

PSYCHOLOGICAL IMPACT OF THE COVID-19 PANDEMIC ON GRADUATE STUDENTS IN THE PHILIPPINES

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ABSTRACT

The advent of the COVID-19 pandemic has had a huge impact on everyone's lives. To prevent the spread of the coronavirus, people were ordered to stay at home, whether or not they were infected. Due to psychological issues such as stress, anxiety, and depression, these lockdowns had major consequences to one's mental health. The study aimed to assess the level of anxiety and examine the factors that cause it among graduate students. The study employed a mixed method following an embedded design. Data were collected through an online survey administered to 116 graduate students of the College of Public Affairs and Development at the University of the Philippines, Los Baños. Using the Generalized Anxiety Disorder (GAD-7), the study found that almost three-fourths of the graduate students had anxiety. Unstable internet connection, online academic requirements, and learning loss were among the major factors that contribute to their anxiety. Accordingly, policies and interventions should be crafted to ensure that graduate students thrive in this "new normal" of teaching and learning.

Keywords: Mental health, learning loss, anxiety, stressors, academic delay, generalized anxiety disorder, adult anxiety.

INTRODUCTION

The COVID-19 pandemic has caught everyone off guard, putting millions of people's lives in danger all around the world. Long months of lockdown harmed the economy, with the education sector absorbing a substantial share of the burden (Townsend, 2020). Following the closure of a number of schools and universities, there was an urgent and compelling need to transform the mode of instruction from a physical setting to an online digital world of teaching and learning (Kapasias et al., 2020). At the time, it was deemed that online education was the most viable choice.

According to Aucejo et al. (2020), online learning is far more effective than traditional learning, and various government agencies require educational institutions to follow guidelines and recommendations in order to encourage students to continue learning remotely in this challenging learning environment in order to

improve the e-learning setup. On a broader scale, this rapid educational advancement has had a profound influence on learners of all ages (Hassan et al., 2022). Changes in travel restrictions and the closure of educational institutions worldwide would have a significant influence on students' education, personal relationships, and psychological well-being (Odriozola-Gonzalez et al., 2020).

Several studies conducted among university students demonstrated an increase in anxiety or depression, as well as financial instability, as a result of the global pandemic (Aucejo et al., 2020; Dhar et al., 2020; Eloff, 2021; Esteves et al., 2021; Garvey et al., 2021; Firang, 2020; Fornili et al., 2021; Jones et al., 2021; Marelli et al., 2021; Pokhrel & Chhetri, 2021; Tee et al., 2021; Wang et al., 2022). However, very few studies focus on graduate student anxiety.

Petry (2002) classified graduate students as young adults (ages 18 to 35), middle adults (ages 36 to 55), and older adults (ages 56 and up). Batterham et al. (2021) reported that adults have experienced psychological symptoms as a result of the pandemic, including COVID-19-related financial stress, social impairment, and work impairment. On the other hand, Hawes et al. (2021) found that greater COVID-19 school worries were uniquely related to an increase in depressive symptoms. Given this condition, it is projected that many students' university experiences would lead in a more difficult scenario. As a result, this perceived stress would have a long-term impact on their emotions, thinking and learning processes, and mental health. According to dela Fuente (2020) and Karaman et al. (2017), a variety of elements associated with the teaching-learning process contribute to academic stress.

In this research, we studied and analyzed the potential effects of the COVID-19 pandemic on the lives of graduate students. Specifically, we examined the factors that influence the anxiety level and its relationship to COVID-19 stressors among graduate students. The purpose of the study is to provide administrators with policy recommendations for developing effective mental health program interventions for graduate students. The results of the study may contribute to the growing literature on the impact of pandemic-related anxiety among students, particularly graduate students.

METHOD

Study Design

The study employed a mixed method following an embedded design. Creswell and Plano Clark (2007) explain this strategy in which one data collection plays a secondary, supporting role in the study based on the other type. In the context of this research, qualitative data provides substantial support for the quantitative findings, notably regarding the factors that affect graduate student anxiety and stress. The research noted that a single dataset is insufficient, that a variety of questions must be addressed, and that each kind of question requires a distinct set of data. The quantitative portion of the study was heavily patterned on the study of Cao et al. (2020).

Study Instrument

Data were collected using an online survey instrument via Google Form with informed consent and distributed to all graduate students of the College of Public Affairs and Development, University of the Philippines Los Baños. It was composed of three parts: profile, anxiety severity, and COVID-19 stressors.

The profile inquired about the basic information of graduate students, such as sex, age, marital status, degree enrolled, country of origin, stability of income, type of student, COVID-19 inoculation, and internet connection.

A seven-item Generalized Anxiety Disorder Scale (GAD-7) was used to assess the anxiety severity. Each of the seven questions on the GAD-7 was based on one of seven core symptoms of generalized anxiety disorder, and inquired about the frequency with which the symptoms have been present during the previous two weeks (Toussaint et al., 2020, as cited in Cao et al., 2020). With a total score between 0 and 21, respondents rated how often they experience each symptom on a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). The GAD-7 is a well-validated screening instrument, and it has demonstrated good internal consistency (Cronbach's $\alpha = 0.880$).

Meanwhile, the study also used a researcher-made instrument on COVID-19 stressors that included constructs on academic delay, academic requirements, learning losses, gradual reopening of classes, impact on daily living, and economic impact. Respondents reported their agreement using a 5-point scale, from 1 strongly disagree to 5 strongly agree. The instrument has demonstrated acceptable internal consistency (Cronbach's $\alpha = 0.735$). Also embedded in the survey are open-ended questions on the causes of anxiety and academic-related worries.

Study Sample

The researcher has no access to the list of graduate students due to a data privacy policy. Hence, the study used non-probability sampling, particularly convenience sampling. For the sample size, the study employed the statistical power analysis of Cohen (1992), a quantitative method typically used in the behavioral sciences. Using Cohen's table of power analysis, the study has arrived at a minimum number of respondents of 97 ($\alpha=.05, f^2=.15, 7$). A total of 116 responses was collected, which is beyond the minimum required samples for the number of independent variables.

Data Analysis

The quantitative data was analyzed using SPSS Version 23. The demographics of graduate students were analyzed using descriptive statistics. The study employed a univariate analysis, a nonparametric test, to look for correlations between characteristics and anxiety levels in graduate students (Abdellatif et al., 2020, as cited in Cao et al., 2020). The Spearman's correlation coefficient, r_s , was used to examine the relationships between COVID-19-related stressors such as academic delay, online academic requirements, learning loss, class reopening, impact on daily living, economic impact, and anxiety level. A two-tailed $p < .05$ was considered statistically significant. Variables with statistical significance were identified and included in multivariate logistic regression analyses. The odds ratio (OR) with a 95 percent confidence interval was used to estimate the strength of associations.

Furthermore, the qualitative data was subjected to content analysis. This tool was used to subjectively analyze the substance of text data from open-ended survey questionnaires through a systematic, precise, and careful coding process and the identification of themes or patterns (Neuendorf, 2018).

FINDINGS

The survey was completed by 116 graduate students of the College of Public Affairs and Development at the University of the Philippines Los Baños. Almost three-fourths (74%) of the respondents were female, and nearly half (48%) were single. The average age of the respondents was 36 years old. Moreover, majority (73%) of them were part-time students who were mainly taking master's degree programs (56%), living in the Philippines (96%), and with a stable income (93%) and internet connection (81%). On the status of COVID-19 vaccination, a large majority (95%) of the respondents were fully inoculated. Table 2 shows the demographic and other characteristics of the respondents.

Level of Anxiety of Graduate Students during the Pandemic

The survey was administered from December 22, 2021, to January 10, 2022. It was the end of the first semester wherein students were likely preoccupied with fulfilling course requirements. It has also been nearly two years since the World Health Organization declared COVID-19 a pandemic. At the time of the survey, countries aimed to achieve herd immunity through vaccination, but they were also concerned about the virus's new variants. Table 1 shows that the graduate students have varied levels of anxiety. Most of them have mild anxiety (40.5%). More than a quarter of them have minimal or normal levels of anxiety (27.6%). Almost one-third have either moderate (14.7%) or severe anxiety (17.2%).

Table 1. Number of students with different levels of anxiety ($n=116$)

Anxiety Level	Frequency	Percentage
Minimal Anxiety	32	27.6
Mild Anxiety	47	40.5
Moderate Anxiety	17	14.7
Severe Anxiety	20	17.2

Factors Affecting Graduate Student's Anxiety during the Pandemic

Univariate Analysis

In Table 2, the relationship between the demographic variables of graduate students and their level of anxiety is shown. Among the seven variables, internet stability is the only variable with a significant effect on anxiety ($p < .05$). This means that the anxiety levels of graduate students are significantly different between those with stable and unstable internet connections. All other variables have no significant effect on anxiety ($p > .05$). Noticeably, half (50%) of the students who had no stable income (50%) and more than half (54%) who had no stable internet (54%) had symptoms of moderate to severe anxiety.

Table 2. Univariate analysis of graduate students' anxiety caused by the pandemic.

Variable	Total	Anxiety Level				Statistics	P value
		Minimal	Mild	Moderate	Severe		
Sex						-.259 ^a	.796
Male	30	10(33%)	10(33%)	4(13%)	6(20%)		
Female	86	22(26%)	37(43%)	13(15%)	14(16%)		
Degree Enrolled						-1.065 ^a	.287
Master's	65	26(40%)	16(25%)	10(15%)	13(20%)		
Doctorate	51	21(41%)	16(31%)	7(14%)	7(14%)		
Country of Origin						-1.265 ^a	.206
Local	111	32(29%)	44(40%)	17(15%)	18(16%)		
Foreign	5	-	3(60%)	-	2(40%)		
Stable Income						-1.209 ^a	.227
No	8	1(13%)	3(38%)	2(25%)	2(25%)		
Yes	108	31(29%)	44(41%)	15(14%)	18(17%)		
Type of Student						-1.345 ^a	.179
Part time	85	25(29%)	37(44%)	9(11%)	14(16%)		
Full time	31	7(23%)	10(32%)	8(26%)	6(19%)		
COVID-19 Vax						3.867 ^b	.145
No	4	-	3(75%)	-	1(25%)		
Partially vax	2	2(100%)	-	-	-		
Fully vax	110	30(27%)	44(40%)	17(15%)	19(17%)		
Internet Stability						-2.008 ^a	.037
No	22	4(18%)	6(27%)	6(27%)	6(27%)		
Yes	94	28(30%)	41(44%)	11(12%)	14(15%)		

^a Mann-Whitney test

^b Kruskal-Wallis test

Correlation between COVID-19 Related Stressors and Anxiety Level

Table 3 shows the weighted mean of COVID-19 related stressors and the correlation between graduate students' stressors and anxiety. The study found that the respondents generally agreed with the six statements that describe their worries due to the COVID-19 stressors. When asked which of the six stressors they were experiencing most, students cited online academic requirements (31.9%), economic impact (21.6%), and the gradual reopening of classes (14.7%) as the most troubling.

Table 3. Correlation between COVID-19 related stressors and anxiety level.

COVID-19 Related Stressors	W e i g h t e d Mean	Respondents' Primary Stressor	Anxiety Level	value
Academic delay	3.72	10(8.6%)	.373	<.001
Online Academic Requirements	3.96	37(31.9%)	.474	<.001
Learning Losses	3.78	3(2.6%)	.456	<.001
Gradual reopening of classes	3.67	17(14.7%)	.308	.001
Influence on daily living	3.91	16(13.8%)	.487	<.001
Economic impact	3.99	25(21.6%)	.409	<.001

r Correlation coefficient.

All COVID-19-related stressors are significantly correlated with students' levels of anxiety. Online academic requirements, learning losses, influence on daily living, and economic impact have significant strong relationships with anxiety ($p < .001$). Academic delay ($p < .001$) and gradual reopening of classes ($p < .01$) have a significant moderate relationship with anxiety.

Ordinal Regression Analysis

The result of the ordinal multivariate analysis of factors associated with anxiety is presented in Table 4. Significant variables for the univariate (Table 2) and correlation analysis (Table 3) were included in the ordered logistic regression. In the model test, a significant improvement in the fit of the final model over the null model [$\chi^2(7) = 53.877, p < .001$]. Three significant factors were found in the ordinal regression analysis, the internet stability (OR = 2.198, 95% CI = .864 - 5.595), online academic requirements (OR = 1.886, 95% CI = 1.138 - 3.060), and learning loss (OR = 1.883, 95% CI = 1.245 - 2.848). The odds ratio of >1 suggests an increasing probability of being at a higher level on the dependent variable as values on the independent variable increase. Hence, when the graduate student's internet connection becomes unstable, there is 2.198 times increase in the level of anxiety ($p = .099$), holding all other variables constant. Moreover, for every one unit increase in worries about online academic requirements ($p = .013$) and learning loss ($p = .003$), there is 1.886 times, and 1.883 times increase in anxiety, respectively.

Table 4. Ordinal regression analysis result

Factors	SE	OR	P	OR(%CI)
Internet Stability	.4767	2.198	.099	(.864, 5.595)
Academic Delay	.2282	.803	.337	(.513, 1.256)
Online Academic Requirements	.2522	1.886	.013	(1.138, 3.060)
Learning Loss	.2110	1.883	.003	(1.245, 2.848)
Gradual Reopening of Classes	.1899	.975	.894	(.672, 1.415)
Influence on daily living	.2672	1.506	.126	(.892, 2.543)
Economic Impact	.2701	1.394	.219	(.821, 2.306)

SE Std. Error, OR Odds Ratio, CI Confidence Interval

DISCUSSIONS

Indubitably, the COVID-19 pandemic has had a psychological impact on students at various levels. Results of the study indicate that almost three-fourths (72.4%) of the survey participants exhibited anxiety, 14.7% of them had moderate anxiety, and 17.2% had severe anxiety. Similar studies across the world have also found varying but alarming cases of anxiety among students due to the pandemic (Baloran, 2020; Cao et al., 2020; Islam et al., 2020; Lasheras et al., 2020; Lee, 2020; Rakhmanov & Dane; Savitsky et al., 2020; Wang et al., 2020).

Graduate students, like undergraduates, are facing the effects of the pandemic. According to the reported cases in the Philippines for 2021, the prevalence of infection is highest among adults. In the study, the average age of the respondents was 36 (Min = 23, Max = 63). The average age of the responders falls within Stage 7 of Erik Erikson's phases of psychological development (Generativity vs. Stagnation). Adults attempt to develop or cultivate things that will outlive them during this period, frequently through raising children or contributing to favorable improvements that benefit others (Ehlman & Ligon, 2012). This is probably why the respondents are anxious about their daily lives and the economic impact of the pandemic, aside from their academic concerns. According to Respondent No. 21, "*Due to the pandemic, prices and basic needs of my family, such as medicine, electricity, water supply, and food, among others, have started to increase.*"

Meanwhile, a 2020 nationwide survey conducted throughout the United States found that 27 percent of parents reported worsening mental health for themselves, and 14 percent reported worsening behavioral health for their children (Faisal et al., 2021). In the study of Parczewska (2021) in Poland, she also found anxiety among parents about issues related to homeschooling and the future of their children. Similarly, one of the respondents in this study stated: "*I find it hard to manage and complete all the requirements while assisting my kids who are also doing their requirements online*" (Respondent No. 6). In addition, Ehlman and Ligon (2012) claim that contributing to society and doing things for the benefit of future generations are essential desires during the generativity versus stagnation stage of development. This has been one of the worries of graduate students; as one pens, "*I worry more for my countrymen who live on a per-day wage. The instability the pandemic brings aggravates the health, nutritional, and educational considerations of our countrymen on the fringes of society*" (Respondent No. 73).

Aside from the impact of the pandemic on daily life and the economy, graduate students are also anxious about academic-related concerns such as academic delay ($r = .373, p < .001$), online academic requirements ($r = .474, p < .001$), learning loss ($r = .456, p < .001$), and gradual reopening of classes ($r = .308, p < .01$). Fear of academic delay (FAD) has been one of the causes of anxiety and other psychological distress among students (Cao et al., 2020; Dhar et al., 2020; Hossain et al., 2021). Ten, or 9%, of the respondents find this factor the primary cause of their anxiety. Most of the responses are linked to the writing of their papers, such as theses, dissertations, and feasibility studies. Respondent No. 32 shared: "*The conduct of data-gathering for my dissertation might be severely affected due to the pandemic.*"

Online academic requirements are the primary cause of anxiety among graduate students. As the pandemic continued to pose a threat on public health and safety, higher educational institutions (HEIs) and teachers in the Philippines shifted from traditional face-to-face instruction to remote learning (Tolidong & Toquero, 2020). The sudden shift has impacted all the school stakeholders, particularly the students. In Indonesia, Nihayah et al. (2021) found an anxiety disorder among university students due to online lectures. Their study also found a significant association between worries about online academic requirements and the level of anxiety among graduate students. Generally, in this study, the responses of the students to an open-ended question provide three major themes: work life and school balance, heavy requirements, and mental health issues. According to Respondent No. 103, "*I am also supervising the remote learning of my two children on top of my full-time work. It is challenging to provide enough time for academic requirements as well.*" The pandemic has changed the way people live and work (Iriwanto et al., 2021). During the pandemic, graduate students tend to play different roles at home, including being parent-teachers, employees on work from home arrangements, and students at the same time. Garbe et al. (2020) claimed that parents found difficulties in balancing responsibilities, learning motivation, accessibility, and learning outcomes. Respondents also consider heavy requirements one of the causes of anxiety. As Respondent No. 75 penned, "*I worry about the online academic requirements this semester. Most requirements are so many that they pile up at once. I am always*

afraid of not meeting the standards.” Lastly, the respondents were also concerned with their mental health, which was heavily affecting their time in meeting their academic requirements. Respondent No. 87 said, *“It worries and bothers me a lot when I’m thinking of other problems too. I cannot focus and do them properly.”*

Learning loss is also one of the significant stressors for graduate students. The term “learning loss” is often used in the academic literature to indicate student knowledge and ability losses. Learning loss happens when educational progress is not made at the same pace as it has traditionally been made in comparison to prior years (Pier et al., 2021). Learning loss has been a new emerging topic due to the pandemic (Donnelly & Patrinos, 2021). For graduate students, *“nothing can beat interpersonal interaction and the exchange of ideas personally”* (Respondent No. 5). Most graduate students still prefer face-to-face classes to the current set up. As respondent 114 stated,

“I did wish to have in-person classes for better learning absorption and focus, but this online learning mode works for me now, albeit its limitations; often I juggle 3 shifts (paid work, care work at home, and online learning). It’s only in the past 2 weeks that I’ve availed myself of personal leave from work, but it’s also the time for writing school-related papers. And I still felt like I was so slow.”

Another academic stressor is the gradual reopening of classes. After two years of remote classes, higher educational institutions in the Philippines are planning to conduct a gradual reopening of classes. Some respondents were alarmed and anxious about the plan. Respondent No. 46, for instance, is anxious about being infected if the reopening is pursued. *“I worry about the gradual reopening of classes next semester because even if I am fully vaccinated, it makes me very anxious about traveling by PUV since I don’t have any private vehicles to use to go to the UP campus.”* Some are also anxious about the new surges caused by new variants. *“I am anxious about the gradual reopening of classes next semester, because most students might be exposed, especially now that there is a new variant, and there is a possibility that they might bring the disease back home to their families. Like me, for instance, I have a newborn baby at home”* (Respondent 115).

Lastly, unstable internet connection serves as one of the main sources of anxiety among the graduate students. The level of anxiety of students with an unstable internet connection is twice that of students with a stable internet connection. This finding supports the earlier findings of Paul et al. (2020), Islam et al. (2020), Muslimin and Harintama (2020), Hoque et al. (2021), Sifat (2020), and Lee et al. (2021).

CONCLUSION AND RECOMMENDATIONS

Graduate students of the College of Public Affairs and Development, University of the Philippines Los Baños have exhibited anxiety during the pandemic. The anxiety of the graduate students has a positive significant relationship with their worries on academic delay, online academic requirements, learning loss, gradual reopening of classes, impact on daily living, and economic impact. On the other hand, unstable internet connections, worries about online academic requirements, and worries about learning loss are the three factors associated with their anxiety. With the foregoing findings, the study recommends that the college design a mental health program for graduate students while considering the following: (1) Create a program that will motivate and guide the graduate students who are working on their dissertation, thesis, or feasibility report; (2) recognize that some graduate students are having difficulty with unstable internet connections; (3) professors must be mindful when assigning course requirements, but they must also ensure that students acquire the necessary competencies for the course; (4) professors should design flexible or online learning environments in which the students can interact in the same way they would in a face-to-face setting; and (5) the physical infrastructure should not only be the main consideration of the administration in the reopening of classes but also the safety of the students in public transportation and the status of COVID-19 cases.

One limitation of this study is that it was conducted in a specific context and population, limiting the generalizability of the findings to other contexts or populations. The study was only focused on graduate students at a particular university in the Philippines, which may not be representative of the experiences and anxiety levels of other student populations. In addition, the study was conducted during a specific time period, which may not reflect the ongoing and evolving effects of the COVID-19 pandemic on the anxiety levels of students. Lastly, the study did not investigate potential protective factors or coping mechanisms that could mitigate anxiety levels among graduate students during the pandemic. Future research may therefore focus on these limitations.

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REFERENCES

- Aucejo E.M., French J., Ugalde Araya M.P., Zafar B. (2020) The impact of COVID-19 on student experiences and expectations: Evidence from a survey. *Journal of Public Economics*, 191, 104271. <https://doi.org/10.1016/j.jpubeco.2020.104271>
- Baloran, E (2020) Knowledge, Attitudes, Anxiety, and Coping Strategies of Students during COVID-19 Pandemic. *Journal of Loss and Trauma*, 25(8), 635-642, <https://doi.org/10.1080/15325024.2020.1769300>
- Batterham, P. J., Calear, A. L., McCallum, S. M., Morse, A. R., Banfield, M., Farrer, L. M., ... & Dawel, A. (2021). Trajectories of depression and anxiety symptoms during the COVID-19 pandemic in a representative Australian adult cohort. *Medical Journal of Australia*, 214(10), 462-468. <https://doi.org/10.5694/mja2.51043>
- Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, et al. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, 287,112934. <https://doi.org/10.1016/j.psychres.2020.112934>
- Cohen J. (1992) A Power Primer. *Psychological Bulletin* 112(1), 155-159.
- Creswell, J. W., & Plano Clark, V. L. (2007). Designing and conducting mixed methods research. Thousand Oaks, CA: Sage
- de la Fuente, J., Amate, J., Gonzalez-Torres, M. C., Artuch, R., Garcia-Torrecillas, J. M., and Fadda, S. (2020). Effects of levels of self-regulation and regulatory teaching on strategies for coping with academic stress in undergraduate students. *Frontier Psychology*, 11(22). <https://doi.org/10.3389/fpsyg.2020.00022>
- Dhar, B. K., Ayithey, F. K., & Sarkar, S. M. (2020). Impact of COVID-19 on Psychology among the University Students. *Global Challenges*, 4(11), 2000038. <https://doi.org/10.1002/gch2.202000038>
- Donnelly, R., Patrinos, H.A. (2021). Learning loss during Covid-19: An early systematic review. *Prospects*. <https://doi.org/10.1007/s11125-021-09582-6>
- Ehlman K & Ligon M (2012) The application of generativity model for older adults. *International Aging Hum Development*, 74(4), 331-44. <https://doi.org/10.2190/AG.74.4.d>
- Eloff, I. (2021). College students' well-being during the COVID-19 pandemic: An exploratory study. *Journal of Psychology in Africa*, 31(3), 254-260. <https://doi.org/10.1080/14330237.2021.1939055>
- Esteves, C. S., Oliveira, C. R. D., & Argimon, I. I. D. L. (2021). Social distancing: prevalence of depressive, anxiety, and stress symptoms among Brazilian students during the COVID-19 pandemic. *Frontiers in Public Health*, 8, 923. <https://doi.org/10.3389/fpubh.2020.589966>
- Faisal, R.A., Jobe, M.C., Ahmed, O. & Sharker T. (2021) Mental Health Status, Anxiety, and Depression Levels of Bangladeshi University Students During the COVID-19 Pandemic. *International Journal of Mental Health Addiction*. <https://doi.org/10.1007/s11469-020-00458-y>
- Firang, D. (2020). The impact of COVID-19 pandemic on international students in Canada. *International Social Work*, 63(6), 820-824. <https://doi.org/10.1177/0020872820940030>
- Fornili, M., Petri, D., Berrocal, C., Fiorentino, G., Ricceri, F., Macciotta, A., Bruno, A., Farinella, D., Baccini, M., Severi, G., & Baglietto, L. (2021). Psychological distress in the academic population and its association with socio-demographic and lifestyle characteristics during COVID-19 pandemic lockdown: results from a large multicenter Italian study. *PLoS ONE*, 16(3), e0248370. <https://doi.org/10.1371/journal.pone.0248370>
- Garbe A., Ogurlu U., Logan N., & Cook P. (2020). COVID-19 and Remote Learning: Experiences of Parents with Children during the Pandemic. *American Journal of Qualitative Research*, 4(3), 45-65 <https://doi.org/10.29333/ajqr/8471>

- Garvey, A. M., Garcia, I. J., Ortal Franco, S. H., & Fernandez, C. M. (2021). The psychological impact of strict and prolonged confinement on business students during the COVID-19 pandemic at a Spanish university. *International Journal of Environmental Research and Public Health*, 18(4), 1710. <https://doi.org/10.3390/ijerph18041710>
- Hassan, B. A. R., Mohammed, A. H., Wayyes, A. M., Farhan, S. S., Al-Ani, O. A., Blebil, A., & Dujaili, J. (2022). Exploring the level of lockdown fatigue and effect of personal resilience and coping behaviours on university students during the covid-19 pandemic: a cross-sectional analysis from Iraq. *Current Psychology*, 1-9. <https://doi.org/10.1007/s12144-022-02779-8>
- Hawes, M. T., Szenczy, A. K., Klein, D. N., Hajcak, G., & Nelson, B. D. (2021). Increases in depression and anxiety symptoms in adolescents and young adults during the COVID-19 pandemic. *Psychological Medicine*, 1-9. <https://doi.org/10.1017/S0033291720005358>
- Hoque, M. N., Hannan, A., Imran, S., Alam, M. A., Matubber, B., & Saha, S. M. (2021). Anxiety and its determinants among undergraduate students during E-learning in Bangladesh amid covid-19. *Journal of Affective Disorders Reports*, 6, 100241. <https://doi.org/10.1016/j.jadr.2021.100241>
- Hossain, M. J., Ahmmmed, F., Rahman, S. A., Sanam, S., Emran, T. B., & Mitra, S. (2021). Impact of online education on fear of academic delay and psychological distress among university students following one year of COVID-19 outbreak in Bangladesh. *Heliyon*, 7(6), e07388. <https://doi.org/10.1016/j.heliyon.2021.e07388>
- Irawanto DW, Novianti KR, & Roz K. (2021). Work from Home: Measuring Satisfaction between Work–Life Balance and Work Stress during the COVID-19 Pandemic in Indonesia. *Economies*, 9(3),96. <https://doi.org/10.3390/economies9030096>
- Islam MA, Barna SD, Raihan H, Khan MNA, Hossain MT (2020) Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. *PLoS ONE* 15(8): e0238162. <https://doi.org/10.1371/journal.pone.0238162>
- Jones, H. E., Manze, M., Ngo, V., Lamberson, P., & Freudenberg, N. (2021). The impact of the COVID-19 pandemic on college students' health and financial stability in New York City: findings from a population-based sample of City University of New York (CUNY) students. *Journal of Urban Health*, 98(2), 187–196. <https://doi.org/10.1007/s11524-020-00506-x>
- Kapasia, P. Paul, A. Roy, et al. (2020) Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. *Children and Youth Services Review*, 116, 105194. <https://doi.org/10.1016/j.childyouth.2020.105194>
- Karaman, M. A., Lerma, E., Cavazos, J., and Watson, J. C. (2017). Predictors of academic stress among college students. *Journal of College Counseling*, 22, 41–55. <https://doi.org/10.1002/jocc.12113>
- Lasheras I, Gracia-Garcia P, Lipnicki DM, Bueno-Notivol J, Lopez-Anton R, de la Camara C, Lobo A, Santabarbara J. (2020). Prevalence of Anxiety in Medical Students during the COVID-19 Pandemic: A Rapid Systematic Review with Meta-Analysis. *International Journal of Environmental Research and Public Health*, 17(18),6603. <https://doi.org/10.3390/ijerph17186603>
- Lee, J., Jeong, H. J., & Kim, S. (2021). Stress, anxiety, and depression among undergraduate students during the COVID-19 pandemic and their use of mental health services. *Innovative higher education*, 1-20. <https://doi.org/10.1007/s10755-021-09552-y>
- Lee, J. (2020). Mental health effects of school closures during COVID-19. *The Lancet*. Advance online publication. [https://doi.org/10.1016/S2352-4642\(20\)30109-7](https://doi.org/10.1016/S2352-4642(20)30109-7)
- Marelli, S., Castelnuovo, A., Somma, A., Castronovo, V., Mombelli, S., Bottoni, D., ... & Ferini-Strambi, L. (2021). Impact of COVID-19 lockdown on sleep quality in university students and administration staff. *Journal of neurology*, 268(1), 8-15. <https://doi.org/10.1007/s00415-020-10056-6>
- Muslimin, A. I., & Harintama, F. (2020). Online learning during pandemic: Students' motivation, challenges, and alternatives. *Loquen: English Studies Journal*, 13(2), 60-68. <http://doi.org/10.32678/loquen.v13i2.3558>

- Neuendorf, K. A. (2018). Content analysis and thematic analysis. In *Advanced research methods for applied psychology* (pp. 211-223). Routledge.
- Nihayah, U., Sadnawi, A. S. A., Naillaturrafidah, N. (2021). The academic anxiety of students in pandemic era. *Journal of Advanced Guidance and Counseling*, 2(1), 39-55. <https://doi.org/10.21580/jagc.2020.2.1.6986>.
- Odrizola-gonzalez P, Planchuelo-gomez A., Jesus, R. De Luis-garcia M. (2020). Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish University. *Psychiatry Research*, 290, 113108. <https://doi.org/10.1016/j.psychres.2020.113108>
- Parczewska, T. (2021). Difficult situations and ways of coping with them in the experiences of parents homeschooling their children during the COVID-19 pandemic in Poland, *Education*, 49:7, 889-900. <https://doi.org/10.1080/03004279.2020.1812689>
- Paul, P., Roy, A., Saha, J., Zaveri, A., Mallick, R., ... & Chouhan, P. (2020). Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. *Children and Youth Services Review*, 116, 105194. <https://doi.org/10.1016/j.childyouth.2020.105194>
- Petry, N. M. (2002). A comparison of young, middle-aged, and older adult treatment-seeking pathological gamblers. *The gerontologist*, 42(1), 92-99. <https://doi.org/10.1093/geront/42.1.92>
- Pier, L., Hough, H. J., Christian, M., Bookman, N., Wilkenfeld, B., & Miller, R. (2021). Covid-19 and the educational equity crisis: Evidence on learning loss from the CORE data collaborative. *Policy Analysis for California Education*. <https://edpolicyinca.org/newsroom/covid-19-and-educational-equity-crisis>
- Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. *Higher Education for the Future*, 8(1), 133-141. <https://doi.org/10.1177/2347631120983481>
- Rakhmanov O. & Dane S. (2020). Knowledge and Anxiety Levels of African University Students Against COVID-19 During the Pandemic Outbreak by an Online Survey. *Journal of Research in Medical and Dental Science*, 8(3), 53-56. <https://www.jrmds.in/articles/knowledge-and-anxiety-levels-of-african-university-students-against-covid19-during-the-pandemic-outbreak-by-an-online-su.pdf>
- Savitsky B., Findling Y., Erel A., & Hendel T. (2020). Anxiety and coping strategies among nursing students during the covid-19 pandemic. *Nurse Education in Practice*, 46, 102809. <https://doi.org/10.1016/j.nepr.2020.102809>.
- Sifat, R. I. (2020). COVID-19 pandemic: Mental stress, depression, anxiety among the university students in Bangladesh. *Social Psychiatry*, 1(2). <https://doi.org/10.1177/0020764020965995>
- Talidong, K. J. B., & Toquero, C. M. D. (2020). Philippine teachers' practices to deal with anxiety amid COVID-19. *Journal of Loss and Trauma*. Advance online publication. <https://doi.org/10.1080/15325024.2020.1759225>
- 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>
- Townsend, E. (2020). Debate: the impact of school closures and lockdown on mental health in young people. *Child and adolescent mental health*, 25(4), 265-266. <https://doi.org/10.1111/camh.12428>
- Wang X, Hegde S, Son C, Keller B, Smith A, Sasangohar F. (2020). Investigating Mental Health of US College Students During the COVID-19 Pandemic: Cross-Sectional Survey Study. *Journal of Medical Internet Research*, 22(9):e22817. <https://doi.org/10.2196/22817>
- Wang, J., Liang, Z., Zhang, M., Kang, D., & Zeng, Q. (2022). Effects of the COVID-19 Pandemic on Chinese Graduate Students' Learning Activities: A Latent Class Analysis. *Frontiers in Psychology*, 13, 877106-877106. <https://doi.org/10.3389/fpsyg.2022.877106>