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ABSTRACT

Academic life for students was filled with stress and strain. Physical activity, on the other hand, may help people manage their stress levels. Sports students, as all known, are physically active. However, many factors influence perceived academic stress, such as body weight, the semester in question, and gender. The purpose of this study was to investigate the factors that influence perceived academic stress among sports students during online learning. 217 sports students (84=male, 133=female) are involved. The International Physical Activity Questionnaire (IPAQ) – Long Form questionnaire was measured students' level of physical activity participation and the Perception of Academic Stress Scale (PASS) questionnaire used to measure academic stress. Other's variables are measured in demographic profiles. Data were analysed using multiple linear regression to investigate the factors that influence perceived academic stress among sports students during online learning. From the study, 77.40% (n=168) of the students were highly involved in physical activity and the students agreed the perceived academic stress was high for the workload given during online learning, following pressure of perform, academic self-perception and time restraints. The results of the regression indicated the predictor explained 2.6% of the variance ($F(1, 215) = 5.73, p=0.018$, with an R^2 of 0.026). It was found that stay during online learning significantly predicted perceived academic stress ($\beta = .16, p<.001$), as did agreeableness ($\beta = -.36, p>=0.018$). In conclusion, the data imply that, while many factors influence perceived academic stress, the results in this study were non-significant. Only stay during online learning yielded significant results out of the five parameters indicated.

Keywords: *perceived academic stress, physical activity, sports' students*

INTRODUCTION

Most countries in the world have temporarily closed schools and other educational institutions to stop the spread of the COVID-19 virus. Students are facing enormous problems since online studying and learning have become the new standard in today's world. Learners are probably the group most affected by the indirect consequences of the pandemic (Tomasik et al., 2021).

Since the 1990s, when the Internet was first introduced, education has been delivered via the Internet. The original goal was to see if transferrable communication and information technology skills could be learned (using computer-aided learning) (Lyon, 2000). The tremendous growth and use of the internet and easily accessible platforms have enabled educational institutions to reach and deliver education to students all over the world. There are no strangers to online learning, distance learning or distance education but because of social isolation and nationwide lockdown due to COVID-9 pandemic, it has now become the only source of education (Chandra, 2021).

The campus environment is potentially stressful, but the situation caused by the COVID-19 epidemic may harm the students more. Higher levels of stress are associated with greater negative affect and lower feelings of academic self-efficacy (Alemany-Arrebola et al., 2020). Although education is considered an essential aspect of life, academic achievement and social standards have recently been a source of academic stress among students (Syed, 2021). Academic stress is a response that arises because of many demands and tasks that must be done by students (Nist-Olejnik & HolsChuh, 2007). Increased levels of stress are associated with academic pressure, social obstacles, and fears about the future (Deasy et al., 2014).

While students today struggle with domestic stress related to academic life, they also struggle with other types of stress, such as perceived pressure to perform (Salami et al., 2021). Anyone, regardless of age, gender, education level, or socioeconomic situation, can be affected by stress. For some, stress is an unpleasant feeling; for others, it can lead to a situation that affects one's way of thinking (Omar et al., 2020).

According to reports, a growing number of college students suffer from academic stress. This includes stress that occurs in education, such as worrying about difficult assignments and being graded on a variety of exams, as well as perceived academic stress and poor learning experiences (Li et al., 2005). Work overload and schoolwork make students restless, which may result in an inability to devote adequate time to various study-related tasks (Mishra, 2018). The most stressful academic conditions for students are lack of time to complete academic activities, class presentations, academic overload, and tests (Chust-Hernández et al., 2021).

Academic stress also can develop because of parents and teacher educational expectations, the load of homework and assignments, and examination procedures, among other factors. Students may face academic stress as a result of their own expectations to perform as well as those of their parents and lecturers (Dhull & Kumari, 2015). While, a study by Liu & Lu (2011) reported, up to 90% of the students experienced academic stress as a result of the number of assignments given, test scores, nonachievement, procrastination, changing school climate, confidence and desire to learn, and assignment deadlines for the next day.

There are a few factors associated with perceived academic stress such as grade, gender (Li et al., 2005; K. Wang et al., 2018), relationships with classmates or roommates, allowance, social support (Abebe et al., 2018; Elias et al., 2011), body mass index (Chen et al., 2020; Weidner et al., 1996; Yan et al., 2014), semester (Dewi et al., 2020; Dwi Pratiwi et al., 2021; Omar et al., 2020; Praveeni & Herath, 2020), and physical activity level (Blocken et al., 2020; Chandra, 2021; Syed, 2021).

One of the most prevalent chronic stresses for college students is academic stress. It can decrease self-control and affect health behaviours, such as altered eating intake, increasing the chance of being overweight or obese (Weidner et al., 1996). When confronted with severe academic conditions, students seek refuge in internet addiction and overeating, which can contribute to excess weight, but graduates have more life skills and choose to approach the problem methodically (Yan et al., 2014). According to Chen et al. (2020), perceived academic stress was associated with increased risk of overweight and obesity in all undergraduate, male undergraduate, and graduate students. Obesity among university students may raise the likelihood of acquiring physical and mental health issues. Excessive levels of psychological stress have multiple harmful impacts on university students' academic (e.g., diminished ability to learn), physical, and mental health. Jiang et al. (2018) also found that higher perceived life stress was linked to overweight or obesity in only male students.

Female gender appears to be a factor for academic stress (Chust-Hernández et al., 2021). They sensitive more to stress. When faced with a stressful scenario or unfavourable events, they may be more quickly affected by the problems and more likely to express their feelings (Li et al., 2005). However, K. Wang et al. (2018) reported when faced with a stressful situation, male students are more prone to lose control of their behaviour, eat more and exercise less, while female students seem to be better able to maintain a healthy lifestyle and weight.

Perceived academic stress influence by the semester students involved. Several undergraduates are highly stressed as a result of the college life change (Praveeni & Herath, 2020). Failure to cope with pressure during transition can lead to academic pressure degradation and increased psychological suffering (Praveeni & Herath, 2020). Previous study reported that the first year of student life is the time when students are more at risk because this is the time when they are adjusting to the new environment of student life, which is different from middle school, and also when they are finding their new beginning to fit into the transitional phase (Omar et al., 2020). The newly implemented learning system has a significant impact on the college, especially on first-year students, and it can cause stress due to the numerous academic and non-academic demands (Dwi Pratiwi et al., 2021). The change of academic year is a significant factor in student stress. This is because students in lower grades are more prone to stress and new pressures than students in higher grades. The class year factor also influences students' responsiveness to academic stresses and demands while attending classes (Dewi et al., 2020).

But, according to Tangade et al. (2011), final-year students had higher stress levels. Final year students reported much higher levels of academic stress than middle- and first-year students. This outcome could be attributed to the increased workload in final year, which involves research and project writing across faculties. It could also be due to concern and anxiety over final findings and future job (Aihie & Ohanaka, 2019)

Social containment to prevent transmission of COVID-9 has reduced population participation in physical activity (Blocken et al., 2020). Spending time at home all the time and low physical activity have negative effects, which everyone try to overcome with many other activities (Chandra, 2021). Students were reported to engage in harmful behaviours such as lack of physical activity, unhealthy sleeping and eating habits as a result of academic stress (Syed, 2021). A study by Chust-Hernández et al. (2021) reported gender and frequency of sports participation are the most important predictors of academic stress students. Being a woman and exercising less frequently are predictors of academic stress.

Others factor influence to perceived academic stress is home-environment. Subodh kesharwani & Tomar (2021) reported there is a beneficial relationship between the home environment and the training success.

However, the factors that were reported to influence perceived academic stress were prior to the pandemic, and the conventional manner of teaching and learning was applied. The variables influencing the current scenario may differ. A recent meta-analysis found a research gap concerning the connection of physical activity, stress, and academic performance in university students and concludes the need for future studies with validated measuring tools and time points of data collection (Wunsch et al., 2021). So, this study performed to investigate the factors that influence perceived academic stress among sports students during online learning.

METHODOLOGY

Research Design

The cross-sectional research design was utilised to simultaneously evaluate the study subjects' outcomes and exposures. It is observational research in which data from a population is analysed at a specific moment in time. It is frequently applied to evaluate the prevalence of health outcomes, comprehend health determinants, and define demographic characteristics. Unlike other types of observational research, cross-sectional studies do not observe participants over time. The concept is low-cost, simple to implement, and effective for gathering basic data in preparation for more sophisticated research. The respondents were monitored once in this study to assess the demographic profile, levels of physical activity participation and perceived academic stress.

Participants

The target population of the study is students of the Faculty Sports Science and Recreation Universiti Teknologi MARA (UiTM), branch Shah Alam. According to the Department of Student Affairs, 1009 students are enrolled in the Faculty of Sports Science and Recreation UiTM Shah Alam. Out of the total population, 278 samples should be collected according to Table Krejcie & Morgan 1970. However, only 217 respondents answered the survey. The response rate is 78%. According to Nigel (2021), response rate for online surveys is accepted if it is more than 30%.

Measures

The instruments used in this study were a series of questionnaires distributed via an online survey. It consists of three sections: the demographic profile, the International Physical Activity Questionnaire (IPAQ) long version, and the Perception of Academic Stress Scale (PAS).

Demographic Profile: This section was asked about the gender, age, height, weight, current semester, and stay during online learning. Body Mass index (BMI) was calculated to measure of body fat based on height and weight. It is body weight in kilogram divided by height, in meters squared. Recommended BMI cut-off points for body weight classification and public health action for Malaysia is; Underweight (<18.5kg), Normal (18.5-22.9), Overweight (23.0-27.4) and Obese (>27.4) (WHO Expert Consultation, 2004).

International Physical Activity Questionnaire (IPAQ)-Long version: To estimate the level of physical activity participation, the International Physical Activity Questionnaire (IPAQ) – Long version in Malay language was used. This questionnaire has been constructed as a tool for cross-national monitoring of physical activity and inactivity monitoring (Craig et al., 2003). It consists of 27 items measuring five domains of physical activity which is:

- Part 1 – Job-related Physical Activity
- Part 2 – Transportation Physical Activity
- Part 3 – Domestic (housework, Maintenance, Family) related Physical Activity
- Part 4 – Recreation, Sport and Leisure Time Physical Activity
- Part 5 – Time Spent Sitting
-

The items are constructed to provide domain-specific scores for walking, moderate-intensity, and vigorous-intensity activity. All questions refer to activities during the last 7 days. Results are reported as the estimated energy expenditure in metabolic equivalent-minutes per week (MET hours/week). MET hours/week for a given activity is calculated by multiplying the MET value for the activity (3.3 for walking, 4.0 for moderate- intensity activities, and 8.0 for vigorous-intensity activities) by the hours spent on that activity (IPAQ, 2005). To estimate physical activity based on participants' responses, the continuous physical activity score was calculated using algorithms (IPAQ, 2005) and the scores in each of the four physical activity domains were determined. The reliability and validation of IPAQ- Malay Long version reported intraclass correlation coefficient (ICC) scores revealed moderate to good correlations (ICC = 0.54-0.92) for items categorized by intensity and domains and a κ of 0.73 for total activity. The validity results of the PA -Log were statistically significant for all intensities and domains ($\rho = 0.67-0.98$) (Chu & Moy, 2015).

Perception of Academic Stress Scale (PAS): This questionnaire was designed to allow researchers to reliably examine the relationships between specific stressors in university and their influence on student well-being and performance (Bedewy & Gabriel, 2015). It consists of 18-items of four (3) dimensions: (1) pressure to perform subscale (five items), (2) perceptions of workload subscale (four items), (3) academic self-perceptions subscale (4 items), and (4) time restraints (5 items). The 5-point Likert scale types (1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, and 5 = strongly disagree) was used to measure the items. Five items scoring were reversed to avoid response patterns (such as “Am confident that I will be a

successful student”, “*Am confident that I will be a successful in my future career*”, “*I can make academic decisions easily*”, “*The time allocated to classes and academic work is enough*” and “*I have enough time to relax after work*”). The overall internal consistency reliability reported was 0.7 (Bedewy & Gabriel, 2015).

Statistical analysis

Statistical analyses were conducted using the IBM SPSS Statistics 25 software (IBM Corp., 2017). Descriptive statistics were used to measure the mean, standard deviation (SD), frequency, and percentage of the data. Multiple linear regression was performed to investigate the factors that influence perceived academic stress among sports student during online learning. The independent variables were gender, physical activity level, semester involved, BMI, stay during online learning. While the dependent variable was perceived academic stress. The level of significant result was set at p value <.05.

RESULTS

Table 1 (pg.8) reported the demographic profile of the respondents. It showed that most of the respondent were female (n=133, 61.30%) compared to male (n=84, 38.70%). Average age of the respondent was 22.75 years old (SD=1.12). In body mass index (BMI), majority of the respondent are normal category (n=142, 65.40%), 14.30% overweight (n=31), 12.40% underweight (n=27) and 7.80% obese (n=17).

Most of the respondents stay at home during online learning (n=185, 84.80%). While 10.10% stay at residential college (n=22) and 5.10% at rented home (n=11). 77.40% of the respondents reported high physical activity level (n=168), 21.20% moderate (n=46) and 1.40% low level of physical activity (n=3). 60.40% of respondents were in semester 6 (n=131). While 14.70% semester 5 (n=32), 6.50% semester 7 (n=14), 4.60% semester 4 (n=10), 4.10% semester 1 (n=9) and 2.30% semester 2 (n=5).

Table 1. Descriptive results of demographic profile (n=217)

Variables		Frequency (n)	Percentage (%)
Gender	Male	84	38.70
	Female	133	61.30
Age in years	Mean (SD)	22.75	1.12
Height	Mean (SD)	161.52	8.33
Weight	Mean (SD)	59.24	13.40
Body Mass Index (BMI)	Underweight	27	12.40
	Normal	142	65.40
	Overweight	31	14.30
	Obese	17	7.80
Stay during online class	House	184	84.80
	Rented home	11	5.10
	Residential college	22	10.10

Level of Physical Activity	Low	3	1.40
	Moderate	46	21.20
	High	168	77.40
Semester	1	9	4.10
	2	5	2.30
	3	16	7.40
	4	10	4.60
	5	32	14.70
	6	131	60.40
	7	14	6.50

Table 2 represent the perceived academic stress subscale of the respondents. The respondent agrees the cause of academic stress was the perceptions of workload (mean=2.39, SD=1.03). Following by pressure to perform (mean=2.53, SD=0.96), academic self-perception (mean=2.68, SD=0.67) and time restraints (mean=2.68, SD=0.67).

Table 2. Descriptive results of Perceived of Academic Stress subscale (n=217)

Variable	Subscale	Mean	SD
Perceived of Academic Stress	Pressure to perform	2.53	0.96
	Perceptions of workload	2.39	1.03
	Academic self-perception	2.68	0.67
	Time restraints	2.68	0.67
Overall Perceived Academic Stress		2.64	0.63

Multiple linear regression performed to investigate the factors that influence perceived academic stress among sports students during online learning. A few factors contribute to the perceived academic stress were measure such as stay during online learning, gender, semester involved, physical activity level and BMI.

Based on Table 3, the results of the regression indicated the predictor explained 4.2% of the variance ($F(1, 214) = 5.69, p=0.018$, with R^2 of 0.042). It was found that stay during online learning ($\beta = .17, p=0.013$) and normal BMI ($\beta = -.211, p=0.018$) significantly predicted perceived academic stress. Others factor reported non-significant relationship to perceived academic stress.

Table 3. Factors influence on Perceived Academic Stress among Sports Students during online learning

Dependent variable	Independent variables	β	t	p value	
Perceived Academic Stress	Stay during online learning	House	0.167	2.492	0.013
		Rented home			
	Gender	Male	-0.085	-1.258	0.210
		Female			
	Semester involved	1	-0.013	-0.172	0.864
		2	0.005	0.079	0.937
		3	-0.006	-0.091	0.927
		4	0.000	0.003	0.998
		5	-0.023	-0.343	0.732
		6	0.011	0.159	0.874
		7	0.024	0.359	0.720
	Physical activity level	Low	0.036	0.534	0.594
		Moderate	0.014	0.205	0.838
		High	-0.024	-0.350	0.726
	BMI	Underweight	0.043	0.634	0.527
Normal		-0.211	-2.386	0.018	
Overweight		0.107	1.590	0.113	
	Obese	0.090	1.338	0.182	

- $R^2 = 0.051$, Adjusted $R^2=0.042$
- Significant difference was determined by $p<0.05$

DISCUSSIONS

Since universities closed their facilities to prevent COVID -19 infections, restrictions on access to sports facilities and training sessions have led to a decline in physical activity (Toresdahl & Asif, 2020; C. Wang et al., 2020). However, in the current study, most of the respondents were reported to be highly involved in physical activities. Although there were limitations, they did not prevent the respondents from becoming active. In Martin et al. (2021) it was reported that during the lockdown, the average number of days per week that people exercised grew dramatically, as did the use of internet exercise, fitness apps, and home fitness exercises.

In the current study, a significant relationship was found between where the respondent took the online course and perceived academic stress. The result showed that the respondents felt more stress when they were at home compared to a rented home and collegiate residential. This could be because the respondents lacked peer contact and support when studying at home, and the stress increased not only due to the workload in the classroom, but also due to the home itself (Flynn et al., 2021)

According to Bedewy & Gabriel (2015) research, some of the elements that may cause academic stress in students are pressure to perform, perception of workload, academic self-perception, and time constraints. The current study shows that the respondents perceived workload as the most stressful academic stressor. Also in De Man et al.2021) it was reported that in terms of academic stress, most of the students indicated that academic workload has increased, course expectations are less clear, the respondents are worried about their academic

performance and worried about change in teaching methods. The different methods and techniques used in online learning have increased the workload and cause stress when they have to spend more time on the computer. It is reported in Syed (2021) that online learning platforms have led to depression and anxiety disorders among students.

Respondent's semester was non-significantly related to perceived academic stress. The current study showed that the stress level was similar throughout the semester. However, the study by Bewick et al. (2010) found that stressors were high during the first semester and decreased drastically during the second semester. Other researchers reported that a consistent level of stress was found during the first year of school (Barker et al., 2018; Denovan & Macaskill, 2017). But Aihie & Ohanaka (2019) reported that final year students have much higher level of academic stress than middle and first year students. This result could be due to the increased workload in the final year of study, which includes writing research papers and projects in all faculties. It could also be due to worry and anxiety about graduation and future job. Academic stress is determined by how individuals adapt to situational challenges and stressors. Each semester presents a different challenge depending on the subject chosen. Each student has their own method of managing their schedule and school activities. As long as school is in session, they have a variety of academic commitments and activities (Dewi et al., 2020).

Gender showed no significant relationship with perceived academic stress in the current study. The results regarding perceived academic stress were similar between genders. However, some studies reported that male students perceived more academic stress than female students (Mishra, 2018). Also Aihie & Ohanaka (2019) showed a similar result where there was a significant difference in the level of perceived academic stress between the genders of the respondents. Male students reported much more academic stress than girls.

A few studies have reported that females have more academic stress compared to males (Farhan, 2015; Yikealo et al., 2018). Female adolescents have been found to be more academically stressed than male adolescents. This could be because girls are naturally sensitive and truthful and take things very seriously, while boys are often light-hearted and cheerful (Dhull & Kumari, 2015). These differences could be due to different socialisation patterns, i.e., a cultural disposition that makes it more socially acceptable for women to admit the stress triggered by certain events. They express their feelings of stress more frequently than men. Therefore, it cannot be determined whether women actually experience more academic stress than men or whether the discrepancies can be explained by women's greater propensity to report their experiences (Chust-Hernández et al., 2021)

In the current study, a non-significant relationship was found between physical activity level and perceived academic stress. Stress levels were similar in both groups. In contrast, other studies reported that less frequent physical activity was a predictor of academic stress. The results suggest that the frequency with which students exercise has a significant impact on academic stress (Chust-Hernández et al., 2021). Exercise can lead to lasting adjustments in stress and anxiety reduction. Exercising or being physically active more often decreases academic stress.

CONCLUSIONS

In conclusion, the data imply that, while there are many factors that influence perceived academic stress, the results in this study were non-significant. Only stay during online learning yielded significant results out of the five parameters indicated. Sports students are often fit and can adapt to stress factors because of their involvement in sports. Sports students are also sociable and rely on their classmates for assistance with any work. During the epidemic and restrictions, students must attend online classes and remain in their hometown. This circumstance may raise respondents' stress levels in relation to perceived academic stress due to restriction to the peers. Future study recommends involving more respondents in selective population, so that the outcome can be measure precisely to that population.

Conflict of Interest

All authors declare that they have no conflicts of interest for the research.

Author's Contribution

Siti Nur Dianah Ahmad Jani conceived the idea and collect the data.
Wahidah Tumijan analyzed the data and wrote the manuscript.

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REFERENCES

- Abebe, A. M., Kebede, Y. G., & Mengistu, F. (2018). Prevalence of Stress and Associated Factors among Regular Students at Debre Birhan Governmental and Nongovernmental Health Science Colleges North Showa Zone, Amhara Region, Ethiopia 2016. *Psychiatry Journal, 2018*, 1–7. <https://doi.org/10.1155/2018/7534937>
- Aihie, O. N., & Ohanaka, B. I. (2019). Perceived Academic Stress among Undergraduate Students in a Nigerian University. *Journal of Educational and Social Research, 9*(2), 56–66. <https://doi.org/10.2478/jesr-2019-0013>
- Alemany-Arrebola, I., Rojas-Ruiz, G., Granda-Vera, J., & Mingorance-Estrada, Á. C. (2020). Influence of COVID-19 on the Perception of Academic Self-Efficacy, State Anxiety, and Trait Anxiety in College Students. *Frontiers in Psychology, 11*(October), 1–7. <https://doi.org/10.3389/fpsyg.2020.570017>
- Barker, E. T., Howard, A. L., Villemare-Krajden, R., & Galambos, N. L. (2018). The Rise and Fall of Depressive Symptoms and Academic Stress in Two Samples of University Students. *Journal of Youth and Adolescence, 47*(6), 1252–1266. <https://doi.org/10.1007/s10964-018-0822-9>
- 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). <https://doi.org/10.1177/2055102915596714>

- Bewick, B., Koutsopouloub, G., Miles, J., Slaad, E., & Barkham, M. (2010). Changes in undergraduate students' psychological well-being as they progress through university. *Studies in Higher Education*, 35(6), 633–645. <https://doi.org/10.1080/03075070903216643>
- Blocken, B., Malizia, F., Druenen, T. Van, & Marchal, T. (2020). Towards aerodynamically equivalent COVID-19 1.5 m social distancing for walking and running. *Urban Physics, Wind Engineering & Sports Aerodynamics. Preprint.*, 1–12.
- Chandra, Y. (2021). Online education during COVID-19: perception of academic stress and emotional intelligence coping strategies among college students. *Asian Education and Development Studies*, 10(2), 229–238. <https://doi.org/10.1108/AEDS-05-2020-0097>
- Chen, Y., Liu, X., Yan, N., Jia, W., Fan, Y., Yan, H., Ma, L., & Ma, L. (2020). Higher academic stress was associated with increased risk of overweight and obesity among college students in China. *International Journal of Environmental Research and Public Health*, 17(15), 1–12. <https://doi.org/10.3390/ijerph17155559>
- Chu, A. H. Y., & Moy, F. M. (2015). Reliability and validity of the malay international physical activity questionnaire (IPAQ-M) among a malay population in Malaysia. *Asia-Pacific Journal of Public Health*, 27(2), NP2381–NP2389. <https://doi.org/10.1177/1010539512444120>
- Chust-Hernández, P., Fernández-García, D., López-Martínez, L., García-Montañés, C., & Pérez-Ros, P. (2021). Female gender and low physical activity are risk factors for academic stress in incoming nursing students. *Perspectives in Psychiatric Care, February*. <https://doi.org/10.1111/ppc.12928>
- Craig, C. L., Marshall, A. L., Sjöström, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., Pratt, M., Ekelund, U., Yngve, A., Sallis, J. F., & Oja, P. (2003). International physical activity questionnaire: 12-Country reliability and validity. *Medicine and Science in Sports and Exercise*, 35(8), 1381–1395. <https://doi.org/10.1249/01.MSS.0000078924.61453.FB>
- De Man, J., Buffel, V., van de Velde, S., Bracke, P., Van Hal, G. F., Wouters, E., Gadeyne, S., Kindermans, H. P. J., Joos, M., Vanmaercke, S., van Studenten, V. V., Nyssen, A. S., Puttaert, N., Verweken, D., & Van Guyse, M. (2021). Disentangling depression in Belgian higher education students amidst the first COVID-19 lockdown (April-May 2020). *Archives of Public Health*, 79(1), 1–10. <https://doi.org/10.1186/s13690-020-00522-y>
- Deasy, C., Coughlan, B., Pironom, J., & Jourdan, D. (2014). *Psychological Distress and Coping amongst Higher Education Students: A Mixed Method Enquiry*. 1–23. <https://doi.org/10.1371/journal.pone.0115193>
- Denovan, A., & Macaskill, A. (2017). Stress and Subjective Well-Being Among First Year UK Undergraduate Students. *Journal of Happiness Studies*, 18(2), 505–525. <https://doi.org/10.1007/s10902-016-9736-y>

- Dewi, D. K., Meylana, E. H., Widiarti, F. P., & Safitri, R. I. (2020). *The Profile of Perceived Academic Stress in Higher Education*. 491(Ijcah), 165–169. <https://doi.org/10.2991/assehr.k.201201.028>
- Dhull, I., & Kumari, S. (2015). Academic stress among adolescents in relation to gender. *International Journal of Applied Research*, 1(11), 394–396. www.allresearchjournal.com
- Dwi Pratiwi, R., Ikhtiarini Dewi, E., & Hadi Kurniyawan, E. (2021). Relationships Self-Regulation Learning and Academic Stress First Year Students at Faculty of Nursing University of Jember. *Nursing and Health Sciences Journal (NHSJ)*, 1(1), 81–87. <https://doi.org/10.53713/nhs.v1i1.21>
- Elias, H., Ping, W. S., & Abdullah, M. C. (2011). Stress and academic achievement among undergraduate students in Universiti Putra Malaysia. *Procedia - Social and Behavioral Sciences*, 29, 646–655. <https://doi.org/10.1016/j.sbspro.2011.11.288>
- Farhan, P. S. (2015). Impact of Stress , Self-Esteem and Gender Factor on Students ' Academic Achievement. *International Journal on New Trends in Education and Their Implications*, 6(2), 143–156.
- Flynn, N., Keane, E., Davitt, E., McCauley, V., Heinz, M., & Mac Ruairc, G. (2021). 'Schooling at Home' in Ireland during COVID-19': Parents' and Students' Perspectives on Overall Impact, Continuity of Interest, and Impact on Learning. *Irish Educational Studies*, 40(2), 217–226. <https://doi.org/10.1080/03323315.2021.1916558>
- IBM Corp. (2017). *IBM SPSS statistics for windows*. IBM Corporation. Version 25.0.
- IPAQ. (2005). *Guidelines for data processing and analysis of the IPAQ*. <http://www.ipaq.ki.se>.
- Jiang, S., Peng, S., Yang, T., Cottrell, R. R., & Li, L. (2018). Overweight and Obesity Among Chinese College Students: An Exploration of Gender as Related to External Environmental Influences. *American Journal of Men's Health*, 12(4), 926–934. <https://doi.org/10.1177/1557988317750990>
- Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30, 607–610.
- Li, H., Lin, C. De, Bray, M. A., & Kehle, T. J. (2005). The measurement of stressful events in Chinese college students. *Psychology in the Schools*, 42(3), 315–323. <https://doi.org/10.1002/pits.20082>
- Liu, Y., & Lu, Z. (2011). The Chinese high school student's stress in the school and academic achievement. *Educational Psychology*, 31(1), 27–35. <https://doi.org/10.1080/01443410.2010.513959>
- Lyon, E. M. (2000). *Critical success factors in online education*.

- Martin, A. M., Champ, F., & Franklin, Z. (2021). COVID-19: Assessing the impact of lockdown on recreational athletes. *Psychology of Sport and Exercise*, 56(December 2020), 101978. <https://doi.org/10.1016/j.psychsport.2021.101978>
- Mishra, M. (2018). A Comparative Study on Academic Stress Level of Male and Female B.Ed. Students. *Indian Journal of Health and Wellbeing*, 9(1), 131–135.
- Nigel, L. (2021). *What's The Average Survey Response Rate? [2021 Benchmark]*. <https://surveyanyplace.com/blog/average-survey-response-rate/>
- Nist-Olejniak, S., & Holschuh, J. P. (2007). *College rules: how to study, survive and succeed in college*. Ten Speed Press.
- Omar, M., Bahaman, A. H., Lubis, F. A., Ahmad, S. A. S., Ibrahim, F., Aziz, S. N. A., Ismail, F. D., & Tamuri, A. R. Bin. (2020). *Perceived Academic Stress Among Students in Universiti Teknologi Malaysia*. 470(ICoSD 2019). <https://doi.org/10.2991/assehr.k.200921.021>
- Praveeni, S. M. N., & Herath, H. M. A. J. (2020). Perceived Academic Stress among University Undergraduates in Sri Lanka. *Wayamba Journal of Management*, 11(1), 30. <https://doi.org/10.4038/wjm.v11i1.7490>
- Salami, M., Rahmattullah Khan, Muhammed Yusuf, Asma Perveen, & Mohammed Y.M. Mai. (2021). Impact of Perceived Academic Stress and Depression on Self Efficacy Beliefs among University Students during Online Learning in Peninsula, Malaysia. *International Journal of Social Learning (IJSL)*, 1(3), 260–269. <https://doi.org/10.47134/ijsl.v1i3.53>
- Subodh kesharwani, & Tomar, K. S. (2021). Has COVID -19 Pandemic altered the Volatility Spillover and Connectedness based on Size of Market Portfolios? *Global Journal of Enterprise Information System*, 12(3 SE-View Point (VP)), 74–83. <https://doi.org/10.18311/gjeis>
- Syed, N. B. (2021). Mediating effects of levels of Education on Perceived Academic Stress and Mental Wellbeing: An investigation of Online mode of learning during pandemic. *Journal of Psychological Research*, 3(2), 12–18. <https://doi.org/10.30564/jpr.v3i2.3032>
- Tangade, P. S., Mathur, A., Gupta, R., & Chaudhary, S. (2011). *Assessment of Stress Level among Dental School Students : An Indian Outlook*. 8(2), 95–101.
- Tomasik, M. J., Helbling, L. A., & Moser, U. (2021). Educational gains of in-person vs. distance learning in primary and secondary schools: A natural experiment during the COVID-19 pandemic school closures in Switzerland. *International Journal of Psychology*, 56(4), 566–576. <https://doi.org/10.1002/ijop.12728>
- Toresdahl, B. G., & Asif, I. M. (2020). Coronavirus Disease 2019 (COVID-19): Considerations for the Competitive Athlete. *Sports Health*, 12(3), 221–224. <https://doi.org/10.1177/1941738120918876>

- Wang, C., Cheng, Z., Yue, X.-G., & McAleer, M. (2020). Risk Management of COVID-19 by Universities in China. *Journal of Risk and Financial Management*, 13(2), 36. <https://doi.org/10.3390/jrfm13020036>
- Wang, K., Liang, R., Ma, Z. L., Chen, J., Cheung, E. F. C., Roalf, D. R., Gur, R. C., & Chan, R. C. K. (2018). Body image attitude among Chinese college students. *PsyCh Journal*, 7(1), 31–40. <https://doi.org/10.1002/pchj.200>
- Weidner, G., Kohlmann, C. W., Dotzauer, E., & Burns, L. R. (1996). The effects of academic stress on health behaviors in young adults. *Anxiety, Stress and Coping*, 9(2), 123–133. <https://doi.org/10.1080/10615809608249396>
- WHO Expert Consultation. (2004). Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *The Lancet*, 363, 157–163. <https://doi.org/10.1080/00207218608920903>
- Wunsch, K., Fiedler, J., Bachert, P., & Woll, A. (2021). The tridirectional relationship among physical activity, stress, and academic performance in university students: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*, 18(2), 1–18. <https://doi.org/10.3390/ijerph18020739>
- Yan, W., Li, Y., & Sui, N. (2014). The relationship between recent stressful life events, personality traits, perceived family functioning and internet addiction among college students. *Stress and Health*, 30(1), 3–11. <https://doi.org/10.1002/smi.2490>
- Yikealo, D., Yemane, B., & Karvinen, I. (2018). The Level of Academic and Environmental Stress among College Students: A Case in the College of Education. *Open Journal of Social Sciences*, 06(11), 40–57. <https://doi.org/10.4236/jss.2018.611004>