Stress Factors Affecting the Motivation of Senior High School STEM Students at Mapua University in a Virtual Learning Set-Up During COVID-19 Pandemic

Kaneesha Ysabel B. Rosales, Marc Andrei B. Besana, Derek Patrick M. Santos
Science, Technology, Engineering and Mathematics
Mapua University
Manila, Philippines
kybrosales@mymail.mapua.edu.ph, Mabbesana@mymail.mapua.edu.ph,
dpmsantos@mymail.mapua.edu.ph

Alma Rose Villapando
Department of Industrial Engineering and Engineering Management
Mapua University
Manila, Philippines
acvillapando@mymail.mapua.edu.ph

Abstract

Due to the ongoing COVID-19, the education industry was needed to adapt to an online setup. As a result of this restriction, the students began to bear more responsibility and exert greater effort, which had a significant impact on their motivation to learn in an engaging manner. This study aimed to investigate the relationship between physical and mental stress and motivation, compare motivation levels based on the attributes included in the study, identify significant factors that may affect stress, and offer suggestions and contingency plans to avoid such issues in the long run. The study falls on a non-experimental descriptive and cross-sectional (type 2) research design. The study used a convenience type of sampling and close-ended online questionnaires in the form of a Likert Scale with a sample of 65 Mapua University SHS STEM students who currently participate in an online class. The gathered data were analyzed using Pearson Correlation, Multiple Linear Regression, and Kepner-Tregoe Analysis. The study's findings revealed that there was a significant relationship between body image perceptions and physical stress. For mental stress, the factors with significant relationships are anxiety, difficulty with change adaptation, and economic pressure. Lastly, it was found that both types of stress- physical and mental, affect motivation.

Keywords
Education, Physical Stress, Mental Stress, Motivation, Relationship

1. Introduction

1.1. Background

According to Toquero and Talidong (2020), the COVID-19 crisis significantly affected Philippine education. Given the condition, all stakeholders in the educational system must understand learners' experiences with online classes and how they adjust to new living and learning environments (Busko and Bezinovic 2021). The research of Acosta-Gomez (2018) presented factors that increase and contribute to the high school (aged 15-19) students' stress, which was adapted in this study. These stress factors were divided into 6 (six) elements that influenced students currently under online classes: heavy workload, body image perception, environmental distractions, anxiety, difficulty with change adaptation, and economic pressure. These elements were divided into two (2) categories: physical and mental stress.

1.2. Gaps of Missing Information

Tipon et al. (2021) identified the link between senior high school students' self- efficacy and academic motivation from public schools in the Philippines during the new normal education. Given that prior studies' results cover the majority of the stress factors that affect the motivation that high school students encounter during the pandemic in the Philippines, there have been no reports that used the data from the Senior High School of private school to investigate further the stress factors affecting their motivation during the pandemic.

1.3. Objectives

The researchers defined various objectives based on prior studies and gaps discovered 1. To identify the significance of each factor by determining the levels of correlation between factors and physical stress, factors and mental stress; 2. To identify which type of stress significantly affect motivation; 3. To provide some potential solutions for reducing stress levels.

1.4. Significance of the Study

This study would be significant to the students as their situation of facing challenges in coping with online learning due to the pandemic would be addressed. Second, the parents would pay attention to their child's problems and adjustments to the new learning set-up. Next, this is also significant to the teachers as they would be informed of the issues arising from the students that will enable them to help them with their needs. The data will serve as an eye-opener to the school administration to consider the students' academic concerns. Next, it will also benefit the Department of Education to review their requirements and standards further and help lessen students' hardships in the time of the pandemic. Lastly, it is also significant to society; with the students' good condition, they would help improve and strengthen the community in different ways.

1.5. Scope and Limitations

This research has the following boundaries: First, the study only focused on six (6) factors of stress which were adapted from the study of Acosta-Gomez (2018). Based on the present virtual learning set-up, the study focused only on the impacts of stress on students' motivation during online classes at Mapua University academic year 2021-2022. The researchers opted to continue with the initial elements listed in this study since their responses to stress levels may vary due to different personalities. The researchers would complete the study in a year since it was centered on the condition of COVID-19. Given the situation, the researchers are only working with a limited set of data consisting of sixty-five (65) respondents. Only 15 to 19-year-olds senior high school STEM students will be able to participate in the study. Then, all data collection will be done online. Due to pandemic precautions, the participants' interviews were exclusively done in a questionnaire via online platforms, which functioned as a substitute for a face-to-face interview.

2. Literature Review

2.1. Studies Pertaining to the Effects of Heavy Workload, Body Image Perception, and Environmental Distractions on Physical Stress

For the heavy workload, Yang et al. (2021) mentioned that studying and testing and performance competition, especially gaining a significant amount of information in a short period, would result in various degrees of academic pressure and severe strain. Academic stress was linked to family pressure and mental problems, whereas exam-related anxiety was also linked to cognitive problems (Deb et al. 2021). Body image perception as the next variable, is connected to physical stress; poor body image attitudes can affect eating habits and contribute to physical diseases (Yavari and Tajik, 2021). According to Prabhu and Cunha (2019), body image concerns may significantly influence one's psychological health and can be a major risk for eating problems. In worst-case scenarios, individuals who are uncomfortable with their body image are more likely to suffer from depression since there is a connection between body image concerns and stress (Manaf 2016). As for environmental distractions, Sepehri et al. (2019) mentioned that it is a source of stress in students resulting from environmental distractions such as temperature and noise levels in the workplace. Non Classroom settings have unique distractions, and many learners try to multitask while learning online (Blasiman 2018). This consequence results from how “events” in such an environment are seen and rated as good, negative, or neutral stresses (Anyanwu, 2015). Excessive noise causes physiological stress in humans, leading to a major rise in blood pressure (Bilotta, 2018).

2.2. Studies Pertaining to the Effects of Anxiety, Difficulty with Change Adaptation and Economic Stress on Mental Stress

According to recent studies, people placed in separation and quarantine endure significant discomfort in the form of anxiety, annoyance, confusion, and post-traumatic stress symptoms (Brooks et al. 2020). Odebode (2018) and MacIntyre et al. (2020) mentioned that tight deadlines, contacts with the environment, human ties, and gadget exposure are also sources of anxiety. On the other hand, the teaching tools, strategies, and tutorials being given in online classrooms owing to the COVID-19 pandemic are subfactors causing problems with change adaptation (Hickling et al., 2021), which also contributes to mental stress. Under economic pressure, according to Stein et al. (2012), there is a clear association between perceived economic strain and psychological well-being. Young adults are more likely needing to make more economic changes as a result of the economic crisis and also reported greater levels of depression and anxiety (Stein et al. 2012).

2.3. Studies Pertaining to the Motivation of Students

The COVID-19 pandemic significantly influenced student motivation. It may assist students in striving in their academics if they are motivated. According to the findings of a survey done by Rahman et al. (2021) the direct lecture significantly impacts students' online learning motivation. One of the most fundamental qualities that students must possess is motivation to excel in their studies.

3. Methods

3.1. Conceptual Framework

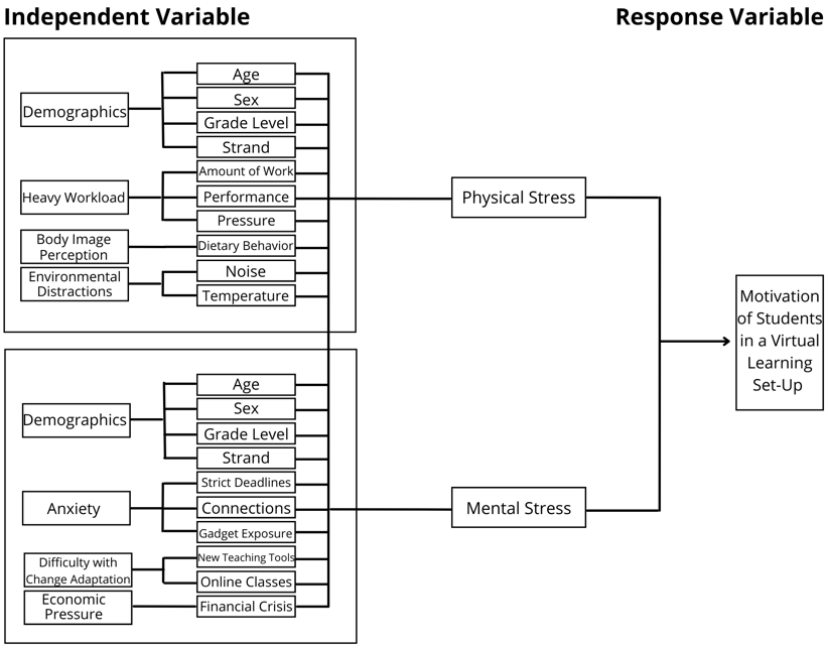

Figure 1. Conceptual Framework of the Study

The study's structure is defined by the conceptual framework in *Figure 1*, based on the study's objectives and what the researchers are required to achieve after the study. Demographics, heavy workload, body image perception, environmental distractions, anxiety, difficulty with change adaptation, and economic pressure were identified as seven key independent variables supported by the research. Moreover, as each independent variable may be ambiguous, the researchers further classified each variable into subcategories. Age, sex, grade level, and strand were also included in the demographics for the second set since the researchers regarded those qualities as the most fundamental information regarding students. The second set of independent variables was subjected to mental stress.

3.2. Research Design

This study falls on a non-experimental descriptive and cross-sectional (type 2) research design. It will not have any

variable manipulation. Also, it will be achieved by research objectives and time dimension since the researchers focused on students' motivation in virtual learning during the COVID-19. The Type 2 research design is used in this study as its goal is to describe the features of the phenomena being investigated by the researchers (Johnson 2001).

3.3. Setting

The researchers chose the senior high school STEM students of Mapua University in the Philippines. This university is composed of two campuses, namely: Intramuros and Makati. Though the research is based on the campuses of Mapua, the respondents are not limited to Manila & Makati citizens. This is because online classes have made attending school in any location; therefore, students of the said university might be staying in various locations outside the National Capital Region (NCR).

3.4. Participants and Sampling Technique

The study included sixty-five (65) STEM students from Mapua University Senior High School from any strand, in the academic year 2021-2022. This study only contains a few respondents since the researchers' actions are constrained at this time of the pandemic, and reaching a large number of participants is difficult. In this case, the researchers will use the non-random convenience sampling technique. To obtain the needed data for the study, the researchers would seek available respondents who might help them considerably.

3.5. Data Analysis

3.5.1. Pearson Correlation

Pearson's correlation coefficient is a statistical test that assesses the statistical link, or correlation, between two continuous variables. Since it is based on the concept of covariance, it is recognized as the best approach for quantifying the correlation between variables of interest. It describes the amount of the link, or correlation, as well as the direction of the relationship (Statistics Solutions 2021).

3.5.2. Multiple Linear Regression

The researchers will utilize Multiple Linear Regression Analysis, a statistical method used to predict a given response variable using multiple independent variables. Three analyses were used in the study. The researchers identified the relevant factor(s) influencing students' physical stress for the first analysis; the second batch included factors identified for mental stress. The final analysis aims to identify the major factor(s) that affect(s) the motivation of senior high school students.

3.5.3. Kepner-Tregoe Analysis

Once the researchers have identified which of the adapted factors significantly affect students' motivation, the Kepner-Tregoe (KT) Analysis will be applied to the significant factors affecting motivation. The purpose of this analysis is to establish contingency plans for students. According to Oosthuizen (2014), this analysis provides for a balanced reasoning approach that includes both objective and subjective measures.

3.6. Research Procedures

The researchers developed an online questionnaire in a form of a Likert scale. It will be disseminated through the following online platforms: E-mail, Facebook Messenger, and Google Form as a data-gathering procedure. To summarize the procedure, the researchers devised phases that will act as a guide for them to achieve the study's objectives:

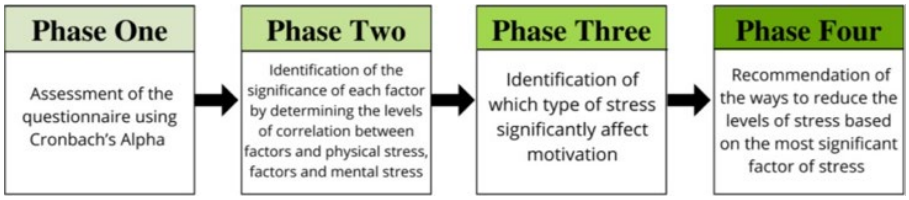

Figure 2. Research Phases

As seen in *Figure 2*, this study has four (4) phases. As the researchers of this study created the questionnaire, it is essential to test its reliability which was done in the first phase. After testing the questionnaire, the second phase will be done to identify the significance of each factor by determining the levels of correlation between factors and mental stress, factors and physical stress, through Pearson correlation. In the third phase, multiple linear regression will be utilized to identify which type of stress significantly affects motivation. In the last phase, the Kepner Tregoe

Analysis will be used to suggest ways of alleviating students' stress levels based on the most significant factor of stress from the result of the multiple linear regression done in the third phase.

3.7. Ethical Considerations

The thesis adviser and coordinator of the researchers, both experts in the Research field at Mapua University, have approved the study. The respondents' participation was entirely voluntary. For minor-aged participants, the researchers will handle this case by providing a consent form requesting their parents' authorization to participate in the study. With this, the data gathered will be kept in absolute security and confidentiality.

4. Data Gathering Tools

As the researchers themselves developed the survey's questions, it was necessary to assess the questionnaire's reliability before conducting analyses to meet the objectives. To do this, the Cronbach's Alpha concept was used, which measured the questionnaire's internal consistency. In the pilot test, the first thirty (30) respondents were requested to complete the questionnaire, and this internal consistency test was performed. The rule of thumb for using this test in interpreting alpha for a questionnaire with a Likert scale style must give a result of alpha 0.71 or above for it to be acceptable. In this research, the calculated Cronbach's alpha for the whole questionnaire was 0.85, with an internal consistency interpretation of "good."

4.1. Physical Stress: 12-Item Generalized Assessment for Heavy Workload, Body Image Perception, and Environmental Distractions

The 12-Item Generalized Assessment for physical stress with subfactors: heavy workload, body image perception, and environmental distractions, intends to measure the physical stress of the students. These subfactors were created based on the research of Yang et al. (2021), Yavari and Tajik (2021), and Sepehri et al. (2019). The 12-Item Generalized Assessment for the physical stress was proven to have Cronbach's alpha of 0.75. Based on Statistics How To, this is interpreted as "acceptable."

4.2. Mental Stress: 12-Item Generalized Assessment for Anxiety and Difficulty with Change Adaptation

The 12-Item Generalized Assessment for mental stress with subfactors: anxiety, difficulty with change adaptation and economic pressure intend to measure the mental stress of the students. The se subfactors were created from the researches of Odebode (2018), MacIntyre et al. (2020), Hickling et al. (2021), and Stein et al. (2012). The 12-Item Generalized Assessment for mental stress was proven to have Cronbach's alpha of 0.71. Based on Statistics How To, this is interpreted as "acceptable."

One question for physical stress, mental stress, and motivation was added to measure the correlation and significance of each stress category subjected to motivation.

5. Results and Discussion

5.1 Results and Findings Concerning Research Objective 1 (Pearson Correlation was utilized)

Table 1. Correlation between Heavy Workload and Physical Stress

		Heavy Workload	Physical
Heavy Workload	Correlation	1.000	0.2195
	P-Value		0.0853
	N	65	65
Physical	Correlation	0.2195	1.000
	P-Value	0.0853	
	N	65	65

Table 1 displays the values required to evaluate the correlation analysis between a heavy workload and physical stress. The former serves as the independent variable and the latter as the response. The correlation coefficient was determined at 0.2195 based on the results, implying that heavy workload had a weak positive link with physical stress. Furthermore, the data showed that as the heavy workload increased, so did the level of physical stress. The estimated p-value of 0.0853, on the other hand, indicated that the relationship between the two variables was not significant because it was bigger than the level of significance at 0.05.

Table 2. Correlation between Body Image Perception and Physical Stress

		Body Image Perception	Physical
Body Image Perception	Correlation	1.000	0.298
	P-Value		0.0416
	N	65	65
Physical	Correlation	0.298	1.000
	P-Value	0.0416	
	N	65	65

Table 2 used Pearson's correlation to show the type and strength of connection that body image perception associated with physical stress. Based on the findings, the correlation coefficient was 0.298, indicating that the relationship between the two variables was modest yet positive. Given the case, the researchers were able to infer that body image perceptions had a mild proportional influence on physical stress. This means that when body image perceptions rise, so does physical stress. Turning to the p-value, it can be seen that a value of 0.0416 was a little under the significance level of 0.05. Thus, according to the standard statistical level, the researchers declare that the link between body image perception and physical stress was significant.

Table 3. Correlation between Environmental Distractions and Physical Stress

		Environmental Distractions	Physical
Environmental Distractions	Correlation	1.000	0.1778
	P-Value		0.2413
	N	65	65
Physical	Correlation	0.1778	1.000
	P-Value	0.2413	
	N	65	65

Table 3 shows the correlation analysis between environmental distractions and physical stress. Based on the findings, the correlation coefficient was calculated to be 0.1778, indicating that their link was negligible. Moreover, the p-value, precisely 0.2413, is to a higher extent than 0.05, indicating that the relationship between the variables was not significant.

Table 4. Correlation between Anxiety and Mental Stress

		Anxiety	Mental
Anxiety	Correlation	1.000	0.4058

	P-Value		0.0423
	N	65	65
Mental	Correlation	0.4058	1.000
	P-Value	0.0423	
	N	65	65

Table 4 depicts the relationship between anxiety and mental stress. Based on the findings, the correlation coefficient was calculated to be 0.4058, indicating an intermediate positive correlation which implies that the two variables tend to rise concerning one another and their relationship moderate. Furthermore, the p-value, precisely 0.0423, is less than 0.05, indicating that the relationship between the two variables is significant.

Table 5. Correlation between Difficulty with Change Adaptation and Mental Stress

	Difficulty with Change Adaptation		Mental
Difficulty with Change Adaptation	Correlation	1.000	0.334
	P-Value		0.0378
	N	65	65
Mental	Correlation	0.334	1.000
	P-Value	0.0378	
	N	65	65

Table 5 shows the correlation between Difficulty with Change Adaptation and Mental Stress. Based on the findings, the correlation coefficient was 0.334, implying that difficulty with change adaptation had an intermediate positive link with mental stress. An intermediate positive correlation indicates that, while both variables tend to rise in respect to one another, their relationship is moderate. Moreover, it can be seen that the p-value is less than 0.05, suggesting that the association between the two variables is significant.

Table 6. Correlation between Economic Pressure and Mental Stress

		Economic Pressure	Mental
Economic Pressure	Correlation	1.000	0.3688
	P-Value		0.008
	N	65	65
Mental	Correlation	0.3688	1.000
	P-Value	0.008	
	N	65	65

Table 6 displays the values required to evaluate the correlation analysis between economic pressure and mental stress. The correlation coefficient was determined at 0.3688 based on the results, implying that economic pressure had an intermediate positive link with mental stress. Just like the previous stress factors, economic pressure intermediately affects mental stress. Furthermore, the p-value of 0.008 is less than 0.05, which implies that the relationship between the variables is significant.

5.2 Results and Findings Concerning Research Objective 2 (Multiple Linear Regression was utilized)

The second objective aimed to identify which type of stress (physical and mental stress) significantly affect motivation.

Table 7. Multiple Linear Regression Statistics for Physical and Mental Stress

Regression Statistics	
S	0.712980
R Square	54.11%
Adjusted R Square	43.52%
R Square (pred)	27.59
Observations	65

The regression data were reported in *Table 7*, the most important of which related to the response variable's proportion of variation that could be explained by the factors. Using the data output presented above, it was discovered that the coefficient of determination, denoted by r-squared, was 54.11%. This strongly indicates that the study's components were responsible for 27.97 percent of the changes in physical stress and mental stress.

Table 8. Multiple Linear Regression Statistics for Motivation

Regression Statistics	
S	0.708154
R Square	46.02%
Adjusted R Square	44.28%
R Square (pred)	40.93%
Observations	65

The amount of variation in the components that might impact the response variable, motivation, was quantitatively presented in *Table 8*. Physical and mental stress were both used as independent factors in this study, whereas motivation was used as the response variable. As can be seen, the calculated coefficient of determination was 46.02% or 0.4602.

Table 9. Multiple Linear Regression Equations for Motivation

Term	Coefficient	Standard Error Coefficient	*T*-Value	*P*-Value	Variance Inflation Factor
Constant	0.043	0.341	0.13	0.899	
Physical Stress	0.366	0.110	3.32	0.002	1.26
Mental Stress	0.543	0.127	4.27	0.000	1.26

The researchers had generated the final regression equation in this part, with physical and mental stress as independent factors and motivation as the response variable. As seen in *Table 9*, physical and mental stress both became significant variables, as evidenced by the fact that their p-values were less than the level of significance, which was set at 0.05. The questionnaire indicated that the amount of physical and mental energy left among the

students after day-long online classes became a triggering factor among them.

Table 10. Multiple Linear Regression Models for Motivation

Motivation	=	0.043 + 0.366 Physical Stress + 0.543 Mental Stress

Table 10 shows the multiple linear regression model for motivation with physical stress and mental stress as the independent variables. As seen from the result, both physical and mental stress affects motivation. Moreover, as previously discussed, the results of the p-values for both factors showed that they became statistically significant.

5.3. Results and Findings Concerning Research Objective 3 (Kepner Tregoe Analysis was utilized)

The third objective aimed to provide some potential solutions for reducing stress levels. This study has found stress factors affecting the corresponding type of stress and motivation, which were tackled previously. Given the results, letter A shows the stress factor of body image perceptions significantly affecting physical stress, as seen in *Table 11*. For letter B, we have all the factors under mental stress as each of them substantially affects mental stress. Lastly, for letter C, both types of stress significantly affected motivation. The last aim was fulfilled, and preventive actions, hazards, and contingency plans were offered.

Table 11. Kepner-Tregoe Analysis

Potential Problem	Possible Cause	Preventive Action	Risk	Contigency Plan
A. Increase of Physical Stress	1. Body Image Perceptions	1. Maintain a well-balanced diet. 2. Engage in regular physical activity. 3. Accept genetics and different body shapes/masses. 4. Avoid body comparisons.	1. Exposed to a disease or disorder. 2. Physical ailment 3. Eating Disorder 4. Anorexia Nervosa 5. Bulimia Nervosa 6. Body Dysmorphic Disorder	1. Physical exercise is very effective in strengthening the body's resistance 2. Eat the right amount of meals and proper serving of food.
B. Increase of Mental Stress	1. Anxiety 2. Difficulty with Change Adaptation 3. Economic Pressure	1. Make time for self. 2. Meditate or reflect. 3. Avoid alcohol and caffeine 4. Get enough sleep 5. Do journaling or planning, and budgeting. 6. Socialize with the people around you and talk about relatable stuffs.	1. Prone to sickness and or problems. 2. Depression 3. Insomnia 4. Social isolation 5. Poor quality of life 6. Difficulty in concentrating 7. Overthinking	1. Meditation can trigger the relaxation response, which is a stress-relieving mechanism. 2. Cognitive-behavioral therapy (CBT) will help change negative thinking to healthy and positive thoughts. 3. Join seminars and organizations for improved social life.
C. Low Motivation Level	1. Physical Stress 2. Mental Stress	1. Never be afraid to seek assistance. 2. Maintain positive relationship with family, friends, and other people. 3. Have healthy lifestyle. 4. Take a break from time to time. 5. Do leisure activities and hobbies. 6. Set boundaries between academics and personal life.	1. Inadequate work efficiency and productivity 2. Lack energy, headaches, elavated blood pressure and other physical symptoms 3. Long term health issues 4. Weak physical, emotional, and mental responses 5. Traumas, chronic medical illness, and psychological disorders.	1. Gain confidence from successful learning events. Have faith in yourself. 2. Participate in organizations and seminars on how to handle stress. 3. Proper time managament 4. Seek for professional help 5. Have regular check ups and self assessment

6. Conclusion

The researchers have reached some conclusions based on the overall findings of this study in this chapter. The major goal of this study, as previously stated, was to determine the relationship between each type of stress and motivation. Except for heavy workload and environmental distractions, all factors were positively and significantly associated with the appropriate type of stress, owing to the nature of online classes possibly triggering both types. In other words, the levels of stress among senior high school STEM students were highly affected by negative body image perceptions, anxiety, difficulty with change adaptation, and economic pressure brought about by the pandemic. On the other hand, students' physical and mental stress levels may severely hinder their learning motivation through online classes. The researchers, therefore, conclude that while students' dedicated work in class was clear, the continual pattern, given the current set-up, may cause learners to feel demotivated and dissatisfied.

Finally, the researchers concluded that body image perceptions significantly affect physical stress. All sub-factors of mental stress, including anxiety, difficulty with change adaptation, and economic pressure, significantly affect mental stress. Then, as seen in *table 10*, both types of stress, namely physical and mental stress, affect students' motivation. However, it can also be seen from the results between the subfactors and their corresponding stress that mental stress was most likely the type of stress that greatly affected motivation since its three subfactors were revealed as significant predictors. Moreover, according to the Kentucky Counseling Center (2022), virtual learning exhaustion is real, and it may make students and educators anxious and stressed.

7. Recommendation

The primary factor recommended by the researchers has something to do with academic level. In other words, future researchers may broaden the study to include junior high and college students since the pandemic influenced their motivation in the virtual learning environment as well.

Future researchers may investigate other strands/tracks in light of the previously described issue, as each strand has unique expertise. This implies that, depending on the academic route a person is currently pursuing, a particular learner may differ in ability and field.

Finally, the number of respondents could be expanded to obtain even more robust and dependable results. Because the study was conducted during the pandemic, the authors were unable to reach other schools; thus, the investigation was limited to a single department. In terms of concluding, a diverse group of participants could be valuable and powerful, resulting in superior results and recommendations.

References

Acosta-Gomez, M. G. Stress in High School Students: A Descriptive Study stress in high school students | Open Access Pub. Open Access Pub. 2018. Available: https://oap-journals.com/jcbt/article/706

Anyanwu, E. G. Background music in the dissection laboratory: impact on stress associated with the dissection experience. *Advances in Physiology Education*,39(2),96–101.2015. https://doi.org/10.1152/advan.00057.2014

Bilotta, E., et al. Environmental Stress. *Environmental Psychology*, 36–44. 2018. https://doi.org/10.1002/9781119241072.ch4

Blasiman, R. N., et al. Distracted students: A comparison of multiple types of distractions on learning in online lectures. *Scholarship of Teaching and Learning in Psychology*, 4(4), 222– 230. 2018. https://doi.org/10.1037/stl0000122

Brooks, S. K., et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet, 395*(10227), 912–920. 2020. https://doi.org/10.1016/S0140-6736(20)30460-8

Buško, V., & Bezinović, P. Experiences With Online Teaching and Psychological Adjustment of High-School Students at the Onset of the COVID-19 Pandemic in Croatia. *Frontiers in Psychology*, 12. 2021. https://doi.org/10.3389/fpsyg.2021.647991

Deb, S., et al. *Academic stress, parental pressure, anxiety and mental health among Indian high school students* | QUT ePrints. Qut EPrints. 2021. https://eprints.qut.edu.au/86092/

Johnson, B. Toward a New Classification of Nonexperimental Quantitative Research. *Educational Researcher*, *30*(2), 3–13. 2001. https://doi.org/10.3102/0013189x030002003

Kentucky Counseling Center. Mental Health Effects of Online Learning. 2022. Available: https://kentuckycounselingcenter.com/mental-health-effects-of-online-learning/

MacIntyre, P. D., et al. Language teachers' coping strategies during the Covid-19 conversion to online teaching: Correlations with stress, wellbeing and negative emotions. *System, 94*, 102352. 2020. https://doi.org/10.1016/j.system.2020.102352

Manaf, N. A. The Prevalence and Inter-Relationship of Negative Body Image Perception, Depression and Susceptibility to Eating Disorders among Female Medical Undergraduate Students. *JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH*. Published. 2016. https://doi.org/10.7860/jcdr/2016/16678.7341

Odebode, A. A. Influence of Psychosocial Factors on Job Performance of Female Teachers in Kwara State, Nigeria. *International Journal of Instruction, 11*(3), 233–248. 2018. https://doi.org/10.12973/iji.2018.11317a

Oosthuizen, T. F. The application of a selection of decision-making techniques by employees in a transport work environment in conjunction with their perceived decision-making success and practice. *Journal of Transport and Supply Chain Management*, *8*(1). 2014. https://doi.org/10.4102/jtscm.v8i1.118

Prabhu, S., Cunha, D. Comparison of body image perception and the actual BMI and correlation with self-esteem and mental health: A cross-sectional study among adolescents. *Original Article*. 2019. 10.4103/ijhas.IJHAS_65_16

Rahman, M. H. A., et al. Investigating the mediating role of online learning motivation in the COVID- 19 pandemic situation in Bangladesh. *Journal of Computer Assisted Learning*. Published. 2021.

https://doi.org/10.1111/jcal.12535

Sepehri, S., et al. *The Effects of Noise on Human Cognitive Performance and Thermal Perception under Different Air Temperatures.* PubMed Central (PMC). 2019. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7183564/

Statistics Solutions. Pearson's Correlation Coefficient. 2021. Available: www.statisticssolutions.com/free-resources/directory-of-statistical-analyses/pearsons- correlation-coefficient/

Stein, C. H., et al. The United States Economic Crisis: Young Adults' Reports of Economic Pressures, Financial and Religious Coping and Psychological Well-Being. *Journal of Family and Economic Issues*, *34*(2), 200–210. 2012. https://doi.org/10.1007/s10834-012-9328-x

Tipon, F. K., et al. The Self-Efficacy and Its Relationship to the Academic Motivation of the Senior High School Students from Public Schools Amidst the New Normal Education in the Philippines. Figshare. 2021. Available: https://figshare.com/articles/journal_contribution/The_Self-Efficacy_and_Its_Relationship_on_the_Academic_Motivation_of_the_Senior_High_School_Students_from_Public_Schools_Amidst_the_New_Normal_Education_in_the_Philippines/14813397/2

Toquero, C. M. D., & Talidong, K. J. B. Socio-educational implications of technology use during COVID -19: A case study in General Santos City, Philippines. *Human Behavior and Emerging Technologies, 3*(1), 194−198, 2020. https://doi.org/10.1002/hbe2.214

Yang, C., et al. 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. 2021. https://doi.org/10.1371/journal.pone.0246676

Yavari, F., & Tajik, E. 2021. *Association of stress, anxiety and depression with the body mass index and the body image perception among medical students.* Peertechz. 2021. https://www.peertechzpublications.com/articles/ANPC-7-154.php

Biography

Kaneesha Ysabel B. Rosales is a Grade 12 student at Mapua University. She is taking up Science, Technology, Engineering, and Mathematics strand.

Marc Andrei B. Besana is a Grade 12 student at Mapua University. He is taking up Science, Technology, Engineering, and Mathematics strand.

Derek Patrick M. Santos is a Grade 12 student at Mapua University. He is taking up Science, Technology, Engineering, and Mathematics strand.

Almarose C Villapando is a graduate of Master Science in Industrial Engineering at De La Salle University, Taft Avenue, Manila, Philippines. She has also earned a Master of Engineering Management, and Bachelor of Science in Industrial Engineering at Mapua University, Intramuros, Manila, Philippines. Her specializations are Methods Engineering and Work Measurement, Quality Management Systems, Human Resources Engineering, Organizational Development, Production Operations Management, Service Quality, and Value Analysis (VA).