Online Class, Cyberbullying, and Internet Addiction during COVID-19 and Its Effect on Mental Health of UPM Undergraduate Students

Azeelah Yasmin Binti Azlee, Haslinda Abdullah, Zeinab Zaremohzzabieh

Full Terms & Conditions of access and use can be found at
http://hrmars.com/index.php/pages/detail/publication-ethics

Online Class, Cyberbullying, and Internet Addiction during COVID-19 and Its Effect on Mental Health of UPM Undergraduate Students

Azeelah Yasmin Binti Azlee[1], Haslinda Abdullah[1, 2], Zeinab Zaremohzzabieh[2]

[1]Faculty Human Ecology, Universiti Putra Malaysia, Serdang, 43400, Selangor, Malaysia,
[2]Institute for Social Science Studies, Universiti Putra Malaysia, Serdang, 43400, Selangor, Malaysia

Corresponding Author's Email: lynn@upm.edu.my

Abstract

The pandemic of COVID-19 is a major public health problem throughout the world. The study conducted is to examine whether the relationship between online classes, Cyberbullying, and internet addiction can affect the mental health of undergraduate students at Universiti Putra Malaysia. The respondent is randomly chosen from students. The study employed quantitative methodology by distributing questionnaires among undergraduate students (n=167). The results of the study show that there is a significant difference in the mental health of depression and stress between male and female students. However, there are contradictory results for the mental health of anxiety the result demonstrated that there was no significant difference in the mental health of anxiety between male and female students. Furthermore, it also was found that there was a significantly correlated in all relationships between online classes and mental health, for Internet addiction and mental health among undergraduate students. There was a contradiction for cyberbullying as the result was only significantly correlated for mental health (stress), mental health (depression) and anxiety was not significantly correlated. The results indicated that both independent variables of cyberbullying and Internet addiction behavior were found to be significant predictors of mental health among undergraduate students. The results of this study are thought to aid other researchers by adding to the scant academic literature in this field.

Keywords: Anxiety, Cyberbullying, Depression, Gender, Internet Addition, Mental Health, Stress, Students

Introduction

Mental health is a condition of mental wellness that helps people to manage life's stressors, develop their potential, study and work effectively, and give back to their communities. It is a crucial element of health and well-being that supports both our individual and group capacity to decide, form connections, and influence the world we live in (WHO, 2022). Emotional, psychological, and social well-being are all parts of mental health (Bekalu et al., 2019). Unfortunately, mental health is frequently depicted poorly, particularly between the

247

years 17 to 24 years old, which is considered a peak period for the emergence of mental health disorders (Scott et al., 2016).

There is compelling evidence that mental health issues can have seriously detrimental impacts on university students' development, including long-term negative effects on how later-in-life adults perform in the job market (Ma et al., 2020). Mental health problems are significant predictors of university dropout and academic performance, and a significant number of students with mental health problems who do not drop out have a detrimental impact on academic performance as a result of their emotional issues (Auerbach et al., 2018). Moreover, widespread outbreaks have a significant detrimental influence on people's mental health and well-being (Bao et al., 2020). After the outbreak of Covid-19, many individuals, particularly students, have been impacted by the lockdown. As a result, several universities have discontinued classroom instruction in favor of online instruction, and students' lives have altered dramatically (Choi et al., 2021).

Students' mental health is frequently related to their perception of class learning as a burden. Yet, other additional elements contribute to their mental health issues, particularly during the current Covid-19 pandemic. As a result of the pandemic's impact, there has been an increase in mental health concerns among students (Zhai & Du, 2020). Similarly, cyberbullying situations are becoming more prevalent as a result of the rise in internet use during the pandemic, as kids spend more time surfing the internet (Jain et al., 2020). In addition, Internet addiction is also one of the factors that contribute to mental health issues in students. The COVID-19 pandemic's mental health problems have increased reliance on the Internet to satisfy fundamental demands and duties (Lin, 2020).

According to Wang et al (2020), some vulnerable students may have worsening mental health concerns as a result of increased internet activity, especially when forced into self-isolation or "lockdown" situations. Most of the lessons and even the tests were held online during the lockdown since many students chose to take the simple road and rely only on information retrieval via the internet. People are hesitant to attend a scheduled online class because they believe that the video of the session may be seen whenever they want. As a consequence, they won't comprehend what they are learning and will miss the syllabus, which will negatively impact their mental health.

Various things might affect students' mental health, particularly during COVID-19 lockdowns. According to a survey conducted by the University of Malaya, nearly 30% of students suffered from depression, with 4.4% experiencing severe depression (Islam et al., 2018). No notable research in Malaysia attempted to examine the consequences of using the internet and its negative elements (e.g., going online, cyberbullying, internet addiction) on Malaysian students' mental health issues such as depression, anxiety, and stress throughout the pandemic. As a result, the purpose of this study is to examine the factors that affect Malaysian students' mental health.

Literature Review and Hypothesis Development
Demographic Background and Mental Health
According to Chen et al (2020), age is an important demographic factor while researching since there are an increasing number of instances each year that record mental health issues among university students. According to Sheldon et al (2021), higher education students are more likely than children to experience mental health issues. The academic workload and being away from school are just a few of the issues college students face at this time of their lives (Kumaran et al., 2022). Furthermore, male students had better mental health status

than female students, according to Pant and Srivastava (2019), although the difference was not statistically significant. However, they stated that female students experience depression more frequently than male students do because females tend to ruminate more often than males do, spending more time actively thinking about difficulties and unpleasant feelings. It was discovered that there was statistically significant variation in the states of mental health among the different ethnic groups. Comparing Indian students to their Malay, Sabahan, Sarawakian, and Chinese colleagues, Indians showed greater mental health (Foo et al., 2014; Omar et al., 2020). This finding, however, was in contrast with research by Sidik et al (2003), which said that medical students of various ethnicities and Indian, Malay, and Chinese backgrounds did not vary from each other in terms of emotional disorders.

Online Class and Mental Health
Online education is not a recent development in Malaysia. This teaching strategy was used in several educational institutions before the COVID-19 pandemic. The expansion of distance learning in Malaysia throughout the era of online learning started in 1972, the year the Ministry of Education established the Education Technology Division (Goi & Ng, 2008). Universities have been able to make significant changes to how students interact and communicate with one another as a result of the COVID-19 pandemic. Due to taking online classes during the pandemic, several students acknowledged experiencing mental health problems. Verma et al.'s (2021) study found that 97% of the students were impacted by the lockdown. According to Pramukti et al (2020), factors linked with high levels of anxiety varied across nations, with Thai students having the greatest levels of anxiety.

Cyberbullying and Mental Health
According to Smith et al. (2018), bullying is a form of aggressive conduct that one student or group of students purposefully and frequently engage in toward another student and is unable to be retaliated against owing to a disparity in power. This kind of conduct is seen as Information and communication technology (ICT) tools including mobile phones, email, social networks, blogs, and webpages are all examples of cyberbullying. When it harms people's mental health, particularly students, cyberbullying can get worse. Since the pandemic began, the majority of students have spent a lot of time online, increasing their likelihood of being victims of cyberbullying (Barlett et al., 2021). According to Alrajeh et al (2021), 6.8% of students were cyberbully perpetrators, 29.2% were cyber victims, 35.8% were cyberbully victims, and 28.2% were not involved in any kind of cyberbullying. It is well known that bullying and cyberbullying have detrimental short-, medium-, and long-term effects and that both bullies and victims of bullying are more likely to experience psychosocial maladjustment and psychopathological disorders and symptoms in students (Baldwin et al., 2021).

Internet Addiction and Mental Health
The increase in participation in online activities during COVID-19 is concerning since it is more widespread than anticipated. According to Alpuente et al (2021), increased online activity may be harmful to some vulnerable people's mental and physical health, especially in situations where self-isolation or "lockdown" is required. Many individuals relied on online interaction to fulfill fundamental requirements including interacting with others, getting access to food and medical care, working, and fulfilling other duties. Anxiety, sadness, stress, and obsessive-compulsive disorder are just a few of the psychological and mental health

issues that regular internet use has been linked to, according to research by Verma et al (2021). It's because people have become so reliant on the internet for fundamental requirements that they have forgotten how to interact with friends and family. However, most students who are internet addicts don't utilize the internet for educational objectives. They devote the majority of their time to mindless activities like playing video games or using social media. This is supported by research conducted by Bhattarai et al (2021), which found that social networking was the most popular reason for utilizing the Internet (81.1%), followed by YouTube (41.5%). Just 13% of the participants use the Internet for academic objectives, while the remaining 87% primarily use it for enjoyment. Thus, the current study attempts to propose the below hypotheses:

H_1: There is a significant difference between gender and mental health of university students:

H_{1a}: There is a significant difference between male and female university students in terms of depression.

H_{1b}: There is a significant difference between male and female university students in terms of anxiety.

H_{1c}: There is a significant difference between male and female university students in terms of stress.

H_2: There is a significant correlation between online classes and the mental health of university students:

H_{2a}: There is a significant correlation between attending online classes and depression.

H_{2b}: There is a significant correlation between attending online classes and anxiety.

H_{2c}: There is a significant correlation between attending online classes and stress.

H_3: There is a significant correlation between cyberbullying and the mental health of university students:

H_{3a}: There is a significant correlation between cyberbullying and depression.

H_{3b}: There is a significant correlation between cyberbullying and anxiety.

H_{3c}: There is a significant correlation between cyberbullying and stress.

H_4: There is a significant correlation between Internet addiction and the mental health of university students:

H_{4a}: There is a significant correlation between Internet addiction and depression.

H_{4b}: There is a significant correlation between Internet addiction and anxiety.

H_{4c}: There is a significant correlation between Internet addiction and stress.

H_5: Online classes, cyberbullying, and Internet addiction positively predict the mental health of university students.
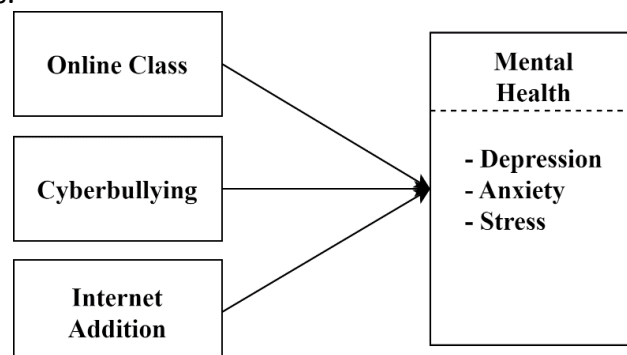

Figure 1. Conceptual framework of the study.

Methods

Participants and Procedures

The current study took a quantitative method. For data collection, this study will employ a questionnaire distributed to respondents. Additionally, a correlational design will be employed to investigate this research study. This research would be conducted in Malaysia, namely at Universiti Putra Malaysia (UPM) in Serdang, Malaysia.

In this study, the researchers utilized stratification sampling and simple random sampling technique to select participants from the target population, which consists of students at Universiti Putra Malaysia (UPM). The respondents were picked at random from a population of 18,772 students specifically located on campus. Using Cochran's (1977) sample size formula, the sample size required for this investigation is 400 respondents. We sent out 400 samples but received only 160 samples in return, it indicates a response rate of 40%. This means that out of the 400 individuals who were approached or invited to participate in the study, only 160 actually completed and returned their responses.

Measures

Mental Health. The DASS-21 Test developed by Lovibond and Lovibond (1995) was used to assess students' mental health. This measure was used to examine if depressive disorders were present in students' inpatients. There were 21 items, and the response type was a four-point Likert Scale. Each item must be rated by the respondent on a scale of 0 (Did not apply to me) to 3 (Applied to me very much or most of the time). The higher respondent's score is, the more serious their condition. Sample items are "I found it difficult to relax", "I felt I wasn't worth much as a person" and "I felt that life was meaningless". The DASS-21 scales' reported reliabilities were 0.88 for depression, 0.82 for anxiety, 0.90 for stress, and 0.93 for the whole scale (Henry & Crawford, 2005).

Online class. The online Learning/Distance Education Questionnaire was used to measure online classes developed by (Concordia University, 2003). This measure was developed to assess the success of online class student reliance. The goal of this instrument was to offer instructors feedback on their lessons in online classes. There were 7 different items employed. Afterward, all seven items will be combined to determine the likelihood of each item option. The highest possible point total is 100%. The lower the respondent's condition, the higher their score. "Active learning," "student cooperation," and "time on task" are some examples of inquiries. The reported reliability (Cronbach's α) of OLDEQ was 0.97 (Bolliger & Inan, 2012).

Cyberbullying. A revised version of the Bully/Victim questionnaire (OBVQ-R) was used to measure cyberbullying (Olweus, 2008). This instrument was used to build a scale with reliability and validity tests, to assess online bully behaviors of students, such as "cyber bully" and "cyber victim". This constructed reliable and valid scale might be utilized in the literature to measure cyberbullying behaviors. Utilizing this scale, the personalities of online victims and bullies might be described, as well as the distinctions between cyber victims and bullies in terms of demographic parameters. According to Andreou et al (2021), teaching staff have given and scored this item, which is also extensively used to evaluate cyberbullying among adults and adolescents. There were 15 items and the responses were categorized on a 5-point Likert scale ranging from 1 (never happened to me in the recent two months) to 5 (it happened to me several times a week). A sample item is: "To spread sexual rumors via Internet/Telephone". The Cronbach's α of this measure was 0.80 (Gothwal et al., 2013).

Internet Addiction. The Internet Addiction Test (IAT) was used to measure internet addiction among students which were developed by (Young, 2009). This tool was developed to assess the prevalence and severity of people's Internet and technology dependency. Being a rising cultural and clinical concern, Internet addiction is recognized as a new clinical condition that necessitates examination and treatment. There were 20 items, and the response styles were five-point Likert Scale. Respondents are required to rate each item ranging from 1 (Never) to 5 (Always). A sample item is: "How frequently do you find yourself staying online longer than you intended?" The reliability of this measure was reported at 0.82 (Lam & Peng, 2010).

Data Analysis
For data analysis in this study, the Statistical Package for Social Science version 25.0 (SPSS) will be used. The association between online classes, cyberbullying, internet addiction, and student mental health was studied using quantitative data. The current study employed descriptive analysis, t-tests, Pearson correlations, and multiple regression analysis.

Pilot Study
Thirty students from other universities were chosen to take part in this pilot study. Because of the small sample size, this pilot test was carried out using Google Forms. The pilot testing in this study was designed to investigate the dependability and efficacy of the equipment employed. Cronbach's alpha showed the instrument's dependability in a pilot trial. The findings of the pilot study and the real study are shown in Table 1.

Table 1
Summary of questionnaire Cronbach's Alpha in the Pilot Test.

No.	Scales	Total items	Pilot study (n=30)	Actual study (n=167)
1	Online Learning /Distance Education Questionnaire	26	0.81	0.913
2	Internet Addiction Test (IAT)	20	0.91	0.961
3	Olweus' bully/victim questionnaire	15	0.952	0.852
4	Depression Anxiety and Stress Scale 21 (DASS-21)	21	0.972	0.93

Results
Descriptive Analysis
Descriptive Analysis was performed to establish the demographic background (age, gender, university, race, religion, and faculty) of undergraduate students (Table 2).

Table 2
Demographic background information of respondents. (N=167).

Variable	n	%	Mean	SD
Age			22.06	1.938
Gender				
Male	72	43.1		
Female	95	56.9		
Race				
Chinese	28	16.8		
Indian	8	4.8		
Malay	130	77.8		
Others	1	0.6		
Religion				
Buddhist	22	13.2		
Hindu	5	3		
Muslim	131	78.4		
Christian	9	5.4		
Field of study				
Social Sciences	98	56.65		
Science and Technology	69	43.32		

T-Test Analysis

T-test analysis was utilized to assess mental health (Depression, Anxiety, and Stress) differences between male and female undergraduate students. Undergraduate students have significantly different mental health (Depression) depending on their gender. Males average 3.21 while females average 3.89. The findings show that female students experience higher despair than male students (Table 3). Therefore, H_{1a} was rejected. The results showed that the p-value is higher than (0.05). Hence, there is no discernible gender difference in the mental health (Depression) of undergraduate students. Thus, H_{1b} was accepted. The p-value is less than 0.05. As a result, undergraduate students' mental health (Stress) varies significantly depending on their gender. Males average 3.21 while females average 3.89. The findings show that women experience greater stress than male pupils. Hence, H_{1c} was rejected.

Table 3
The difference in the level of mental health between men and women (N=167).

Variable			
Gender	**Mean Score**	**t**	**p**
		Depression	
Male	3.21	-3.592	.000
Female	3.89		
		Anxiety	
Male	4.01	-1.760	.080
Female	4.35		
		Stress	
Male	2.44	-4.073	.000
Female	3.31		

Pearson Correlation Analysis

To determine the relationship between online classes, cyberbullying, and internet addiction among students, Pearson Correlation Analysis was used (Table 4). According to the results, there is a statistically significant correlation between taking an online class and being depressed (r=-0.192, p<0.05). Therefore, H_{2a} was approved. In addition, there is a statistically significant correlation between anxiety and taking online classes (r=-0.184, p<0.05). Thus, H_{2b} is approved. Finally, there is a statistically significant correlation between stress and taking an online course (r=-0.192, p<0.05). Thus, H_{2c} was accepted.

According to the findings, there is no statistically significant correlation between depression and cyberbullying (r=0.129, p>0.05). H_{3a} was therefore rejected. Moreover, there is a statistically significant correlation between anxiety and cyberbullying (r=0.217, p<0.05). H_{3b} was therefore accepted. Finally, there is no statistically significant correlation between stress and cyberbullying (r=0.140, p>0.05). H_{3c} was therefore rejected.

Based on the findings, there is a statistically significant correlation between Internet addiction and depression (r= .242, p<0.05). Therefore, H_{4a} was accepted. In addition, there is a significant association between Internet addiction and anxiety (r=.279, p<0.05). Thus, H_{4b} was accepted. Finally, there is a significant correlation between Internet addiction and stress (r=.306, p<0.05). Hence, H_{4c} was approved.

Table 4
Pearson correlation between online classes, cyberbullying, Internet addiction, and mental health (N=167).

Variable	r	p	Decision
Depression			
Online class	-.192	.013	Supported
Cyberbullying	.129	.098	Not supported
Internet addiction	.242	.002	Supported
Anxiety			
Online class	-.184	.017	Supported
Cyberbullying	.217	.005	Supported
Internet addiction	.279	.000	Supported
Stress			
Online class	-.209	.007	Supported
Cyberbullying	.140	.071	Not supported
Internet addiction	.306	.000	Supported

Multiple Linear Regression

Two variables were shown to positively predict mental health: respondent's Internet addiction 0.321 [F=0.000, p=0.000] and cyberbullying 0.238 [= 0.000, p =0.000]. Cyberbullying was the second-strongest positive predictor after internet addiction. It should be highlighted that respondents with higher levels of Internet addiction and cyberbullying typically have lower mental health (Table 5). H_5 is thus only partially accepted. The factors might account for 19.2% of the variance in mental health (R^2 = .192).

Table 5

Multiple linear regression analysis for determining the mental health of undergraduate students between online classes, cyberbullying, and internet addiction (N=167).

Variable	Mental health			
	B	SE.B	B	P
Online class	-.259	.072	.367	0.000
Cyberbullying	.238			
Internet addiction	.321			

Discussion and Implications

The current findings support previous research (e.g., Debowska et al., 2022) that revealed that significant depression is more common in women than in males during the COVID-19 pandemic, starting in early adulthood, complementing this conclusion. In addition, the current findings, however, conflict with earlier research (e.g., Gerencheal, 2016), which revealed that gender has a substantial impact on anxiety and that girls experience anxiety at a higher rate than males. Female students are experiencing more anxiety than males, according to Pickering et al (2020), who also found that they had more anxiety-related symptoms. The results of our study support previous studies such as Turner et al.'s (1995) findings, which examined estimates of stress exposure, and revealed that women reported higher levels of stress than males. Early in adulthood, women's health assessments may be poorer than men's (Ross & Bird, 1994). In addition, stress is the mental disorder with the highest prevalence rate among women (5.1%) compared to males (3.6%), according to the (WHO, 2022).

The results of the present study, however, go counter to other research that suggested that taking classes online can affect students' levels of sadness. This is supported by research by Shawaqfeh et al (2020), which discovered that up to 75% of students had trouble adjusting to the unfamiliar environment of an online class. Nevertheless, these results conflict with other research. Wang et al (2020) reported that anxiousness is common among online students in their first years of college in China. This study also shows that students who take classes online are prone to have anxiety about their capacity to succeed in what may be a foreign learning environment. In addition, similarly, Bates and Khasawneh (2007) discovered that anxiety was one of the predictors of self-efficacy in online learning.

Our results confirm earlier research that showed students taking online classes experience less stress than those taking traditional classes. According to Wu and Nian (2021), university students who participate in online classes have more opinions and options for solving problems. They are also better able to apply new knowledge to their own experiences and achieve significantly higher test scores than students who participate in comparable face-to-face discussion groups. According to Kim and Bonk (2006), Finnish students who spoke English as a second language had less inhibition while participating in online chats. There are differences from the earlier study, which revealed that cyberbullying did affect students' levels of depression. They are more susceptible to developing depression in the future because of the considerable relationship between cyberbullying (victimization and interpretation) and depression (Zhang et al., 2020). Prior studies also show that university students who are the targets of cyberbullying experience anxiety, which has an impact on their academic performance (e.g., Aparisi et al., 2021). Additionally, other studies by Cenat et al (2019) revealed that the harm brought on by cyberbullying can negatively impact students' ability to interact in social and professional settings daily, result in the loss of vital support

networks that promote emotional health, and make them more susceptible to self-destructive behavior that causes anxiety.

The study's findings, however, conflict with those of earlier research by Garaigordobil and Machimbarrena (2019), which found that students with greater victimization and interpretation scores also had considerably higher levels of overall stress. Previous studies (e.g., Ahmed et al., 2022) claim that research on internet addiction and depression showed that the excessive use of the internet, which disrupts an individual and the people around them) was associated with an increase in the frequency of depression. This finding can be supported by those studies. Therefore, it can be said that this result is consistent with other studies that have discovered a positive relationship between internet addiction and anxiety. Yang (2011) stated that this is because increased internet use is linked to some social and psychologically unfavorable variables, such as shrinking social networks brought on by anxiety. According to other research, problematic internet use may exacerbate social anxiety and the avoidance of social situations (Lee & Stapinski, 2012).

Several studies already conducted have demonstrated that stress and internet addiction are strongly associated, and that stressed teenagers are more stressed than typical adolescents. Some studies have similar findings, such as Zhang et al (2018), which discovered that Internet addiction harms students' learning motivation and has a good effect on academic delay since it compromises their overall well-being and causes stress. Due to the rise in Internet play and the computer revolution, internet addiction was more closely tied to students' mental health than any other factor. According to Abbasi et al (2021), students utilized the internet for educational, informational, and entertainment purposes far more often than they did to spend time with their families and other people. This finding is supported by prior research by Khazaie et al (2021), which predicted that due to Iran's growing Internet penetration, there will be 15 million daily Internet users in schools and colleges.

The results of this study have a wide range of implications for several important parties and ongoing research. First off, the new study has added to the body of knowledge about mental health. The global pandemic COVID-19, which lasted for nearly three years, was the subject of this study's data analysis on students' mental health. This study thus sought to determine whether online learning, cyberbullying, and internet addiction had an impact on undergraduate students' mental health when the pandemic occurred. It provides a deeper understanding of how technological use—including online learning, cyberbullying, and internet addiction—can affect college students' mental health. Together with that, this study also attempts to find out more about how these three variables relate to students' mental health. Because of this, the study's findings are crucial and serve as a tool for determining which element is most important for student's mental health. Another implication is that this research may inform parents and educators about the state of university students' mental health and raise awareness of the need for increased attention to this issue for their well-being. According to the present study, the majority of students genuinely appreciate taking online classes during pandemics, although there are drawbacks. The majority of them have been involved in cyberbullying and internet addiction as a result of spending so much time online. In addition, this study has found that the most important factors affecting university students' mental health are internet addiction and cyberbullying.

There are various recommendations from the current study for more research. In terms of methodology, future studies are urged to gather information from a bigger sample, such as from three or more Malaysian institutions. A single institution in Malaysia is also suggested, however, a larger sample size might be more useful given that the current study is solely

limited to the population of UPM undergraduate students. To continue gaining a thorough picture of undergraduate students' mental health in the context of Malaysia, data collection from both public and private universities is encouraged. If the research is carried out at other Malaysian institutions and states, it will also fairly reflect the entire population. If more students from different universities in other states can be gathered for future studies, the results will also have a higher ability to generalize. During the COVID-19 pandemic, mental health is one of the newer problems that has affected people from all walks of life, but mainly students. However, there is still much that needs to be learned and understood about this particular topic as it relates to undergraduate university students in the Malaysian environment. Internet addiction appears to have a more substantial association with the mental health of UPM undergraduate students than online classes, cyberbullying, or other independent factors, according to the present study's conclusions on this topic. To support and validate the findings of the current study, it is advised that future studies thoroughly examine the existing literature on internet addiction and its association with mental health in various contexts. The severity of internet addiction's potential impact on undergraduate students' mental health in the context of a pandemic may also be revealed.

The study looked at the relationship between mental health and factors that might have an impact on it, including online education, cyberbullying, and internet addiction. The current study, like other studies, has several limitations that must be addressed in follow-up research. The students at Universiti Putra Malaysia (UPM) are the only respondents to this study. Thus, it is important to be cautious when extrapolating the current findings to other groups. Moreover, the number of respondents in this study is limited to over 100 individuals of different racial backgrounds, ages, and genders who were chosen at random to complete questionnaires. Future research should use a bigger sample size to examine university students' mental health. The respondents were university students, and the veracity of the survey's findings completely depended on how truthfully they responded to the survey's questions. Prospective research must include a variety of methods, including interviews, observation, and longitudinal research, to examine students' mental health and its influencing factors.

References

Abbasi, G. A., Jagaveeran, M., Goh, Y.-N., & Tariq, B. (2021). The impact of type of content use on smartphone addiction and academic performance: Physical activity as moderator. *Technology in Society*, *64*, 101521.

Ahmed, T., Ivan, S., Kabir, M., Mahmud, H., & Hasan, K. (2022). Performance analysis of transformer-based architectures and their ensembles to detect trait-based cyberbullying. *Social Network Analysis and Mining*, *12*(1), 99.

Alrajeh, S. M., Hassan, H. M., Al-Ahmed, A. S., & Alsayed Hassan, D. (2021). An investigation of the relationship between cyberbullying, cybervictimization and depression symptoms: A cross sectional study among university students in Qatar. *PloS One*, *16*(12), e0260263.

Andreou, E., Tsermentseli, S., Anastasiou, O., & Kouklari, E.-C. (2021). Retrospective accounts of bullying victimization at school: Associations with post-traumatic stress disorder symptoms and post-traumatic growth among university students. *Journal of Child & Adolescent Trauma*, *14*, 9–18.

Aparisi, D., Delgado, B., Bo, R. M., & Martínez-Monteagudo, M. C. (2021). Relationship between cyberbullying, motivation and learning strategies, academic performance, and

the ability to adapt to university. *International Journal of Environmental Research and Public Health*, *18*(20), 10646.

Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., Demyttenaere, K., Ebert, D. D., Green, J. G., & Hasking, P. (2018). WHO world mental health surveys international college student project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology*, *127*(7), 623–638.

Baldwin, J. R., Ayorech, Z., Rijsdijk, F. V., Schoeler, T., & Pingault, J.-B. (2021). Cyber-victimisation and mental health in young people: A co-twin control study. *Psychological Medicine*, *51*(15), 2620–2630.

Bao, Y., Sun, Y., Meng, S., Shi, J., & Lu, L. (2020). 2019-nCoV epidemic: Address mental health care to empower society. *The Lancet*, *395*(10224), e37–e38.

Barlett, C. P., Simmers, M. M., Roth, B., & Gentile, D. (2021). Comparing cyberbullying prevalence and process before and during the COVID-19 pandemic. *The Journal of Social Psychology*, *161*(4), 408–418.

Bates, R., & Khasawneh, S. (2007). Self-efficacy and college students' perceptions and use of online learning systems. *Computers in Human Behavior*, *23*(1), 175–191.

Bekalu, M. A., McCloud, R. F., & Viswanath, K. (2019). Association of social media use with social well-being, positive mental health, and self-rated health: Disentangling routine use from emotional connection to use. *Health Education & Behavior*, *46*(2_suppl), 69S–80S.

Bhattarai, S., Angolkar, M., Chate, S. S., & Dhagavkar, P. S. (2021). Internet addiction and its impact on mental health among dental students, Belagavi. *Journal of the Scientific Society*, *48*(3), 192–196.

Bolliger, D. U., & Inan, F. A. (2012). Development and validation of the online student connectedness survey (OSCS). *International Review of Research in Open and Distributed Learning*, *13*(3), 41–65.

Cenat, J. M., Smith, K., Hebert, M., & Derivois, D. (2019). Cybervictimization and suicidality among French undergraduate students: A mediation model. *Journal of Affective Disorders*, *249*, 90–95.

Chen, R., Liang, S., Peng, Y., Li, X., Chen, J., Tang, S., & Zhao, J. (2020). Mental health status and change in living rhythms among college students in China during the COVID-19 pandemic: A large-scale survey. *Journal of Psychosomatic Research*, *137*, 110219.

Choi, J.-J., Robb, C. A., Mifli, M., & Zainuddin, Z. (2021). University students' perception to online class delivery methods during the COVID-19 pandemic: A focus on hospitality education in Korea and Malaysia. *Journal of Hospitality, Leisure, Sport & Tourism Education*, *29*, 100336.

Cochran, W. G. (1977). The estimation of sample size. *Sampling Techniques*, *3*, 72–90.

Concordia University. (2003). *Online Learning/Distance Education Questionnaire*. Concordia University. https://www.concordia.ca/content/dam/artsci/research/cslp/docs/OnlineInstrument_23Aug04.pdf

Debowska, A., Horeczy, B., Boduszek, D., & Dolinski, D. (2022). A repeated cross-sectional survey assessing university students' stress, depression, anxiety, and suicidality in the early stages of the COVID-19 pandemic in Poland. *Psychological Medicine*, *52*(15), 3744–3747.

Foo, X. Y., Alwi, M. N., Ismail, S. I. F., Ibrahim, N., & Osman, J. Z. (2014). Religious commitment, attitudes toward suicide, and suicidal behaviors among college students of different ethnic and religious groups in Malaysia. *Journal of Religion and Health*, *53*, 731–746.

Garaigordobil, M., & Machimbarrena, J. M. (2019). Victimization and perpetration of bullying/cyberbullying: Connections with emotional and behavioral problems and childhood stress. *Psychosocial Intervention*, *28*(2), 67–73.

Gerencheal, B. (2016). Gender Differences in Foreign Language Anxiety at an Ethiopian University: Mizan-Tepi University Third Year English Major Students in Focus. *Online Submission*, *1*(1), 1–16.

Goi, C., & Ng, P. Y. (2008). E-learning in Malaysia: Success factors in implementing e-learning program. *International Journal of Teaching and Learning in Higher Education*, *20*(2), 1–30.

Gothwal, V. K., Sumalini, R., Irfan, S. M., Giridhar, A., & Bharani, S. (2013). Revised olweus bully/victim questionnaire: Evaluation in visually impaired. *Optometry and Vision Science*, *90*(8), 828–835.

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, *44*(2), 227–239.

Islam, M. A., Low, W. Y., Tong, W. T., Yuen, C. W., & Abdullah, A. (2018). *Factors associated with depression among university students in Malaysia: A cross-sectional study*. 415–427.

Jain, O., Gupta, M., Satam, S., & Panda, S. (2020). Has the COVID-19 pandemic affected the susceptibility to cyberbullying in India? *Computers in Human Behavior Reports*, *2*, 100029.

Khazaie, H., Lebni, J. Y., Abbas, J., Mahaki, B., Chaboksavar, F., Kianipour, N., Toghroli, R., & Ziapour, A. (2021). Internet addiction status and related factors among medical students: A cross-sectional study in Western Iran. *International Quarterly of Community Health Education*, 0272684X211025438.

Kim, K.-J., & Bonk, C. J. (2006). The future of online teaching and learning in higher education. *Educause Quarterly*, *29*(4), 22–30.

Kumaran, V. V., Ismail, M. K., Thinagar, S., & Roslan, S. N. M. (2022). Mental Health Disorder among Malaysian Universities Students during COVID-19 Pandemic. *Asian Journal of University Education*, *18*(3), 735–744.

Lam, L. T., & Peng, Z.-W. (2010). Effect of pathological use of the internet on adolescent mental health: A prospective study. *Archives of Pediatrics & Adolescent Medicine*, *164*(10), 901–906.

Lee, B. W., & Stapinski, L. A. (2012). Seeking safety on the internet: Relationship between social anxiety and problematic internet use. *Journal of Anxiety Disorders*, *26*(1), 197–205.

Lin, M.-P. (2020). Prevalence of internet addiction during the COVID-19 outbreak and its risk factors among junior high school students in Taiwan. *International Journal of Environmental Research and Public Health*, *17*(22), 8547.

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*(3), 335–343.

Ma, Z., Zhao, J., Li, Y., Chen, D., Wang, T., Zhang, Z., Chen, Z., Yu, Q., Jiang, J., & Fan, F. (2020). Mental health problems and correlates among 746 217 college students during the

coronavirus disease 2019 outbreak in China. *Epidemiology and Psychiatric Sciences*, *29*, 1–10.

Sidik, M. S., Rampal, L., & Kaneson, N. (2003). Prevalence of emotional disorders among medical students in a Malaysian university. *Asia Pacific Family Medicine*, *2*(4), 213–217.

Olweus, D. (2008). *Bullying is not a fact of life*. US Department of Health and Human Services, Substance Abuse and Mental ….

Omar, S. Z., Zaremohzzabieh, Z., Samah, A. A., Bolong, J., & Shaffril, H. A. M. (2020). Influence of Different Facets of Internet Addiction on Subjective Well-being in Malaysia: A Comparison Across Ethnic Groups. *Jurnal Komunikasi: Malaysian Journal of Communication*, *36*(2), 196–211.

Pant, N., & Srivastava, S. K. (2019). The impact of spiritual intelligence, gender and educational background on mental health among college students. *Journal of Religion and Health*, *58*, 87–108.

Pickering, L., Hadwin, J. A., & Kovshoff, H. (2020). The role of peers in the development of social anxiety in adolescent girls: A systematic review. *Adolescent Research Review*, *5*, 341–362.

Pramukti, I., Strong, C., Sitthimongkol, Y., Setiawan, A., Pandin, M. G. R., Yen, C.-F., Lin, C.-Y., Griffiths, M. D., & Ko, N.-Y. (2020). Anxiety and suicidal thoughts during the COVID-19 pandemic: Cross-country comparative study among Indonesian, Taiwanese, and Thai university students. *Journal of Medical Internet Research*, *22*(12), 1–12.

Ross, C. E., & Bird, C. E. (1994). Sex stratification and health lifestyle: Consequences for men's and women's perceived health. *Journal of Health and Social Behavior*, *35*(2), 161–178.

Scott, K. M., Lim, C., Al-Hamzawi, A., Alonso, J., Bruffaerts, R., Caldas-de-Almeida, J. M., Florescu, S., De Girolamo, G., Hu, C., & De Jonge, P. (2016). Association of mental disorders with subsequent chronic physical conditions: World mental health surveys from 17 countries. *JAMA Psychiatry*, *73*(2), 150–158.

Shawaqfeh, M. S., Al Bekairy, A. M., Al-Azayzih, A., Alkatheri, A. A., Qandil, A. M., Obaidat, A. A., Al Harbi, S., & Muflih, S. M. (2020). Pharmacy students perceptions of their distance online learning experience during the COVID-19 pandemic: A Cross-Sectional Survey Study. *Journal of Medical Education and Curricular Development*, *7*, 1–9.

Sheldon, E., Simmonds-Buckley, M., Bone, C., Mascarenhas, T., Chan, N., Wincott, M., Gleeson, H., Sow, K., Hind, D., & Barkham, M. (2021). Prevalence and risk factors for mental health problems in university undergraduate students: A systematic review with meta-analysis. *Journal of Affective Disorders*, *287*, 282–292.

Smith, P. K., Sundaram, S., Spears, B. A., Blaya, C., Schäfer, M., & Sandhu, D. (2018). *Bullying, cyberbullying and student well-being in schools: Comparing European, Australian and Indian perspectives*. Cambridge University Press.

Turner, R. J., Wheaton, B., & Lloyd, D. A. (1995). The epidemiology of social stress. *American Sociological Review*, *60*(1), 104–125.

Verma, S. K., Kumar, B. D., Chandra, S., Singh, N., Kumari, P., & Verma, A. (2021). Knowledge, attitude, and psychological effect on undergraduate/postgraduate students in lockdown COVID-19 situation. *Journal of Pharmacy & Bioallied Sciences*, *13*(Suppl 1), S696–S698.

Wang, C., Zhao, H., & Zhang, H. (2020). Chinese college students have higher anxiety in new semester of online learning during COVID-19: A machine learning approach. *Frontiers in Psychology*, *11*, 587413.

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.

WHO. (2022). *Mental health: Strengthening our response*. World Health Organization. https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response

Wu, J.-Y., & Nian, M.-W. (2021). The dynamics of an online learning community in a hybrid statistics classroom over time: Implications for the question-oriented problem-solving course design with the social network analysis approach. *Computers & Education*, *166*, 104120.

Young, K. S. (2009). *Internet addiction test*. Stoelting.

Zarco Alpuente, A., Ballester-Arnal, R., Billieux, J., Gil-Llario, M. D., King, D. L., Montoya Castilla, I., Samper-Garcia, P., & Castro-Calvo, J. (2021). Problematic internet use prior to and during the COVID-19 pandemic. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *15*(4), 1–20.

Zhai, Y., & Du, X. (2020). Addressing collegiate mental health amid COVID-19 pandemic. *Psychiatry Research*, *288*, 113003.

Zhang, D., Huebner, E. S., & Tian, L. (2020). Longitudinal associations among neuroticism, depression, and cyberbullying in early adolescents. *Computers in Human Behavior*, *112*, 106475.

Zhang, Y., Qin, X., & Ren, P. (2018). Adolescents' academic engagement mediates the association between Internet addiction and academic achievement: The moderating effect of classroom achievement norm. *Computers in Human Behavior*, *89*, 299–307.