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Personal and Organizational Factors Affecting the Adherence of Undergraduate Students to COVID-19 Minimum Public Health Standards

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***Abstract*— COVID-19 pandemic as global coronavirus outbreak which led schools to discontinue face-to-face transactions due to lockdowns. As COVID-19 cases subsided, schools gradually opened face-to-face classes with the implementation of the Department of Health's (DOH's) Minimum Public Health Standard (MPHS) to minimize the spread of the virus. However, DOH revealed that MPHS compliance has decreased by 20%, which might lead to a significant increase in cases. This study evaluated the implementation of the MPHS by identifying the personal and organizational factors that affect undergraduate students' adherence to MPHS at the University of Saint Louis Tuguegarao. The researchers utilized a quantitative descriptive design to gather data. A stratified random sampling was used in identifying the respondents who answered a researcher made questionnaire based on similar studies conducted. The profile variables and responses were analyzed through frequency and percentage. Meanwhile, a Chi-square was utilized to test the significant association of the personal and organizational factors to the adherence of respondents when grouped according to profile variables. The findings revealed that the most common personal factor is perceived behavioral control while the most common organizational factor is the school's orientation program on COVID-19 protocols. It also showed no significant association between the personal and organizational factors and the adherence of respondents when grouped according to profile variables. This suggests that the university conducts activities where the factors that can contribute to students' adherence to protocols is incorporated and that these are relevant to all undergraduate students despite their profile variables.**

Keywords*— *Minimum Public Health Standard, Student's Adherence to Protocols, Personal Factors, Organizational Factors

I. INTRODUCTION

Coronavirus disease (COVID-19) is a viral respiratory infection caused by the SARS-CoV-2 virus. The virus that causes COVID-19 mainly spreads from person to person. This usually happens when an infected person coughs, sneezes, or talks near other people. The virus is passed through large droplets from the infected person's lungs and airway; it can also happen in an individual with asymptomatic symptoms. These particles can readily travel through the air to nearby people. With this, coronavirus disease (COVID-19) is considered a global pandemic that causes high mortality and morbidity worldwide (Nikoloski et al., 2023). As a result, the government has restricted face-to-face classes and eventually created a platform for remote learning for all educational institutions to facilitate the new normal of education.

Furthermore, most nations worldwide have temporarily closed educational institutions to prevent the spread of the COVID-19 pandemic and minimize infections for nearly two pandemic years. This shutdown has impacted over 1.2 billion students globally, including over 28 million in the Philippines. In response to these circumstances, educational leaders embraced the new normal in education. In the school year 2020-2021, the Department of Education (Dep-ED) implemented the Learning Continuity Plan for elementary education, and classes began on August 24, 2020, rather than June 24, 2020. The Commission on Higher Education also extended academic freedom to higher education institutions (HEIs) that provided students with accessible e-learning, distance learning, and other alternative delivery modes (Prasetyo et al., 2022).

After two years of the pandemic, classes were reopened as the trend of cases towards the end of 2021 and the start of 2022 has significantly declined. However, along with the reopening of classes, CHED-DOH Joint Memorandum Circular No. 2021-001 about the Guidelines for the Gradual Reopening of Campuses of Higher Education Institutions for Limited Face-to-Face Classes during COVID-19 has been

created to serve as a guide for HEIs. This includes the COVID-19 Minimum Public Health Standards (MPHS), which refers to the guidelines for mitigating COVID-19 as a response in all settings through the implementation of non-pharmaceutical interventions (NPIs) (Prasetyo et al., 2022).

In connection to this, the University of Saint Louis Tuguegarao, which started its limited face-to-face classes on October 26, 2021, also considered these guidelines upon starting their classes. The COVID-19 MPHS included by the university, under DOH AO No. 2021-0043, use face masks, alcohol rubs, and handwashing areas, categorized as a measure that increases physical and mental resilience. Also, they reduce contact by utilizing protective barriers between teachers and students, reducing class size and floor marks for social distancing. Aside from this, as a part of reducing the duration of the infection, non-contact thermometers are also observed upon entry to the school gate. Moreover, disinfection and cleaning of classrooms according to the guidelines of DOH are also added to the list of the school's health and safety protocols (Rochmah et al., 2022). However, despite the presence of the COVID-19 MPHS, there is still a reoccurrence of COVID-19 cases in the university. According to the data provided by the University Wellness Center, 17 cases of students having COVID-19 were recorded on campus from July to November in the year 2022. Also, the Department of Health revealed the continuous decline of COVID-19 MPHS compliance through their article released last April 14, 2022.

Moreover, according to Cagayan Valley Center for Health and Development, ages 20-29 were the most affected age group in acquiring the disease. The study by Ahmed & Sintaheyu (2022) showed that COVID-19 protocols were not strictly implemented according to the Ministry of Education and World Health Organization standards sets. Herewith, this study aimed to assess the implementation of COVID-19 health and safety protocols according to the COVID-19 Minimum Public Health Standards at the University of Saint Louis – Tuguegarao, specifically, the personal and organizational factors that affect their adherence to the health and safety protocols.

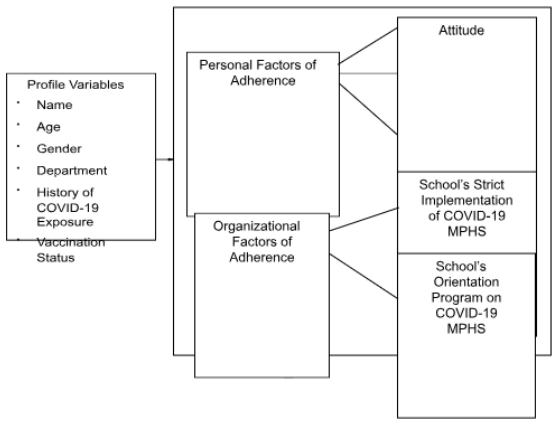

Fig. 1. A schematic diagram of the study showing the relationship of variables

This figure is based on the PRECEDE-PROCEED model by Green and Kreuter (1999), which explains that personal factors, namely attitude, social norms, and perceived behavioral control, are considered the predisposing factors that can influence students' adherence to the COVID-19 MPHS in the university. In addition to this, as depicted on the lower portion of the model, there is an addition of reinforcing factors, specifically the organizational factors represented by the school's orientation program on COVID-19 MPHS and administrative support to the strict implementation of the COVID-19 MPHS. These constructs are theorized to play a vital role in the study as they can impede or facilitate the students' adherence to the MPHS.

II. METHODS

A. Research Design

The researchers used quantitative research design, specifically descriptive design, because they utilized a questionnaire in gathering specific data relevant to the study.

B. Locale and Respondents

The study was conducted at the University of Saint Louis Tuguegarao, particularly in the College Departments. The researchers used stratified random sampling among undergraduate students to ensure that all students were represented. With a total population of 4,814, the computed sample size is 64 undergraduate students of SHAS, 37 undergraduate students from SEAS, 135 undergraduate students from SEAITE, and 120 undergraduate students from SABH, with a total sample size of 356. After this, a random selection of participants was utilized, wherein each strata member had an equal chance of being included in the sample.

C. Instrument

This study used a modified and adapted questionnaire to gather data from the participants, which has three different parts: I) Demographic Data, II) Organizational Factors that Influence Undergraduate Student's Adherence to the Different Protocols, and III) Personal Factors that Influence Undergraduate Student's Adherence to the Different Protocols.

The first part was the participants' demographic data, which was composed of name (optional), age, sex, department, history of COVID-19 exposure, and vaccination status. Moreover, the researchers utilized and then modified a questionnaire from Jandawapee et al. (2022) for the personal factors influencing students' adherence to the different protocols, precisely, attitude, subjective norm, and perceived behavioral control. Meanwhile, a questionnaire from the study of Ahmed and Sintaheyu (2022) was also used for the organizational factors, specifically, the school's orientation program on COVID-19 MPHS. Meanwhile, the administrative support for the strict implementation of the COVID-19 MPHS questions was adopted and modified from the study of McGovern et al. (2000). The research questionnaires were face validated by at three research experts selected either from the university.

D. Data Analysis

The profile of the respondents was described through their frequency and percentage. The researchers also showed the frequency and percentage of the respondents' responses to identify the most common personal and organizational factors

on the adherence of the respondents to COVID-19 protocols. Meanwhile, to test the significant association between the personal factors to the adherence of respondents when grouped according to profile variables, a Chi-squared Test was used. The same test was used in testing the significant association between the personal factors to the adherence of respondents when grouped according to profile variables.

E. Ethical Considerations

The protocol underwent review and clearance from the REB of University of Saint Louis before the conduct of data collection.

III. RESULTS AND DISCUSSION

TABLE I. SOCIO-DEMOGRAPHIC PROFILE OF MAINTENANCE WORKERS

Variable	Categories	Frequency (n=356)	Percentage
Sex	Male	140	39.33
	Female	216	60.67
Age	18	66	18.54
	19	156	43.82
	20	100	28.09
	21	30	8.43
	Above 21	4	1.12
	Average age		19
Department	SHAS	63	17.70
	SEAS	38	10.67
	SEAITE	142	39.89
	SABH	113	31.74
History of COVID-19 Exposure	Tested Positive	39	10.96
	Exposed	110	30.90
	No Exposure	207	58.15
Vaccination Status	Received 1 dose	7	1.97
	Fully Vaccinated	194	54.49
	Received 1st booster	129	36.24
	Received 2nd booster	26	7.30

Table I shows that the undergraduate students' profile was classified into age, gender, department, history of COVID-19 exposure, and vaccination status. The findings reveal that the mean age of the respondents are 19 years old; ranging from 18-21. Most of them were female (60.67%), fully vaccinated (54.49%), and those who have no exposure to people with COVID-19 virus (58.15%). The demographics represent the respondents from four different departments wherein they are proportionally distributed.

The demographic profile of the respondents in the study indicates that they had a mean age of 19, with an age range ranging from 18 to 21. This suggests that the study primarily focused on a specific age group of undergraduate students. However, it is essential to note that the age range mentioned may be particular to the study's sample population. In a related study by Gravagna et al. (2022), it was found that college students aged 18-22 exhibited higher adherence to COVID-19 protocols, such as hand hygiene and mask-wearing behaviors. This highlights the willingness of young adults, particularly college and university students, to engage in preventive measures. Regarding gender distribution, the majority of the respondents in the study were female. This indicates that female students consist most of the respondents in the study population compared to male students. It is crucial to consider potential reasons for this gender imbalance, such as the composition of the university or institution where the study was conducted. Similarly, the study by Al Mamun et al. (2022) focusing on a specific university also reported a majority of female students, leading to a higher proportion of female respondents. In terms of vaccination status, a significant proportion of the respondents reported being fully vaccinated against COVID-19. This suggests a relatively high vaccination rate among undergraduate students in the university. A study by Babicki et al. (2021) also supported the findings, demonstrating that fully vaccinated individuals were more likely to adhere to current recommendations and exhibited improved mental well-being and reduced anxiety about sars-cov-2 infection. Furthermore, Gravagna et al. (2022) found that college students who received vaccinations were motivated by the desire to help end COVID-19 outbreaks and protect their families and loved ones. Moreover, most respondents reported no exposure to individuals with the COVID-19 virus. This implies that a significant portion of the study population had not interacted with infected individuals. Various factors may have contributed to this finding, including adherence to preventive measures and other contextual elements specific to the study population. Lastly, the study ensured a proportional distribution of respondents across four different departments. Considering the diversity of various academic disciplines, this balanced representation aimed to enhance the generalizability of the study's findings within the undergraduate student population.

TABLE II. PERSONAL FACTORS AFFECTING THE ADHERENCE TO COVID-19 PROTOCOLS

Categories	Disagree		Netither		Agree		Interpretation
	N	*%*	*N*	*%*	*N*	*%*	
Atittude	31	8.71	77	21.63	248	69.66	Factor
Subjective Norms	20	5.62	55	15.45	281	78.93	Factor
Perceived Behavioral Control	17	4.78	49	13.76	291	81.74	Factor

Overall, these three factors, namely attitude, subjective norms, and perceived behavioral control, were agreed by the respondents as factors affecting their adherence to the different COVID-19 protocols inside the campus. The result also revealed that perceived behavioral control has the most respondents who agreed that this factor affects the respondent's adherence to protocols, thus making it the most common personal factor affecting their adherence to these protocols.

The results of the study indicate that, of the three personal factors examined, perceived behavioral control (PBC) was found to be the most significant factor influencing adherence to the protocols, as supported by statistical evidence. The study conducted by Prasetyo et al. (2020) also provides support for the notion that the implementation of government strategies, such as social distancing, can have a significant impact on the extent to which individuals comply with established protocols. The adherence of undergraduate students to COVID-19

protocols is significantly influenced by their perception of the ease or difficulty of performing such measures. Also, Seong & Bae (2022) found that individuals' behavior in adhering to COVID-19 protocols was predicted by their perception of control in performing the protocols. This implies that the students are more compliant with the different protocols implemented in the university if they perceived confidence in doing them. In order to do such, the most common factor that influences their perceived behavioral control is their awareness of the importance of adhering to the protocols for the sake of the health and safety of everyone. The study of Rochmah et al (2022) shows that people who follow various protocols, such as social withdrawal, hand hygiene, and face masks are aware of their importance in preventing the spread of the disease between people. Consequently, ensuring the safety and protection of individuals from the potential harm posed by the virus to their well-being. In the study by Mya et al. (2020), the perception of the disease as a threat to one's health within the community is heightened by increased awareness, prompting individuals to take measures to prevent the spread of the virus. The research conducted pertaining to pandemic influenza posits that comprehending the outbreak is linked to individuals' adherence to self-isolation, abstaining from public engagements, and postponing social events. As per the findings of Shon et al. (2016), the presence of awareness is a crucial factor in elevating individuals' adherence levels. Hence, this finding suggests that increasing the knowledge of students in the university.

The study has identified subjective norms as the second most prevalent factor influencing adherence to COVID-19 protocols. The study conducted by Prasetyo et al. (2021) demonstrated that individuals who are exposed to a diverse range of individuals adhering to various preventive measures are more likely to comprehend the mechanism of the virus, thus supporting this finding. Consequently, this heightened level of awareness resulted in their adherence to the established procedures. Gibson et al. (2021) and Bord et al. (2021) have posited that public health campaigns encompassing a significant proportion of the populace may demonstrate that subjective norms can impact individuals' adherence to various preventative measures, particularly social distancing. Furthermore, subjective criteria and preventive behavior exhibit a significant association with adolescents due to the strong influence of peer groups on their adoption of health behaviors. This phenomenon has an impact on individuals' decision-making processes, especially when they experience ambivalence toward a particular behavior. Furthermore, it is apparent that parental influence plays a role. Consequently, notwithstanding their perceived autonomy and self-determination, adolescents exhibit a marked reliance on their parents. The influence of this factor on the conduct of adolescents has a noteworthy effect on their adherence to preventive measures against COVID-19, as evidenced by a previous study conducted (Park & Oh 2023). Rochmah et al. (2022) conducted research that showed that adherence to physical distancing, mask-wearing, and handwashing with soap could be influenced by the level of support within communities. The present study's results are consistent with those of a prior investigation, which revealed that in 29 Indonesian provinces, communities exhibited appropriate adherence to health protocols when provided with adequate support, despite their cultural diversity. In contrast, as observed in the research conducted by Aschwanden et al. (2021), subjective norms may exert an influence on the community's non-compliance with protocols, owing to the dominant pressures exerted on them by their socio-cultural, traditional, religious, and familial milieu. Hence, subjective norms can be perceived in two distinct contexts. Empirical evidence has demonstrated that this variable exerts a significant influence on the decision-making process of undergraduate students with regard to their compliance or non-compliance with the COVID-19 guidelines set forth by the university.

The study revealed that the factor attitude is the least common factor that influence the adherence of undergraduate students to COVID-19 protocols when compared to the aforementioned two factors. This finding aligns with the research conducted by Moran et al. (2021), which suggests that individuals who perceive COVID-19 as a significant threat are more inclined to comply with COVID-19 public health guidelines. According to Tasso et al. (2021), the demographic of college students is undergoing various forms of emotional distress. The college students express worry regarding the possibility of contracting COVID-19 and exhibit heightened levels of anxiety concerning the contraction of the virus by individuals within their social circle. Additionally, they expressed concern regarding the possibility of them or their loved ones experiencing severe illness. Generali et al. (2021) conducted a study that revealed that participants expressed concern for themselves and their loved ones during the pandemic. The study also found that anxiety levels were significantly linked to the degree of worry regarding contracting COVID-19 during daily and university activities, the level of concern for family members contracting the virus, and the participant's perception of their own risk. The elevated incidence of COVID-19 cases has resulted in heightened levels of anxiety and stress among undergraduate students, which has subsequently impacted their compliance with COVID-19 protocols. This aligns with the findings of Prasetyo et al. (2020), which suggest that individuals who express concern about the prevalence of COVID-19 infections are more inclined to adhere to governmental regulations aimed at mitigating the spread of the virus. According to Roy et al. (2020), approximately 50% of the participants experienced feelings of panic in response to the COVID-19 pandemic reports disseminated through electronic and print media. In contrast to the aforementioned results, Generali et al. (2020) conducted a study that also revealed that the majority of students experienced mild to moderate levels of fear, anxiety, concern, sadness, and anger when contemplating COVID-19. Only a minority of participants reported experiencing these emotions to a significant degree. The findings of the study indicated that a mere two percent of the student population exhibited a high level of concern regarding the possibility of contracting COVID-19 while engaging in their respective activities. Conversely, the majority of students expressed a low to moderate level of anxiety. Furthermore, Tran et al. (2022) conducted a study that showed a negative correlation between anxiety and compliance with COVID-19 preventive measures. Conversely, no correlation was observed between depressive symptoms and adherence to COVID-19 preventive measures.

The study conducted by Mevorach et al. (2021) has shown that uncertainty in the public domain is significantly linked to reduced levels of compliance. This is attributed to the fact that uncertainty is often accompanied by anxiety, which can impede goal-oriented behavior and trigger distress. Uncertainty can disrupt coping mechanisms as the individual may not perceive their actions as providing a sense of safety or relief from perceived danger.

TABLE III. PERSONAL FACTORS AFFECTING THE ADHERENCE TO COVID-19 PROTOCOLS

Categories	Disagree		Neither		Agree		Interpretation
	N	*%*	*N*	*%*	*N*	*%*	
School's Strict Implementation of the MPHS	66	18.54	76	21.35	214	60.11	Factor
School's Orientation Program on COVID-19 Protocols	16	4.61	36	10.23	303	85.15	Factor

These two factors, namely the school's strict implementation of the MPHS and the school's orientation program on COVID-19 protocols, were agreed upon by the respondents as factors affecting their adherence to the different COVID-19 protocols inside the campus. The result also revealed that school's orientation program on COVID-19 has the most respondents who agreed that this factor affects the respondent's adherence to protocols, thus making it the most common organizational factor affecting their adherence to these protocols.

The findings of the study revealed that between the two organizational factors, the School's Orientation Program on COVID-19 Protocols has been statistically evident to be the more common factor that affects adherence to the protocols than the School's Strict Implementation of the MPHS. The result shows that most undergraduate students are adhering to the COVID-19 protocols implemented at the university since the undergraduate students have been taught during the orientation conducted at the beginning of the school to use facemasks properly, proper steps of handwashing, practice social distancing, check the temperature in the contact thermometer, and more. The said activity in the university were conducted by the Office of the Student Affairs and Services (OSAS), in collaboration with the University Wellness Center, faculties and student councils. This multidisciplinary approach of the university in terms of orienting the students has been effective for them to adhere with the different protocols. Similarly, the study of Flores-Sandoval et al (2021) states that building an effective multidisciplinary team and adopting a collaborative approach are essential for the success of quality improvement of a certain program. Moreover, in connection to the study of Varol et al. (2021), students were more inclined to adhere to guidelines if they felt that the university's communication was transparent, reliable, and adaptable to changing circumstances. The study found that the highest percentage of adherence among undergraduate students is that they have been oriented about the importance of observing the different COVID-19 protocols implemented in the University and that they stay at home when experiencing COVID-19 symptoms. This study coincides with Al-Hasan et al. (2020) that people adhering to rules is crucial to the government. Using social media and traditional news outlets, governments increase their efforts to inform the public about the pandemic and employ strategies for better communication management with constituents. And that the student's adherence to their health protocols and practices differed in terms of regularity (Daniel et al., 2022).

The study reveals that a substantial percentage of undergraduate students adhered to the different protocols due to the strict implementation of the Minimum Public Health Standard by the university. This was attributed to the strict reminders issued by the authorities, which included wearing masks, observing social distancing, practicing hand hygiene, utilizing non-contact thermometers to monitor body temperature, avoiding overcrowding, and being vigilant of potential symptoms of infection. The strict enforcement of safety protocols by the guards and the presence of well-distributed signage throughout the University have been identified as the primary motivators for the majority of students to adhere to safety guidelines. The results of the study indicate that the strict implementation of COVID-19 protective measures in educational institutions can have an impact on compliance with said measures (Daniel et al., 2022). It was also noted that strict adherence to the COVID-19 guidelines could be positively impacted by such implementation. Hence, in order to ensure adherence to these preventive measures, it is imperative that authorities provide clear and consistent reminders regarding the significance of such practices. Furthermore, it is imperative that these aforementioned authorities exemplify the conduct they aim to promote and offer assistance in terms of resources and availability of other preventative measures. The findings are in line with prior research, which have established that effective execution of general health safety measures necessitates administrative backing from the school. This underscores the importance of the school authorities' active involvement in ensuring that students comply with the established guidelines (Ancheta, R. & Ancheta, H. 2020). Thus, the aforementioned findings suggest that educational institutions have been thoroughly enforcing safety measures to avert any potential outbreaks within their premises, and students are adhering to the established regulations. The university's strategy for safeguarding students during their academic pursuits was favorably received, notwithstanding the significant impact of the pandemic on the communal facets of higher education and campus existence.

Overall, the most common factors namely perceived behavioral control and school's orientation program regarding COVID-19 show connection to each other in affecting the adherence of undergraduate students in the university towards the different protocols. The increased knowledge that the students will be garnering from the orientation program can lead to their confidence in performing the different protocols and perceived its importance. Thus, the perceived behavioral control of the students can be heightened as well. Similarly, the study of Thelken et. al (2020) suggests that orientation

programs promote the initiative of higher education students in developing programs through their perception of confidently doing the job. These findings of the study then suggest that carrying out orientation programs which will consequently increase the perceived behavioral control of the undergraduate students can be significant in developing their adherence not only to the COVID-19 protocols but also future health programs or health preventive measures that will be implemented in the university.

TABLE IV. TEST OF SIGNIFICANT ASSOCIATION BETWEEN THE PERSONAL FACTORS TO THE ADHERENCE OF RESPONDENTS WHEN GROUPED ACCORDING TO PROFILE VARIABLES

Variables	X^2 value	p-value	Description
Age	1.8193	0.9861	Not Significant
Gender	0.9328	0.6272	Not Significant
Department	4.2875	0.6378	Not Significant
History of COVID-19 Exposure	0.9109	0.9230	Not Significant
Vaccination Status	3.0676	0.8003	Not Significant

Table IV shows the summary of the test of significant association between the personal factors affecting the adherence of the respondents and their profile variables. The variables were classified into age, gender, department, history of COVID-19 exposure, and vaccination status. Overall, since both the chi-square value and p-value of the variables are greater than 0.05, the deviation from the null hypothesis is not significant, hence, accepted. This suggests that there is no association between the personal factors affecting the respondents' adherence and their profile variables, indicating that the profile variables do not influence the undergraduate student's adherence to the Minimum Public Health Standard implemented by the university.

The findings of our study align with those of Ahmed and Sintaheyu (2022), indicating that age does not have a significant impact on the adherence status of medical students. The lack of statistical significance in the study could be attributed to the need for a larger sample size to generate significant outcomes. Additionally, it could be due to the impact of the students' limited age range (18-26) and their educational homogeneity. In contrast, Olaimat et al. (2020) discovered a positive correlation between age and concern regarding contracting COVID-19. The age group of students who exhibited the highest level of anxiety regarding the contraction of COVID-19 was those who were twenty-five years old and above, with a percentage of 73.7%. This was followed by students aged between twenty to twenty-four years old, with a percentage of 69.6%, and those who were nineteen years old and below, with a percentage of 65.5%. There was a moderate correlation between positive attitude and age, as evidenced by the fact that 71.5% of students aged twenty-five and above exhibited a positive attitude score towards COVID-19, while only 66.9% of students aged nineteen and below demonstrated the same. Conversely, adherence to established procedures with regards to subjective norms has yielded varying outcomes across diverse research studies. Gibson et al. (2021) and Aschwanden et al. (2021) have reported that subjective norms regarding adherence to COVID-19 protocols are strongly associated with older adults. In contrast, Bord et al. (2021) found that age does not significantly impact students' adherence to COVID-19 protective measures, such as social distancing. The study suggests that students perceive the disease as a threat to all members of the population, regardless of age. Moreover, Tadese and Mihretie (2021) involved a sample of individuals aged 18 to 40 years, revealing that approximately 73.3% of participants expressed confidence in their ability to safeguard themselves against COVID-19. Approximately 56.6% of the participants expressed confidence in their ability to adhere strictly to preventive measures. The findings of the study indicate that undergraduate students exhibit greater self-efficacy in managing the spread of COVID-19 as compared to their postgraduate students. This phenomenon may be attributed to the fact that a significant number of postgraduate students have multiple family members involved in matrimonial unions. Therefore, individuals may perceive that it is possible to contract and transmit the virus to their loved ones.

In terms of gender, a research by Ofori-Manteaw et al. (2022) found that all students feared contracting COVID-19 and dying as a result. Their mental and emotional health are impacted by high levels of fear. Additionally, the results showed that all students, regardless of gender, had the same level of anxiety as a result of Covid-19. This might be explained by the fact that the study was carried out on a population with comparable features. In contrast, a study by Rochmah et al. (2021) discovered that female students experienced much more fear than male students. It's possible that female students experienced more worry because they are more mentally susceptible and had more health insecurities than male students. In addition, women reported more substantial sleep loss due to worrying about catching COVID-19, greater anxiety when thinking about COVID-19, and greater discomfort while watching news headlines about it (Trapp et al., 2022). Male students were, however, found to be substantially more worried than female students, according to a study by Saravanan et al. (2020). However, when it comes to subjective norms, Okten et al.'s (2021) study found that females are the ones that adhere to the various preventive measures because they feel compelled to do so by the community's beliefs. Because they were expected to care for the rest of the family, they were also expected to remain healthy despite the pandemic, according to this idea of the community. This suggests that females are more impacted by arbitrary norms than males are. A study by Mehanna et al. (2021) also found that participants were more likely to be willing to follow the protective measures when they were female, confident in their ability to follow the protective measures when they were available, believed in the benefits of the protective measures against COVID-19, and believed that the disease could have serious repercussions.

According to a study by Ofori-Manteaw et al. (2022), adherence to COVID-19 procedures was connected to students' career pathways in the department. The COVID-19 safety guidelines were followed more strictly by non-healthcare students than by healthcare students. This might be as a result of the non-healthcare students showing more fear and being more likely to adhere to the safety precautions. This is in line with past research suggesting that when people view the COVID-19 hazard as serious, they are more likely to take preventive actions. Additionally, health students are more

shielded from COVID-19 anxiety than non-health students since they are exposed to complicated disease conditions their diagnosis, prevention, and treatment during their training. Students majoring in healthcare are more likely than those majoring in non-healthcare disciplines to have good health literacy, which protects them against the fear of COVID-19. In addition, a study by Olaimat et al. (2020) revealed that students majoring in human sciences were the ones who were most concerned about contracting COVID-19 (73.1%), compared to those majoring in medicine and engineering (65.0%). Additionally, a study by Saravanan et al. (2020) discovered that students in the Arts program were more anxious than those in other disciplines. The study demonstrates that educational institutions must increase COVID-19 awareness among students enrolled in arts programs in order to lower COVID-19 anxiety.

In terms of the history of exposure to COVID-19, a study by Ahmed and Sintaheyu (2022) revealed that there is no significant difference in relation to students' previous infection or the infection of their relatives or friends with COVID-19 to the adherence status. The only significant difference observed was in relation to the death of a relative or a friend due to COVID-19 where students who have relative or friend deaths were less adherent to the preventive measures. Students and their dead relatives and friends come from the same families and communities which have similar practices. These families and communities were most probably less adherent to COVID-19 precautions and consequently more deaths. However, students who reported having a positive COVID-19 test and multiple categories of known COVID-19 individuals had significantly lower scores in protocol self-adherence. For protocol adherence of others, the study also found significantly lower scores in students who knew family members, friends, or multiple categories of known people who tested positive for COVID-19 (Akhter et al. 2022). Furthermore, the study by Tadese & Mihretie (2021) found that the odds of self-efficacy were significantly higher among students with a friend/family history of COVID-19 infection and death. Having a friend/family history of COVID-19 may alert students to prepare cautiously and practice protective behaviors that increase self-efficacy toward preventing the pandemic.

In terms of vaccination status, a study by Babicki et al. (2022) showed that COVID-19 vaccination reduces the level of anxiety about being infected and anxiety due to COVID-19 disease in people from the immediate environment. In addition, those who are not willing to get vaccinated have the lowest sense of anxiety and fear of being infected and they have the lowest adherence to government recommendations limiting SARS-CoV-2 transmission. A study by Wright et al. (2021) found that compliance increased between October 2020 and March 2021, regardless of vaccination status or month of vaccination. There was no clear evidence that vaccinated individuals decreased compliance relative to those who were not yet vaccinated. However, there was little evidence that sample members vaccinated in January or February reduced compliance after receiving vaccination for COVID-19.

TABLE V. TEST OF SIGNIFICANT ASSOCIATION BETWEEN THE PERSONAL FACTORS TO THE ADHERENCE OF RESPONDENTS WHEN GROUPED ACCORDING TO PROFILE VARIABLES

Variables	X^2 value	p-value	Description
Age	2.0049	0.9809	Not Significant
Gender	0.8803	0.6439	Not Significant
Department	3.1006	0.7961	Not Significant
History of COVID-19 Exposure	1.9948	0.7367	Not Significant
Vaccination Status	1.1807	0.9778	Not Significant

Table V summarizes the test of significance between the external factors affecting respondent adherence and their profile variables. The profile variables were classified according to age, gender, department, exposure history to COVID-19, and vaccination status. Since both the chi-square value and the p-value are greater than 0.05, the deviation from the null hypothesis is not statistically significant and is therefore accepted. This suggests that there is no association between the external factors affecting the respondents' adherence and their profile variables, indicating that the profile variables do not influence the undergraduate student's adherence to the Minimum Public Health Standard implemented by the university.

In terms of age, it is found in the study by Berg-Beckhoff (2021) that age was not found to be a significant predictor of adherence to COVID-19 measures among Danish students. The findings from this study and others (Auton et al., 2022; Ahmed & Sintayehu, 2022) demonstrate that students' age is only sometimes related to compliance intentions and behaviors. This indicates that no association was found between age and intentions to adhere to the COVID-19 restrictions, or compliance was largely unaffected by age (Lin et al., 2020). Furthermore, a study that investigated the adherence of Swiss students to COVID-19 containment measures found no significant differences in adherence levels between age groups. Some differences could be observed across the various students' fields of education. Although the Swiss study was conducted on students in Switzerland, it might imply universality in the relationship between students' age and adherence levels or be limited to some specific contexts (Zysset et al., 2021).

Regarding gender, it is worth noting that different studies have found varying degrees of association between gender and adherence to COVID-19 preventative measures. For instance, the study by Paramita et al. (2021) found that females tend to comply better with COVID-19 measures than males. Meanwhile, other studies indicated that women are more likely than men to perceive COVID-19 as a severe health problem and agree with restrictive public policy measures (Galasso et al., 2020).

While in vaccination status, the study of Nikoloski et al. (2021) revealed no significant association between vaccination and preventive practices. This is also in line with the study that collected data from a panel of individuals in Japan, and the results did not find that vaccinated people decreased preventive behaviors (Yamamura et al., 2023). Furthermore, it also found that undergraduate students' vaccination status did not significantly impact their adherence to COVID-19 protocols such as mask-wearing and social distancing. Moreover, vaccination status is not associated with adherence because students consider adherence and vaccination as two separate

decisions, and they weigh different factors while making those decisions (Kulcar et al., 2022).

As regard Covid-19 exposure, one study explored the association between a history of COVID-19 and preventive practices wherein the authors reported that participants with a history of COVID-19 were not less likely to practice preventive measures compared to those with no history (DeDonno et al., 2020). According to the study of Zemni et al. (2022), no statistically significant association with adherence to COVID-19 preventive behaviors among medical students in Monastir, Tunisia, was observed. The reason why a history of COVID-19 exposure had no association with adherence could be attributed to various reasons. Firstly, some students may have believed quarantine was unnecessary since they showed no symptoms. Secondly, students might feel immune to COVID-19 after exposure to the virus. Lastly, fear of being stigmatized or discriminated against due to a history of COVID-19 infection might have discouraged students from disclosing their exposure.

The previous research found that college courses do not significantly predict adherence. In other words, there is no significant association between college courses and adherence to COVID protocols among college students (Annunziato et al., 2022). In the study of Varol et al. (2021), it was also revealed that college course was not found to be associated with adherence to COVID-19 protocols. The study found that the determinants influencing adherence to the protocols were different beliefs, such as perceived severity and susceptibility to COVID-19, perceived social norms, self-efficacy, and trust in government. It is important to note that the study sample was limited to one university in Belgium, and the findings may not be generalized to other settings and populations. Therefore, further studies are needed to confirm these results in other contexts.

These findings of the study revealed that the factors do not have significant association with their adherence to the protocols when grouped according to the variables. This implies that despite the student's age, gender, department, history of COVID-19 exposure, and vaccination status, these do not affect their adherence to the protocols. The study then suggests that every student must be included in every activity in which the factors that can further influence their adherence to protocols should be involved.

There are also limitations identified in this study. One of the main limitations was that the data were only collected solely from undergraduate students, so the findings may not be generalizable to another set of respondents. The study may miss out important insights and perspectives from other groups because different groups within a university may have unique experiences, attitudes, and behaviors regarding adherence to COVID-19 protocols. However, many of our significant findings were comparable to those reported by studies in the general population, suggesting that our findings may be at least some degree of generalizability. Thus, these could all have an impact on the findings of this study. The second limitation of the study is it focuses on a single university which may not provide a comprehensive understanding of the factors that affect the adherence of undergraduate students to COVID-19 protocols in different university settings. The effect of this limitation is that the study's results and conclusions may not represent the experiences and behaviors of undergraduate students in other universities. Each university has unique characteristics, such as campus size, location, student demographics, and institutional policies, which can influence adherence to COVID-19 protocols. The findings from a single university may not accurately reflect the factors influencing adherence in other university settings. The third limitation is that it only focuses on a limited number of organizational and personal factors that affect the adherence of undergraduate students to the COVID-19 protocols. While it provides valuable insights into these specific factors, it may not capture the full range of influences on adherence behavior. Other important factors, such as environmental and psychological factors, may also significantly shape adherence behavior. Thus, while the study provides valuable information, it is important to consider these additional factors to gain a more comprehensive understanding of the topic. Lastly, this study used only a descriptive quantitative research design. It is important to note that while a descriptive quantitative research design can provide valuable insights and descriptive statistics, it may have limitations. For instance, it may not capture the complexity and nuances of individual experiences and motivations. Additionally, it may not establish causality between the identified factors and adherence behaviors. However, it can provide valuable quantitative insights into the prevalence, patterns, and trends related to adherence to COVID-19 protocols among undergraduate students. This can help identify key variables and formulate preliminary hypotheses. Using a single research design can also contribute to more structured and easily interpretable findings, as quantitative data can be analyzed using statistical techniques to provide precise measurements and comparisons.

IV. CONCLUSION

Based on the findings of the study, the following are concluded: The respondents agreed that perceived behavioral control is the most common personal factor that influences their adherence to DOH's MPHS. Meanwhile, the most common organizational factor is the school's orientation program on COVID-19 protocols. Moreover, this research proves that there is no significant association between the personal factors and the adherence of respondents when grouped according to profile variables. The same goes with the organizational factors, as they exhibit no significant association with the adherence of respondents when grouped according to profile variables. The findings of the study then provide guidance to the university on factors that might contribute to the adherence of students to the COVID-19 protocols. This also suggests that it is relevant to all undergraduate students despite the differences in age, gender, department, history of COVID-19 exposure, and vaccination status.

V. RECOMMENDATIONS

The current study provides valuable insights for improving undergraduate students' adherence to COVID-19 protocols in a university setting. It identifies common personal and organizational factors that affect compliance with these

protocols. To enhance adherence among students at the University of Saint Louis Tuguegarao, it is recommended that the Office of Student Affairs and Services incorporate a program to strengthen medical and student support services to be led by the University Wellness Center. This will ensure continuous monitoring and implementation of health practices within the university. However, it is essential to note that this study has some limitations. Firstly, the scope of the study is limited to undergraduate students. Therefore, it is recommended to conduct additional research with other sets of respondents, such as employees and students from different grade levels in the basic education. By including participants from different grade levels, researchers can examine whether there are variations in adherence based on factors such as academic standing, age, or level of maturity. This can help identify any specific challenges or barriers faced by different groups within the university community. Similarly, employees such as faculty members and staff may have unique perspectives and challenges. This helps capture diverse perspectives, experiences, and attitudes towards COVID-19 protocols. Furthermore, the study was limited to one university, so researchers also recommend conducting research in multiple universities to provide a more comprehensive understanding of the factors influencing adherence among college students. This approach would enable the evaluation of different institutional contexts, demographic factors, and regional differences in adherence rates. Additionally, studying multiple schools would contribute to developing tailored interventions and policies to enhance adherence to COVID-19 protocols among students. In addition to personal and organizational factors, future research should consider other factors, such as environmental and psychological factors. This study was also limited to identifying the organizational and personal factors influencing students' adherence to the COVID-19 protocols. Thus, future researchers should widen their scope and identify additional factors such as environmental factors, which help to determine the effect and role of factors in buildings' spatial dynamics, building operational factors, and a strategy to prevent SARS-CoV-2 transmission in a building environment, or psychological factors that are intended to identify significant factors associated with health protocols. Lastly, the study used a descriptive quantitative research design. Future research can employ alternate research methods such as thematic analysis or interviews with respondents to broaden the perspective and gather more in-depth insights. These methods can provide a more nuanced understanding of the factors influencing adherence to COVID-19 protocols.

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