

Perceived stress, identified stress factors, and coping mechanisms of students of Nazarene educational institutions during remote learning

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Abstract

A descriptive study conducted among grades 4-12 students of three Nazarene educational institutions in the Philippines determined their level of perceived stress, level of identified stress, and coping mechanisms during the school year 2020-2021. The study also determined the significant differences in the level of perceived stress, level of identified stress, and benefits of the coping mechanisms of students when grouped according to gender and educational level using the t-test for independent sample means and One-Way Analysis of Variance, respectively. A sample of 68 students, selected through the stratified random sampling technique, completed the three survey instruments that measured these levels of remote learning stress. Students of these Nazarene educational institutions experienced remote learning as moderately stressful. The stress was perceived and experienced by female students more than male students and by older students more than younger ones. The identified stressors were all considered by students as moderately stressful as well. These identified stressors were significantly less experienced by younger students than by older students. As the experience of remote learning was moderately stressful for students, the coping mechanisms were also viewed as moderately beneficial. This study provides a fresher perspective on both the perception and experience of students during remote learning for school practitioners and educational leaders to examine and review curriculum and pedagogy that address Filipino students' responses to the stresses of the new mode of learning.

Keywords: perceived stress, identified stress, coping mechanisms, remote learning, stressors

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1. Introduction

When grade school and high school students began their remote learning in 2020, the Philippine education system faced the logistical challenge of providing them with digital and printed learning materials while learning online at home. This posed overwhelming stress among roughly 28 million Filipino students (Santos, 2020). While online learning has become one of the major learning delivery modalities and flexible learning options implemented by the Department of Education and the Commission on Higher Education (Hernando-Malipot, 2021), this mode of learning has brought significant mental stress to Filipino students and their parents (Crisostomo, 2020). It has also caused overwhelming stress among college students (Rotas & Cahapay, 2021). While Filipino students were observed to have become more prepared to demonstrate proper computer and internet skills a few months after the pandemic that ushered the shift to remote learning (UPLB study, 2021), they are not ready for learner control. Thus, remote learning stress continues to significantly influence students' academic performance (Cahapay & Rotas, 2022).

While the Philippines was establishing empirical and analytical evidence on the impact of remote learning, the Philippine Psychiatric Association had already seen signs of mental stress among Filipino students and their parents (Crisostomo, 2020). On the other hand, students in the United States have been dealing with increased separation anxiety and depression based on hospital admissions and mental health emergencies (Cooney, 2022). A study that included 75,000 high school students in 86 US schools between Fall 2018 through Fall 2020 showed that students, especially females and students of color, continue to experience high levels of stress and pressure (*Kids*, 2021) and students' engagement with learning, which is always a challenge, is especially low [during the pandemic]. In another study of 10,000 students in twelve US high schools in the fall of 2020 (Mason, 2021), a high percentage of students reported exhaustion, headaches, insomnia, or other stress-related ailments; almost half of the students reported that their stress levels have increased since the pandemic, and less than half of the students reported that they never had a teacher or school staff ask how they were doing. Compared with 2019, a CDC study (in McClallen, 2022) found that the proportion of mental health-related emergency department visits in 2022 increased by about 31% among US students 12-17 years old.

On the other hand, high school and college students in Saudi Arabia showed a predominantly moderate to high-stress level (AlAteeq et al., 2020) during remote learning. While stress has been identified as a factor that impacts remote learning, studies have explored how Filipino students coped with remote learning during the pandemic. Despite the stress that posed the greatest impact and barrier on the quality of their learning experience and mental health (Kho et al., 2021; Moneva et al., 2020; Barrrot et al., 2021; Baticulon et al., 2020; Baquiran & Plata, 2022; Bautista & Manuel, 2020; Edera et al., 2021; Simbulan, 2020; Rotas & Cahapay, 2020), students have employed several coping mechanisms to succeed during remote learning (Rotas & Cahapay, 2021; Olila, 2021; Macalisang & Calo, 2021; Barañao et al., 2022; Del Castillo et al., 2020; Bawinga et al., 2020). All over the world, the stress and anxiety levels experienced by students during remote learning were considered high (Michałowska et al., 2022; Rogowska et al., 2020) and, in some areas, considered severe (Mohammadzadeh et al., 2020).

Uncovering the stress levels and coping mechanisms of students at the elementary and high school levels through the results of this study can potentially guide educators and administrative leaders into developing a more responsive curricular focus as the nation moves toward both the norms of the pandemic and the new norms of the future. With the insights gained from this study, educators and administrative leaders can also be guided into accommodating the needs of students to cope with school-related stress. Identifying the sources of school-related stress can provide authentic insights that are essential and crucial in revamping pedagogical

practices and in embracing the exercise and attitude of empathy inside the classroom. Identifying the positive coping mechanisms of students can offer a compelling perspective for establishing specific interventions and enhancing support for students' mental wellness.

1.1 Purpose of the Study

This study determined the perceived stress, the identified stress factors, and the coping mechanisms among elementary and high school students of three Nazarene educational institutions in the Philippines during the school year 2021-2022. It specifically determined the level of stress as perceived by students. It also determined the level of identified stress factors classified as academic, psychosocial, and health stressors. The study also determined the positive coping mechanisms students employed during remote learning. The significant differences in the perceived stress identified stress and positive coping mechanisms when students were grouped as to gender and educational levels were also determined.

1.2 Framework of the Study

The conduct of this study hinged on the framework of the Cognitive Load Theory (in Sweller & Kalyuga, 2011), which advances the theory of "new tasks, new stress levels" (Jarrett, 2020) and thus provides a useful understanding of the impact of remote learning on students' mental functions. Aside from identifying the levels of stress that students perceived and identified, this study also determined the level of coping mechanisms that these students employed during their learning remotely. The level of perceived stress, level of identified stress factors, and level of positive coping mechanisms were the variables measured through three research instruments. Gender and educational levels were the bases for grouping and categorizing the respondents.

2. Methodology

The respondents were selected through stratified random sampling of students from three Nazarene educational institutions. A total of 68 respondents were chosen from Central Philippine Nazarene College (20 students), Nazarene Academy, Inc. (32 students), and Nazarene Christian Learning Center (16 students). In terms of gender, the respondents were grouped as male (26 students) and female (42 students). In terms of educational level, the respondents were grouped into Grades 4-6 (32 students), Grades 7-10 (19 students), and Grades 11-12 (17 students) groups. After permission was secured from the academic heads of these three Nazarene educational institutions, the research informed consent form was distributed and later collected from the student respondents.

The respondents completed three survey instruments. The first survey instrument, the "Perceived Stress Scale", was adapted from the study by Cohen et al. (1983). It measured the degree of nonspecific, perceived stress by students and categorized their responses as "low-stress level", "moderate stress level", and "high-stress level". The second survey instrument, "Stress Factors During Remote Learning", was developed by the researchers and consisted of 21 Likert scale items that identified seven academically related stressors, seven psychosocially-related stressors, and seven health-related stressors. This instrument underwent face-and content-validation and achieved a Cronbach alpha of 0.8896 for reliability (Wessa, 2021) with no item rejection. This instrument categorized the student responses as "low stressor", "moderate stressor", and "high stressor". The third instrument, "Coping Mechanisms of Students During Remote Learning", was also developed by the researchers and consisted of 12 Likert scale items that identified the level of benefits of 12 positive coping mechanisms. This instrument also underwent face-and content-validation and achieved a Cronbach alpha of 0.8606 for reliability (Wessa, 2021) with no item rejection. This instrument categorized the student responses as "barely beneficial", "moderately beneficial", and "highly beneficial". These research instruments were completed through Google Forms and student responses were automatically collected through a spreadsheet for data analysis.

Data collected from this study were treated statistically using the mean and the standard deviation as descriptive statistical tools while the t-test for Independent Sample Means and the One-Way Analysis of Variance,

with its Tukey HSD for post hoc analysis, were employed as inferential statistical tools. Inferential statistical analyses were done at the 0.05 alpha level of significance.

3. Results and Discussion

This study aimed to determine the levels of perceived stress, identified stress, and positive coping mechanisms of Grades 4 through 12 students of three Nazarene educational institutions in the Philippines. In terms of both the level of perceived stress and the level of identified stress, students as a whole group, and when grouped as to gender and educational levels, considered remote learning as moderately stressful. Table 1 shows these data.

Table 1

Levels of perceived stress, identified stress factors, and coping mechanisms of students during remote learning

Groups	N	Perceived Stress	Identified Stress	Coping Mechanisms
Whole Group	68	2.02 Moderate stress level	1.67 Moderate-stress level	2.48 Moderately beneficial
Male	26	1.83 Moderate-stress level	1.62 Moderate-stress level	2.56 Moderately beneficial
Female	42	2.14 Moderate-stress level	1.70 Moderate-stress level	2.43 Moderately beneficial
Grades 4-6	32	1.87 Moderate-stress level	1.38 Moderate-stress level	1.57 Moderately beneficial
Grades 7-10	19	2.06 Moderate-stress level	1.61 Moderate-stress level	2.73 Highly beneficial
Grades 11-12	17	2.25 Moderate-stress level	2.28 Moderate-stress level	2.56 Moderately beneficial

As a whole group, students identified the three groups of specific stressors, i.e., academically-related, psychosocially-related, and health-related, as moderate-level stressors as well. Table 2 shows these data.

Table 2

Levels of stressors identified as academically-related, psychosocially-related, and health-related stressors

Groups	N	Academically-related	Psychosocially-related	Health-related
Whole Group	68	1.51 Moderate-stress level	1.70 Moderate-stress level	1.70 Moderate-stress level
Male	26	1.53 Moderate-stress level	1.73 Moderate-stress level	1.65 Moderate-stress level
Female	42	1.50 Moderate-stress level	1.68 Moderate-stress level	1.86 Moderate-stress level
Grades 4-6	32	1.12 Low-stress level	1.51 Moderate-stress level	1.57 Moderate-stress level
Grades 7-10	19	1.46 Moderate-stress level	1.61 Moderate-stress level	1.76 Moderate-stress level
Grades 11-12	17	2.31 Moderate-stress level	2.17 Moderate-stress level	2.20 Moderate-stress level

The Grades 4-6 students, though, considered the academically-related stressors as low-level stressors. Based on the results of this study, younger students experienced less stress in terms of the academically-related stressors identified, presumably, because of their less academic load and assignments compared to students in the higher levels. In terms of the benefits of the positive coping mechanisms exercised by students during remote learning, students as a whole group considered these mechanisms as moderately beneficial, although students in the Grades 7-10 group considered these mechanisms as highly beneficial. Table 1 shows these data.

This study also determined the significant difference in the levels of perceived stress, identified stress, and positive coping mechanisms of students when grouped as to gender and educational levels. The t-test for Independent Sample Means showed that female students (N= 42; Mean= 2.14) considered remote learning as significantly more stressful ($p= 0.019$) than male students (N= 26; Mean=1.83). Table 3 shows these results.

Other studies also revealed that female students were more likely than male students to experience higher stress in both high school classrooms (Khanekeshi & Basavara, 2012; Allgood-Merten et al., 1990; Takakura & Sakihara, 2000; Sulaiman et al., 2009; Hosseini & Khazali, 2013) and college settings (Gefen & Fish, 2012; Day & Livingstone, 2003; Graves et al., 2021; Gao et al., 2020; Calvarese, 2015). Clinical evidence indicated that females' greater vulnerability to stress is due to biological and etiological factors (McLean & Anderson, 2009), much more if stress is perceived than identified (*2010 Stress*, n. d.)

In terms of the levels of identified stress factors, there was also no significant difference ($p= 0.728$) observed between male (N= 26; Mean= 1.62) and female (N= 42; Mean= 1.70) students, and both groups considered

remote learning as moderately stressful. Table 3 shows these results.

Table 3

t-test for the levels of perceived stress, identified stress, and benefits of positive coping mechanisms

Comparison	N	Mean	Standard Deviation	t	p
Levels of perceived stress - Male	26	1.83	0.15	2.699	0.019*
Female	42	2.14	0.24		
Levels of identified stress – Male	26	1.62	0.64	0.348	0.728
Female	42	1.70	0.72		
Levels of benefits of coping – Male	26	2.56	0.81	-0.553	0.582
Female	42	2.43	0.97		

*Significant at 0.05 alpha

In terms of the level of positive coping mechanisms, there was no significant difference ($p= 0.582$) observed between male ($N= 26$; Mean= 2.56) and female ($N= 42$; Mean= 2.43) students, and both groups considered the positive coping mechanisms as moderately beneficial. Table 3 shows these results. In terms of the level of remote learning stress as perceived by students in three educational levels, i.e, Grades 4-6 group, Grades 7-10 group, and Grades 11-12 group, there existed a significant difference ($p= 0.024$) in the level of perceived stress among these student groups. Table 4 shows these results.

Table 4

ANOVA for the levels of perceived stress, identified stress, and benefits of positive coping mechanisms

Comparison	N	Mean	Standard Deviation	F	p
Levels of perceived stress - Grades 4-6	32	1.87	0.47	3.969	0.024*
Grades 7-10	19	2.06	0.44		
Grades 11-12	17	2.25	0.45		
Levels of identified stress –Grades 4-6	32	1.38	0.73	8.012	0.000**
Grades 7-10	19	1.61	0.66		
Grades 11-12	17	2.28	0.87		
Levels of benefits of coping –Grades 4-6	32	1.57	1.043	1.390	0.254
Grades 7-10	19	2.73	0.819		
Grades 11-12	17	2.56	0.858		

*Significant at 0.05 alpha. **Significant at 0.01 alpha.

Although the post hoc analysis showed that there was no significant difference ($p= 0.370$) in the level of perceived stress between the Grades 4-6 group ($N= 32$; Mean= 1.87) and the Grades 7-10 group ($N= 19$; Mean= 2.06), and there was also no significant difference ($p= 0.376$) in the level of perceived stress between the Grades 7-10 group ($N= 19$; Mean= 2.06) and the Grades 11-12 group ($N= 17$; Mean= 2.25), a significant difference ($p= 0.024$) was observed between the Grades 4-6 group ($N= 32$; Mean= 1.87) and the Grades 11-12 group ($N= 17$; Mean= 2.25). Table 5 shows these results. Similarly, there existed a significant difference ($p= 0.000$) in the level of remote learning stress as identified by students in the three educational levels. Table 4 shows these results.

While the post hoc analysis showed no significant difference ($p= 0.598$) in the identified stress between the Grades 4-6 Group ($N= 32$, Mean= 1.38) and the Grades 7-10 group ($N= 19$; Mean= 1.61), it showed a significant difference ($p= 0.001$) between the Grades 4-6 group ($N= 32$, Mean= 1.38) and the Grades 11-12 group ($N= 17$; Mean= 2.28). It further showed a significant difference ($p= 0.014$) between the Grades 7-10 group ($N= 19$; Mean= 1.61) and the Grades 11-12 group ($N= 17$; Mean= 2.28).

It was evident that older students became more stressed as they identified the stresses associated with remote learning. These results proved that younger students perceived remote learning as less stressful than older students. These results showed the contrary for studies conducted with medical students (Al-Dubai et al., 2013) and graduate students (Myers et al., 2012), which proved that older students reported less perceived stress than younger students, possibly because of developmental alternative coping strategies (Folkman et al., 1987). The lower stress experienced by these Grades 4-6 students could presumably be due to their perception of schooling as more playful and relaxing.

There was no observed significant difference ($p= 0.254$) in the level of positive coping mechanisms among students at different educational levels, although the Grades 7-10 group ($N= 19$; Mean= 2.73) considered these coping mechanisms as highly beneficial. Both the Grades 4-6 group ($N= 32$; Mean= 1.57) and the Grades 11-12 group ($N= 17$; Mean= 2.56) considered these coping mechanisms as moderately beneficial. Tables 1 and 4 show these results.

Students from some parts of the Philippines (Rotas & Cahapay, 2021; Barrot et al., 2021; Bibon & Barcenas, 2021; Francisco, 2021) and other parts of the world (Nyatsanza & Mtezo, 2013; Kwaah & Essilife, 2017; Nagle & Sharma, 2018; Zaeske et al., 2022) have shown a similar pattern of benefit for utilizing personal, positive coping mechanisms.

4. Conclusion and Recommendations

Elementary and high school students of the Nazarene educational institutions considered their remote learning experience moderately stressful. However, both perceived and identified remote learning stresses were experienced by female students more significantly than male students. The same perceived and identified remote learning stresses were also experienced by older students more significantly than younger students. While the perceived and identified stresses of remote learning were considered moderately stressful, these students considered the positive coping mechanisms as moderately beneficial.

Insights into the results of this study provide educational leaders and practitioners with a springboard for decision-making in terms of educational practice and pedagogy. It is recommended that educators consider the social-emotional status and the mental health issues that may not be evident among students while meeting them virtually. Although the perception and the identification of remote learning stress proved to be moderate, the prolonged experience of this stress may build up eventually throughout the school year. It is essential for educators to develop check-in activities to address the individual student's personal, emotional, home, and biological concerns before these students face more academic stresses for the day.

It is also recommended that school support groups, such as guidance counselors, clinicians, and psychologists, work with educators in the classroom to provide tangible and functional interventions to address students' specific and individual concerns. It is further recommended that school leaders provide support programs for students, such as virtual clubs, gaming groups, or organizations that shall develop their peer interaction and collaboration so as not to cramp their social opportunities. These programs and interventions can operationally hinge on the positive coping mechanisms that students identified and classified as moderately beneficial to develop, strengthen, and incorporate these coping mechanisms into the students' daily school routines.

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