

Recovery from Long COVID: What Made College Students Thrive During Lockdown

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Abstract

The Long COVID-19 Syndrome that affected the lives of college students on lockdown for almost two years (2020-2022) is the focus of this paper. Specifically, this study examined their mental health wellness related to their stress, anxiety, depression levels, and psychosocial determinants of health (socioeconomic status, adverse childhood experiences, and perceived social support). The impact of the Long COVID-19 on the student's well-being and their ways of coping were explored. Using a cross-sectional survey research design, 600 students from different areas in Mindanao (southern islands of the Philippines) participated in this study. Results showed that the majority of the respondents reported no stress (78%), no anxiety (38%), and no depression (44.80%) during the lockdown. Moreover, a significant positive relationship appeared between adverse childhood experiences (ACEs) and levels of stress, anxiety, and depression. These findings suggest that adverse childhood experiences increased the risk of other mental health issues. Results also suggest a significant negative relationship between perceived social support and levels of stress and depression. The intersection of learning in higher education and mental health show the other correlates of stress, ACE, and anxiety.

Keywords: anxiety, coping strategies, depression, long COVID-19, mental health wellness, stress

Abstrak

Long COVID-19 Syndrome yang melanda kehidupan mahasiswa yang menjalani lockdown selama hampir dua tahun (2020-2022) menjadi fokus tulisan ini. Secara khusus, penelitian ini meneliti kesehatan mental mereka terkait stres, kecemasan, tingkat depresi, dan determinan psikososial kesehatan (status sosial ekonomi, pengalaman masa kecil yang merugikan, dan dukungan sosial yang dirasakan) terkait dengan kesehatan mental mereka. Dampak Long COVID-19 pada kesejahteraan siswa dan cara mereka menghadapinya melalui eksplorasi. Menggunakan desain penelitian survei cross-sectional, 600 siswa dari berbagai daerah di Mindanao (pulau selatan Filipina) berpartisipasi dalam penelitian ini. Hasil penelitian menunjukkan bahwa mayoritas responden melaporkan tidak stres (78%), tidak ada kecemasan (38%), dan tidak ada depresi (44,80%) selama lockdown. Selain itu, hubungan positif yang signifikan muncul antara pengalaman masa kanak-kanak yang merugikan, tingkat stres, kecemasan, dan depresi. Temuan ini menunjukkan bahwa pengalaman masa kecil yang merugikan meningkatkan risiko masalah kesehatan mental lainnya. Hasil juga menunjukkan hubungan negatif yang signifikan antara dukungan sosial yang dirasakan dan tingkat stres serta depresi. Persimpangan pembelajaran di pendidikan tinggi

dan kesehatan mental menunjukkan korelasi lain dari stres, pengalaman masa kanak-kanak yang merugikan, dan kecemasan.

Kata kunci: *depresi, kecemasan, kesehatan mental, koping strategi, long COVID-19, stres*

Introduction

COVID-19 has entered its sixth wave of cases trending the increase in positivity rate in countries like Japan, China, Hong Kong, and Korea (Ichino & Edamatsu, 2022). The pandemic has entered its second year and is still not under control globally (World Health Organization, 2022). The slow vaccination rate will develop new virus variants that will impact the world's ability to recover from the virus (Welch, 2021). The lingering pandemic, including Long COVID-19 Syndrome, which refers to those who survive the virus with persisting symptoms, put the lives of everyone to a halt (Yan et al., 2021). The long COVID-19 pandemic has greatly affected college students who have been on lockdown for almost two years (Ibanez, 2022). The possible adverse effects of the COVID-19 pandemic on the psychological health of college students became a concern of mental health professionals and the public (Browning et al., 2021). These adverse events include increased stress and anxiety, loneliness, and depression (Son et al., 2020; Lee et al., 2021). These issues were consistent with earlier studies that have reported higher rates of mental health problems among college students following other disease outbreaks, such as SARS (Main et al., 2011; Wu et al., 2021), but few studies have examined the effects of COVID-19 on young people (Wang et al., 2020; Wu et al., 2021). College students are exposed to more problems and challenges. Therefore, they develop severe physical and mental health problems (Gao et al., 2020; Yang et al., 2021). In the Philippines, the Commission on Higher Education suspended face-to-face instruction to online classes and modular learning (Commission on Higher Education, 2020). The recent changes in the education approach, distance learning, and increased social isolation from other students became an essential mitigation procedure in spreading the virus. However, this also affected students' mental health and wellness (Filho et al., 2021).

Past studies indicate that continuous isolation leads to mental health distress, such as anxiety, depression, post-traumatic disorder (PTSD), and withdrawal behaviors (Banerjee et al., 2020; Torales et al., 2020; Amran, 2020). These stressors affect psychosocial well-being, particularly social interaction between family members, loneliness, and domestic violence (Dubey et al., 2020; Fontanesi et al., 2020; Amran, 2020). Therefore, the social factors determining college students' mental health and well-being deserve urgent investigation. Issues of fear of contagion, frustration and boredom, inadequate information, and lack of private space at home contribute to students' physical and mental health (Wang et al., 2020; Yang et al., 2021). Chang et al. (2020) & Wang et al. (2020) affirm that psychological reactions to stressful and life-threatening situations differ considerably between individuals and depend upon personal (e.g., age, adverse childhood experience, attachment style, resilience) and social (e.g., socioeconomic status, family structure) factors. These psychosocial factors, the threat of rising cases of the virus that put people in isolation, the public understanding of health-related to mitigate the spread of the virus, information approaches, and prescriptions may be correlated with negative emotions during the COVID-19 pandemic (Chi et al., 2020).

As the COVID-19 pandemic drags on, some patients may still experience post-COVID symptoms where signs are still evident even 12 weeks after its onset (Al-Jahdhami et al., 2021). This syndrome or health condition involves lingering symptoms in COVID survivors' respiratory, cardiovascular, and digestive systems. Long COVID also affects neurological systems, manifesting as mood changes, cognitive difficulties, fatigue, confusion, and memory loss (Yen et al., 2021). Those who did not have symptoms after testing positive for COVID-19 can also develop post-COVID conditions (Centers for Disease Control and Prevention, 2021). Long COVID-19 is also observed among college students that could affect their personal and academic lives (Burke, 2021).

Given that the pandemic is significantly affecting college students' mental health, the adverse effects of the pandemic need to be addressed. This paper wishes to explore the role of various psychosocial

factors in terms of household income, adverse childhood experiences, and the perception of social support on the mental health of college students during the current pandemic. Specifically, this paper intends to answer the following questions: (a.) What are the college students' stress, anxiety, and depression levels during the Long COVID?; (b.) What psychosocial factors (socioeconomic status, adverse childhood experiences, and perceived social support) are related to the college student's mental health issues?; (c.) What is the impact of long COVID-19 on college students' well-being?; (d.) What coping strategies did college students use during long COVID?

Methods

Participants

A sample of 600 college students participated in the study. The inclusion criteria in selecting the participants included: being currently enrolled in college and must be at least 18 years of age. The exclusion criteria were: no prior diagnosis of any mental disorder and unsigned informed consent or refusal to participate in answering the survey questionnaires.

Measures

Adverse Childhood Experiences (ACEs) Questionnaire (Felitti et al., 1988)

A measure of adverse experiences before the age of 18. It contains ten items that aim to identify childhood experiences of neglect and abuse; the higher the score, the greater the risk for health and social problems. It has adequate internal consistency with a Cronbach Alpha of .88 (Murphy et al., 2014).

Multidimensional Scale of Perceived Social Support (MSPSS) Questionnaire

A measure of perceptions of social support related to the mental distress felt by college students. This questionnaire measured the respondents' perception of social support received from three sources: family, friends, and significant others. This scale consists of 12 items; each scored on a 7-point Likert scale (from 1= very strongly disagree to 7= very strongly agree) (Zimet et al., 1990). A total score ranging from 12-35 indicates low perceived social support, 36-60 indicates medium perceived social support, and 61-84 indicates high perceived social support. The instrument's internal consistency is satisfactory, with a Cronbach's Alpha = .70 (Dambi et al., 2018).

Depression, Anxiety and Stress Scale - 21 Items (DASS-21)

This scale was used to measure the mental health state of college students. It consists of three self-report scales that measure the emotional states of depression, anxiety, and stress. Each scale contains 7-items. Each item is scored on a four-point Likert scale (ranging from 0= did not apply to me at all to 3 = applied to me very much). Each scale has corresponding cut-off scores indicating normal, mild, moderate, severe, and highly severe levels. DASS-21 has excellent reliability, with Cronbach's Alpha values of .81, .89, and .78 for depression, anxiety, and stress subscales, respectively (Coker et al., 2018).

In addition, a researcher-made instrument describing the impact of long-COVID-19 on the student's psychological well-being, behavioral problems, and coping strategies was also used.

Procedure

A cross-sectional survey research design was used in this study. In this method, the researchers collected data at one point in time (Creswell, 2015). The survey was conducted online for convenience and safety reasons from October 25 to October 31, 2021. Over that period, college students from different universities and colleges in Mindanao, the southern island of the Philippines, were invited to participate in the survey via Google Form. Participants who had completed all questionnaires were invited to join a 30-minute online symposium entitled College Life in Lockdown: Long COVID-19 Impact on Mental Health and Recovery, provided by mental health providers who discussed and addressed the college student's mental health and recovery during COVID-19.

Statistical Analysis

Descriptive statistics such as frequency, percentage, and means were used to describe the profile of the respondents. Pearson Product Moment Correlation and multiple regression analysis were utilized to determine the relationship among the study variables.

Ethical Considerations

This current study was approved by the Department of Psychology, Ateneo de Davao University, Philippines. Informed consent was obtained via online consent forms, and participants who completed the questionnaires were invited to join a free online symposium. Privacy and confidentiality were observed during the whole duration of the data collection.

Results and Discussion

Results

Stress, Anxiety, and Depression Among College Student During the Long COVID

Six hundred college students participated in the study; 79% were females, while 21% were males. **Table 1.** summarizes their levels of stress, anxiety, and depression. The results show that most respondents perceived their experiences during COVID as not stressful (78%). Only a few (1.5%) reported that their experience during COVID was extremely severe. In terms of these students' experience of anxiety, 38% reported that they did not feel anxious. Only a few reported extreme anxiety (7.80%). On students' experience of depression, (44.80%) reported no experience of depression, while only (4.50%) reported extreme levels of depression.

Table 1. Levels and Frequency of Stress, Anxiety, and Depression Among College Students During the Long COVID

DASS 21	Categories	Frequency n =600
Stress	No Stress (0-14)	486 (78.00%)
	Mild (15-18)	59 (9.80%)
	Moderate (19-25)	38 (6.30%)
	Severe (26-33)	26 (4.30%)
	Extremely Severe (34+)	9 (1.50%)
	Score: Mean \pm SD	10.99 \pm 7.59
Anxiety	No Anxiety (0-7)	228 (38.0%)
	Mild (8-9)	76 (12.70%)
	Moderate (10-14)	185 (30.80%)
	Severe (15-19)	47 (7.80%)
	Extremely Severe (20+)	64 (10.70%)
	Score: Mean \pm SD	10.35 \pm 7.66
Depression	No Depression (0-9)	269 (44.80%)
	Mild (10-13)	141 (23.50%)
	Moderate (14-20)	132 (22.00%)
	Severe (21-27)	31 (5.20%)
	Extremely Severe (28+)	27 (4.50%)
	Score: Mean \pm SD	11.29 \pm 8.74

Relationship between Psychosocial Factors and Mental Health Issues

Adverse Childhood Experiences range from family abuse (physical, sexual, emotional), neglect (physical and emotional), and family dysfunction (domestic violence, substance abuse, mental illness, separation/divorce, imprisonment of family member) that may leave a negative impact on one's life (Touloumakos & Barrable, 2020; Bevilacqua et al., 2020). The study results show that most college students reported few adverse childhood experiences ($M=1.17$, $SD=1.50$) and moderate Perceived Social Support ($M=57.46$, $SD=18.83$). Social Support is defined as one's perception of how their family, friends, and other significant others provide material, psychological, and overall support when needed (Ioannou, et al., 2019). **Table 2.** shows the association between the ACE and Social Support on students' mental health status. Results show that there is a significant positive relationship between Adverse Childhood Experiences (ACEs) and levels of stress ($r= .180$, $p < .001$), anxiety ($r= .150$, $p < .001$), and depression ($r= .231$, $p < .001$). Results also suggest an inverse relationship between Perceived Social Support and levels of stress ($r= -.099$, $p < .05$) and depression ($r= -.171$, $p < .05$).

However, no significant relationship was found between perceived social support and anxiety levels ($r= -.053$, $p= .194$). Results also show that there is no significant relationship between household size and levels of stress ($r= -.054$, $p= .186$), anxiety ($r= -.25$, $p= .543$), and depression ($r= -.029$, $p= .480$). No significant relationship was also found between household income and levels of stress ($r= -.023$, $p= .568$), anxiety ($r= .004$, $p= .5921$), and depression ($r= -.002$, $p= .966$).

Table 2. Correlation Matrix between Psychosocial Factors and Mental Health Status of the College Student

Psychosocial Factors	Mean	Stress	Anxiety	Depression
Household Size	5.440	-.054	-.025	-.029
Monthly Household Income	24.327.420	-.023	.004	-.002
Adverse Childhood Experiences	1.170	.180***	.150***	.231***
Perceived Social Support	57.460	-.099*	-.053	-.171***

Note: **. Correlation is significant at the .01 level (2-tailed).

*. Correlation is significant at the .05 level (2-tailed).

Impact of Long COVID-19 on College Students' Well-Being

Table 3. shows the most common concern experienced by college students during the long Covid-19. Results showed that school-related difficulties (18.59%) appeared to be the top problem they encountered. This is followed by difficulty sleeping (15.54%), changes in appetite (11.72%), social withdrawal (11.69%), constant worry (10.75%), and irritability (10.44%). A number of students also experienced easily tensed ($n=245$), relational problems ($n=242$) and developed unhealthy habits ($n=71$) such as drinking alcohol and smoking.

This result implies that college students still have difficulties in school such as a lack of concentration and loss of motivation because of the distance learning approach. Online learning still leaves college students with the same academic burden as usual (Yang et al., 2021). Students are also experiencing irregular sleeping patterns and sometimes avoid people and activities they usually enjoy.

Table 3. Behavioral Problems of College Students during Long COVID-19

Behavioral Problems	Frequency	Percentage
School-related difficulties (<i>e.g., lack of concentration, loss of motivation</i>)	536	18.59
Difficulty sleeping (<i>e.g., lack of sleep or too much sleep</i>)	448	15.54
Changes in appetite (<i>e.g., undereating or overeating</i>)	338	11.72
Social withdrawal	337	11.69
Constant worry	310	10.75
Irritability	301	10.44
Easily tensed	245	8.50
Relational problems (<i>e.g., lack of interest talking to family members or friends</i>)	242	8.39
Developed unhealthy habits (<i>e.g., drinking, smoking</i>)	71	2.46
None	43	1.49
Others	12	.42

A significantly high number of college students reported having negative effects (96.3%) that they reported as experiences of problems of behavior brought about by Long COVID. These are academic difficulties (18.44%), emotional difficulties (17.83%), and physical changes (17.45%).

Table 4. Effects of Behavioral Problems on College Students' Well-being

Effects on Well-being	Frequency	Percentage
Academic difficulties	389	18.44
Emotional difficulties	376	17.83
Physical changes	368	17.45
Intrapersonal relationship	307	14.56
Cognitive difficulties	258	12.23
Interpersonal relationship	203	9.63
Unhealthy lifestyle	131	6.21
None	74	3.51
Others	3	.14

Coping Strategies of College Students during Long COVID

The coping strategies employed by the college students (presented in **Table 5.**) demonstrate that using social media (n=475) is the most used coping strategy. Praying (n=418) came out second. Sleeping was the least used activity to cope during COVID (n=6).

Table 5. Coping Strategies of College Students during Long COVID

Coping Strategies	Frequency	Percentage
Use social media	475	18.84
Praying	418	16.58
Turning to other activities to take my mind off things	385	15.27
Watching TV, movies, kdrama, anime	312	12.30
Using humor or making jokes	297	11.78
Reading books	273	10.83
Get help and advice from other people	251	9.96
Saying to myself "this isn't real"	84	3.33
Using alcohol to make myself better	35	1.36
Sleeping	6	.24

Discussion

This paper wishes to explore the role of various psychosocial factors in terms of household size, household income, adverse childhood experiences, and perception of social support on mental health during the current pandemic. Additionally, this study relates these psychological factors to the college student's level of stress, anxiety, and depression. The college students' coping skills were also identified.

What are the college students' stress, anxiety, and depression levels during the Long COVID?

The majority of the participants reported no stress (78%), while the rest reported mild (9.80%) to moderate (6.30%) stress levels. According to Lazarus and Folkman (1984), stress occurs when the individual's resources and the demand of the situation do not match. The participants may not be directly affected by the pandemic as only some have contracted the virus; thus, they may not have reported high-stress levels. They also have shown coping strategies that helped them deal with the changes brought by the pandemic. This argument is supported by Guillasper et al. (2021) findings on the impact of COVID-19 on college students in the Philippines. They found that the higher the participants' resources, such as resilience, the lesser the impact of the pandemic because it served as a protective factor or buffered against the unpleasant effects of COVID-19.

Anxiety is a reaction to unpleasant events that involve physical tension, worry, and extreme fear. The high reporting of the absence of anxiety (38%) suggests that the participants may not be anxious as expected because more information is available regarding possible treatment and prevention of the COVID-19 virus. Almost two years since the pandemic began, people have slowly adjusted to the current status quo, which could have possibly decreased their level of anxiety. Crandall et al. (2022) supported this with their findings wherein there was a decline in worry among the Italian sample over time and increased psychological well-being. Witt et al. (2005) argued that as individuals perceive that they can handle the environment, so with the threat. The students' perception of COVID as the new normal allowed them to adjust to their current experiences so that they did not find their current situation anxiety-provoking.

The reporting of no depression (44.80%) among students was noteworthy. Similar to the factors that explained the No Stress reporting, depression may not have been reported because of the following: the

symptoms reported lacked in severity, frequency, and duration that did not end up as clinical depression. The other issue is the context-specific tool to capture the clinical significance of depressive symptoms. COVID-19 has not produced the specific tool to measure a mood disorder like depression as a clinically contextual experience specific to COVID. Another reason could be the low positivity rate among students in the area where the participants lived. Ettman et al. (2020) argued that the likelihood of experiencing depressive symptoms is higher among those who experienced a significant life change due to COVID-19.

What psychosocial factors (socioeconomic status, adverse childhood experiences, and perceived social support) are related to the college student's mental health issues?

Most college students have less exposure to adverse childhood experiences ($M=1.17$, $SD=1.50$), suggesting a low risk for mental health problems. The results revealed that there is a significant positive relationship between ACEs and levels of stress ($r=.180$), anxiety ($r=.150$), and depression ($r=.231$). Measures of ACE were found to have a significant positive relationship with mental health outcomes (Elmore & Crouch, 2020; Bevilacqua et al., 2020). The higher the ACEs, the greater the likelihood of individuals experiencing adverse mental health outcomes, which is further validated in this study.

Most college students reported moderate to high perceived social support ($M=57.46$, $SD=18.83$). College students being at home and with their families during the pandemic may have contributed to this level of social support. In terms of association, there appears to be a significant negative relationship between perceived social support and levels of stress and depression, which implies that individuals who report low perceived social support are more likely to report high levels of stress and depression. Studies suggest that stress encourages individuals to seek social support (Ioannou et al., 2019). A healthy social support system can help enhance an individual's coping capacities, provide problem-solving skills, and boost self-esteem and confidence in overcoming difficulties (Wang et al., 2014).

What is the impact of long COVID-19 on college student's well-being?

School-related issues were the students' highest reported problem source (18.59%). In the Philippines, as students navigate a new learning platform during the pandemic, they have encountered mental health struggles (Rotas & Cahapay, 2020). Similarly, Singh et al. (2020) found that the lockdown potentially threatens students' physical, mental, and emotional health and their educational and developmental progress. In this study, however, factors such as low ACE, high perceived social support, and coping strategies helped them deal with the uncertainties of the pandemic.

What coping strategies did college students use during long COVID?

The participants reported spirituality as a form of coping. Filipinos' high premium on spirituality difficulties (Bagaoisan, 2016) which was apparent as a coping skill of the participants in the study use spirituality as a coping mechanism when faced with issues, and spirituality and religiosity provides individuals with meaning and stability. A study by Nia et al. (2021) found that spiritual well-being decreases mental health issues such as depressive symptoms. Spirituality helps in providing intrinsic motivation to find meaning, satisfaction, and a good relationship with oneself despite adversity or a crisis (Mehta et al., 2020).

Conclusion

The research findings suggest that mental health concerns during the pandemic reveal the characteristics of participants in terms of their coping skills, propensities, and limitations. Depression and anxiety-triggering events like the long COVID suggest a different response among the college student participants in this study. They revealed minimal signs of distress. The participants' low scores in ACE results helped them access a healthier social support system to help them during the Long COVID Syndrome. Spirituality was another glaring factor that became a protective factor during the distressing time of the pandemic.

This study identified some limitations. Its sampling is purposive to a specific demographic group of college students in Mindanao, which may have implications for its generalizability. The gold standard measures used to assess the presence of depression and anxiety were not context-specific nor validated to the specific event that may have also affected the results of the study. The researchers recognize that school-related issues are evident that could be a point of concern in the future if left unaddressed. The researchers recommend that context-specific screening tools be adapted around the long COVID experience and recovery for college students currently enrolled in academic institutions.

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