

<https://doi.org/10.33472/AFJBS.6.9.2024.165-174>

African Journal of Biological Sciences

Journal homepage: <http://www.afjbs.com>

Research Paper

Open Access

## HPA Axis Dysregulation and Mental Health Outcomes in Filipino Teachers Residing in Marawi during the COVID-19 Pandemic

<sup>1</sup>Gil M. Ebarido, <sup>2</sup>Eva Marie E. Peralta, <sup>3</sup>Gil Norman M. Ebarido, <sup>4</sup>Gil Joey M. Ebarido, <sup>5</sup>Anna Mae M. Ebarido, <sup>6</sup>Gil Vicent M. Ebarido

<sup>1</sup> Associate Professor, CSPEAR, Mindanao State University – Main, Marawi, Philippines – [gil.ebarido@msumain.edu.ph](mailto:gil.ebarido@msumain.edu.ph)

<sup>2</sup> Associate Professor, CSPEAR, Mindanao State University – Main, Marawi, Philippines – [evamarie.peralta@msumain.edu.ph](mailto:evamarie.peralta@msumain.edu.ph)

<sup>3</sup> Assistant Professor, Mindanao State University – Sindangan Extension, Zamboanga Philippines – [ebardo.gm10@s.msumain.edu.ph](mailto:ebardo.gm10@s.msumain.edu.ph)

<sup>4</sup> Faculty, Mindanao State University - Buug Extension, Zamboanga Sibugay, Philippines – [ebardojoey13@gmail.com](mailto:ebardojoey13@gmail.com)

<sup>5</sup> Faculty, Mindanao State University - University Training Center, Marawi, Philippines – [annamae.ebarido@msumain.edu.ph](mailto:annamae.ebarido@msumain.edu.ph)

<sup>6</sup> Faculty, Agusan del Sur State College of Agriculture and Technology, Bunawan, Agusan, Philippines – [ebardovincen@gmail.com](mailto:ebardovincen@gmail.com)

### Article Info

### Abstract

Article History  
Volume 6, Issue 9, 2024  
Received: 11 Mar 2024  
Accepted: 04 Apr 2024  
doi: 110.33472/AFJBS.6.9.2024.165-174

#### Introduction

A unique condition known as the "new normal" has emerged because of the introduction of the Severe Acute Respiratory Syndrome Coronavirus, or COVID-19. This viral illness was promptly identified as a global public health issue. COVID-19 is a highly contagious virus that spreads quickly and poses serious issues globally. There are still no completely effective vaccinations or treatments available, despite continuous efforts.

#### Purpose

This study investigates the impact of COVID-19 on depression, anxiety, and stress as predictors of psychological health among 97 secondary teachers of MSU-UTC Marawi City, Philippines, who have previously endured siege warfare before the pandemic.

#### Methods

The research utilized standard questionnaires and employed descriptive, correlational, and predictive designs, geared towards expanded information and in-depth understanding of COVID-19's impact on negative emotional and physical health, for early interventions and manifestations.

#### Results

The average results showed extremely low levels of negative emotional health overall, low levels of stress, anxiety, and depression, and low levels of negative psychological health among respondents. Emotional and psychological health issues assessments among teachers show an average of 6.2% experience high to very high degrees of stress, anxiety, sadness, and negative psychological states. On the other hand, the majority indicated extremely low-to-fair degrees (93.8%) for a negative emotional state and 80.4% for a negative psychological state, indicating their resilience during the epidemic. Higher levels of these unpleasant emotions correspond with a higher negative psychological condition, the correlation analysis shows positive linear correlations between depression, anxiety, stress, and negative psychological state.

Determination studies show that anxiety accounts for 17.64%, sorrow for 13.25%, and stress for 22.28% of the negative psychological state, with stress serving as the primary predictor.

#### Conclusion

Most Marawi Filipino teachers perceive very low levels of depression, anxiety, stress, and negative emotional state amidst the COVID-19 pandemic, and many have managed to maintain relatively stable mental health during the pandemic this suggests a certain level of resilience and coping strategies among the respondents.

**Keywords:** Influence of COVID-19, Psychological Health, Filipino teachers, Marawi residence

### Introduction

The emergence of COVID-19, also known as Severe Acute Respiratory Syndrome Coronavirus, has created an

abnormal, yet often referred to as the "new normal," scenario. Originating in Wuhan, China, in December 2019, this viral disease was swiftly recognized as a public health

*Gil M. Ebarido / Afr.J.Bio.Sc. 6(9) (2024) 164-174*

emergency of international concern in January 2020 and later declared a pandemic by the World Health Organization on March 11, 2020. COVID-19 is characterized by its rapid spread and highly infectious nature, posing significant challenges worldwide. Despite ongoing efforts, there are currently no fully effective vaccines or cures available, leaving the global population grappling with its impact.

Amidst the ongoing COVID-19 pandemic, there has been a surge in psychological challenges experienced by people worldwide. Individuals are grappling with fears surrounding contracting the virus, mourning the loss of loved ones, facing economic hardships, and uncertainties about the future (Das et al., 2011). Furthermore, Lesser and Nienhuis (2020), emphasized the World Health Organization's recommendation for social distancing as a crucial measure to curb the rapid spread of the disease and prevent overwhelming healthcare systems globally, ultimately reducing the loss of lives (Singhal, 2020). However, over time, this enforced isolation may lead to significant public health concerns, impacting both mental and psychological well-being.

Certainly, the educational landscape has been significantly impacted by the onset of the COVID-19 pandemic. The swift transition from traditional face-to-face instruction to various forms of remote learning, such as synchronous or asynchronous online formats, as well as modular approaches, has been crucial in ensuring the safety of both students and educators while mitigating the spread of the virus. Nevertheless, there have been inherent challenges associated with these new modalities (Isla, 2020). The absence of physical interaction among peers and instructors during schooling has resulted in notable adverse effects, outweighing the benefits (Northenor, 2020). In response to these challenges, the Department of Education undertook nationwide initiatives, including psychosocial support sessions and related activities, in acknowledgment of the profound impact of the COVID-19 crisis on students' mental well-being (WHO, 2020).

Aligned with this trend, there has been a proliferation of research focusing on education during the COVID-19 pandemic. These studies reveal that students are grappling with heightened levels of stress, anxiety, and depression (Aslan et al., 2020). Additionally, negative emotions such as fear, worry, and boredom have been reported to intensify among students (Aristovnik et al., 2020; Son et al., 2020). It is noted that stress can significantly impact students'

academic performance (Sohail, 2013) and contribute to the development of various mental and psychosomatic symptoms, including dissatisfaction, restlessness, difficulty concentrating, and sleep disturbances (Herbst et al., 2016). Most of the studies primarily focus on students and tend to be descriptive.

While descriptive research offers a rapid method of transforming information into knowledge by detailing phenomena, there is a rational need to expand into broader perspectives and employ more scientific methodologies. The ramifications of the COVID-19 pandemic necessitate a broader scope of research, delving into specificities and employing scientific approaches to uncover multi-variable correlations and predictions, thus enriching knowledge, and understanding. In the context of education, where teaching and learning are intertwined, if the focus has been on studying students as constructs, it becomes imperative to also explore teachers as designers considering the concerns posed by the COVID-19 pandemic. Moreover, examining unique locales affected by siege warfare before the pandemic, such as Marawi City, Philippines, is rare and may represent a groundbreaking endeavor.

Among these considerations, the researcher is greatly motivated to undertake a study on the broader impact of the Covid-19 pandemic, particularly focusing on the negative mental states of depression, anxiety, and stress, as well as psychological health among teachers at Mindanao State University, Marawi City, within the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM). This study aims to provide descriptive insights, analyze the strength and direction of relationships between correlated variables, and ascertain the predictive accuracy of these relationships.

### **COVID- 19 Pandemic**

The coronavirus, originating in Wuhan, China in December 2019, is a highly infectious communicable disease posing a significant threat to public health and safety, as highlighted by the World Health Organization (WHO, 2020; Ma et al., 2020). Designated as a Public Health Emergency of International Concern by WHO within a month of its outbreak, COVID-19, caused by the novel coronavirus SARS-CoV-2, has led to a global pandemic of respiratory illness (Sauer, 2020). The parallels with the 2003 SARS outbreak, underscore the severity of the current Covid-19 pandemic, which profoundly impacts global and mental health (Torales et al., 2020; Xiang et al., 2020). While most infected individuals experience mild to moderate

*Gil M. Ebarido / Afr.J.Bio.Sc. 6(9) (2024) 164-174*

respiratory symptoms, older adults and those with underlying medical conditions are at higher risk of developing severe illness (WHO, 2020).

The COVID-19 pandemic, reaching every continent except Antarctica, has tragically resulted in over a million deaths, highlighting its status as a defining global health crisis (Ma et al., 2020). Beyond its immediate health implications, the pandemic has triggered a socio-economic crisis affecting countries worldwide, as emphasized by the UNDP (2020). Moreover, pandemics pose significant threats not only in terms of pathophysiological mechanisms but also in terms of psychological and behavioral reactions within affected populations. Thus, Covid-19 represents not only a health crisis but also a socio-economic and psychological challenge of unprecedented proportions (Perrin et al., 2009).

#### **Depression, Anxiety, and Stress: Impact of Covid-19**

The COVID-19 pandemic has profound implications for mental health, including depression, anxiety, and stress, which encompass emotional, cognitive, behavioral, social, and psychological well-being (Felman, 2020). Mental health is emotional, psychological, and social well-being, influencing thoughts, feelings, and actions, and aiding in stress management, interpersonal relationships, and decision-making. The Philippines responded to the pandemic with community quarantine measures, leading to increased anxiety and stress among the population (WHO, 2020). This outbreak has global implications for mental health, resulting in a range of issues such as depression, anxiety, insomnia, and anger (Torales et al., 2020). However, these mental health challenges are less visible than the physical symptoms of COVID-19 (Nortajuddin, 2020).

The pandemic presents unprecedented threats to psychological well-being, necessitating tailored interventions for vulnerable groups (Salari et al., 2020). Vulnerable populations are particularly susceptible to emotional distress, fear, and societal behaviors driven by uncertainty (Shigemura et al., 2020). Studies conducted in China highlight gender differences in post-traumatic stress symptoms and the impact of sleep quality on mental health (Liu et al., 2020). Furthermore, research shows elevated levels of stress among healthcare workers treating COVID-19 patients (Srivastav et al., 2020).

Preliminary evidence suggests common psychological reactions to the pandemic, including anxiety, depression, and stress (Rajkumar, 2020). Representative research from

various affected countries, particularly focusing on vulnerable populations, is needed to fully understand the mental health implications of the pandemic (Fadare et al., 2022; Rajkumar, 2020). Additional studies reveal moderate-to-high levels of perceived stress and mental health problems among respondents (Yali et al., 2020).

The DASS-21 questionnaire proves effective in assessing depression, anxiety, and stress levels during the pandemic (Tee et al., 2020), revealing high prevalence rates of these mental health issues among respondents.

#### **Psychological Impact of COVID-19**

The psychological impact of COVID-19 has been commonly referred to as intrusion, hyperarousal, and avoidance measured through the Impact of an Event Scale–Revised (EIS-R), where; Covid-19 was the referred Event. The EIS-R is a self-rated inquiry questionnaire developed and revised by a Professor of Medical Psychology Dr. Daniel S. Weiss (2007) and recently adopted by some authors, like Alharbi et al. (2020); Tee et al. (2020); and Wang et al. (2020) to measure the psychological impact of Covid-19. As of 2020, the reported reliability coefficient (Cronbach alpha) for the entire IES-R is  $\alpha = 0.88$  (Alharbi, et al., 2020).

Tee et al. (2020) using the IES-R scale to measure the psychological impact of the COVID-19 outbreak, reported; that of all 1879 respondents about 68% resulted minimal psychological impact; 15.8% rated mild; and 16.3% a moderate to severe psychological impact. A psychological impact and mental health status survey assessed by the IES-R and the DASS-21, respectively, conducted over 1738 respondents from 190 Chinese cities. It is shown that there was a statistically significant reduction in the result (from 32.98 to 30.76) after 4 weeks.

Nevertheless, the first- and second-survey respondents suggested that scores were not clinically significant. Moderate-to-severe stress, anxiety, and depression were noted in 8.1%; 28.8%, and 16.5% respectively throughout the primary evaluation and there have been no significant longitudinal changes in stress, anxiety, and depression levels. Protective factors enclosed a high level of confidence in doctors' perceived survival probability and low risk of acquiring Covid-19, satisfaction with health information, and personal preventive measures (Wang et al., 2020).

The COVID-19 pandemic has proceeded into preventive measures, the widespread implementation of physical distancing interventions (stay-at-home orders) to decelerate

*Gil M. Ebarido / Afr.J.Bio.Sc. 6(9) (2024) 164-174*

the spread of the virus, among 500 adult samples, over 47% are women with an average age of 40. The study investigates correlations of both stay-at-home and the perceived impact of Covid-19 on daily life to psychological results. Being under a stay-at-home order resulted in higher health anxiety, financial worry, and loneliness. Moreover, the perceived impact of COVID-19 on daily life was positively correlated with health anxiety, monetary problems, and social support, however, resulted negatively in loneliness. The result highlights the importance of social connection to mitigate the negative psychological consequences of the pandemic (Tull et al., 2020).

Align to this, a rapid review of the psychological impact of quarantine was conducted by Brooks et al. (2020) using three electronic databases. 3166 papers were found and 24 were enclosed within the review. The bulk of reviewed studies present negative psychological effects together with post-traumatic stress symptoms, confusion, and anger. Stressors include longer quarantine periods; fears; frustration; boredom; inadequate supplies; inadequate information and monetary loss.

Another study on the psychological impact of the outbreaks on individuals includes an intense and wide range of psychiatric morbidities, a cross-sectional observational study conducted by El-Zoghby et al. (2020). This study assessed the impact of the COVID-19 pandemic on mental health and social support among Egyptian adults throughout the outbreak. The survey was conducted through an online questionnaire conducted from 2 May 2020 to 9 May 2020. The total populations of 510 adult Egyptians were included: about 41.4% suffered severely; 34.1% suffered stress from work; 55.7% financial stress and 62.7% suffered stress from home. About 53.9% of the respondents felt horrified and 52% felt helpless, while 66.3% felt apprehensive, only 24.2% reported increased support from friends, while 40.6% reported increased support from family members. About 46.5% shared their feelings with family members, while 34.5% shared with others, and 64.7% felt that caring for family members, age and rural residency were negative predictors for the impact, whereas female, presence of chronic condition was a positive predictor. This resulted in a high on adult Egyptians and affected social support.

Srivastav et al. (2020) expound on the relevancy of quarantine. Previous studies reported that approximately 35% of individuals experience psychological stress, among them; females have seen greater psychological stress than

males. Another study shows the magnitude of mental health among healthcare workers who are treating Covid-19. It appears that 68.7% of health workers; depression; anxiety; insomnia and distress were reported and rated 50.4%; 44.6%; 34.0%; and 71.5%, respectively. However, long-term physical inactivity may reduce the immune function of the individuals and can influence the normal physiological system of the individual. Meanwhile, the body can be affected by multiple infections, drowsiness, lethargy, obesity, and other psycho problems due to physical inactivity. Therefore, it is important to understand the potential physical inactivity due to quarantine among physiotherapy professionals and students who propagate physical activity, to anticipate that there will be no changes in physical activity and energy expenditure among physiotherapy professionals and students throughout the quarantine period when compared before quarantine period (Qiu et al. 2020; Lai and Wang, 2020; Romeo et al., 2010; Brolinson and Elliott, 2007; Senchina & Kohut, 2007).

Ultimately, the COVID-19 pandemic has proceeded with the widespread implementation of stay-at-home interventions to decelerate virus spread. Among 500 adults, over 47% are women with a mean age of 40. Being under a stay-at-home order resulted in higher health anxiety, financial worry, and loneliness. Moreover, the perceived impact of COVID-19 on daily life was positively correlated with health anxiety, monetary problems, and social support, however resulted negatively in loneliness. The result highlights the importance of social connection to mitigate the negative psychological consequences of the COVID-19 pandemic (Tull et al., 2020).

## **Methodology**

### *Research Design.*

This research employs a descriptive, correlational, and predictive design. Descriptive research, which can be qualitative or quantitative, is utilized to depict the current situation. Specifically, quantitative descriptive research aims to present information without delving into causal relationships. Descriptive statistics are utilized to describe phenomena rather than infer cause and effect. This approach is applicable across various disciplines and provides a swift method to transform data into knowledge. In this study, descriptive analysis focuses on the Independent Variables of depression, anxiety, and stress, as well as the Dependent Variables of physical health. Correlational research design is implemented to investigate the strength, direction, and existence of relationships between Independent and Dependent Variables using

*Gil M. Ebarido / Afr.J.Bio.Sc. 6(9) (2024) 164-174*

correlation coefficient statistics ( $r$ ). Predictive design is employed to ascertain the predictive accuracy of the relationship between Independent and Dependent Variables through determination coefficient statistics ( $r^2$ ). This aspect of the research seeks to determine the extent to which Independent Variables predict outcomes on criterion variables.

#### *Study population.*

The study's population consisted of secondary teachers at the MSU-University Training Center (UTC), Marawi, Philippines who were officially teaching subjects during the academic year 2022. The MSU-UTC utilizes a modular flexible learning approach. A total of 102 teachers, were composed of 81 females and 21 males. The final number of respondents who willingly participated was 97, resulting in a retrieval rate of 95.10%. The researcher employed a complete enumeration sampling technique, facilitated by the university authorities on campus. Unlike random sampling, complete enumeration ensured that all eligible respondents within the campus, utilizing the modular flexible learning approach, had the opportunity to participate in the study. This approach enabled the researcher to gather the maximum feedback regarding the impact of the COVID-19 pandemic.

#### *Research Instruments.*

This research conducted data collection via face-to-face intercept using two (2) standardized self-rated research questionnaires, the DASS-21, and the IES-R. The DASS-21 questionnaire is developed by consultant clinical psychologist Fernando Gomez, a 21-item self-report tool designed to gauge negative emotional states of depression, anxiety, and stress, of reliabilities 0.94, 0.87, and 0.91, respectively (Bieling et al., 1998). The IES-R questionnaire was developed and revised by a Professor of Medical Psychology, a self-rated inquiry questionnaire that determined negative psychological health with a reported reliability coefficient of  $\alpha = 0.88$  (Weiss, 2007; Alharbi et al., 2020).

#### *Data Collection Procedures.*

This section outlines three key stages: preliminary, actual data collection, and post-data management. Driven by accreditation requirements, the study investigates the impact of COVID-19 on elementary and secondary level teachers at Mindanao State University- Marawi, Philippines encompassing both laboratory and external campuses employing modular flexible learning modalities. Before data collection commenced, the researcher submitted a

letter request to the President of the Mindanao State University System (MSUS) through the Vice Chancellor for Academic Affairs (OVCAA), seeking authorization to conduct the study and procure the faculty list, particularly for in-campus MSU-ILS elementary and secondary level teachers, through physical data gathering. Following approval, an Intent Letter was sent to the head/director of MSU-ILS requesting permission to conduct the study, along with the approved OVCAA copy. Subsequently, research assistants were instructed on the immediate distribution and retrieval possible, of the coded Respondents' questionnaires, accompanied by a Respondents' Letter-Request. Upon questionnaire retrieval, respondent answers were tabulated using a quantification of data form in Microsoft Excel, ready for data analysis.

#### *Data Analysis.*

The statistical treatment of the gathered data utilized descriptive, correlation, and predictive for analysis and interpretation. For the descriptive analysis, the respondents were evaluated using frequency, percent, and cumulative percent distributions, as well as grand and component means. In the correlation analysis, the Product-Moment Correlation Coefficient, also known as Pearson  $r$ -test statistics, was employed. Developed by Karl Pearson around 1900, this statistical tool assesses and quantifies the strength of linear relationships between two sets of interval-scaled and/or ratio-scaled variables (Lind, 2000). To ascertain the predictive accuracy of  $r$ , the Coefficient of Determination ( $r^2$ ) was utilized. This measure reinforces and offers a more precise interpretation of the correlation findings (Dunn, 2001). Predictive accuracy is the percent contribution of one variable when correlated to another.

#### **Ethical Consideration**

The following principles were strictly observed during the conduct of the study.

#### *Protection of Human Rights.*

Ethical standards were followed for the protection of the respondents' interests: the ideals of respect for people, charity, and justice. The first principle is that of *respect for persons*. By this concept, the respondents undertake the exercise of autonomy. This applies to respondents' right to decide what activities they take or will not take part in. Participants are made to understand what they are being asked to do in the study which is simply to answer a survey questionnaire on their knowledge, attitude, and practices on antimicrobial stewardship and make a rational decision on the impact of participating in the research on them and

Gil M. Ebarido / Afr.J.Bio.Sc. 6(9) (2024) 164-174

make a choice to participate freely or willingly free of coercion, restriction, or undue influence. As evidence of this willingness, a consent form was used to signify the willingness of the respondents to participate.

The principle of *beneficence* is related to the researcher's duty to maximize the study's benefits and minimize the risks. The principle also requires that the researcher would not cause any harm to the respondents, by not implementing any treatments, procedures, or alternatives. The third principle was *justice* which explained that the respondents should be selected equitably. To do this, criteria for inclusion and exclusion were used when recruiting the participants. Further, the study did not include any vulnerable subjects. Respondents were subjected to the same data collection process, to answer a questionnaire through face-to-face intercept, making the bona fide respondents one of the beneficiaries of this research. The principle of transparency was observed as the researcher intended to provide a copy of the study and its output to the MSUS Marawi campus' Office of the President and Office of the Vice Chancellor for Research and Development. The researcher also hoped to publish and present the study in the international journal publication and international research congress.

## Results and Discussions

Table 1. Depression, Anxiety, and Stress amidst COVID-19 Pandemic

(-) Emotional State		Depression			Anxiety			Stress			Average
Interval	Label	(f)	%	Cum%	(f)	%	Cum%	(f)	%	Cum%	%
≥ 3.22	Very High	1	1.0	1.0	1	1.0	1.0	1	1.0	1.0	
2.41-3.21	High	6	6.2	7.2	5	5.2	6.2	4	4.1	5.1	6.2
1.60-2.40	Fair	6	6.2	92.8	4	4.1	93.8	12	12.4	94.9	93.8
0.79-1.59	Low	27	27.8	86.6	39	40.2	89.7	36	37.1	82.5	
≤ 0.78	Very Low	57	58.8	58.8	48	49.5	49.5	44	45.4	45.4	
<b>Component Mean</b>		0.63 Very Low			0.68 Very Low			0.78 Very Low			
<b>Grand Mean</b>		0.70 Very Low									

N=97

Table 1 above shows the mean analyses which recognized that the respondents perceived a very low overall (-) emotional state as referred from the grand Mn= 0.70 rated very low. This has been justified by specific component's mean analyses: very low depression (Mn=0.63), very low anxiety (Mn=0.68), very low stress (Mn=0.78) levels, and low (-) psychological state (Mn= 1.48) [refer to Table 2]. This is an indication that despite the challenges brought on by the COVID-19 pandemic, the teachers generally felt emotionally stable. It's a positive sign that the pandemic hasn't had a severe impact on Marawi Filipino teacher's emotions and psycho states.

However, when delving deeper by cumulative percent analyses, some variabilities appeared, there are few respondents with high-to-very high degrees of depression 7.2%, anxiety 6.2%, and stress 5.1% - an average of 6.2%; but the remaining large percentage of very low-to-fair degree of depression 92.8%, anxiety 93.8%, and stress 94.9% - an average of 93.8%. In summation, among the respondents; 6.2% showed severe negative emotional health symptom disorders, while 93.8% are still within the safe zone. Although the majority reported low levels of depression, anxiety, and stress, there's still a small percentage who reported high to very high levels of these negative emotions. This indicates that while most teachers are coping well, there are still some who are struggling significantly with their mental health amidst the pandemic.

Table 2. Respondents' Level of Psychological Well-being amidst COVID-19

Negative (-) Psychological Health				
Interval	Magnitude Label	(f)	(%)	Cumulative (%)
≥ 3.22	Very High	0	0.0	0.0
2.41-3.21	High	19	19.6	19.6
1.60-2.40	Fair	29	29.9	80.4
0.79-1.59	Low	29	29.9	50.5
≤ 0.78	Very Low	20	20.6	20.6
<b>Mean</b>			1.48 Low	

N=97

Table 2 above shows the respondents held a low overall negative psychological level (Mn= 1.48) amidst the COVID-19 pandemic. On the other hand, 2-way cumulative analyses exposed 19.6% of high-to-very high negative psychological states; even then, 80.4% of the respondents had very low-to-fair negative psychological levels. Despite the majority holding low negative psychological levels, a notable percentage reported high to very high negative psychological states. This suggests that while many teachers have been able to maintain a positive psychological outlook, there's still a considerable portion who are experiencing significant psychological distress.

For correlation (r), see Table 3, a positive linear relationship exists when depression ( $r = .364^{**}$ ), anxiety ( $r = .420^{**}$ ), stress ( $r = .472^{**}$ ), and overall negative emotional state ( $r = .439^{**}$ ) were associated with a negative psychological state. In simpler terms, when levels of depression, anxiety, and stress go up, so does the likelihood of experiencing negative psychological effects. Confirming depression, anxiety, stress, and overall negative emotional state are significant positive linear predictors of negative psychological health state. This highlights the interconnectedness of emotional or mental and psychological well-being (Pagdato et al., 2021).

Table 3. Correlation Between Independent and Dependent Variables

Dependent Variable Independent Variables	(p)	(-) Psychological Health		
		(r)	(r <sup>2</sup> ) %	Decision
Depression	.000	.364**	13.25	Reject H <sub>0</sub>
Anxiety	.000	.420**	17.64	Reject H <sub>0</sub>
Stress	.000	.472**	22.28	Reject H <sub>0</sub>

N=97; \*\* Correlation is significant at .01; \* Correlation is significant at .05 level (2-tailed)

Furthermore, the coefficient of determination ( $r^2$ ) reveals the extent to which each negative emotional state component: depression levels predicted at 13.25%, anxiety at 17.64%, and stress at 22.28% of the negative psychological health. Interestingly, stress emerges as the strongest predictor, followed by anxiety and then depression. This suggests that while depression and anxiety are significant, stress plays a larger role in influencing psychological health during times of crisis like the COVID-19 pandemic.

### Conclusion

In conclusion, most Marawi Filipino teachers perceive very low levels of depression, anxiety, stress, and negative emotional state amidst the COVID-19 pandemic, and this suggests a certain level of resilience and coping strategies among the respondents. While many Marawi Filipino teachers have managed to maintain relatively stable mental health during the pandemic, there's still a subset who are experiencing significant distress. This underscores the importance of providing targeted support and resources to those who are struggling the most. Additionally, the analysis confirms that depression, anxiety, and stress are significant predictors of negative psychological health, with stress being the highest predictor, followed by anxiety and then depression. This underscores the importance of addressing stressors and implementing stress management techniques in mental health interventions.

### Recommendation

Based on the study result that a few of the respondents demonstrated elevated levels of depression, anxiety, and stress symptoms, alongside a few experiencing compromised psychological health, the researcher suggests the following recommendations:

- MSU administrators should issue directives to the heads of external units to devise coping activity programs, as well as develop and implement support programs and interventions aimed at addressing the detrimental effects of depression, anxiety, and stress, along with negative psychological states among teachers amidst the ongoing Covid-19 pandemic. The aim is to mitigate

these issues in the long term. MSU teachers should be granted sufficient time and resources dedicated to enhancing their emotional and psychological well-being. Additionally, efforts should be made to foster a supportive and resilient environment for Marawi Filipino teachers amid the challenges posed by the COVID-19 pandemic, ensuring they can continue to thrive in their roles as educators. This recommendation is based on the understanding that the overall well-being of teachers directly impacts the academic performance of their students. Furthermore, it is recommended that further research utilizing advanced quantitative and qualitative methodologies be conducted to deepen our understanding of the impact of COVID-19 on emotional and psychological well-being. Such endeavors will enhance the robustness and depth of our comprehension of these phenomena.

### Acknowledgment

The authors express their gratitude to all of the instructors who participated in this study, the dean of CSPEAR, Dr. Adlawan A. Hendely, the principal of MSU UTC, and Dr. Stephen A. Fadare, who acted as our internal peer reviewer. We are grateful to the editor and the peer reviewers who provided anonymous reviews of the work. Praise be to the All-Powerful God, Amen.

### Conflict of interest

No conflict of interest to declare

### References

- Alharbi, H., ALHarthi, S., & Alzahrani, A. (2020). Article: Reliability and Validity of Arabic Translation of the Impact of Event Scale-Revised for COVID-19 Pandemic Medical Science. (pdf). Available from: [https://www.researchgate.net/publication/343722496\\_ARTICLE\\_Reliability\\_and\\_Vadidity\\_of\\_Arabic\\_Translation\\_of\\_the\\_Impact\\_of\\_Event\\_Scale-Revised\\_for\\_COVID-19\\_Pandemic\\_Medical\\_Science](https://www.researchgate.net/publication/343722496_ARTICLE_Reliability_and_Vadidity_of_Arabic_Translation_of_the_Impact_of_Event_Scale-Revised_for_COVID-19_Pandemic_Medical_Science)
- Antony, M., Bieling, P., Cox, B., Enns, M., & Swinson, R. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment*, 10(2), 176–181. <https://doi.org/10.1037/1040-3590.10.2.176>.
- Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020). Impacts of the COVID-19 pandemic on the life of higher education students: A global perspective. *Sustainability*, 12(20), 8438.

Gil M. Ebarido / *Afr.J.Bio.Sc.* 6(9) (2024) 164-174

<https://doi.org/10.3390/su12208438>

- Aslan, I., Ochnik, D., & Çınar, O. (2020). Exploring perceived stress among students in Turkey during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 17(23), 8961. <https://doi.org/10.3390/ijerph17238961>
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122–147.
- Bera, A. N., & Adhikari, S. (2018). A descriptive survey of the mental health status of university-level students. *Paripex-Indian Journal of Research*, 7(7), 56–57. [https://www.worldwidejournals.com/paripex/recent\\_issues\\_pdf/2018/June/June\\_2018\\_1528203691\\_\\_77.pdf](https://www.worldwidejournals.com/paripex/recent_issues_pdf/2018/June/June_2018_1528203691__77.pdf)
- Brey, P. (2012). Well-being in philosophy, psychology, and economics. In P. Brey, A. Briggie, & E. Spence (Eds.), *The Good Life in a Technological Age* 15–34, Routledge.
- Department of Health. (2020). DOH COVID-19 Bulletin # 276. Retrieved from <https://www.doh.gov.ph/2019-nCoV>
- Brolinson, P. G., & Elliott D. (2007). Exercise, and the immune system. *Clinical Sports Medicine*, 26(3), 311–319. Doi: 10.1016/j.csm.2007.04.011
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J., (2020). The psychological impact of quarantine and how to reduce it: a rapid review of the evidence. *Lancet*, 395, 912–920. <https://doi.org/10.2139/ssrn.3532534>
- Das, A., Banga, R. & Kumar, D. (2011), *Global Economic Crisis: Impact and Restructuring of the Services Sector in India*, Asia Development Bank, Tokyo, ADBI Working, 311.
- Dunn, D. S. (2001). *Statistics & data analysis for behavioral sciences*. Boston Burr Ridge.
- El-Zoghby, S. M., Soltan, E. M., & Salama, H. M. (2020). Impact of the COVID-19 pandemic on mental health and social support among Egyptians. *Journal of Community Health*, 45, 689–695, 10.1007/s10900-202-00853-5
- Fadare, A. S., Del Puerto, A. L., Lambaco, P. E., Masul, A. S L., (2022). Athletes' Health and Well-Being: A Review of Psychology's State of Mind. *International Journal of Science and Management Studies (IJSMS)*. 5(4), 46-53. doi:10.51386/25815946/ijms-v5i4p105
- Felman, A. (2020). What is mental health? *Medical News Today*. <https://www.medicalnewstoday.com/articles/154543>
- Gonzalez, V. M., Goepfing, J., & Lorig, K. (1990). Four psychosocial theories and their application to patient education and clinical practice. *Arthritis Care and Research*, 3(3), 132–143.
- Herbst, U., Voeth, M., Eidhoff, A. T., Müller, M., & Stief, S. (2016). Study stress in Germany - an empirical study. Retrieved from [https://www.ph-ludwigsburg.de/uploads/media/AOK\\_Studie\\_Stress.pdf](https://www.ph-ludwigsburg.de/uploads/media/AOK_Studie_Stress.pdf)
- Iris A., Lesser, I. A., & Nienhuis. C. P. (2020). The Impact of COVID-19 on Physical Activity Behavior and Well-Being of Canadians. *International Journal on Environmental Research in Public Health* 2020, 17, 3899; doi:10.3390/ijerph17113899 [www.mdpi.com/journal/ijerph](http://www.mdpi.com/journal/ijerph)
- Isla, R. (2020). The pros and cons of online learning in the Philippines. Retrieved from <https://www.moneysmart.ph/articles/the-pros-and-cons-of-online-learning-in-the-philippines-moneysmart-2020/>
- Lai J., Ma S., & Wang Y. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, 23(3) Doi: 10.1001/jamanetworkopen.2020.3976.
- Lind, D. A., Mason, R. D., & Marchal, W. G. (2000). *Basic statistics for business and economics* (3rd ed.). McGraw-Hill.
- Liu, N., Zhang, F., Wei, C., Jia, Y., Shang, Z., Sun, L., Wu, L., Sun, Z., Zhou, Y., Wang, Y., & Liu, W. (2020). Prevalence and predictors of PTSS during COVID-19 outbreak in China's hardest-hit areas: Gender differences matter. *Psychiatry Research*, 287, 112921. <https://doi.org/10.1016/j.psychres.2020.112921>
- Ma, X., Wang, Y., Gao, T., He, Q., He, Y., Yue, R., Yo, F., & Tang, J. (2020). Challenges and strategies to research ethics in conducting COVID-19 research. *J. Evid. Med.*, 13, 173–177. <https://doi.org/10.1111/jebm.12388>
- Nortajuddin, A. (2020). Suicide spikes amid the pandemic? THE ASEAN POST. <https://theaseanpost.com/article/suicide-spikes-amid-pandemic>
- Northenor, K. (2020). Online school has more negative impacts than positive -The Sting. Retrieved from <https://theroswellsting.com/5200/opinion/online-school-has-more-negative-impacts-than-positive/>
- Pagdato, V. J., Adlawan, A. H., Fadare, A. S. (2021). Mental Strength among MSU Athletes in Sports Performance. *International Journal of Science and Management Studies (IJSMS)*.4(6),105-115. doi:10.51386/25815946/ijms-v4i6p112
- Perrin, P., McCabe, O., Everly, G., & Links, J. (2009). Preparing for an influenza pandemic: Mental health considerations. *Prehospital and Disaster Medicine*,



- Gil M. Ebarido / *Afr.J.Bio.Sc.* 6(9) (2024) 164-174  
24(3), 223–230.  
<https://doi.org/10.1017/S1049023X00006853>
- Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *General Psychiatry*, 33(2), 100213.  
<https://doi.org/10.1136/gpsych-2020-10021>
- Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 102066.  
<https://doi.org/10.1016/j.ajp.2020.102066>
- Romeo, J., Wärnberg, J., Pozo, T., & Marcos, A. (2010). Physical activity, immunity, and infection. *Proceedings of the Nutrition Society*, 69(3), 390–399.  
<https://doi.org/10.1017/S0029665110001795>
- Salari, N., HosseiniFar, A., Jalali, R., VaisiRaygani, A., Rasoulpoor, S., Mohammadi, M., Rasoulpoor, S., & Khaledi-Paveh B. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. *Global Health*, 16 (1), 57.  
<https://globalizationandhealth.biomedcentral.com/articles/10.1186/s12992-020-00589-w>
- Sauer, L. (2020). What is coronavirus? Hopkins Medicine.  
<https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus>
- Senchina, D. S., & Kohut, M. L. (2007). Immunological outcomes of exercise in older adults. *Clinical Interventions in Aging*, 2(1), 3–16.  
<https://doi.org/10.2147/cia.2007.2.1.3>
- Shigemura, J., Ursano, R. J., Morganstein, J. C., Kurosawa, M., & Benedek, D. M. (2020). Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: Mental health consequences and target populations. *Psychiatry and Clinical Neurosciences*. Advanced online publication. <https://doi.org/10.1111/pcn.12988>.
- Singhal T. (2020). A Review of Coronavirus Disease-2019 (COVID-19). *Indian journal of pediatrics*, 87(4), 281–286. <https://doi.org/10.1007/s12098-020-03263-6>.
- Sohail, N. (2013). Stress and academic performance among medical students. *Journal of the College of Physicians and Surgeons--Pakistan: JCPSP*, 23(1), 67–71.  
<https://doi.org/10.2013/JCPSP.6771>
- Srivastav, A. K., Sharma, N., & Samuel, A. J. (2020). Impact of Coronavirus disease-19 (COVID-19) lockdown on physical activity and energy expenditure among physiotherapy professionals and students using web-based open E-survey sent through WhatsApp, Facebook, and Instagram messengers. *Clinical Epidemiology and Global Health*, 9, 78–84.  
<https://doi.org/10.1016/j.cegh.2020.07.003>
- Tee, M. L., Tee, C. A., Anlacan, J. P., Aligam, K. J. G., Reyes, P. W. C., Kuruchittham, V., & Ho, R. C. (2020). Psychological impact of COVID-19 pandemic in the Philippines. *Journal of Affective Disorders*, 277, 379–391. <https://doi.org/10.1016/j.jad.2020.08.043>
- Torales, J., O'Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry*, 66(4), 317–320. <https://doi.org/10.1177/0020764020915212>
- Tull, M. T., Edmonds, K. A., Scamaldo, K. M., Richmond, J. R., Rose, J. P. & Gratz, K. L., (2020). Psychological outcomes associated with stay-at-home orders and the perceived impact of COVID-19 on daily life. *Journal of Psychiatry Research*, 289, 113098.  
<https://doi.org/10.1016/j.psychres.2020.113098>
- UNDP. (2020). COVID-19 pandemic.  
<https://www.undp.org/content/undp/en/home/coronavirus.html>
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., McIntyre, R.S., Choo, F.N., Tran, B., Ho, R., Sharma, V.K., & Ho, C. (2020). A longitudinal study on the mental health of general population during the COVID-19 epidemic in China. *Brain Behavior and Immunology*, 87, 40-48.  
<https://doi.org/10.1016/j.bbi.2020.04.028>.
- Weiss, D. S. (2007). The Impact of Event Scale-Revised. In J. P. Wilson, & T.M. Keane (Eds.) *Assessing psychological trauma and PTSD: a practitioner's handbook 2nd ed.*, New York: Guilford Press, 168-189.
- WHO Philippines. (2020). CORONAVIRUS DISEASE (COVID-19): Situation Report 50.  
<https://www.who.int/philippines/internal-publications-detail/covid-19-in-the-philippines-situation-report-50>
- World Health Organization (2020). Coronavirus Disease - 19. <https://covid19.who.int/>.
- Health Organization. (2020). Be active during COVID-19.  
<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/be-active-during-covid-19>
- Xiang, Y., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., & Chee, H. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The Lancet Psychiatry*, 7(3), 228–229.  
[https://doi.org/10.1016/S2215-0366\(20\)30046-8](https://doi.org/10.1016/S2215-0366(20)30046-8)
- Yali, R., Wei, Q., Zezhi, L., Zhengkui, L., Yongjie, Z., Ruoxi, W., & Xiangyang, Z. (2020). Public mental health under the long-term influence of COVID-19 in China:

*Gil M. Ebarido / Afr.J.Bio.Sc. 6(9) (2024) 164-174*

Geographical and temporal distribution. *Journal of Affective Disorders*, 277, 893–900.  
<https://doi.org/10.1016/j.jad.2020.08.045>

