

Factors Affecting the Mental Health of BSED Math Students during the COVID-19 Pandemic

Monetta C. Valencia

*Bicol State College of Applied Sciences and Technology
Peñafrancia Avenue, Naga City, Camarines Sur, Philippines 4400*

KEYWORDS BSED-Math. Distance Learning. Learning Resources and Environment. Online Classes. Staple Gadgets

ABSTRACT Educational institutions are among the most affected sectors during these times when health concerns are top priority in all of the communities. Changes in the school setup and necessary health precautions have become mandatory just to ensure learning even in this time of pandemic. The shift to distance learning poses psychological effects on the students. This study focused on the factors, such as, year level, learning environment, availability of resources and gadgets used at home, which could affect the mental and psychological being of the BSED Math students specifically. Using the quantitative approach, the data gathered the students' perception on the said factors and these were interpreted using descriptive statistics, T-test, Pearson correlation. The result showed that two of these factors greatly affect their mental health. These are the noise that they have to deal with in their learning environment and the availability of resources particularly, a stable internet connectivity.

INTRODUCTION

"Intelligence and skill can only function at the peak of their capacity when the body is healthy and strong." John F. Kennedy quotes. As for the body to be healthy and strong, mental health should be healthy too. Mostly, people who are suffering from mental health issues do not perform well.

In the last couple of years or so, the Coronavirus disease (COVID-19) spread throughout different countries and affected the lives of millions of people (World Health Organization 2021). In the middle of this health chaos, college students who seek to finish off their studies in the near future, have to struggle as they adapt to the new mode of learning.

The learning environment, materials, and students' level of digital literacy all underwent significant alterations and revisions. Depending on the level of their technological know-how and internet access, some find it challenging while others find it simple. Their psychological well-being is impacted by this new normal system in addition to

their physical, financial, mental, and emotional well-being.

Young adult college students now confront unheard-of difficulties, such as campus closures and a shift to entirely online learning (Park et al. 2023). Students may encounter mental health issues as a result of taking distant learning or online courses. Due to the lack of face-to-face connection, students feel alone. Increased weariness, headaches, a lack of motivation, procrastination, poor time management, feelings of isolation as a consequence of less in-person interaction, and a reduction in awareness and understanding of people as a result of in-person talks are possible side-effects for students (Finol 2020).

A newspaper article posted in the Manila Bulletin had revealed that students are struggling to adjust to the new system of education which is distance learning or online classes (Ki 2020). Accessibility, cost, flexibility, learning methodology, life-long learning, and educational policy are the issues that e-learning generally faces. Access to digital gadgets and dependable internet connections are major problems in many nations (Wiles 2020). While the economically disadvantaged children in many developing nations cannot afford online learning tools, it may have an impact on their self-esteem during synchronous learning.

The biggest barrier to academic performance is mental health difficulties. Additionally, mental

Address for correspondence:

Monetta C. Valencia, PhD

Bicol State College of Applied Sciences and Technology
Peñafrancia Avenue, Naga City, Camarines Sur,
Philippines 4400

Phone: +639174142399

E-mail: monetvalencia@yahoo.com

illness can impact a student's motivation, focus, and social interactions—all of which are essential for success in higher education. According to the 2019 Annual Report of the Center for Collegiate Mental Health, anxiety is still the most prevalent issue among students who completed the Counselling Center Assessment of Psychological Symptoms (62.7% of 82,685 respondents), and according to clinicians, anxiety is still the most common diagnosis among students who visit university counselling centers for help (Son et al. 2020).

It was mentioned in *E-Learning in MATH: Professional and Lifelong Learning Prospects* the benefits of e-learning in Math include the ability to promote different types of collaboration, enhance students' sets of skills, facilitate flexible access to multimedia, educational resources anytime and anywhere (Juvancic et al. 2012). Further, it is also helping teachers introduce topics they are not experts with to non-expert public and introduce new learnings that traditional teaching tools cannot grasp. As for the students, it stimulates their mind to further process these new learnings. However, this is not always the case especially when some of the students face the dilemma of distance learning and tend to psychologically affect them contrary to the purpose of building practices and supporting informed decision-making (Barbour and Reeves 2009).

In online learning environments where the instructor presence is low, learners have to make the decisions regarding when to study or how to approach the study materials. Therefore, the learners' ability to self-regulate their learning becomes a crucial factor in their learning success (Wong et al. 2019).

In a study entitled *Psychological Variables of Estimating Distance Learners' Motivation*, 183 students taking English and Turkish courses through distance education participated at Ankara University between the academic years 2013-2014. It was found that there is a significant relationship between students' motivation levels and their online learning experiences and satisfaction (Cakir et al. 2018).

In the Philippines, the Institute of Electrical and Electronics Engineers had reported that the success of e-learning systems utilization depends largely on the user's attitude and ability to use the e-learning system (Finol 2020). However, there is still a problem in dealing with distance learning

modality which includes the availability of learning materials or technologies, the ability to provide and sustain internet connection, the financial status of the students, the type of classes which includes synchronous and asynchronous schedule and other factors that results to some effects like self-efficacy, self-regulation, self-actualization, achievement motivation, depression, stress, anxieties, and other effects that the students experienced which affects their psychological aspect such as motivation, learning and socialization, attitudes, and beliefs.

Objectives of the Study

The study is focused to determine the mental health of Bachelor of Science in Education, Major in Mathematics (BSED Math) students during the pandemic. Specifically, this study sought to answer the following questions: (1) What is the profile of the BSED Math students in terms of: a) year level, b) physical learning environment at home, c) gadgets used, d) internet connectivity, and e) platforms used; (2) What is the status of their mental health in terms of: a) learning environment, b) availability of resources, c) productivity, d) sleeping pattern, and d) social interaction, and; (3) Factors that could affect the mental health of the students in terms of: a) year level, b) internet connectivity at home, c) learning environment at home, and d) gadgets used in distance learning.

MATERIAL AND METHODS

The materials and methods used in this research are vital to the gathering and interpretation of data to arrive at a conclusion.

Research Design

This study used the descriptive method using a quantitative approach to know the effects of distance learning in the psychological being of BSED Math students of Bicol State College of Applied Sciences and Technology (BISCAST). Descriptive research aims to accurately and systematically describe a population, situation or phenomenon. A descriptive research strategy can examine one or more variables using a wide range of research techniques.

Participants

The participants were comprised of 90 first year to third year BSED Math students of SY 2021-2022 from the Bicol State College of Applied Sciences and Technology (BISCAST), Naga City, Philippines.

They were the chosen respondents due to their course as one of the hardest that a student may take during this new normal setting in education.

Instruments

The researchers used researcher-made survey questionnaires created in Google Forms and sent to the e-mail and social media accounts of the students to gather data. It was composed of two parts. The profile was first accomplished as the first part of the questionnaire. The second part is reserved for the questions that would extract the relevant data required for the study. For content validation purposes, the instrument was pre-tested to select 10 students of which, the result was used to improve the research tool. The questionnaire was used as the primary tool to gather the required data aside from the informal interviews that were done during the meeting using Google Meet.

Data Gathering Procedure

Research questions through Google Forms were carefully constructed to gather the appropriate data to test the study's hypothesis and to gather information on the psychological effects of distance learning to the BSED Math students in BISCAST. The questionnaire includes check-item type while in some parts, the respondents may supply additional responses.

Ethical Considerations

Prior to data gathering, permission was asked from the Dean of College of Education of BISCAST. The participating students were also asked to sign a consent form before they can answer the questionnaire.

Data Analysis

After data gathering, the data were treated statistically using Descriptive Statistics, T-test,

and Pearson correlation. The scale used to interpret the result of the survey have the following rating range and their description:

- 5-Strongly Agree
- 4-Agree
- 3-Neutral
- 2-Disagree
- 1-Strongly Disagree

RESULTS

The data gathered is presented in this section.

Learners' Profile

The respondents were first year to third year students of BISCAST taking the program BSED major in Math (BSED Math).

Table 1: Profile of respondents

<i>Year level</i>	<i>f</i>	<i>%</i>
First year	35	38.89
Second year	24	26.67
Third year	31	34.44
Total	90	100.00

Table 1 shows the distribution of respondents. The number of the first year students is higher than that of the second and third year students. Despite the pandemic, there are still quite a number of students who enrolled in the BSED Math course.

Factors Affecting Learning Environment at Home

Based on the responses in Table 2, the factor that greatly affects their learning environment at home is the environmental noise covered by the physical learning environment they have at home. It may be noise from the television, radio, or household conversations. Next is the household chores which often gets in the way of their study time. Third is time management. Lastly, they are affected by a narrow space for a study area. Some don't even have a space. They just settle themselves outside or just find a corner where they can assume that they are alone in the place but can actually see the whole house and the people going about.

Table 2: Factors affecting the learning environment at home

<i>Factors</i>	<i>f</i>	<i>%</i>
Time management	49	69.01
Household chores	54	76.06
Environmental noise	62	87.32
Narrow space for study area	47	66.20

Gadgets Used in Distance Learning

For the gadget use, Table 3 shows that 97.8 percent have smartphones and use them for on-line learning while very few of them, 1.1 percent use a tablet for their classes. Given the result, it can be gleaned that the students can only afford to have gadget with a small screen (smartphone) to interact with their classmates and teachers during online classes. Hence, the gadget is a significant factor in their readiness to distance learning. Nonetheless, they should still be confident, accepting of their circumstance and self-directed during learning.

Table 3: Gadgets used in distance learning

<i>Gadgets</i>	<i>f</i>	<i>%</i>
Smart Phone	88	97.78
Laptop	33	36.67
Computer/PC	5	5.56
Tablet	1	1.11
TV	29	32.22
Headphone	5	5.56
Earphone	54	60.00
Microphone	2	2.22
Speaker	22	24.44

Internet Connectivity at Home

Table 4 shows that most students (60%) use mobile data to connect to the internet while the more reliable connections which are postpaid WiFi and broadband are being used the least, 17.8 percent and 2.2 percent, respectively.

Table 4: Internet connectivity at home

<i>Connectivity</i>	<i>f</i>	<i>%</i>
Mobile Data	54	60.00
Prepaid Wifi	27	30.00
Postpaid Wifi	16	17.78
Broadband	2	2.22

Platforms Accessed by the Students Using their Gadgets

Students from low income families are not only wary of the technology to use during distance learning. It also matters to them whether or not their gadget can support the use of the recommended platforms of the school and their teachers.

It can be seen from Table 5 that the most common platforms used are Google Meet, Google Classroom and Facebook/Messenger. While all these may be accessed through the base-model smartphones, connecting to these platforms requires a big chunk of internet data.

Table 5: Platforms accessed by the students using their gadgets

<i>Platforms</i>	<i>f</i>	<i>%</i>
Zoom	48	53.33
Google Meet	89	98.89
Google Classroom	87	96.67
Google	81	90.00
Facebook/Messenger	86	95.56
Instagram	54	60.00
Twitter	46	51.11
YouTube	74	82.22

Students' Mental Health Status

Learning Environment

To get a clearer picture of the general state of mental health of the students, the neutral responses shall be ignored. The responses under Strongly Agree and Agree shall be combined as Agree, since the intensity of agreement is relative. It is more important to note the number of students who agree or admitted that they feel this negative feeling.

Therefore, it can be inferred that 73 out of 90 students or 81 percent find it hard to focus on their studies due to some distractions. Also, 81 percent of the students are easily irritated when they are distracted (Table 6).

Availability of Resources

From Table 7, it can be seen that 62/90 or 69 percent of the students find it hard to cope up with their lessons due to lack of resources and poor connectivity. Some students (54/90 or 60%) of the students cannot express themselves prop-

Table 6: Learning environment

<i>Statement on learning environment</i>	<i>SA</i>	<i>A</i>	<i>N</i>	<i>D</i>	<i>SD</i>
I find it hard to focus on my studies due to some distractions	41	32	15	2	0
<i>Percentage</i>	45.56	35.56	16.67	2.22	0.00
I easily get irritated when I am distracted	35	38	16	1	0
<i>Percentage</i>	38.89	42.22	17.78	1.11	0.00

Table 7: Availability of resources

<i>Learning condition due to lack of resources and/or poor connectivity</i>	<i>SA(5)</i>	<i>A(4)</i>	<i>N(3)</i>	<i>D(2)</i>	<i>SD(1)</i>
Difficulty in coping up with lesson	28	34	18	9	1
<i>Percentage</i>	31.11	37.78	20.00	10.00	1.11
Cannot express properly	16	38	28	6	2
<i>Percentage</i>	17.78	42.22	31.11	6.67	2.22
Difficulty in accomplishing output	15	33	29	10	3
<i>Percentage</i>	16.67	36.67	32.22	11.11	3.33
Feeling of being left behind	18	29	20	20	3
<i>Percentage</i>	20.00	32.22	22.22	22.22	3.33
Cannot participate totally	9	21	25	21	14
<i>Percentage</i>	10.00	23.33	27.78	23.33	15.56

erly. 48/90 or 53 percent of the students find it hard to accomplish their outputs because of poor connectivity. While some feel that they are left behind, 47/90 or 52 percent of them find it hard to accomplish their outputs due to lack of resources. While, 30/90 or 33 percent of the students cannot participate totally in group works due to lack of resources.

Productivity

From Table 8, it can be inferred that 50/90 or 56 percent of the students usually feel lost, hopeless, and lethargic in doing online activities or attending online classes. Some of them, 39/90 or 43 percent, tend to be resistant to following school guidelines and respectfully engaging with instructors. While, 60/90 or 67 percent of the students have difficulty in managing their time while also

negatively impacting their concentration, learning, listening, and problem-solving.

Sleeping Pattern

Table 9 shows that 58/90 or 64 percent of the students are having a hard time falling asleep at night thinking on how to cope with the demands of online classes. However, only 21/90 or 23 percent of the students seldom attend online classes due to lack of sleep.

Social Interaction

From Table 10, it can be seen that 36/90 or 40 percent of the students find it hard communicating with their peers. While, 37/90 or 41 percent feel isolated from their colleagues and 32/90 or 36 percent find it hard reaching out to their class-

Table 8: Productivity effects

<i>Affective conditions on productivity</i>	<i>SA(5)</i>	<i>A(4)</i>	<i>N(3)</i>	<i>D(2)</i>	<i>SD(1)</i>
Feeling lost, hopeless, and lethargic	19	31	24	15	1
<i>Percentage</i>	21.11	34.44	26.67	16.67	1.11
Resistance to school guidelines and respectful engagement with the teachers	31	8	36	11	4
<i>Percentage</i>	34.44	8.89	40.00	12.22	4.44
Difficulty in managing time	22	38	24	5	1
<i>Percentage</i>	24.44	36.67	32.22	5.56	1.11

Table 9: Sleeping pattern

<i>Affective conditions on productivity</i>	<i>SA(5)</i>	<i>A(4)</i>	<i>N(3)</i>	<i>D(2)</i>	<i>SD(1)</i>
Hard time falling asleep	27	31	25	5	2
<i>Percentage</i>	30.00	34.44	27.78	5.56	2.22
Absence in the online classes due to lack of sleep	7	14	21	28	20
<i>Percentage</i>	7.78	15.56	23.33	31.11	22.22

Table 10: Social interaction

<i>Social interaction</i>	<i>SA(5)</i>	<i>A(4)</i>	<i>N(3)</i>	<i>D(2)</i>	<i>SD(1)</i>
Difficulty in communicating with peers	14	22	36	13	5
<i>Percentage</i>	15.56	24.44	40.00	14.44	5.56
Feeling of being isolated from peers	11	26	30	19	4
<i>Percentage</i>	12.22	28.89	33.33	21.11	4.44
Difficulty in reaching out to classmates on group activities	11	21	34	17	7
<i>Percentage</i>	12.22	23.33	37.78	18.89	7.78

mates when it comes to group activities. These factors are among those challenges that the students have to face in their learning journey (Uddin 2013).

Factors that Could Affect the Mental Health Status of Students

By Year Level

Tables 11 and 12, respectively, show the mental health status and the analysis of variance of each student by year level.

Table 12: ANOVA of the mental health status of students by year level

	<i>Sum of square</i>	<i>Df</i>	<i>Mean</i>	<i>F</i>	<i>Sig.</i>
Between groups	0.84	2	0.42	1.02	0.365
Within groups	35.851	87	0.412		
Total	36.691	89			

The average mental health status of the first year students is 3.3680, with a corresponding stan-

dard deviation of 0.70794 (SD=0.70794): The average mental health status of second year students is 3.5421 with a standard deviation equals; The average mental health status of third year students is 3.5806, and a standard deviation equivalent to 0.62882 (SD=0.62882).

The analysis of variance (Table 12) showed that the difference between the year levels was not statistically significant, with an *F-value* of 1.020 at degrees of freedom of 2 and 87, among year levels and classes, respectively, and at a significant level of 0.365, $F(2,87) = 1.020$ $p=0.365$, respectively. Therefore, no difference in status of mental health was detected across year levels. In this study, the mental health status is almost similar by year level.

Internet Connectivity at Home

Table 13 shows the comparison of mental health status between students using mobile data and Wifi internet connectivity.

An independent-samples t-test (Table 14) was conducted to compare the mental health between

Table 11: Mental health status by year level

<i>95% confidence interval for mean</i>								
	<i>N</i>	<i>Mean</i>	<i>Std. deviation</i>	<i>Std. error</i>	<i>Lower bound</i>	<i>Upper bound</i>	<i>Min.</i>	<i>Max.</i>
1 st yr	35	3.368	0.70794	0.11966	3.1248	3.6112	2	4.93
2 nd yr	24	3.5421	0.54965	0.1122	3.31	3.7742	2.67	4.93
3 rd yr	31	3.5806	0.62882	0.11294	3.35	3.8113	2	4.8
Total	90	3.4877	0.64208	0.06768	3.3532	3.6221	2	4.93

Table 13: Comparison of mental health status by internet connectivity at home

	<i>Group statistics</i>				
	<i>Internet connectivity</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Std. error mean</i>
Mental health average	Mobile Data	45	3.6904	0.57008	0.08498
	Wifi	45	3.2849	0.65176	0.09716

Table 14: Independent samples test on the internet connectivity at home

<i>Independent samples test</i>											
		<i>Levene's Test for equality of variances</i>		<i>t-test for Equality of Means</i>							
				<i>Significance</i>				<i>95% confidence interval of the difference</i>			
		<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>Df</i>	<i>One-sided p</i>	<i>Two-sided p</i>	<i>Mean Difference</i>	<i>Std. error difference</i>	<i>Lower</i>	<i>Upper</i>
<i>Mental Health Variances Average</i>	Equal Assumed	0.736	0.393	3.142	88	0.001	0.002	0.40556	0.12908	0.14903	0.66208
	Equal Variances			3.142	86.468	0.001	0.002	0.40556	0.12908	0.14897	0.66214
	Not Assumed										

those who are using mobile data and those who are using WiFi. There was a significant difference in the mental health of students using mobile data ($M=3.6904$, $SD=0.57008$) and mental health of students using WiFi ($M=3.2849$, $SD=0.65176$); $t(88)=3.142$, $p=.002$.

Learning Environment at Home

The indicators used for learning environment are time management, household chores, environmental noise, and narrow space for a study area. Spearman's rank correlation was computed

to assess the relationship between mental health status of the student and learning environment. There was a positive correlation between the two variables, $r(90) = 0.259$, $p=0.014$. The correlation is significant at the 0.05 level (Table 15).

Inadequacy of Gadgets Used by the Student at Home

Respondents were asked whether they have the following gadgets at home which they can use for online learning, such as smart phone, laptop, desktop, tablet, TV, headphone, earphone,

Table 15: Correlation between mental health and learning environment at home

<i>Correlations</i>			<i>Mental health average</i>	<i>Learning environment</i>
Spearman's Rho	Mental health average	Correlation coefficient	1	.259*
		Sig. (2-Tailed)		0.014
	Learning environment	N	90	90
		Correlation coefficient	.259*	1
		Sig. (2-Tailed)		0.014
		N	90	90

microphone, and speaker. Spearman's rank correlation was computed to assess the relationship between mental health status of the student and the adequacy of gadgets which are used by the student. There was no correlation between the two variables, $r(90) = -0.133$, $p = 0.212$. At the 0.05 level, the correlation is not significant (Table 16).

DISCUSSION

Reports have shown that there are positive effects of distance learning on students when it comes to the reduction in test anxiety and increased achievement motivation and academic scores (Irawan et al. 2020). There may also be a new mindset of students about education in terms of integration of technology in their subjects (Bradman 2023). The distinction of this study is that it focuses on the evaluation of BSED Math students on the possible factors affecting their mental health during distance learning.

Factors Affecting Learning Environment at Home

The learning environment and the means of accomplishing tasks in distance learning are important factors that affect the psychological aspects of the respondents. Distance learning provided an option to the students to pick a time of the day for them to study. It does not matter what part of the day it is as long as they are able to accomplish and submit the tasks requires from them. Unfortunately, this has become a factor affecting their physical learning environment at home as it influences not only their standing in school but also their physical and mental health. The insights of the learners about their perception on their physical learning environment are contributory to their learning satisfaction (Zhao et al. 2021). Some students find it difficult to manage their time especially when they are at home.

Gadgets Used in Distance Learning

The readiness of the students to shift from the traditional face-to-face learning to online distance learning includes technology and the use of that technology (Khairuddin et al. 2020). And the technology comes in the form of the gadgets the students can use (Table 3). While a technology-mediated learning is an important aspect of distance learning, some students find it difficult to cope with as they fall behind those who have readily access to them. While they are still encouraged to use textbooks and other printed materials, they are still required to at least use a gadget for their online synchronous classes in which some of them could hardly afford.

Smartphones have found its niche in the distant learning even prior to the pandemic because of their capability to carry on video conferencing which somehow add a human touch to distant learning (Tuncay 2016).

Among the students' many hindrances in online distance learning is a stable internet connectivity at home. After struggling to at least have a gadget to use, the students will then face the dilemma of how to use the gadget for online classes. They need to be connected, in order to engage with their classmates and teachers. The internet connectivity is another factor on motivation and success rate of the students (Konecki 2020).

Students' Mental Health Status

University students are the most vulnerable to stress and mental health issues since the pandemic (Faisal et al. 2022). Compared to other levels, the college students are exposed to high academic stress while shifting to online distance learning. Hence, it is important to assess their perceptions about their learning experiences during these times for the schools to formulate ways to support their psychological wellness.

Table 16: Correlation between mental health and adequacy of gadgets used by the student at home

Correlations			Mental health average	Number of gadgets available
Spearman's Rho	Mental health average	Correlation coefficient	1	-0.133
		Sig. (2-Tailed)		0.212
	Number of gadgets available	N	90	90
		Correlation coefficient	-0.133	1
		Sig. (2-Tailed)	0.212	
		N	90	90

Learning Environment

Some students find it difficult to concentrate in their studies due to their learning environment.

Availability of Resources

Although the schools provided measures to the use of technology in the implementation of the online distance learning, it can't be helped that some students still struggle to barely meet these measures (Natriello 2005). The idea is that no one should get left behind, but since not everyone can afford this learning design, it is difficult to meet the basic requirement of a stable internet connectivity to be even prepared for it.

Productivity

While some students, especially the working students, find the online distance learning as easier to manage compared to in-person classes, some students and teachers reported a decrease in their productivity (Oliveira et al. 2021).

Sleeping Pattern

The online distance learning prevented the students from waking up early to catch the bus going to their schools. It allowed them to attend online classes at the comfort of their own homes, even wearing presentable house clothes. But at the same time, the distance learning also changed their routine causing them to slack a little. However, this change in the routine and learning methods have a perceived psychological distress among them (Segre et al. 2021). Their sleep habits have changed and some even found themselves attending classes with no sleep at all.

Social Interaction

In the synchronous online distance learning, the participation of the students is affected. While it is true that they can still communicate with their teachers and classmates, some are distracted and could not concentrate compared to a face-to-face class. The decrease in collaborative and social interaction is perceived to be affected by factors

that also affect the success rate of students during online distance learning (Kreijns et al. 2003).

Factors that Could Affect the Mental Health Status of Students

Although college students have a high level of awareness about the pandemic, their levels of anxiety varies leading to different psychological effects on them. While there online distance learning has many pitfalls, the major concern of schools is to lessen the anxiety and depression among students (Chang et al. 2020).

By Year Level

In a related study, one of the factors affecting the anxiety levels of the students is their age. The older the students, the more aware they are of the pandemic making them think of ways to still survive and succeed. While the younger once are more vulnerable as they have limited coping abilities (Byrd and McKinney 2012).

Internet Connectivity at Home

The sudden shift of the education system had left some students unable to prepare for online distance learning (Sahu 2020). Some may not have the correct setup at home. In the Philippines, the common setup in distance learning requires a space to study, a gadget and internet connectivity.

The results shown in Table 14 suggest that the mental health of the students using WiFi is significantly better than those students using mobile data. Specifically, the kind of internet connectivity, such as speed, accessibility, and available data, can significantly affect the mental health of a student. Indeed, a number of researches shown that information access has an impact on students' academic progress (Amponsah et al. 2022).

Learning Environment at Home

One significant challenge that students must overcome to survive the epidemic is the change in their academic lives. Since most students are more outspoken to their peers than their parents and since the majority of them feel comfortable studying alone in a dormitory or boarding school, this is the reason why some students in Poland

were subjected to psychosocial interventions after spending some time in a home setup of learning (Wieczorek et al. 2021).

The significant correlation between the students' mental health status and his learning environment, as shown in Table 15, means that as learning environment becomes worse, the mental health of the student also becomes worse. On the other hand, as the learning environment of the student gets better, it results to better mental health of the student. The learning environment at home plays an important role in their mental health.

Inadequacy of Gadgets Used by the Student at Home

Some students are really trying to get by just to finish school during the pandemic. They are not hindered by the lack of technological equipment however, their mental health might be affected for failure to connect (Healy 1999).

Table 16 showed that although there seems to be a tenuous negative correlation between mental health and technology, this suggests that students' mental health will improve if they have access to sufficient technology for online learning. The test is not significant, nevertheless, because the p-value exceeds the 0.05 criterion of significance. Mental health and inadequate technology utilized for online learning do not significantly correlate.

CONCLUSION

Online learning with the use of technology has greatly expanded the distance education environments. Alongside these growths, there are still challenges that divert students experience while trying to learn. From this study, we conclude that during distance learning the factors such as learning environment and availability of resources affect the psychological being of BSED Math students of BISCASST. If the matter is about comfort, learning environment was not a big factor that affects the BSED Math students, however, if noise is the matter, learning environment has become a big factor that negatively affect their psychological being. In addition, with regards to the device used, source of internet connection and accessible online platforms, the availability of resources has become a big factor as well.

However, the availability of resources was not a big factor if the concern is about capability to afford the needed materials.

RECOMMENDATIONS

The anxiety levels of college students are one of the most urgent concerns right now. Along with the struggle to continue their education in the face of the pandemic, they also worry about finishing on time in order to pursue their dream careers or simply to find employment to supplement their family's income. Thus, the author recommends that future studies focusing on the aforementioned problem use the study's findings as a starting point.

The results of this study may also be useful to school administrators in evaluating and enhancing student- and school-beneficial policies. By giving students seminars on how to manage their mental health concerns as well as their schoolwork while participating in remote learning, they may be able to assist students overcome these difficulties. It is also a chance to teach teachers how to manage and keep an eye on the class, not just on the students' academic achievement but also on their psychological and mental health.

REFERENCES

- Amponsah KD, Aboagye GK, Narh-Kert M, Commey-Mintah P, Boateng FK 2022. The impact of internet usage on students' success in selected senior high schools in Cape Coast metropolis, Ghana. *European Journal of Educational Sciences*, 9(2): 1-18. <https://doi.org/10.19044/ejes.v9no2a1>
- Barbour MK, Reeves TC 2009. The reality of virtual schools: A review of the literature. *Computers and Education*, 52(2): 402-416.
- Bradman C 2023. How Education Technology Will Shape Philippine In-Person Classrooms in 2023 and Beyond. Manila Bulletin Technews. January 30. From <<https://mb.com.ph/2023/1/30/how-education-technology-will-shape-philippine-in-person-classrooms-in-2023-and-beyond>> (Retrieved on 18 June 2023).
- Byrd DR, McKinney KJ 2012. Individual, interpersonal, and institutional level factors associated with the mental health of college students. *Journal of American College Health*, 60(3): 185-193.
- Cakir O, Karademir T, Erdogdu F 2018. Psychological variables of estimating distance learners' motivation. *Turkish Online Journal of Distance Education*, 19(1): 163-182.
- Chang J, Yuan Y, Wang D 2020. Mental health status and its influencing factors among college students during the

- epidemic of COVID-19. *Nan fang yi ke da xue xue bao= Journal of Southern Medical University*, 40(2): 171-176.
- Faisal RA, Jobe MC, Ahmed O, Sharker T 2022. Mental health status, anxiety, and depression levels of Bangladeshi university students during the COVID-19 pandemic. *International Journal of Mental Health and Addiction*, 20(3): 1500-1515.
- Finol MO 2020. Asynchronous vs. Synchronous Learning: A Quick Overview. From <<https://www.brynmawr.edu/blendedlearning/asynchronous-vs-synchronous-learning-quick-overview>> (Retrieved on 10 July 2021).
- Healy JM 1999. *Failure to Connect: How Computers Affect Our Children's Minds-For Better and Worse*. New York, NY: Simon and Schuster.
- Irawan AW, Dwisona D, Lestari M 2020. Psychological impacts of students on online learning during the pandemic COVID-19. *KONSELI: Jurnal Bimbingan dan Konseling (E-Journal)*, 7(1): 53-60.
- Juvancic M, Mullins M, Zupancic T 2012. E-learning in architecture: Professional and lifelong learning prospects. *E-Learning-Organizational Infrastructure and Tools for Specific Areas*, 159-182.
- Khairuddin Z, Arif NNANM, Khairuddin Z 2020. Students' readiness on online distance learning (ODL). *Universal Journal of Educational Research*, 8(12): 7141-7150.
- Ki CNO 2020. Students Say They Have A Hard Time With Online Classes. Manila Bulletin. From <<https://mb.com.ph/2020/09/04/students-say-they-have-a-hard-time-with-online-classes/>> (Retrieved on 4 September 2020).
- Konecki M 2020. Impact of Distance Learning on Motivation and Success Rate of Students During the COVID-19 Pandemic. In: *2020 43rd International Convention on Information, Communication and Electronic Technology, MIPRO 2020 - Proceedings*, September 28 – October 2, 2020, Opatija, Croatia, pp. 813- 817.
- Kreijns K, Kirschner PA, Jochems W 2003. Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: A review of the research. *Computers in Human Behavior*, 19(3): 335-353.
- Natriello G 2005. Modest changes, revolutionary possibilities: Distance learning and the future of education. *Teachers College Record*, 107(8): 1885-1904.
- Oliveira G, Grenha Teixeira J, Torres A, Morais C 2021. An exploratory study on the emergency remote education experience of higher education students and teachers during the COVID 19 pandemic. *British Journal of Educational Technology*, 52(4): 1357-1376.
- Park C, McClure Fuller M, Echevarria TM, Nguyen K, Perez D, Masood H, Alsharif T, Worthen M 2023. A participatory study of college students' mental health during the first year of the COVID-19 pandemic. *Frontiers in Public Health*, 11: 1-9. <https://doi.org/10.3389/fpubh.2023.1116865>
- Sahu P 2020. Closure of universities due to coronavirus disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus*, 12(4): E7541. DOI: 10.7759/cureus.7541
- Segre G, Campi R, Scarpellini F, Clavenna A, Zanetti M, Cartabia M, Bonati M 2021. Interviewing children: the impact of the COVID-19 quarantine on children's perceived psychological distress and changes in routine. *BMC Pediatrics*, 21(1): 1-11.
- Son C, Hegde S, Smith A, Wang X, Sasangohar F 2020. Effects of COVID-19 on college students' mental health in the United States: Interview survey study. *Journal of Medical Internet Research*, 22(9): e21279.
- Tuncay N 2016. Smartphones as tools for distance education. *Journal of Educational and Instructional Studies in the World*, 6(2): 20-30.
- Uddin Md. Akther 2013. Psychological Impact of Distance Education Technologies in Students' Personal Development. *International Journal of Developmental and Educational Psychology*, 2(1): 203- 211. From <<https://www.redalyc.org/pdf/3498/349852173011.pdf>> (Retrieved on 1 September 2022).
- Wieczorek T, Kolodziejczyk A, Ciulkowicz M, Maciaszek J, Misiak B, Rymaszewska J, Szczepaniak D 2021. Class of 2020 in Poland: Students' mental health during the COVID-19 outbreak in an academic setting. *International Journal of Environmental Research and Public Health*, 18(6): 2884.
- Wiles G 2020. Students Share Impact of Online Classes on Their Mental Health. The State News. From <https://statenews.com/article/2020/07/students-share-impact-of-online-classes-on-their-mental-health?ct=content_open&cv=cbox_feature> (Retrieved on 14 January 2023).
- Wong J, Baars M, Davis D, Van Der Zee T, Houben GJ, Paas F 2019. Supporting self-regulated learning in online learning environments and MOOCs: A systematic review. *International Journal of Human-Computer Interaction*, 35(4-5): 356-373.
- World Health Organization 2021. *Infection Prevention And Control During Health Care When Coronavirus Disease (COVID-19) is Suspected or Confirmed: Interim Guidance, 12 July 2021* (No. WHO/2019-nCoV/IPC/2021.1). World Health Organization.
- Zhao L, Hwang WY, Shih TK 2021. Investigation of the physical learning environment of distance learning under COVID-19 and its influence on students' health and learning satisfaction. *International Journal of Distance Education Technologies (IJDET)*, 19(2): 77-98.

Paper received for publication in May, 2023

Paper accepted for publication in July, 2023