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Research Article

The Impact of COVID-19 Pandemic on the Mental Health of 3rd-Year Medical Technology Students in a University in Manila, Philippines A.Y. 2022-2023

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ABSTRACT

Having good mental health is crucial throughout one's entire life, starting from early stages like childhood and adolescence, and continuing through adulthood and beyond. This research is a quantitative research approach and a correlational research design that aims to conduct a survey to assess the impact of the COVID-19 pandemic on the Mental Health of 3rd-Year Medical Technology College Students in a University in Manila. The researchers conducted an online survey consisting of 3rd-year medical technology students which has 317 as the overall population and 174 as respondents and were computed using an online statistical program, Raosoft. The online survey is only accessible to 3rd-year college students under the Department of Medical Technology at a University in Manila, Philippines. The tallied data is stored via google sheets. This data is analyzed using the SPSS statistical tool. The results of the computations on the gathered data showed a significant relationship between the respondents' understanding of COVID-19 and their psychological/mental health status. Consequently, this research study is helpful and beneficial to the students by helping them in gathering more knowledge about COVID-19 and helping them to control mental health problems in a more efficient way. The results show that the COVID-19 pandemic has both positive and negative impacts on the mental health of students in general. For instance, in positive impact, the majority of students feel at least moderately confident in their ability to manage personal challenges. In negative impact, students sometimes feel that they are unable to control important things in their life.

Keywords: *COVID-19, Medical technology students, Mental health, Pandemic, Philippines*

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Introduction

As a survey conducted by CNBC (2020), TikTok, Dalgona coffee, community pantry, online selling, virtual classes, and *plantito/plantita* are some of the crazes that everyone joined when the Pandemic started. Especially, the popularity of the Dalgona craze is especially one of the biggest trends that everyone was very into. On the other hand, it was also mentioned by Variety News (2021), the TikTok platform was a source of creativity and sparked joy among users during the Pandemic. These two trends became a part of the usual routines of everyone as part of their coping mechanism during the lockdown. However, this craze that the people were doing was all a front that covers everyone's problems, anxiety, depression, sadness in losing a loved one, and uneasiness with the upcoming future. The novel coronavirus disease emerged last December 8, 2019, in Wuhan, China. This infection was caused by the SARS-CoV-2 virus whose manifestations include suffering from mild to moderate respiratory sickness. Some, however, will become very ill and require medical attention. People over the age of 65, as well as those with underlying medical disorders such as cardiovascular disease, diabetes, chronic respiratory disease, or cancer, are at a higher risk of developing serious illnesses. Anyone of any age can become very ill or die as a result of COVID-19. SARS-CoV-2 is believed to spread from person to person via droplets emitted when an infected person coughs, sneezes or speaks. It can also be spread by touching a virus-infected surface and then touching one's lips, nose, or eyes, though this is less common. There is research being conducted to cure COVID-19 and to prevent SARS-CoV-2 infection. Coronavirus 2 is another name for severe acute respiratory syndrome coronavirus.

At the onset of this pandemic, the world was forced to come to a shutdown. As borders continue to be sealed, massive negative effects on businesses, jobs, sporting events, schools, and many more are all experienced. Despite all of these, cases continued to surge since, in these times, people were only supplied with shallow knowledge about this easily transmitted virus. People were strictly instructed to wear protective equipment and always practice social distancing at home. By definition, the world is in isolation, and global movement and progression were actually halted since everything needs to be closed down. As mentioned, COVID-19 cases continued to expand and according to Katella (2021), experts started focusing on flattening the curve and scientists trying to develop vaccines. After two months of lockdown, economic demands started to rise since it was almost severely impaired due to the total stoppage of businesses, and it aims to solve this, the reopening was considered but cases rapidly increased. Come July, as job losses continue to take place, parents juggle working at home with caring for or homeschooling their children, and young individuals get irritated by isolation from friends and restricted job prospects. The pandemic is driving an increase in mental health difficulties. Officials are debating the best options for allowing students to return to school safely. Regardless of a worldwide health crisis, since the world's economy is impaired, after several months, adaptation to the new normal was forced. The five-month vacation time was not the relaxation people were actually longing for.

According to the Centers for Disease Control and Prevention (2021), Mental Health includes our emotional, psychological, and social well-being. Moreover, it influences how we respond to stress, interact with people, and make good decisions. Mental health is important at every stage of life, from childhood and adolescence through adulthood. Though there is no single cause for mental illness, a number of factors can contribute to the risk of mental illness. The advocacy for Mental Health Awareness has gone through a lot but one thing is for sure and that is Mental and physical health are equally important components of overall health, thus should not be taken lightly and should be diagnosed and treated properly. Even though there is a law about Mental Health in the Philippines, awareness regarding mental health still remains poor. Most citizens still believe that depression and anxiety are non-existent and that mental illness is something to be ashamed of. The societal stigma and prejudice that those with mental health difficulties face can aggravate their illnesses and make it more difficult for them to recover. The individual can put off

receiving the appropriate help out of fear of being stigmatized. Research published in the early part of 2020 shows that at least 3.6 million Filipinos experience a mental, neurological, or substance use disorder (Department of Health, 2020). Furthermore, the World Health Organization also estimated that 154 million Filipinos suffer from depression, 1 million from schizophrenia, and 15.3 million from substance use disorders, while 877,000 die due to suicide every year (Department of Health, 2018). Despite the overwhelming statistics, mental health has still been given very little attention by the Philippine government and public sectors. Education has been a constant part of a person's life. The typical setup for education is going or driving to school, meeting with classmates and teachers, usage of paper and pen, onsite lectures, and onsite exams. Due to a drastic turn of events, the typical school setup was changed to be able to adapt to the global pandemic's guidelines. According to Palis (2022), during this period, a significant proportion of private school students transferred to public schools. According to statistics acquired by the Department of Education (DepEd), it was predicted that 250,539 pupils transferred from private to public schools prior to the commencement of the academic year 2020-2021. DepEd revealed that over 380,000 pupils choose to switch from a private to a public school during the school year beginning in August 2020. The increase in transferees was due to the downturn of the economy since lots of parents lost their jobs which made them unable to afford private schools, DepEd secretary Leonor Briones confirmed. In addition, Estrada of the Coordinating Council of Private Educational Associations (COCOPEA) stated that schools are entirely supported by tuition; if a large number of students do not enroll, many institutions will be forced to close. And many are unable to enroll because they have lost their employment or closed their enterprises.

Students need to adjust to the new normal of education swiftly, bringing extraordinary challenges to the educational sectors as well. On-site learning is replaced by online learning platforms since students are not allowed to enter campuses due to restrictions of the pandemic. According to Tria (2020), the Commission on Higher Education suggested strengthening online platforms and integrated learning, learning platforms such as, but not limited to, Google Classroom, Messenger, Zoom, Edmodo, Facebook, and YouTube (CHED, 2020). Furthermore, both will use a variety of learning delivery methods, including but not limited to face-to-face, blended learning, distance learning, homeschooling, and other modes of delivery. This, according to Biala et. Al (2020), several aspects must be addressed when the Philippines embarks on a new form of learning. This comprises instructor capacity, the learner's circumstance and context, and the effectiveness of the learning environment. These, of course, are in addition to the more obvious difficulties of internet speed, material cost, and manner of delivery. The best way to go is to take a step back and develop a strategy that involves instructors, students, parents, school officials, and technology-based corporations. This collaborative approach based on a shared vision is the type of creative answer that this new challenge requires. Focusing on tertiary education, whatever the situation, one thing is certain: you will need to be focused, disciplined, and diligent in college in order to complete your chosen degree program with flying colors. Students work hard in high school to get into their desired universities and then work even harder in college to get into their dream jobs. It's an exciting moment, but it may also make students nervous about what comes next, especially for those who have gotten accustomed to their college life and routine. According to Nelson (n.d.), the work of the junior or third year can feel daunting. Serious academic works are the highlight of this year since it focuses primarily on courses relevant to their major. The 3rd or junior year is a crucial year of a student's whole stay in college since it requires more of their time and effort. This challenging year needs to be prioritized since this is where students often experience the hardest times in college and according to Mintz (2019), this is also the year that most students, transfer or otherwise, enroll, change, or are denied admission to majors, particularly the most popular majors like nursing, engineering, computer science, and business.

Challenges in an adaptive learning setup are inevitable, especially in the fast-paced demands of the reopening of schools. Online learning became the main mode of education here in the Philippines and access to online classes became difficult for those with no stable internet access. To the less privileged sectors, this may be costly due to the need for gadgets for school consumption. This dilemma of education during a pandemic stays two years after even though schools and universities are starting to open and welcome back the old normal or the typical educational settings, another adjustment for the educational sectors. According to a recent DOH research, six months after testing positive for COVID-19, one out of every three COVID-19 patients in the Philippines received a mental health diagnosis. Lockdowns imposed by the government together with social isolation caused the already disregarded mental health issues to worsen (Department of Health, 2020). Worldwide social isolation as a result of the COVID-19 virus quarantines has a negative influence on mental health. Students who primarily rely on their peer relationships for emotional support may find these limits especially challenging. As a result of the epidemic, the Philippines was among the countries that saw the longest school closings, which had an adverse effect on both the academic and mental health of the students. Since students are considered to be a vulnerable group, a lot of them are experiencing stress, anxiety, and depression affecting their mental health. The foundation of good health practices that support well-being throughout adulthood is thought to be best built during the academic years. These students go through a variety of issues and are exposed to challenging risks that might damage their mental health at this time. Thus, a change in lifestyle, fear of missing out, being alone, and schedule changes may cause stress, anxiety, and depression to the students that are said to be vulnerable.

Filipinos are typically unhappy for a variety of reasons, including their country's dismal economic situation as well as stress brought on by high expectations from society and family. Rising mental health concerns are believed to be connected to issues like increased absenteeism and dropouts, which are problems that worsen current flaws in the current educational system. All of them point to the fact that despite seeing some relief in sight, the extensive effects of the COVID-19 pandemic will continue to be felt for many years to come therefore, it is more important than ever to find solutions to rising up once again. Due to the Pandemic, these pressures accentuated or created new stressors for the students. A study included fear and worry for oneself or loved ones, constraints on physical movement and social activities due to quarantine, and sudden and radical lifestyle changes as stressors felt by the students during the Pandemic (Son et. al., 2020). As seen by the situation in the country, the researchers, therefore, initiated a study about the increasing concern about mental health surrounding college students in the Philippines.

This study conducted a survey to clearly assess the impact of the COVID-19 pandemic on the Mental Health of 3rd Year Medical Technology College Students at a University in Manila. This research is to further examine how mental health while in a pandemic may actually have a worse impact than being in a normal world scenario. The researchers emphasized the relationship between the mental health of, specifically, 3rd-year college students while learning in a worldwide pandemic. With the growing concerns related to the impact of COVID-19 on mental health, there is an urgent need for research to address the mental health burden of the COVID-19 pandemic on college students. The study plays a vital role in understanding the students and provides resources to develop preventive strategies that are helpful for the faculty and institution to take better care of their students.

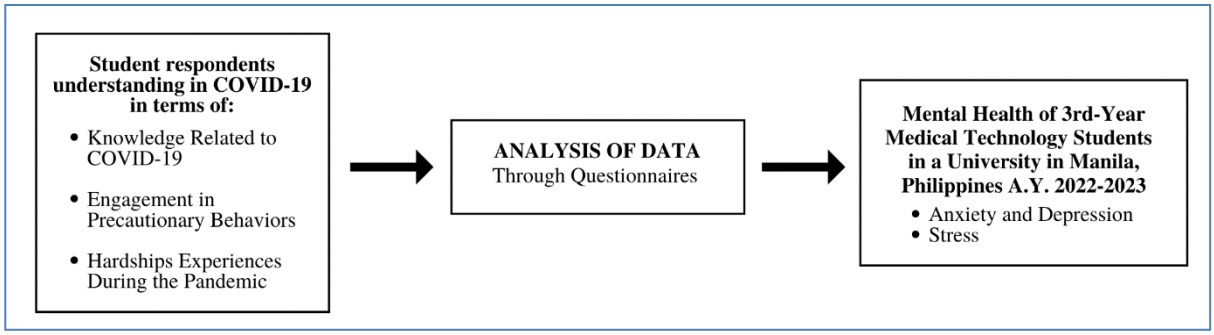

Figure 1. Framework of the Study

This framework showed that the mental health of 3rd-year medical technology students in the University, including anxiety and depression, and stress, was based on the student respondents' understanding of COVID-19 in terms of (1) Knowledge Related to COVID-19, (2) Engagement in Precautionary Behavior, and (3) Hardships Experiences During the Pandemic. The analysis of data was processed through the use of questionnaires.

Methods

To know the impact of the COVID-19 Pandemic on the mental health of 3rd-year Medical Technology students, a quantitative approach study and a descriptive correlational design were utilized. According to BCampus Canada (n.d.), this descriptive research provides a brief overview of the present situation while correlational research discovers relationships between variables and forecasts future events based on current knowledge. Combined, a descriptive-correlational research design was a valuable tool for exploring the relationships between variables and describing the characteristics of a population or phenomenon. It investigated the relationship between two or more variables without manipulation. The fundamental characteristic of this research design was its ability to identify patterns or associations between variables, providing insights into potential relationships that may exist. The purpose of a descriptive-correlational research design was multifaceted. It enabled researchers to explore the relationship between variables, describe the characteristics of a population or a phenomenon, and test hypotheses or predictions. Researchers can generate hypotheses and test them in subsequent research by describing the nature of a phenomenon or behavior.

The participants of the study were 3rd-Year Medical Technology Students from the Faculty of Pharmacy at a University in Manila, Philippines. The participants were included in the study if they were bona fide 3rd-Year Medical Technology students that were currently enrolled in the Institution. The study accepted any gender, religion, or ethnicity however, they must have been 18 years old and above. They must also have had an official G-Suite account that was provided by the University as the survey forms were sent through that platform. The inclusion criteria did not require the participants to have been infected with the COVID-19 virus meaning, the participants may have been infected with the COVID-19 virus or not. The researchers also did not specifically require students that were diagnosed with a mental illness as a lot of students did not examine themselves with a professional about their mental health status. Moreover, the study may have included students that were diagnosed with a mental health problem or students that were undiagnosed to be able to analyze the whole 3rd-year students about their mental health however, students were not asked if they were diagnosed or not since this might have been a violation of their privacy. On the other hand, the study excluded participants that had already graduated and had been diagnosed with a mental illness prior to the Pandemic.

A participant could withdraw from the research study at any time. When withdrawing from the study, the participant should have let the researchers know of their request. Since the topic of the research was mental health, the respondents' requests had been of utmost

priority. With that, the researchers did not require them to indicate their reason for withdrawing, he/she had just needed to contact the researchers to let them know their request. The researchers recruited participants from the Department of Medical Technology-Faculty of Pharmacy at a University in Manila through email. A letter addressing the Dean of the Faculty of Pharmacy was sent in order to gain access and permission to the student's email addresses. Gaining knowledge as compensation could have been a significant benefit for respondents in research studies or surveys. It provided an opportunity for individuals to learn about a particular topic or issue, which could lead to personal growth and professional development. The email that was sent to the students contained a Poster that included the link to the Survey Form, Inclusions and Exclusions Criteria, Title of the Study, Names of the Researchers, and a Data Privacy Clause ensuring the protection of confidentiality. Shown below is the Sample Poster included in the email.

Figure 2. Sample Poster

Figure 2 contained the sample poster that the researchers used in the recruitment of the participants. The poster included the title of the study, the qualification of the respondents, and the QR code of the Google form that was used. The Quick Response (QR) code was programmed to direct respondents to the designated online survey platform.

Sampling design

The sampling design that was used in the study was Stratified random sampling using a proportionate stratification approach. The researchers utilized the help of a statistician to compute the random sampling technique of 174 Medical Technology students using the Raosoft Sample Size Calculator. By inputting the correlation in the null hypothesis, correlation in the alternative hypothesis, error probability, and statistical power, the software indicated the sample size. The computation for the sample size is shown below.

Sample size

The respondents of the study were 174 medical technology students in the 3rd-year level, under the Department of Medical Technology of an Institution from a total population of 317 medical technology students. The researchers used Raosoft Sample Size Calculator to compute the minimum sample size as the study included dichotomous variables, Likert, and frequencies. Power analysis indicated that a minimum sample of 174 respondents would be required to demonstrate a Correlation: Bivariate Normal Model with a 0 correlation in the null hypothesis; correlation in the alternative hypothesis of 0.3; error probability of 0.05; and statistical power of 0.95.

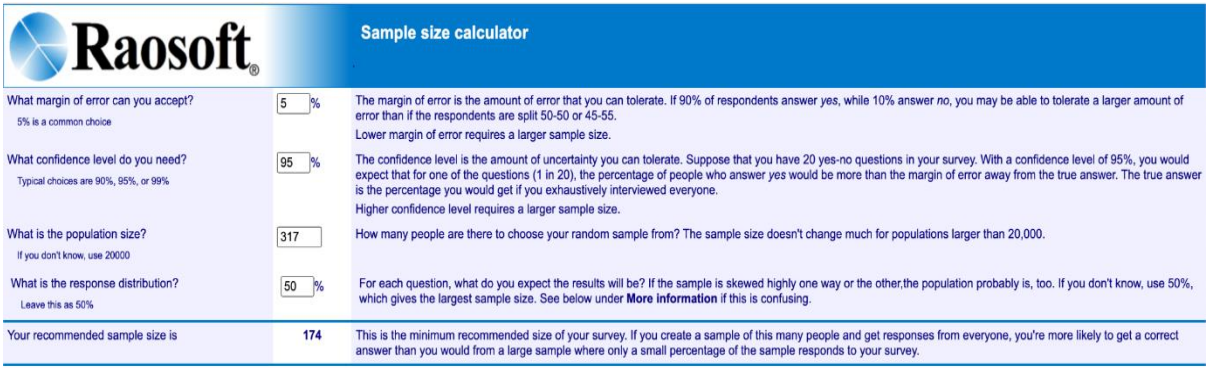

Figure 3. Computation of the sample size

The values and how the computation went in solving for the sample size were shown above. The data highlighted above showed that there was a total of 317 students in the 3rd year level of the Medical Technology Program in an Institution. With the help of the Raosoft Sample Size Calculator, the sample size of the study was determined to be 174.

Table 1. Sample Sizes Taken from Each Section

Sections in Third Year Medical Technology	Population Size	Sample Size
A	41	22
B	42	23
C	38	21
D	43	24
E	36	20
F	44	24
G	36	20
H	37	20
Total	**N = 317**	**N = 174**

Table 1 presents the sample sizes that will be taken from the student population that will serve as intended participants in the present study. This was computed by using Slovin's formula,

$$sample\ size = \frac{Population\ Size\ of\ Section}{N}\ x\ n.$$

Instrumentation

The instrument that was used in this study was adapted from the previous research done by Kecojevic, A., Basch, C. H., Sullivan, M., & Davi, N. K. (2020) entitled "The impact of the COVID-19 epidemic on mental health of undergraduate students in New Jersey, cross-sectional study". Since the instrument was adapted and modified with some necessary information, the instrument was subjected to testing using Cronbach's alpha and was submitted to the experts for validation processes.

A total of 10 knowledge questions were asked to the respondents, 7 of which are answerable by True/False (e.g., "Those who are more exposed and have chronic illnesses are more likely to have severe cases"), While 3 questions assessed the level of agreement with the statements. (e.g., "To prevent the infection of COVID-19, people should avoid going to crowded places") on a 5-point scale (0 = "strongly disagree" to 4 = "strongly agree"). Consequently. All knowledge questions were based on the Centers for Disease Control and Prevention (CDC) fact sheets.

Respondents were asked what kind of information sources (i.e., news websites, social

media, doctors, friends) they trusted in providing accurate COVID-19 information (checked all that apply). Additionally, respondents were also asked how often they used the different kinds of sources to get health information about COVID-19 on a 5-point scale which ranged from 0 = "never" to 4 = "always". Values were dichotomized to 0 (never, rarely, sometimes) and 1 (often, always). In addition, they were also asked to indicate the average number of hours per day they spent looking for information about COVID-19.

Using a 5-point scale (0 = "not at all" to 4 = "extremely"), participants were asked whether they had been engaged in some precautionary changes of behaviors that are related to their personal hygiene (e.g., "I often do hand washing") or social habits (e.g., "I have limit myself in going outside only for essential trips") since the start of the pandemic. Moreover, the statements were formed based on previous literature wherein values were dichotomized to 0 (did not engage in precautionary changes of behaviors at all) and 1 (engaged in some different kind of precautionary behaviors).

Participants of the study were asked to indicate whether they had experienced various academic impacts (i.e., difficulties with online learning, ability to focus on academic work, coping up in new environments, struggles in balancing time management, etc.), or life (i.e., losing hobbies, losing job, struggles in getting enough food, following safety protocols such as social distancing, wearing of face shield and face mask, etc.) difficulties. Moreover, some values were combined for ease of presentation (i.e., difficulties with online learning and inadequate WiFi/ Internet access).

Data Gathering

To gather data for this quantitative study, once they received the survey link via google forms, wherein departmental university emails of the University were used to sort out students enrolled in the institution, their consent was asked in the first section of the survey, and if they did not give their consent, they could withdraw from the form. Respondents were asked to complete the surveys that included demographic questions and the psychological impact of the pandemic. The demographic questions collected descriptive information to characterize the respondent population. Subjects were asked to reveal their name (optional), sex, age, and race. Their level of knowledge about COVID-19 changes in behavior during and after the pandemic, and experience during the pandemic were also collected. Lastly, the psychological effect of COVID-19 on the students was also collected using the questionnaire. The questionnaire focused on the impact of the COVID-19 Pandemic on the respondent's level of stress, depression, and anxiety using the Likert Scale. Once the target sample size was reached, the researchers halted the dissemination of the survey tool and tallied the gathered data. Data were stored via google sheets or google excel. This data was analyzed using the Statistical Package for the Social Sciences (SPSS) statistical tool. This online survey was accessible only to 3rd-year college students under the Department of Medical Technology enrolled at the target institution.

Result and Discussion

The table 2 presented Question no. 1-10 which shows the respondents' knowledge related to the COVID-19 pandemic. Based on these figures, the highest response rate was seen in Q1 - "*The COVID-19 Virus Spreads via Respiratory Droplets of Infected Individuals"*, Q4 - "*Early Symptomatic and Supportive Treatment Can Help Most Patients Recover from the Infection"*, and Q6 - "*Those who are Elderly and Have Chronic Illnesses are more likely to be Severe Cases"*, where all respondents (100%) reported knowledge of the COVID-19 pandemic.

Table 2. Result and Percentage of the Knowledge about Covid-19 Pandemic

Questions	True	False
Q1. The COVID-19 virus spreads via respiratory droplets of infected individuals	100%	0
Q2. The main clinical symptoms of COVID-19 are fever, fatigue, and dry cough	98.3%	1.7%
Q3. There is an effective cure for COVID-19	27%	73%
Q4. Early symptomatic and supportive treatment can help most patients recover from the infection	100%	0
Q5. All persons with COVID-19 will develop severe cases.	2.9%	97.1%
Q6. Those who are elderly and have chronic illnesses are more likely to be severe cases	100%	0
Q7. Persons with COVID-19 cannot transmit the virus to others when a fever is not present	4.6%	95.4%
Q8. It is not necessary for young adults to take measures to prevent infection with COVID-19	3.4%	96.6%
Q9. To prevent infection with COVID-19, people should avoid going to crowded places and avoid public transportation	98.3	1.7%
Q10. Isolation of people who are infected with COVID-19 is an effective way to reduce the spread of the virus.	99.4%	0.6%

Looking at Q2, *"Knowledge on COVID-19 main symptoms"* only 1.7% of respondents reported not knowing about the pandemic, while the remaining 98.3% had knowledge of it. In Q3, 73% of respondents reported knowing about the symptoms of COVID-19, while 27% did not. For Q5, the vast majority (97.1%) of respondents reported knowing about the preventive measures against the virus, with only 2.9% not knowing. Notably, this study's results were obtained from medical technology students who are expected to have a better understanding of the pandemic than the general population. Therefore, the results may not be representative of the entire population. Nevertheless, the findings suggest that medical students have good knowledge of the pandemic, which is crucial in their future medical practice. The findings of this study are consistent with previous research that shows the importance of knowledge and awareness of the COVID-19 pandemic in mitigating its spread (Lin et al., 2020; Nivette et al., 2020). Additionally, the findings highlight the role of education, particularly in medical education, in addressing public health crises such as pandemics.

Table 3. Mean Score and Standard Deviation of Medical Student Respondents' Engagement in Precautionary Behavior

Statements	**Mean**	**Standard Deviation**
I wash my hands 2 to 3 times a day.	4.6	.630
I increase spending on cleaning supplies.	3.8	.912
I have limited myself from going outside only for the essential trips and buying essential needs.	3.6	.908
I stock up on food and supplies.	3.7	.866
If I need to go out, I always wear a mask.	4.8	.431
I always practice social distancing with other people.	3.9	.8207
I avoid going to the doctor or dentist for routine appointments.	2.5	1.025
Mean Behavior	3.87	.4402

Table 3 shows the engagement in precautionary behaviors among the respondents. Based on the mean scores, the participants reported the highest level of engagement in handwashing (*M=4.626, SD=.630*) and wearing a mask (*M=4.833, SD=.431*), followed by social distancing (*M=3.908, SD=.820*), stocking up on food and supplies (*M=3.759, SD=.866*), limiting going outside only for essential needs (*M=3.667, SD=.908*), and increasing spending on cleaning supplies (*M=3.897, SD=.913*). However, the participants reported the lowest level of engagement in avoiding routine appointments with healthcare providers (*M=2.592, SD=1.026*). The standard deviation scores indicate variability in the responses, with some participants reporting high engagement while others reported low engagement in the behaviors.

The findings suggest that the participants were more likely to engage in behaviors commonly recommended by health experts, such as handwashing, wearing masks, and social distancing, while they were less likely to avoid routine appointments with healthcare providers. This might indicate that the participants prioritize their physical health over the risk of exposure to COVID-19 when seeking routine medical care.

The literature supports the importance of engaging in precautionary behaviors during a pandemic, such as hand hygiene, wearing masks, social distancing, and avoiding unnecessary exposure to others. For instance, a study by Cheng et al. (2020) found that regular hand washing was associated with a lower risk of COVID-19 infection. Similarly, wearing a mask has been recommended by the Centers for Disease Control and Prevention (CDC) as an effective way to prevent the spread of COVID-19 (CDC, 2021). The literature also highlights the importance of seeking routine medical care while taking appropriate precautions during a pandemic to ensure the continuity of healthcare services (Tonna et al., 2020).

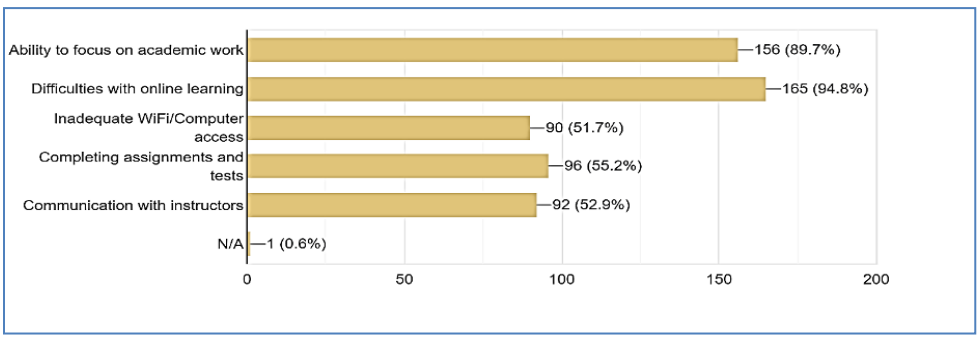

Figure 4. Experiences on academic difficulties due to the coronavirus crisis

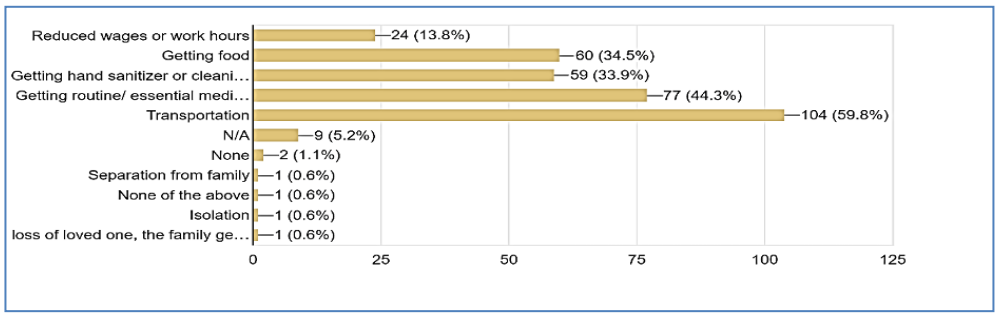

Figure 5. Experiences of life difficulties due to the coronavirus crisis

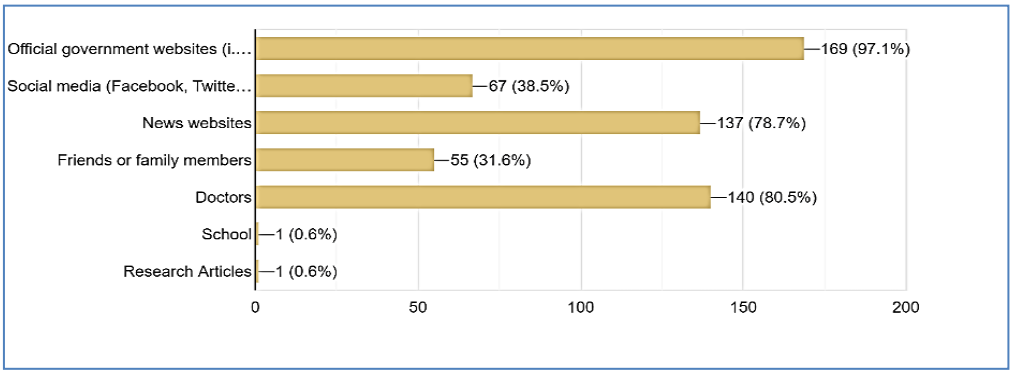

Figure 6. Trusted sources that provide accurate COVID-19 information

Fig. 4-6 represent the results of three multiple-response questions related to academic difficulties, life difficulties, and trusted sources. For each question, respondents were asked to select one or more options from a list of statements. The data shows the frequency and percentage of respondents who selected each option. Looking at the results for academic difficulties, we can see that the most commonly selected option from among the responses was difficulties with online learning (94.8%), followed by the ability to focus on academic work (89.7%), completing assignments and tests (55.2%), communication with instructors (52.9%), and inadequate WIFI/computer access (51.7%). For life difficulties, the most commonly selected options were transportation (59.8%), getting routine/ essential medications (44.3%), getting food (34.5%), getting hand sanitizer or cleaning supplies (33.9%), reduced wages or work hours (13.8%), and others. For trusted sources, the most commonly selected options were official government websites (i.e. Department of Health, CDC, etc.) (97.1%), doctors (80.5%), news websites (78.7%), social media (Facebook, Twitter, Instagram, etc.) (38.5%), friends or family members (31.6%), and others. The data provides insight into the academic and personal challenges that respondents have faced, as well as the sources they rely on for support and guidance. These findings can be useful for educators, counselors, and other professionals in identifying and addressing the needs of students and individuals. Furthermore, under the hardships experienced during the pandemic, the data consists of responses from a survey that aimed to understand people's behavior and attitudes towards COVID-19. The survey asked participants about their use of different sources for COVID-19 health information (Fig. 7), the number of hours they spend searching for news on the internet (Fig. 8) and social media (Fig. 9) about COVID-19, and their level of concern about the virus (Fig. 10). The data has been presented using bar graphs and pie charts.

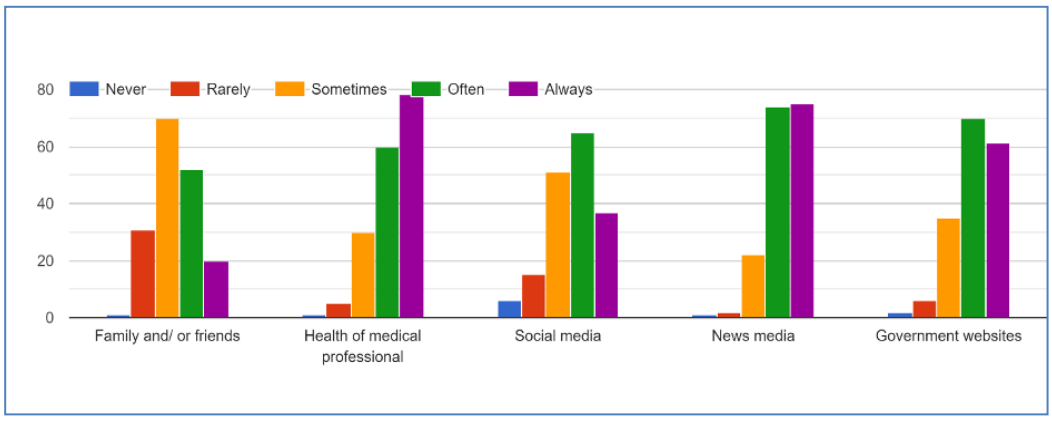

Figure 7. Sources that are used to get health information regarding COVID- 19 pandemic

Looking at Figure 7 "*How often do you see each of the following sources to get health information regarding the COVID-19 pandemic?*", it can be seen that the majority of respondents were often concerned about COVID-19 and mostly used sources like Health or Medical Professionals frequently for COVID-19. Very few of the respondents reported that they were not affected by the virus.

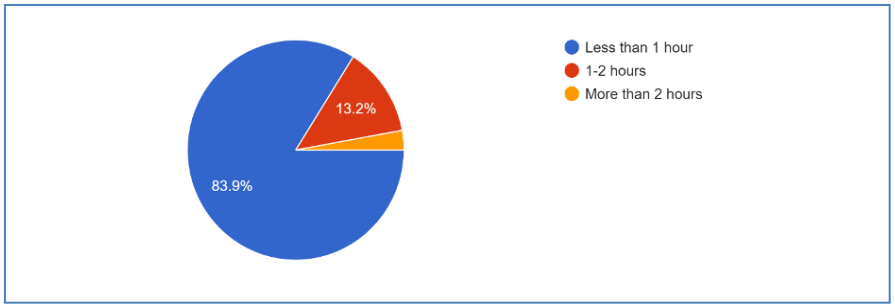

Figure 8. Hours spent per day searching the Internet for news regarding COVID-19

Figure 8 shows that 83.9% of the respondents spend less than 1 hour searching for COVID-19 news on the Internet daily, while only 2.9% spend more than 2 hours.

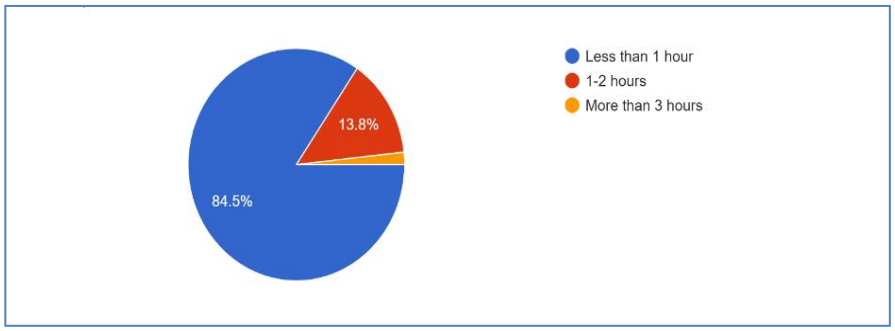

Figure 9. Hours spent per day on searching and looking at social media for news regarding COVID-19

Figure 9 reveals that most respondents (84.5%) spend less than 1 hour daily looking at social media for COVID-19 news.

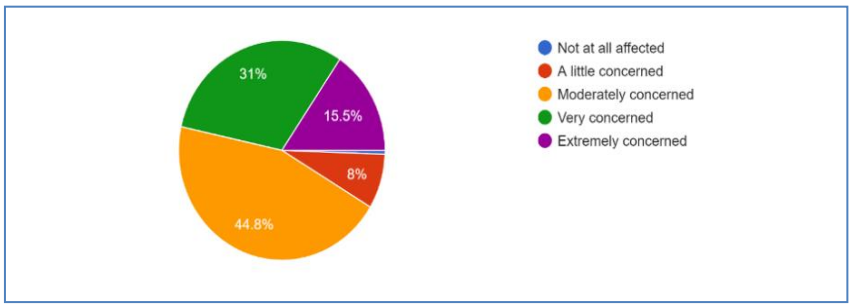

Figure 10. Level of concern regarding the novel coronavirus, COVID-19

Finally, Figure 10 presents that the majority of respondents (44.8%) reported feeling moderately concerned about the virus, while only 0.7% reported feeling not at all affected.

Results suggest that people are concerned about COVID-19 and actively seek information about the virus, primarily through the internet and social media. Health authorities can use the data to understand how people are getting information about the virus and to develop effective communication strategies.

Psychological/Mental health status of respondents

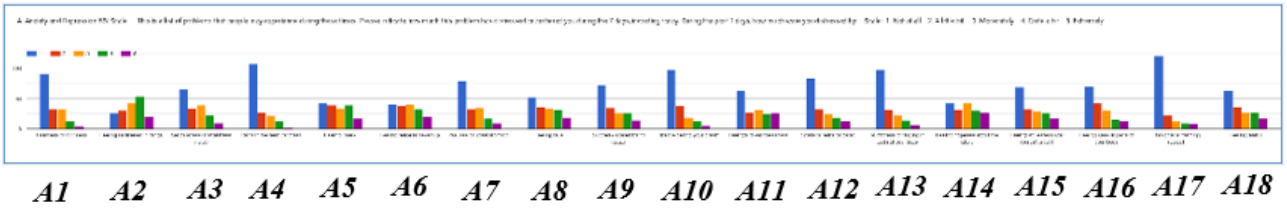

Figure 11. Anxiety and Depression BSI Scale: Problems that people may experience during Pandemic

Legend: *A1. Faintness or Dizziness, A2. Feeling no interest in things, A3. Nervousness or shakiness inside, A4. Pain in the heart or chest, A5. Feeling lonely, A6 Feeling tense or keyed up, A7 Nausea or upset stomach, A8 Feeling blue, A9 Suddenly scared for no reason, A10 Trouble getting your breath, A11 Feeling of worthlessness, A12 Spells of terror or panic, A13 Numbness or tingling in parts of your body, A14 Feeling hopeless about the future, A15 Feeling so restless you couldn't sit still, A16 Feeling weaken parts of your body, A17 Thoughts of harming yourself A18 Feeling fearful*

Figure 11 presents the frequency and percentage of different psychological problems experienced by people during the COVID-19 pandemic. The graph includes 18 different problems, and the frequency is measured on a scale of 1 to 5, with 1 representing "not at all" and 5 representing "extremely". Among the listed problems, "*feeling no interest in things*" is the most commonly reported problem, with 83.6% of respondents reporting a little bit or more of this issue. This finding is consistent with previous studies that have identified depression and loss of interest as common psychological problems experienced during the pandemic (Brooks et al., 2020; Czeisler et al., 2020).

Other common problems reported by respondents include "*fearful*" and "*feeling tense or keyed up*", with 66.7% and 57.4% of respondents reporting quite a bit or more of these issues, respectively. The prevalence of anxiety and fear during the pandemic has been reported in previous research (Czeisler et al., 2020; Shevlin et al., 2020). On the other hand, "*numbness or tingling in parts of your body*" is the least reported problem, with only 0.4% of respondents reporting quite a bit or more of this issue. This problem has not been widely reported in previous studies of pandemic-related psychological problems. The bar graph indicates that people are experiencing a range of psychological problems during the COVID-19

pandemic, with depression, anxiety, and fear being the most commonly reported issues. These findings highlight the importance of providing mental health support during the pandemic.

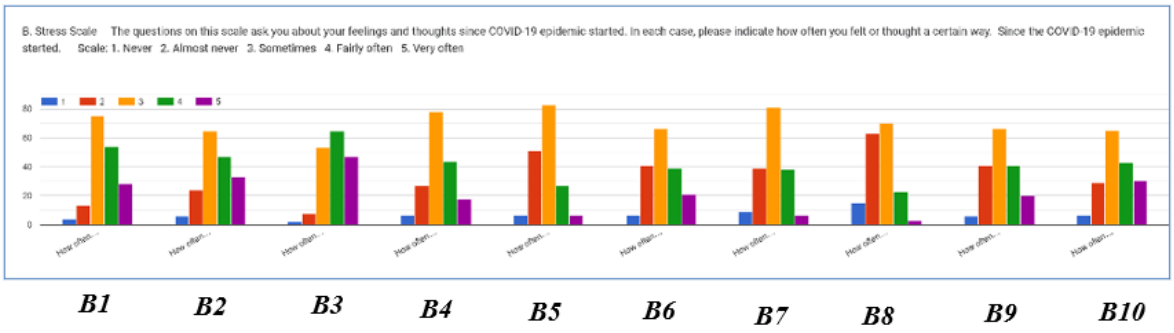

Figure 12. Stress Scale BSI Scale: Feelings and thoughts during COVID-19 Pandemic

Legend: *B1. How often have you been upset because of something that happened unexpectedly?, B2. How often have you felt that you were unable to control the important things in your life?, B3 How often have you felt nervous and "stressed"?, B4 How often have you felt confident about your ability to handle your personal problems?, B5 How often have you felt that things were going your way?, B6 How often have you found that you could not cope with all the things that you had to do?, B7 How often have you been able to control irritations in your life?, B8 How often have you felt that you were on top of things?, B9 How often have you been angered because of things that were outside of your control?, B10 How often have you felt difficulties were piling up so high that you could not overcome them?*

Figure 12 is based on a survey that asked participants to rate how frequently they have experienced certain feelings and thoughts since the COVID-19 epidemic began. The survey included ten questions (P_S1 to P_S10), and the participants were asked to respond on a five-point Likert scale (1.0 Never, 2.0 Almost never, 3.0 Sometimes, 4.0 Fairly often, and 5.0 Very often). The results were presented in the form of a bar graph, and each question's results are shown separately.

Results suggest that participants experienced negative feelings and thoughts relatively frequently since the COVID-19 epidemic started. For example, for the question P_S1 ("*How often have you been upset because of something that happened unexpectedly*?"), the majority of participants (39.9%) reported experiencing this feeling "fairly," while 19.1% of participants reported experiencing it "fairly often," and 15.8% and 15.3% reported experiencing it "very often" and "never," respectively.

Similarly, for the question "How often have you felt that you were unable to control the important things in your life?", the majority of participants (42.1%) reported experiencing this feeling "sometimes," while 24.6% of participants reported experiencing it "fairly often," and 16.9%, 9.3%, and 7.1% reported experiencing it "very often," "almost never," and "never," respectively.

The results for the other questions were similar, with the majority of participants reporting experiencing negative feelings and thoughts "sometimes" or more frequently. The findings are consistent with previous research that has shown that the COVID-19 pandemic has had a significant impact on people's mental health and well-being. For example, a study by Czeisler et al. (2020) found that the prevalence of symptoms of anxiety and depression in the US increased significantly during the pandemic compared to pre-pandemic levels. Similarly, a study by Salari et al. (2020) found that the prevalence of anxiety and depression symptoms in the general population was higher during the pandemic compared to before the pandemic. Truly, the presented data suggest that participants experienced negative feelings and

thoughts relatively frequently since the COVID-19 epidemic began, consistent with previous research showing the pandemic's negative impact on mental health and well-being.

Significant relationship between the respondents' understanding of COVID-19 and their psychological/mental health status

Table 3. MODEL SUMMARY[b]

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	.269[a]	.072	.056	.60042

Predictors: (Constant), Mean_Experience, Mean_Knowledge, Mean_Behavior

a. Dependent Variable: Psychological

Table 4. ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	4.763	3	1.588	4.40	0.005[b]
Residual	61.285	170	.360		
total	66.048	173			

Dependent Variable: Psychological

a. Predictors: (Constant), Mean_Experience, Mean_Knowledge, Mean_Behavior

Table 5. Coefficients

Model	*Unstandardized Coefficient*		*Standardized Coefficient*	*t*	*Sig.*
	B	*Std. Error*	*Beta*		
1 (Constant)	.242	1.182		.205	.838
Mean_Behavior	.059	.107	.042	.552	.582
Mean_Knowledge	.779	.710	.083	1.097	.274
Mean_Experience	.937	.271	.257	3.460	.001

a. Dependent Variable: Psychological

Table 6. Residual Statistics

	Minimum	*Maximum*	*Mean*	*Std. Deviation*	*N*
Predicted Value	2.1649	3.0204	2.6008	.16593	174
Residual Value	-1.65046	1.65256	.00000	.59519	174
Std. Predicted Value	-2.627	2.529	.000	1.000	174
Std. Residual	-2.749	2.752	.000	.991	172

a. Dependent Variable: Psychological

Based on the Model Summary, we can see that the independent variables (Mean_Experience, Mean_Knowledge, Mean_Behavior) explain only 7.2% of the variance in the dependent variable (Psychological), as indicated by the R-squared value. The adjusted R-squared value suggests that the independent variables can explain only 5.6% of the variance. Additionally, the standard error of the estimate (0.60042) indicates considerable variation in the dependent variable that is not accounted for by the independent variables.

Moving on to the ANOVA results, the regression model is significant, with a p-value of 0.005. This suggests that at least one of the independent variables has a statistically significant relationship with the dependent variable. However, the effect size is relatively small, as the low R-squared values indicate.

Finally, looking at the coefficients table, it can be seen that only the Mean_Experience variable has a statistically significant relationship with the dependent variable, as indicated by its p-value of 0.001. This suggests that the more experience one has with the phenomenon being studied- in this case, COVID-19, the better their psychological well-being.

In simpler terms, the results suggest that experience with COVID-19 positively impacts psychological well-being. In contrast, knowledge about COVID-19 and engagement in precautionary behaviors have relatively weak relationships with psychological well-being.

These findings are consistent with previous research on the psychological impact of pandemics. For example, a systematic review of studies on the psychological impact of the SARS epidemic found that experience with SARS was positively associated with psychological well-being (Lee et al., 2008). Another study on the psychological impact of COVID-19 found that higher levels of knowledge about COVID-19 were associated with greater anxiety and stress (Mertens et al., 2020). These results suggest that experience with COVID-19 may be more critical for psychological well-being than knowledge or engagement in precautionary behaviors.

Conclusion

The study sought to assess the significant relationship between the mental health of Third Year Medical Technology students and the current pandemic, COVID-19. The necessary information was gathered through a validated questionnaire. The results were analyzed and interpreted using appropriate statistical tools. In this study, the researchers provide an assessment of the impact of the COVID-19 pandemic on the mental health of 3rd-year Medical Technology students. In general, it shows that the COVID-19 pandemic has both positive and negative impacts on the mental health of students in general. For instance, in positive impact, the majority of students feel at least moderately confident in their ability to manage personal challenges. In negative impact, students sometimes feel that they are unable to control important things in their life. The result shows that there is a significant relationship between the two factors, suggesting that understanding COVID-19 plays a crucial role in shaping the

mental health outcomes of the respondents. Results suggest that knowledge about COVID-19 and engagement in precautionary behaviors have relatively weak relationships with psychological well-being. It also shows that experience with COVID-19 has a great impact on psychological well-being. This suggests that the more experience one has with the phenomenon being studied, the better their psychological well-being. Lastly, experience with COVID-19 may be more critical for psychological well-being than knowledge or engagement in precautionary behaviors. The experience of 3rd-year medical technology students may be more critical in understanding the effect of the pandemic on their psychological well-being than knowledge or engagement in precautionary behaviors.

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