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Research Article

Stressors, Stress, And Its Coping Mechanism During Covid-19 Pandemic of The Senior High School Students.

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ABSTRACT

This study determines the relationship between the stress level and coping mechanisms of Senior High School students during the COVID-19 pandemic with gender as an intervening variable. This study aims to find the difference in the coping mechanisms during the COVID-19 pandemic among senior high school students in terms of gender. The researchers wish to use the results as an added guide to improve the students' coping mechanisms by gender-customized sessions and activities to identify appropriate coping mechanisms. This is a correlational study using a total sample of one hundred (100) senior high school students determined using quota sampling comprising of (50) males, and (50) females who are in grades 11 and 12, strands: TVL, STEM, ABM, and GAS. Senior high school students' coping mechanism during the Covid-19 pandemic, with a total of 100 respondents (response rate 100%), has no significant correlation in terms of gender and coping ($n=100$, $p>0.05$), but it has a significant correlation in terms of strand and stress ($p=0.024$, $p>0.05$), and strand and challenge ($p=0.008$, $p>0.05$). Gender does not affect coping mechanism, but the strand affects the coping mechanism and stress levels of a senior high school student.

Key words: coping mechanisms, Senior High School students, gender, stress levels, age, strand, grade level, socioeconomic status, COVID-19

Introduction

The COVID-19 pandemic has had a profound impact on individuals worldwide, resulting in significant disruptions to their lives (UNICEF, 2020). Following the recognition of the threat posed by COVID-19 to human health and well-being, the World Health Organization officially designated it as a global pandemic in March 2020 (World Health Organization, 2020). The confirmation of this event elicited heightened levels of tension and anxiety among individuals globally (Obinguar, et. al., 2023), stemming from concerns about potential viral infection and, in more severe cases, mortality. Educational institutions worldwide experienced delays in their operations as a result of the susceptibility of educational environments to the COVID-19 pandemic. According to the UNESCO report released on October 06, 2021, a total of 58,758,603 learners have been affected across 14 nations, representing approximately 3.4% of the overall enrolled student population across all levels of education. In the Philippines, there is a total of 28,451,212 learners who have been affected by the situation. Among these learners, 14,164,753 are female, while 14,286,459 are male. According to the Department of Health (DOH, 2021) online tracker report, the province of Cebu, located in the Philippines, has recorded a total of 80,285 COVID-19 instances as of October 6, 2021. Among these cases, there are currently 1,480 active cases. This situation has had a significant impact on the field of education. Consequently, the nation opted to implement online learning and modules as a pedagogical platform.

Existing research undertaken in nations affected by COVID-19 provides empirical support for the hypothesis that the global pandemic and the subsequent implementation of lockdown measures have exerted a significant influence on both mental and physical well-being (Mazza M., 2021). According to Angsoyiri (2021), the Covid-19 pandemic has had a significant impact on all facets of society, particularly within the academic sphere. As a result, educational institutions have been compelled to transition from traditional face-to-face instructional methods to more adaptable and flexible modes of learning. As a result, all students are compelled to embrace the novel educational platforms of online virtual classes and modules, a transition that many students find arduous to navigate. Baloran (2020) asserts that the onset of the COVID-19 epidemic has resulted in a

discernible influence on the psychological and emotional well-being of students. The closure necessitated a shift from traditional face-to-face classrooms to online learning modalities, prompting administrators to adopt flexible approaches. Consequently, learners were encouraged to enroll in these alternative modalities. The implementation of flexible learning has resulted in disputes arising in the day-to-day lives of students. The transition from traditional face-to-face instruction to flexible learning modes presents a significant burden on administrators, teachers, parents, and students on a regular basis (Bangayan et al., 2021). Despite the presence of unique challenges faced by individuals, each person possesses distinct coping skills to effectively navigate the difficulties encountered throughout the COVID-19 epidemic. According to Thai et al. (2021), coping techniques are of considerable importance as they can have an impact on individuals' mental health outcomes, which may be either positive or bad.

The implementation of online-blended learning by the Department of Education (2020) in response to the COVID-19 pandemic has had a notable influence on students' academic achievements. The educational approach has transitioned from traditional face-to-face interactive classrooms to computer-based interactive online-blended learning (Canque et. al., 2022), thereby impacting the students' adaptive strategies. Every student experience a sense of doubt when attempting to complete an activity or engage with the materials provided by their instructors. The researchers were motivated to investigate the coping techniques employed by male and female senior high school pupils in response to this particular situation.

Senior high school students encounter several problems that have the potential to induce stress, emotional distress, and evoke intense feelings (Canque, et.al, 2021). When individuals encounter stress-inducing factors, sometimes referred to as "stressors," their bodies respond to these challenges or demands by experiencing a physiological and psychological state known as stress (Medline Plus, 2021). The typical responses to a stressful occurrence can manifest as either physical or emotional in nature. These may encompass fluctuations in mood, alterations in appetite and interests, sleep disturbances, various bodily discomforts, and heightened engagement in addictive behaviors such as gambling, nicotine usage, alcohol use, and other substance abuse.

According to a report from SunStar (2017), a tragic incident occurred at a private school in Cebu, wherein a Grade 12 girl, aged 17, took her own life by leaping from the seventh story of the school building. The victim previously acknowledged that she had experienced abuse perpetrated by her parents. The prevalence of student suicides in the Philippines has become increasingly concerning amidst the current academic landscape, characterized by the adoption of online or modular platforms for instructional delivery. According to Calleja (2020), a 19-year-old high school student residing in Albay, Philippines, tragically took his own life due to emotional strain. The kid's family had expressed concerns about their inability to provide him with electronic devices, such as tablets or smartphones, necessary for his online educational requirements. A recent incident of suicide involving a 16-year-old Grade 11 student in the municipality of Tupi, South Cotabato, has been attributed to purported academic pressure and challenges associated with the completion of school modules (The Filipino Times, 2020). The student communicated to his mother that he was encountering challenges in comprehending the educational resources and expressed a desire to relinquish those items to his teacher.

Based on the aforementioned observations, the researchers aim to assess the stress levels of senior high school students and examine the variations in coping mechanisms between male and female students. Additionally, the study seeks to explore the potential associations between stress levels, coping mechanisms, age, socio-economic status, grade level (11th and 12th), and academic strand (STEM, ABM, GAS, and TVL) during the COVID-19 pandemic. The ultimate objective is to develop gender-specific sessions and activities that can effectively identify suitable coping strategies.

Method and Materials

This study utilizes a quantitative approach applying a correlational research method. This research design intends to identify the way senior high school students cope with stress during COVID-19 pandemic to investigate better coping mechanisms, to distinguish the relationship between gender, learning management system and coping mechanisms of senior high school students, and to figure out ways to improve students' coping mechanisms

In this study, the researchers want to determine the better coping mechanisms between males and females, grades 11 and 12, and in strands: STEM, ABM, GAS, and TVL senior high school students and to describe how these variables correlate with each other. This approach surveys individuals and applied statistical techniques to recognize overall patterns in the relations of processes. Moreover, The study is conducted at a DepEd-managed urban Secondary Public School located in Cebu City (Capital), Cebu, Philippines. It is one of the popular Public Schools located in F. Llamas St. Tisa, Cebu City listed under Education in Cebu City. This school comprises of junior (day and night) high school, and senior high school only. This public institution offers TVL, STEM, ABM, and GAS. The selection of this particular location for data collection was based on the high enrollment of students in the senior high school department. This enabled the researchers to gather information pertaining to the coping strategies employed by senior high school students during the transition from E-learning/online classes to the New Hybrid Learning/Face-to-face format necessitated by the COVID-19 pandemic.

Furthermore, the respondents of this study are determined using quota sampling of selecting 100 senior high school students comprising of (50) males, and (50) females who are in grades 11 and 12, strands: TVL, STEM,

ABM, and GAS. According to Nikolopoulou (2022), quota sampling is a non-probability method that relies on the selection of predetermined number or proportion units, either Proportional Quota Sampling or Non-proportional Quota Sampling. The study utilizes proportional quota sampling type in which the males and females match the proportions in the population.

The following criteria are used in the selection of the senior high school students comprising of males and females who are in grades 11 and 12, strands: TVL, STEM, ABM, and GAS, and at least 18 years of age and above: 1) they are currently enrolled at target school, 2) they are physically and mentally well, 3) they are willing to be part of the study. The students are contacted either face to face or online and requested them to sign the informed consent before they are given the questionnaires to be answered.

The study uses four research instruments. The first instrument is Sociodemographic Profile Questionnaire, which solicits the students' gender (male and female), age, socioeconomic status (poor, low, lower-middle, middle, upper-middle, upper, and rich class), grade level (grade 11 and 12) and strand (TVL, STEM, ABM and GAS). According to Reiss et al., (2019) the impact of a stressful life situation on mental health problems in children and adolescents depended on the SES (Socioeconomic Status), children from families with low SES are at higher risk of suffering from different stressful life situations. Furthermore, a stressful life situation is associated with mental health problems in children and adolescents. For this reason, it is important to focus not only on the indicators of SES, but also on the broader current life situation with various burdens of stress in analyses on the mental health of children and adolescents. The latest Family Income and Expenditure Survey by the Philippine Statistics Authority (PSA) shows that majority (58.4%) of Filipinos belong to the low-income class, while the middle class comprise around 40% of the population. Only 1.4% fell in the high-income class (Zoleta, 2022). According to the National Economic and Development Authority (NEDA), there are three categories for socioeconomic status such as low, middle and high.

The second instrument is the Challenges of Students During Online Classes Questionnaire by Barrot et.al. (2021). These challenges serve as the stressors of the students about the learning modality implemented during the COVID-19 pandemic. The rating scale section contain 37 items that relate to Self-regulation challenges (SRC, 6 items), Technological literacy and competency challenges (TLCC, 10 items), Student isolation challenges (SIC, 4 items), Technological sufficiency challenges (TSC, 6 items), Technology Competency Challenges (TCC, 3 items), Learning resource challenges (LRC, 4 items), and Learning environment challenges (LEC, 4 items). The Likert scale uses six scores (i.e., 5–to a very great extent, 4–to a great extent, 3–to a moderate extent, 2–to some extent, 1–to a small extent, and 0–not at all/negligible) assigned to each of the 37 items. This is used in a research study titled, *Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines*, by Barrot et. al., (2021). The mean score for each descriptor is interpreted using the following scheme: 4.18 to 5.00 (to a very great extent), 3.34 to 4.17 (to a great extent), 2.51 to 3.33 (to a moderate extent), 1.68 to 2.50 (to some extent), 0.84 to 1.67 (to a small extent), and 0 to 0.83 (not at all/negligible). An equal interval is adopted because it produces more reliable and valid information than other types of scales (Cicchetti et al., 2006). Two experienced educators and researchers review the questionnaire for clarity, accuracy, and content and face validity. The piloting of the instrument revealed that the tool has good internal consistency (Cronbach's $\alpha = 0.96$).

The third instrument is used to measure the level of stress by Cohen (1988) The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. A research study by Thai, T. T., Le, P., Huynh, Q., Pham, P., & Bui, H. (2021) titled *Perceived stress and coping mechanism during the COVID-19 pandemic among public health and preventive medicine students in Vietnam*, used PSS for data gathering. Items are designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives. The scale also includes several direct queries about current levels of experienced stress. The PSS is designed for use in community samples with at least a junior high school education. The items are easy to understand, and the response alternatives are simple to grasp. Moreover, the questions are of a general nature and hence are relatively free of content specific to any subpopulation group.

The questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way. The PSS showed a construct validity being correlated with Stress Measures, Self- Self-reported health and Health Services Measures, Health Behavior Measures, Smoking Status, Help Seeking Behavior. Across all 10 items, 2 additional specific factors represented perceived distress (6 negatively worded items) and perceived coping (4 positively worded items). Internal consistencies of the total scale and its two subscales were adequate ($\alpha > 0.70$).

The fourth instrument is the Brief Cope Inventory Tool by Carver (1997). It is used to evaluate the coping mechanisms used by senior high school students for dealing with the challenges or stressors. The Brief Cope is created as a condensed version of the original 60-item Cope scale (Carver et al., 1989), which is built theoretically from several coping models. The Brief-Cope was first tested on a community sample of 168 people who had been affected by a hurricane (Carver, 1997).

Results and Discussion

This chapter discusses the results of the study in answer to the proposed problems. The discussion is sequenced as to the problems presented.

Table 1. Demographic profile of the senior high school students

Variable	Category	F	%
Gender	Male	50	50.0
	Female	50	50.0
Age	18 years old	84	84.0
	19 years old	8	8.0
	20-above years old	9	8.0
Socio-economic status	Upper middle	3	3.0
	Middle	5	5.0
	Lower middle	14	14.0
	Lower	50	50.0
	poor	58	58.0
Grade level	Grade 11	30	30.0
	Grade 12	70	70.0
Strand	TVL	28	28.0
	ABM	29	29.0
	GAS	23	23.0
	STEM	20	20.0

n = 100

The demographic profile of the students is presented in Table 1. Most of the respondents are 18 years old, which is 86% of the total respondents. The socio-economic respondents are mostly from the poor class (58%) while the least is from the upper-middle class (3%). Mostly, the respondents are from the grade 12 level (70%). There are more respondents from the ABM strand (29%) while STEM strand has the least respondents (20%). These findings support the article which mentioned that respondents who are Grade 12 students are more likely to participate in a research study because they perceive research as an essential component of developing their cognitive abilities to comprehend other concepts, as well as an opportunity to gain experience more and progress academically (Roxas, 2020)

Table 2. Dominant school challenges of the senior high school students during pandemic

hallenges	f	%	mean	SD	Description	Rank
Self-regulation challenges (SRC)	9	9.0	2.63	1.13	Partially challenged	4
Technological Literacy and Competency Challenges (TLCC)	6	6.0	2.28	1.07	Minimally challenged	6
Student Isolation Challenges (SIC)	26	26.0	3.02	1.20	Partially challenged	2
Technological Sufficiency Challenges (TSC)	6	6.0	2.49	1.17	Minimally challenged	5
Learning Resource Challenges (LRC)	16	16.0	2.87	1.20	Partially challenged	3
Learning Environment Challenges (LEC)	37	37.0	3.38	1.28	Fully challenged	1
Total	100	100.0				

Note: 0 to 0.83 (not challenged); 0.84 to 1.67 (a bit challenged); 1.68 to 2.50 (minimally challenged); 2.51 to 3.33 (partially challenged); 3.34 to 4.17 (fully challenged); 4.18 to 5.00 (greatly challenged)

Table 2 presents the frequency distribution of the students among the seven identified stressors. Most senior high school students are challenged with the Learning Environment (37%) and least challenged with Technological Literacy and Competency (6%). The students in the study vary in their challenges or learning stressors during the pandemic.

This means that more students are stressed with the modular instruction or the online learning they are experiencing. They experienced online distractions such as social media during online classes and even distractions at home as a learning environment. They have difficulties in selecting the best time and area for learning at home and they do not have the equipment or materials at home to complete certain requirements for their such as laboratory and physical activities. The students are less stressed or challenged when it comes to technology such as Technological Literacy and Competency Challenges (wm=2.28) and Technological Sufficiency Challenges (wm=2.49). Thus, it can be said that more students did not resist learning technology, nor are they distracted by the complex technology. In other words, they have experienced less difficulty when it comes to technology. They have also realized that technology facilitates their learning. They have a good understanding of directions and expectations during online learning and perceive technology helps in getting help from others during online classes. Efficiency of technology is a challenge to only a few students. Some have experienced insufficient access to and use of technologies during online classes because of their socioeconomic, physical, and psychological conditions. These students do not have Internet access during online classes thus they experienced technical difficulties in completing my assignments. They also experienced difficulties when using longer videos for learning. The results align with the research conducted by Barrot et al. (2021), which revealed that students experience various challenges in their home learning environments. These challenges include online distractions, distractions within the home, difficulties in determining optimal learning times and locations at home, as well as constraints in fulfilling specific requirements. Khan et al. (2019) found a strong correlation between family interactions and the absence of a dedicated study room at home and students' academic performance.

Table 3. The stress level of senior high school student

Level	f	%
Low	4	4.0
Moderate	86	86.0
High	10	10.0
Total	100	100.0

n = 100

The student's level of stress is determined using the Cohen Perceived Stress Scale. Scores range from 0 to 40 and are classified into three levels. As shown in Table 3, the majority of the students (86%) have moderate stress level. Findings imply that most respondents were moderately stressed during the COVID-19 pandemic, compromising 86% of the population. According to the study by Pascoe et al. (2019) students in secondary and tertiary education settings face a wide range of ongoing normative stressors, which are defined as normal day-to-day hassles such as ongoing academic demands. Accordingly, secondary or high school and tertiary students commonly self-report experiencing ongoing stress relating to their education, which we refer to as academic-related stress, such as pressure to achieve high marks and concerns about receiving poor grades. This means that the students are sometimes upset because of something that happened unexpectedly or are unable to control the important things in their lives They sometimes feel nervous and stressed and are not confident about their ability to handle their personal problems. Very few of the students (4%) have a low-stress level. They felt that things were going their way and were able to cope with all the things that they had to do. They have also been able to control irritations in their lives. However, ten percent of the students are highly stressed. They are often angered because of things that happened that are outside of their control and feel difficulties are piling up so high that they cannot overcome the situation. The moderate stress level of most of the students really needs the concern of the teachers, the guidance counselors, and parents. Thus, interventions must be one of the stakeholders' priorities even during the face-to-face modality.

Table 4. Coping mechanisms of senior high school students

Coping Style	Coping Mechanisms	Mean	SD	Description
Problem Focused (m=2.76)	**Active Coping**	**2.85**	0.78	partially coping
	Use of information support	2.59	0.88	partially coping
	Positive reframing	2.77	0.86	partially coping
	Planning	2.82	0.69	partially coping
Emotion focused (m=2.69)	Emotional support	2.60	0.83	partially coping
	Venting	2.57	0.72	partially coping
	Humor	2.57	0.72	partially coping
	Acceptance	**2.94**	0.75	partially coping
	Religion	2.70	0.88	partially coping
	Self-blame	2.78	0.80	partially coping
Avoidant (m=2.19)	**Self-distraction**	**2.80**	0.64	partially coping
	Denial	2.24	0.79	A little bit of coping
	Substance use	1.40	0.73	No coping at all
	Behavioral disengagement	2.32	0.77	A little bit of coping

Note: 1.00 – 1.75 = no coping at all; 1.76 – 2.50 = a little bit of coping; 2.56 – 3.25 = partially coping; 3.26 – 4.00 = fully coping

Table 4 reveals that most senior high school students used Problem Focused coping style (m=2.76) where the majority used Active coping as a coping strategy. There are 14 coping mechanisms identified in the questionnaire and students rated what coping mechanisms they have used or applied in times of stress or when they meet challenges in their studies. Then, the 14 items are grouped into three as problem focused, emotion focused and avoidant.

The study of Wang et al. (2020) finds out that an active coping style may help students mediate the effects of poor sleep quality on learning burnout. In the Emotion Focused coping style (m=2.69), the students mostly use Acceptance as a coping strategy. According to a study conducted by McGill University in 2014, there exists a correlation between an individual's personality and their capacity to readily embrace and adjust to changes. There exists variation in individuals' attitudes towards change, with certain individuals exhibiting more favorable dispositions towards change compared to others. Individuals of this nature exhibit a proclivity for engaging in physical activity, maintaining a constructive mindset towards change, demonstrating a willingness to undertake risks, and displaying adaptability in their actions.

In the Avoidant coping style(m=2.19), the majority use Self-distraction. The use of smartphones is a form of self-distraction. It is evident in the study of Huang and Fang Su (2018) that young people today use their smartphones for prolonged periods of time. In their study, 42% of participants spend more than 1 hour on Instagram alone every day. It can be implied in a previous study saying that senior high school students use their smartphones to distract themselves from problems and stress. Excessive smartphone use is associated with medical problems such as sleep problems, reduced physical fitness, unhealthy eating habits, pain, and migraines (Wacks and Weinstein, 2021).

Table 5. Correlation between students' demographic profile and challenges, stress, and dominant coping strategy

Pair of variables	r/x^2	p-value	decision	Interpretation
Age and challenge	0.010	0.921	Fail to reject Ho	Not Significant
Gender and challenge	0.088	0.384	Fail to reject Ho	Not Significant
Grade and challenge	-0.121	0.230	Fail to reject Ho	Not Significant
Strand and challenge	**0.263***	0.008	Reject Ho	Significant
Socioeconomic status and challenge	0.066	0.514	Fail to reject Ho	Not Significant
Age and stress	-0.067	0.509	Fail to reject Ho	Not Significant
Gender and stress	0.108	0.284	Fail to reject Ho	Not Significant
Grade and stress	-0.064	0.527	Fail to reject Ho	Not Significant
Strand and stress	**0.225***	0.024	Reject Ho	Significant
Socioeconomic status and stress	0.047	0.642	Fail to reject Ho	Not Significant
Age and coping	-0.081	0.423	Fail to reject Ho	Not Significant
Gender and coping	-0.053	0.600	Fail to reject Ho	Not Significant
Grade and coping	0.144	0.156	Fail to reject Ho	Not Significant
Strand and coping	0.078	0.441	Fail to reject Ho	Not Significant
Socioeconomic status and coping	0.074	0.464	Fail to reject Ho	Not Significant
	Note: *significant at <.05			

Table 5 presents the correlation of the variables. The data reveals that only strand and challenge (n= 100, $p<0.05$) and strand and stress (n= 100, $p<0.05$) are able to correlate, meaning, that different strands vary in their challenges and level of stress.

When considering the various strands and associated obstacles, it is seen that students enrolled in the STEM strand often encounter difficulties related to their learning environment. Conversely, students in the TVL strand tend to face challenges primarily centered around their technological competencies. The senior high school students enrolled in the General Academic Strand (GAS) and Technical-Vocational Livelihood (TVL) Strand have the most elevated levels of stress as compared to other strands. The present findings pertain to a scholarly investigation conducted at a prominent secondary educational institution in the Philippines, whereby Generalized Anxiety Scale (GAS) emerged as the highest-ranking measure for assessing elevated stress levels resulting from tardiness in classroom attendance (Desamparado et al., 2022). There is no observed correlation between the remaining demographic profile of the students and their experiences of obstacles, stress levels, or coping techniques. This finding suggests that individuals belonging to various demographic groups, including both younger and older students, regardless of their gender, educational level (grade 11 or grade 12), and socioeconomic background (low- or high-income), may encounter similar difficulties, experience similar levels of stress, and employ similar strategies to manage these obstacles.

The results of the current study are in opposition to the results reported by Chen et al. (2018), who found that stress levels rise with age and are more prominent in older females in comparison to males. There is evidence suggesting a correlation between elevated cortisol levels in older individuals and increased psychosocial stress, impaired cognitive performance, and the deterioration of memory-related brain areas, notably the hippocampus. A significant discrepancy exists between older and younger persons regarding their utilization of problem-focused coping techniques, as older adults demonstrate a diminished propensity to employ these

coping mechanisms. Furthermore, it has been observed that individuals in older age groups generally exhibit reduced levels of positive affect in comparison to their younger counterparts.

Conclusion

The stress levels of students are greatly influenced by the academic discipline in which they are enrolled, particularly with regards to the learning environment they encounter. It is noteworthy that the personal traits of individuals do not exert any influence on the stressors they encounter, the level of stress they experience, or the coping strategies they utilize. Individuals commonly choose acceptance as their major coping method, wherein they actively participate in various activities aimed at mitigating the impact of stresses. Hence, the findings of the study imply that an individual's capacity to manage stress is dependent on their beliefs or attitudes. Based on the targeted age demographic, it is apparent that these adolescent participants demonstrate a heightened propensity to recognize and address sources of stress, actively pursuing methods or engaging in behaviors aimed at reducing their adverse effects.

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