportionally balanced with male participants has become the recurring theme of these studies' recommendations for future research.
This research generally aimed to evaluate and determine the effect of exercise-based stress management of the sedentary female BS Computer Science students. Specially, it seeks to answer the following questions:
What is the level of academic stress of the participants before the intervention?
What is the level of academic stress of the participants after the intervention?
Is there any significant difference between the post-test of the participants?

By addressing these questions, this research sought to provide a comprehensive understanding of the relationship between exercise-based stress management and the well-being of the participants.

3. Setup and Configuration

- The researchers measured the participants' academic stress levels through a printed out copy of the PAS Scale by Bedewy and Gabriel, which served as the participants' pre-test and post-test questionnaire.
- Two groups were formed among the participants serving different purposes: the Experiment Group who were treated with the exercise-based stress management procedures and the Control Group who were not given any treatment program at all.
- The researchers gave each participant of the Experiment Group the PAR-Q and You for them to answer, and initial assessments were conducted to evaluate their height, weight, cardiovascular endurance, balance, and muscular endurance.
- The researchers implemented the program to the Experiment Group, which involved an assessment period for the group followed by four (4) weeks of continuous application of the program, with the participants exercising for 50-60 minutes a day for two (2) days and a 30-minute cardio active rest day in a week, monitoring their progress by regular follow-up to the progress of the participants through the use of technology which includes taking photos and video recordings of them performing the exercise.

4. Step-by-Step Execution

- This is the step-by-step procedure for conducting the study to determine the effect of an exercise-based stress management program in reducing the academic stress experienced by the students:
- Research Objective and Ethics: The initial step involved defining the research objective – determining the effect of exercise-based stress management program in alleviating academic stress – and obtaining ethical approval from an ethics committee.
- Participant Selection: The target population was identified as sedentary female BS Computer Science students aged 18 and above.
- Informed Consent: Permission and consent was sought from participants, emphasizing utmost confidentiality in accordance with RA 10173, also known as the Data Privacy Act of 2012.
- Data Collection: The data gathering was carried out using a combination of face-to-face and online methods, utilizing printed copies of the research instruments: the PAR-Q, the PAS scale questionnaire adapted from Bedewy and Gabriel (2015), and the implementation of the exercise program, as well as online platforms for active rest days.
- Statistical Treatment and Data Analysis: The researchers then applied statistical treatment to the data gathered from the program and compared the post-test results of the Control Group and the Experiment Group.

5. Data Collection

The Physical Activity Readiness Questionnaire (PAR-Q) was used as the basic health screening tool to initially assess each of the participants. The PAR-Q's goal is to ascertain whether a client needs a thorough medical evaluation before engaging in intense or hard exercise. In contrast to objective parameters like height, weight, or age, the PAR-Q is wholly subjective and solely depends on the information a client offers. The participants' answers to the seven questions on the PAR-Q were all crucial for determining if they have any underlying medical conditions.

The Perception of Academic Stress (PAS) Questionnaire created by Bedewy and Gabriel (2015) was chosen by the researchers as the tool for assessing the sources and intensity of academic stress experienced by university students. It provides insight into how students perceive various academic pressures, such as workload, exams, and performance expectations. The PAS consists of 18 items, each rated on a 5-point Likert scale, with response options ranging from "Strongly Agree" to "Strongly Disagree." The total score is obtained by averaging all responses, where a higher score indicates a lower level of perceived academic stress. Extensive research has supported the PAS as a reliable and valid instrument for measuring academic stress across diverse student populations. Various studies have employed the PAS to explore stress-related factors affecting students' mental health, academic performance, and overall well-being, highlighting its effectiveness in understanding academic stress and guiding interventions to support student success.

The Exercise-Based Stress Management Program is a program that involves engaging in physical activities such as jogging, cycling, aerobic dance, calisthenics, etc. designed to reduce the negative effects of (academic) stress and to improve a person's physical and mental well-being.

6. Evaluation and Iteration

- The results was analyzed by first applying statistical treatment to the raw data gathered from the program then descriptively comparing the post-test results of the Control Group and the Experiment Group to determine conclusions.
- Conclusion and Next Steps
- The study found that academic stress levels were higher in the Control Group before and after exercise intervention, with stronger tendencies towards agreement on workload, future employment prospects, and confidence in academic performance.
- The Experiment Group showed significantly higher self-efficacy and expectations for academic success and future job success after the exercise intervention, compared to the Control Group's higher stress levels and exam anxiety.
- The study's internal validity was enhanced by the independent-samples t-test, which revealed no significant difference in academic stress levels between the two groups before and after the intervention.
- Exercise and physical activity can reduce stress, reduce mental and emotional disorders, improve cognitive function, and enhance quality of life, with potential interaction depending on individual circumstances.
- The study found no discernible variation in stress levels between the Control Group and the Experiment Group, as current data does not demonstrate that the intervention decreased academic stress in a way that was statistically significant.
- Several factors may be improved in the future, such as having a larger sample size, as well as longer and more specific forms, durations, and frequencies of the intervention for the Experiment Group, indicating a need for more comprehensive research on how physical activity relates and affects the stress levels of college students.

RESULTS & DISCUSSION

Table 1. Academic Stress Levels Before the Intervention

Indicators	Control Group		Experiment Group	
	WM	Interpretation	WM	Interpretation
1. I am confident that I will be a successful student	4.67	Strongly Agree	3.67	Agree
2. I am confident that I will be successful in my future career	4.67	Strongly Agree	3.33	Neutral
3. I can make academic decisions easily	4.33	Strongly Agree	3.67	Agree
4. The time allocated to classes and academic work is enough	2.67	Neutral	3.00	Neutral
5. I have enough time to relax after work	2.67	Neutral	1.67	Strongly Disagree
6. My teachers are critical of my academic performance	**3.00**	**Neutral**	**4.00**	**Disagree**
7. I fear failing courses this year	2.33	Agree	2.00	Agree
8. I think that my worry about examinations is weakness of character	3.67	Disagree	3.67	Disagree
9. Teachers have unrealistic expectations of me	**2.33**	**Agree**	**2.67**	**Neutral**
10. The size of the curriculum (workload) is excessive	1.33	Strongly Agree	1.67	Strongly Agree
11. I believe that the amount of work assignment is too much	**1.33**	**Strongly Agree**	**2.33**	**Agree**
12. I am unable to catch up if getting behind the work	3.67	Disagree	3.67	Disagree
13. The unrealistic expectations of my parents stresses me out	3.67	Disagree	4.00	Disagree
14. Competition with my peers for grades is quite intense	4.00	Disagree	4.33	Strongly Disagree
15. The examination questions are usually difficult	3.33	Neutral	2.67	Neutral
16. Examination time is short to complete the answers	**2.33**	**Agree**	**1.67**	**Strongly Agree**
17. Examination times are very stressful to me	2.33	Agree	2.00	Agree
18. Even if I pass my exams, I am worried about getting a job	**2.33**	**Agree**	**1.33**	**Strongly Agree**
Overall Weighted Mean	**3.04**	**Neutral**	**2.85**	**Neutral**

Legend: From Q1 - Q5: 4.20-5.00 (Strongly Agree), 3.40-4.19 (Agree), 2.60-3.39 (Neutral), 1.80-2.59 (Disagree), 1.00-1.79 (Strongly Disagree)
From Q6 - Q18: 4.20-5.00 (Strongly Disagree), 3.40-4.19 (Disagree), 2.60-3.39 (Neutral), 1.80-2.59 (Agree), 1.00-1.79 (Strongly Agree)
Overall Weighted Mean: 4.20-5.00 (Strongly Disagree), 3.40-4.19 (Disagree), 2.60-3.39 (Neutral), 1.80-2.59 (Agree), 1.00-1.79 (Strongly Agree)

Table 1 illustrates the pre-intervention results of the participants' academic stress levels. According to the results shown, students in the Control Group indicated an overall academic stress of "Neutral" (M = 3.04), but the students in the Experiment Group gave a stress level answer that is nearer to the "Neutral" stress level (M = 2.85). The Control Group showed higher confidence in their academic success, future careers, and decision-making. They also felt less pressure from workload and competition. Meanwhile, the Experiment Group was less confident, felt more pressure from teachers and parents, and believed the curriculum and assignments were too much. They also experienced more exam-related stress and were more worried about getting a job after graduation. Overall, the Control Group had a slightly higher overall score, but both groups had a neutral overall interpretation, meaning responses were mixed.

Table 2. Academic Stress Levels After the Intervention

Indicators	Control Group		Experiment Group	
	WM	Interpretation	WM	Interpretation
1. I am confident that I will be a successful student	4.67	Strongly Agree	4.33	Strongly Agree
2. I am confident that I will be successful in my future career	4.67	Strongly Agree	4.00	Agree
3. I can make academic decisions easily	4.00	Agree	4.00	Agree
4. The time allocated to classes and academic work is enough	2.33	Disagree	3.33	Neutral
5. I have enough time to relax after work	2.67	Neutral	3.33	Neutral
6. My teachers are critical of my academic performance	3.33	Neutral	3.33	Neutral
7. I fear failing courses this year	2.67	Neutral	3.33	Neutral
8. I think that my worry about examinations is weakness of character	3.00	Neutral	3.33	Neutral
9. Teachers have unrealistic expectations of me	**2.33**	**Agree**	**4.33**	**Strongly Disagree**
10. The size of the curriculum (workload) is excessive	2.67	Neutral	2.33	Agree
11. I believe that the amount of work assignment is too much	2.67	Neutral	2.33	Agree
12. I am unable to catch up if getting behind the work	3.67	Disagree	4.67	Strongly Disagree
13. The unrealistic expectations of my parents stresses me out	**3.00**	**Neutral**	**4.67**	**Strongly Disagree**
14. Competition with my peers for grades is quite intense	4.00	Disagree	5.00	Strongly Disagree
15. The examination questions are usually difficult	4.00	Disagree	4.00	Disagree
16. Examination time is short to complete the answers	**3.00**	**Neutral**	**2.33**	**Agree**
17. Examination times are very stressful to me	3.67	Disagree	3.67	Disagree
18. Even if I pass my exams, I am worried about getting a job	**4.00**	**Disagree**	**2.67**	**Agree**
Overall Weighted Mean	**3.35**	**Neutral**	**3.61**	**Disagree**

Legend: From Q1 - Q5: 4.20-5.00 (Strongly Agree), 3.40-4.19 (Agree), 2.60-3.39 (Neutral), 1.80-2.59 (Disagree), 1.00-1.79 (Strongly Disagree)
From Q6 - Q18: 4.20-5.00 (Strongly Disagree), 3.40-4.19 (Disagree), 2.60-3.39 (Neutral), 1.80-2.59 (Agree), 1.00-1.79 (Strongly Agree)
Overall Weighted Mean: 4.20-5.00 (Strongly Disagree), 3.40-4.19 (Disagree), 2.60-3.39 (Neutral), 1.80-2.59 (Agree), 1.00-1.79 (Strongly Agree)

Table 2 identifies the academic stress levels of two groups after an intervention: the Control Group and the Experiment Group. Both groups strongly agreed that they were confident in their success as students and in their future careers. They also agreed that they could make academic decisions easily. However, the Experiment Group felt less academic stress compared to the Control Group. They strongly disagreed that teachers and parents had unrealistic expectations, while the Control Group only disagreed. The Experiment Group also found it easier to catch up on missed work, while the Control Group struggled more. In terms of competition and exams, the Experiment Group felt less pressure. The overall weighted mean for the Control Group was (M=3.35) "Neutral", while for the Experiment Group, it was (M=3.61) "Disagree". This means the Experiment Group experienced lower academic stress compared to the Control Group.

Table 3. Significant Difference Between the Post-Test of the Control and Experiment Group

Group	Mean	t-value	df	p-value	Decision	Interpretation
Controlled	3.35	1.27	17	0.222	Accept H0	No Difference
Experimental	3.61					

Table 3 presents the results of a statistical analysis comparing two groups: Control and Experiment. Although the Experiment group shows a higher average, the t-value of 1.27 and p-value of 0.22 indicate that this difference is not statistically significant. In statistical testing, a p-value greater than 0.05 suggests that any observed difference between the two groups is likely due to chance rather than a real effect of the intervention. Since the p-value (0.222) is well above 0.05, the researchers retain the null hypothesis (H_0), meaning that they conclude there is no significant difference between the two groups. Overall, the results suggest that the intervention did not produce a meaningful effect on the participants, as the scores of the Control and Experiment groups are too close to indicate a real impact.

CONCLUSION

Based on the information summarized above, this study came to the conclusion that the intervention, while not statistically significant, had a positive effect on the participants' academic stress as determined in the development of the Perceptions of Academic Stress (PAS) Scale. While the Control and Experiment groups initially showed similar levels of academic stress, the Experiment Group demonstrated improved confidence in their academic success and future employment prospects after the session, indicating that the intervention may have had a favorable influence on self-efficacy following the intervention. Lastly, there was no statistically significant change in academic stress levels between the Control and Experiment groups following the intervention. While the intervention may have benefited certain students in the Experiment group, it did not result in a significant reduction in academic stress overall when compared to the Control group.

RECOMMENDATIONS

The researchers suggest that firstly, a more personalized stress management program should be tailored to each student's unique needs is more effective in increasing self-efficacy and managing academic overload. Next, while the intervention improved self-confidence, more comprehensive support systems like academic counselling, peer mentoring, and teacher-student interaction should be strengthened to aid students in managing stress. The study also highlighted the need for educational institutions to provide time management workshops or courses to help students balance their academic and personal responsibilities and implement stress-relief activities like mindfulness, physical activity, and relaxation techniques in students' daily routines can alleviate academic stress. Finally, future research should increase the number of participants, explore diverse populations, and explore the combined effects of exercise, nutrition, sleep quality, and various exercise types.

REFERENCES

[1] Al Rasheed, F., Naqvi, A. A., Ahmad, R., & Ahmad, N. (2017). Academic stress and prevalence of stress-related self-medication among undergraduate female students of health and non-health cluster colleges of a public sector university in Dammam, Saudi Arabia. Journal of Pharmacy & Bioallied Sciences, 9(4), 251–258. https://doi.org/10.4103/jpbs.JPBS_189_17

[2] Ashraf, H., Hussain, S. A., & Haseeb, M. (2020). PHYSICAL ACTIVITY AS A COPING STRATEGY FOR ACADEMIC STRESS AMONG UNDERGRADUATE FEMALE STUDENTS. The Rehabilitation Journal, 4(1), 144–148. https://doi.org/10.52567/trj.v4i01.10

[3] Basso, J. C., & Suzuki, W. A. (2017). The effects of acute exercise on mood, cognition, neurophysiology, and neurochemical pathways: a review. Brain Plasticity, 2(2), 127–152. https://doi.org/10.3233/bpl-160040

[4] Bedewy, D., & Gabriel, A. (2015). Examining perceptions of academic stress and its sources among university students: The perception of academic stress scale. Health Psychology Open, 2(2), 1–9. https://doi.org/10.1177/2055102915596714

[5] Bedosky, L. (2023). Are strength training workouts good for weight loss? EverydayHealth.com. https://www.everydayhealth.com/fitness/is-strength-training-good-for-weight-loss/

[6] Bevans, R. (2020). An Introduction to t-Tests | Definitions, Formula, and Examples. https://www.scribbr.com/statistics/t-test/#:~:text=A%20t%20test%20is%20a,are%20different%20from%20one%20another.

[7] Burg, M. M., Schwartz, J. E., Kronish, I. M., Diaz, K. M., Alcantara, C., Duer-Hefele, J., & Davidson, K.W. (2017). Does stress result in you exercising less? or does exercising result in you being less stressed? Or is it both? Testing the Bi-directional Stress-Exercise Association at the group and person (N of 1) level. Annals of Behavioral Medicine, 51(6), 799–809. https://doi.org/10.1007/s12160-017-9902-4

[8] Chacón-Cuberos, R., Zurita-Ortega, F., Olmedo-Moreno, E. M., & Castro-Sánchez, M. (2019). Relationship between academic stress, physical activity, and diet in university students of education. Behavioral Sciences, 9(6), 59. https://doi.org/10.3390/bs9060059

[9] Chen, K., Liu, F., Mou, L., Zhao, P., & Guo, L. (2022). How physical exercise impacts academic burnout in college students: The mediating effects of self-efficacy and resilience. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.964169

[10]Cooper, K. & Wojcik, J. (2018). The Effects of Physical Activity Classes on Stress in College Students. The Winthrop McNair Research Bulletin: Vol. 4, Article 4. https://digitalcommons.winthrop.edu/wmrb/vol4/iss1/4

[11] Czabała, C., & Miedziun, P. (2015). Stress management techniques. Archives of Psychiatry and Psychotherapy, 17(4), 23–31. https://doi.org/10.12740/app/61082

[12] DeCarlo, M., Cummings, C., & Agnelli, K. (2022, February 14). 13.2: True experimental design. Social Sci LibreTexts. https://socialsci.libretexts.org/Under_Construction/Graduate_research_methods_in_social_work_(DeCarlo_Cummings_and_Agnelli)/13%3A_Using_quantitative_methods__Experimental_design/13.02%3A_True_experimental_design

[13] Dedelyte, S. (2021). Does physical activity have an impact on academic stress and perceived stress? And is there a difference between male and female students and their levels of perceived and academic stress? http://norma.ncirl.ie/4925/

[14] Del Rosario, A. C., Theresa T. Malapo, M., Ann L. Abundo, M., Y. Chua, Y., B. Corona, R., Mark S. Distor, J., G. Labatorio, L., & D. Valeña, L. (2022). Perceived stress as a predictor of depressive symptoms among PUP academic scholars during the COVID-19 pandemic. European Online Journal of Natural and Social Sciences: Proceedings, 11(1(s)), pp. 345–357. https://european-science.com/eojnss_proc/article/view/6474/2934

[15] Desai, F. K. (2019). The impact of exercise on stress from perceived academic load in undergraduate nursing students. Rutgers, the State University of New Jersey-School of Nursing. https://doi.org/10.7282/t3-prba-6718

[16] Dewi, D. K., Meylana, E. H., Widianti, F. P., & Safitri, R. I. (2020). The profile of perceived academic stress in higher education. Proceedings of the International Joint Conference on Arts and Humanities (IJCAH 2020). https://doi.org/10.2991/assehr.k.201201.028

[17] Ednie, A., & Stibor, M. (2017). Influence and interpretation of intrinsic and extrinsic exercise motives.Journal of Human Sport and Exercise, 12(2). https://doi.org/10.14198/jhse.2017.122.18

[18] Elliott, L. D., Wilson, O. W. A., Holland, K. E., & Bopp, M. (2021). Using exercise as a stress management technique during the COVID-19 pandemic: The differences between men and women in college. International Journal of Exercise Science, 14(5), 1234–1246. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8758158/

[19] Feldhammer-Kahr, M., Arendasy, M., & Paechter, M. (2022). STUDENTS PERCEIVED ACADEMIC STRESS, SENSE OF BELONGING, ADAPTABILITY, SPORTS, AND DEPRESSION IN THE SECOND YEAR OF THE PANDEMIC. Psychological Applications and Trends. https://doi.org/10.36315/2022inpact018

[20] Frömel, K., Šafář, M., Jakubec, L., Groffik, D., & Žatka, R. (2020). Academic stress and physical activity in adolescents. BioMed Research International, 2020, 1–10. https://doi.org/10.1155/2020/4696592

[21] Frederiksen, K. P., Stavestrand, S. H., Venemyr, S. K. Sirevåg, K., & Hovland, A.(2021). Physical exercise as an add-on treatment to cognitive behavioural therapy for anxiety: A systematic review. Behavioural and Cognitive Psychotherapy, 49(5), 626-640.

[22] Gamonal-Limcaoco, S., Montero-Mateos, E., Lozano-López, M. T., Maciá-Casas, A., Matías-Fernández, J., & Roncero, C. (2021). Perceived stress in different countries at the beginning of the coronavirus pandemic. The International Journal of Psychiatry in Medicine, 009121742110337. https://doi.org/10.1177/00912174211033710

[23] Gasiūnienė, L., & Miežienė, B. (2022). The relationship between students' physical activity and academic stress. Baltic Journal of Sport and Health Sciences, 4(123), 4–12. https://doi.org/10.33607/bjshs.v4i123.1142

[24] Griffiths, B. (2023b, October 26). How long does it take to see results from working out? Polar Journal. https://www.polar.com/blog/how-long-to-see-results-from-working-out/

[25] Hernández, M. M., Checa-Olmos, J. C., Ángeles Arjona Garrido, Remedios López Liria, & Rocamora-Pérez, P. (2023). Academic stress in university students: The role of physical exercise and nutrition. Healthcare, 11(17), 2401–2401. https://doi.org/10.3390/healthcare11172401

[26] Kalavalli, M., Kanniammal, C., Mahendra, J., Jayakumar, M., & Dean, S. (2022). Effect of yoga on perceived academic stress among undergraduate nursing students in the selected colleges. Journal of Pharmaceutical Negative Results, 13(SO2). https://doi.org/10.47750/pnr.2022.13.s02.20

[27] Kim, J.-H., & McKenzie, L. A. (2014). The impacts of physical exercise on stress coping and well-being in university students in the context of leisure. Health, 06(19), 2570–2580. https://doi.org/10.4236/health.2014.619296

[28] Koulanova, A., Maharaj, A., Harrington, B., & Dere, J. (2018). Fit-breaks: Incorporating physical activity breaks in introductory CS Lectures. Proceedings of the 23rd Annual ACM Conference on Innovation and Technology in Computer Science Education, 260–265. https://doi.org/10.1145/3197091.3197115

[29] Kowal, M., Coll-Martín, T., Ikizer, G., Rasmussen, J., Eichel, K., Studzińska, A., Koszałkowska, K., Karwowski, M., Najmussaqib, A., Pankowski, D., Lieberoth, A., & Ahmed, O. (2020). Who is the most stressed during the COVID-19 pandemic? Data from 26 Countries and areas. Applied Psychology: Health and Well-Being, 12(4). https://doi.org/10.1111/aphw.12234

[30] Kumaraswamy, N. (2013). Academic Stress, Anxiety, and Depression among College Students Brief Review. International Review of Social Sciences and Humanities, 5(1), 135–143. https://web.archive.org/web/20180409221930id_/http://www.irssh.com/yahoo_site_admin/assets/docs/12_IR SSH-485-V5N1.161113142.pdf

[31] Leow, S., Jackson, B., Alderson, J., Guelfi, K., & Dimmock, J. (2018). A role for exercise in attenuating unhealthy food consumption in response to stress. Nutrients, 10(2), 176. https://doi.org/10.3390/nu10020176

[32] Manley, K. (2022). Sources of Distress and Stress Among Undergraduate Computer Science Students. Penn Presents | Penn Presents. https://presentations.curf.upenn.edu/sites/default/files/poster_upload/2020-

[33] Mazo, G. (2015). Causes, effects of stress, and the coping mechanisms of the Bachelor of Science in Information Technology students in a Philippine University. Journal of Education and Learning (EduLearn), 9(1), 71-78. https://doi.org/10.11591/edulearn.v9i1.1295

[34] McCall, P. (2024). Everything you need to know about the PAR-Q. https://blog.nasm.org/everything-you-need-to-know-about-the-par- q#:~:text=The%20purpose%20of%20the%20PAR,height%2C%20weight%2C%20or%20age.

[35] Mind. (2017). Causes of stress. https://www.mind.org.uk/information-support/types-of-mental-health-problems/stress/causes-of-stress/

[36] Nakao, M., Shirotsuki, K., & Sugaya, N. (2021). Cognitive–behavioral therapy for management of mental health and stress-related disorders: Recent advances in techniques and technologies. BioPsychoSocial Medicine, 15(1). https://doi.org/10.1186/s13030-021-00219-w

[37] Park, S. H., & Kim, Y. (2018). Ways of coping with excessive academic stress among Korean adolescents during leisure time. International Journal of Qualitative Studies on Health and Well-Being, 13(1), 1505397. https://doi.org/10.1080/17482631.2018.1505397

[38] Pascoe, M., Bailey, A. P., Craike, M., Carter, T., Patten, R., Stepto, N., & Parker, A. (2020). Physical activity and exercise in youth mental health promotion: a scoping review. BMJ Open Sport & Exercise Medicine, 6(1), e000677. https://doi.org/10.1136/bmjsem-2019-000677

[39] Petter, O. (2022). How long it takes to see results when you start working out, according to a top fitness trainer? The Independent. https://www.independent.co.uk/life-style/health-and-families/workout-weight-loss- results-time-b2071240.html

[40] Peyman, N., Rezai-Rad, M., Tehrani, H., Gholian-Aval, M., Vahedian-Shahroodi, M., & Miri, H. H. (2018). Digital Media-based Health Intervention on the promotion of Women's physical activity: a quasi-experimental study. BMC Public Health, 18(1). https://doi.org/10.1186/s12889-018-5025-5

[41] Pozos-Radillo, B. E., Preciado-Serrano, M. de L., Acosta-Fernández, M., Aguilera-Velasco, M. de los Á., & Delgado-García, D. D. (2014). Academic stress as a predictor of chronic stress in university students. Psicología Educativa, 20(1), 47–52. https://doi.org/10.1016/j.pse.2014.05.006

[42] Puspitorini, W., Soemardiawan, S., Annamayra, A., Suharto, T. H., & Pranoto, A. (2023). Improvement of serum cortisol levels in obese female college students after moderate-intensity acute exercise. Jurnal SPORTIF : Jurnal Penelitian Pembelajaran, 9(2), 231-246.

[43] Reddy, K. J. (2018). Academic Stress and Its Sources Among University Students. Biomedical and Pharmacology Journal, 11(1). https://biomedpharmajournal.org/vol11no1/academic-stress-and-its-sources- among-university-students/

[44] Rubino, B. (2023). How Long Does it Take to See the Results of Working Out? Ultimate Nutrition. https://ultimatenutrition.com/blogs/lifestyle/how-long-does-it-take-to-see-the-results-of-working-out

[45] Schultchen, D., Reichenberger, J., Mittl, T., Weh, T. R. M., Smyth, J. M., Blechert, J., & Pollatos, O. (2019). Bidirectional relationship of stress and affect with physical activity and healthy eating. British Journal of Health Psychology, 24(2), 315–333. https://doi.org/10.1111/bjhp.12355

[46] Sharma, M., & Rush, S. E. (2014). Mindfulness-based stress reduction as a stress management intervention for healthy individuals. Journal of Evidence-Based Complementary & Alternative Medicine, 19(4), 271-286. https://doi.org/10.1177/2156587214543143

[47] Sharma, S. (2018). Perceived Academic Stress among Students. ResearchGate. https://www.researchgate.net/publication/352120980_Perceived_Academic_Stress_among_Students

[48] Sharon-David, H., & Tenenbaum, G. (2017). The effectiveness of exercise interventions on coping with stress: Research synthesis. Studies in Sport Humanities, 22, 19-29. https://doi.org/10.5604/01.3001.0012.6520

[49] Singh, G., Sharma, S., Sharma, V., & Zaidi, S. Z. H. (2022). Academic stress and emotional adjustment: A Gender-Based Post-COVID Study. Annals of Neurosciences, 097275312211329. https://doi.org/10.1177/09727531221132964

[50] Song, J., Liu, Z., Huang, J., Wu, J., & Tao, J. (2021). Effects of aerobic exercise, traditional Chinese exercises, and meditation on depressive symptoms of college students. Medicine, 100(1), e23819. https://doi.org/10.1097/md.0000000000023819

[51] Stults-Kolehmainen, M., & Sinha, R. (2013). The effects of stress on physical activity and exercise. Sports Medicine, 44(1), 81–121. https://doi.org/10.1007/s40279-013-0090-5

[52] Tracey, J. (2021). Exercise and gender predict levels of academic and perceived stress. http://norma.ncirl.ie/4972/

[53] World Health Organization. (2022). Physical activity. https://www.who.int/news-room/fact- sheets/detail/physical-activity

[54] World Health Organization. (2022). Stress. https://www.who.int//news-room/questions-and-/item/stress/

[55] Wunsch, K., Kasten, N., & Fuchs, R. (2017). The effect of physical activity on sleep quality, well-being, and affect in academic stress periods. Nature and Science of Sleep, 9, 117–126. https://doi.org/10.2147/nss.s132078

[56] Yang, C., Chen, A., & Chen, Y. (2021). College students' stress and health in the COVID-19 pandemic: The role of academic workload, separation from school, and fears of contagion. PLOS ONE, 16(2), e0246676. https://doi.org/10.1371/journal.pone.0246676

[57] Yoon, E. S., So, W., & Jang, S. (2023). Association between Perceived Psychological Stress and Exercise Behaviors: A Cross-Sectional Study Using the Survey of National Physical Fitness. Life, 13(10), 2059. https://doi.org/10.3390/life13102059

[58] Yuan, M., et al. (2022). Research on the Impact of Regular Exercise Behavior of College Students on Academic Stress and Sleep Quality during the COVID-19 Pandemic. Healthcare, 10(12), 2534. https://doi.org/10.3390/healthcare10122534

[59] Zhang, X., et. al. (2022). Perceived Academic Stress and Depression: The Mediation Role of Mobile Phone Addiction and Sleep Quality. Frontiers in public health, 10, 760387. https://doi.org/10.3389/fpubh.2022.760387

[60] Zhou, S., Li, L., Zhao, Y., Cao, Y., Peng, B., & Zheng, L. (2021). Physical Activity under Stress: A Perspective of HAPA and Individual Differences. International Journal of Environmental Research and Public Health, 18(22), 12144. https://doi.org/10.3390/ijerph18221214

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