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## **Appraising public adherence to government's policy on COVID-19 safety protocols in selected institutions of higher learning in Ghana**

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**Abstract:** This study sought to ascertain whether or not Ghanaians in the universities adhered to the COVID-19 safety protocols, especially with face-masking (F), physical distancing (D) and hand sanitising (S) – (FDS) towards averting virus transmission. The study collected a perception data from a sample of 191 respondents from three universities in Ghana using a well-structured questionnaire. Data collected were analysed using SPSS version 27 and presented in descriptive statistics, graphs, and perception index. Findings revealed a high compliance level with the FDS safety protocols against the COVID-19 transmission, enabling academic interactions and activities in the universities to be conducted. The study therefore concluded that the protocols constituted a useful intervention against COVID-19 transmission and facilitated academic activities in the Ghanaian university communities. On the aegis of the efficacy of the FDS protocols and the impact of COVID-19 information dissemination on the public, it was thus recommended that in the event of a communicable pandemic, the behavioural changes with the FDS protocols was a useful intervention against transmission of a pandemic.

**Keywords:** public adherence; COVID-19; safety protocols; higher institutions; Ghana.

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**Biographical notes:** Francis Edjah is an administrator with the Department of Public Relations and Communication, Ghana Communication Technology University. He holds a Master of Arts and Postgraduate Diploma in Communication Studies from the University of Ghana, Legon and BA (Arts – Religions and English), and Diploma in Education qualifications from the University of Cape Coast. He has 28 years administrative work experience in higher education from University of Cape Coast, Garden City University College and over seven years teaching experience in Communication-related courses. His research interests are in organisational communication and crisis management. He has enough experience in servicing boards and committees.

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## 1 Introduction

The COVID-19 pandemic, emanating from Wuhan in China in December 2019 was reported in Ghana with a two-case record on March 13, 2020 (Bonful et al., 2020; As English, 2020). The spread of the virus and its implications had not been contained when the omicron variant was also reported in Ghana with a 41 case record on the same date it hit the UK on December 13, 2021 (New Hampshire Department of Health and Human Services, 2021; Xinhuanet, 2021). The pandemic brought a number of restrictions and behavioural changes required to check the spread of the virus. The restrictions engendered the drastic measure of closure of universities on March 16, 2020 (Xinhuanet, 2021) among other measures. The Government of Ghana had to manage the situation with the WHO safety protocols (Bonful et al., 2020; Wabo, 2020) widely broadcast on the Ghanaian media to create awareness and adherence. The safety protocols, which included avoiding physical contacts; regular handwashing with detergents under running water; regular rubbing of hands with 70% plus alcohol-based sanitisers; wearing of facemasks (a mandatory measure – EI 164) among others (KPMG GMS Flash Alert, 2020; MOH, 2020) were instituted to safeguard lives, especially in the absence of a known cure.

The government's ability to manage the pandemic, however, led to the re-opening of universities and schools for a sequel of academic activities on January 9, 2021 (Xinhuanet, 2021), preceding the intervention of a known vaccine which was introduced in Ghana from February 24, 2021. In the vulnerable circumstance and exigency, the WHO safety protocols constituted the only interventions which Ghanaian students could adhere to as a life-saving measure during academic interaction in the university communities, since the efficacy of the COVID-19 vaccine to protect 100% from the virus had not been established.

This new circumstance of the universities meant that for teaching, learning and research activities to continue without the spread of infections, members of the university communities, who were going to meet and interact physically had to strictly adhere to the protocols against the virus spread. Already, research findings focusing on public places, apart from the university communities (Bonful et al., 2020; Dipasupil, 2020; Dzisi and Dei, 2020; Howard et al., 2020; Afful et al., 2021; Onyeukwu et al., 2020; Salifu, 2021; Seale et al., 2009; Upoalkpajor and Upoalkpajor, 2020) had recorded low level public compliance with the government's initiated safety protocols against the pandemic. Such a situation became a grave concern that required buffer interventions.

Though the findings suggested an alarming situation, those studies did not explore the circumstances of the university communities which this new study focused on. What then was the situation in the university communities likely to be during members' interaction for the pursuit of their academic activities? Were members of the university communities going to adhere strictly to the safety protocols – face-masking, distancing and the rubbing of hands with alcohol-based sanitisers (referred to, hereafter in this research as FDS) or not to safeguard from infections?

This research was therefore poised to ascertain whether or not members of the university communities in the Ashanti Region of Ghana were strictly adhering to the prescribed safety protocols, especially the FDS against the virus spread during all academic activities and the implications of the adherence on same. The study was therefore driven by the following research questions:

- 1 Whether or not members of the university communities were aware of the COVID-19 safety protocols, especially the FDS.
- 2 Whether or not members of the university communities adhered strictly to the FDS.
- 3 To what extent had the adherence to the FDS prevented the spread of COVID-19 in the universities.
- 4 Whether or not the adherence to the FDS had promoted academic interactions in the universities.
- 5 What impact had the conduct of strict adherence to the FDS had on the fight against COVID-19 in the universities.

The research study is premised on the government's adopted WHO COVID-19 safety protocols and supported by reports and literature from researchers in the area of concern. Consequently, it is expected to provide the Ghanaian Government, the Ghana Health Service and policy framers in the universities the opportunity to obtain first-hand evidence-based reports on the status and level of public adherence to the safety protocols. The end results was meant to uphold the success of the government's intervention during the crisis and to drive government's policy direction in interventions for future

encounters. Findings of the study are also expected to enable the establishment and enforcement of cost-effective measures to ensure safety for the expected risk-free academic activities by management of the university communities in the event of such crisis in future. Naturally, the wealth of knowledge eventually obtained in the effective management of health-related crisis would be deepened by the findings, besides serving as a guide to would-be researchers in the field of health.

## **2 Theoretical review**

Two models, the health belief model (HBM) and the protection motivation theory (PMT) have been identified as a guide for obtaining a broad insight to this study and as a premise for undertaking this research.

### *2.1 The HBM*

HBM was developed by social scientists at the US Public Health Service indicates that people are moved to take an action about a certain health risk or problem on the basis of what they think the implications of that health problem has for them and on the benefits of the actions taken in relation to that perception. Specifically, the model defines the key factors that influence health behaviours as an individual's perceived threat to sickness or disease (perceived susceptibility), belief of consequence (perceived severity), potential positive benefits of action (perceived benefits), perceived barriers to action, exposure to factors that prompt action (cues to action), and confidence in ability to succeed (self-efficacy) (National Institutes of Health, 2021; Rural Health Information Hub, 2005).

Studies on the relevance of the HBM in decision-making for behavioural changes and course of action by individuals confronted with a risk or problem have been conducted.

Razmara et al. (2018) revealed that cues to action, perceived benefits and perceived barriers are important. Therefore, advertising, design of information campaigns, emphasis on the benefits of safe driving behaviours and modification barriers are recommended. Herrmann et al. (2018) investigated women's decision for or against the removal of their ovaries to reduce their risk of developing cancer and concluded that doctor-patient-communication and patient-centred care could reduce surgery in ovarian cancer patients.

Just as the HBM has been relevant to prevention-related and asymptomatic health situations (Office of Behavioural and Social Science Research, 2021), it is in the same vein that it is of paramountcy in this study which bothers on the COVID-19, a pandemic which impinges on the healthcare and welfare of the population (university communities) under study.

The HBM is relevant to this study since it deals with the commitment to adhere to the COVID-19 Safety Protocols, specifically with the face masking, distancing and sanitising (FDS). Typically, people are likely to be influenced to adhere strictly to the FDS only if they perceive possible infection by the COVID-19 pandemic. Consequently, also, the benefits for the strict adherence to the FDS (perception of prevention from being infected and the safety of life) are likely to influence their decision to adhere to the FDS.

The model helps in predicting the kind of attitude which the population of study is likely to display in relation to the adherence to the FDS engendered by the presence and implications of COVID-19. In effect, whether or not elements of the population would strictly adhere to the FDS depends on:

- 1 How they perceive the pandemic and its potency to adversely affect their livelihoods?
- 2 What they perceive could be the benefits for strictly adhering to the FDS?

The model is considered inconclusive because it fails to, among other things, account for a person's attitude, beliefs and other determinants for a particular behaviour; environmental and economic considerations; and level of knowledge about a risk factor (Boston University School of Public Health, 2019). However, it is useful to a large extent as far as the objectives for this study are concerned.

## 2.2 *Protection motivation theory*

The PMT, authored by Ronald W. Rogers in 1975 (Westcott et al., 2017) proposes that the intention to protect oneself depends upon four factors:

- 1 the perceived severity of a threatened event (e.g., a heart attack)
- 2 the perceived probability of the occurrence, or vulnerability (in this example, the perceived vulnerability of the individual to COVID-19 infection)
- 3 the efficacy of the recommended preventive behaviour (the perceived response efficacy)
- 4 the perceived self-efficacy (i.e., the level of confidence in one's ability to undertake the recommended preventive behaviour).

Protection motivation is the result of the threat appraisal and the coping appraisal. Threat appraisal is the estimation of the chance of contracting a disease (vulnerability) and estimates of the seriousness of a disease (severity). Coping appraisal consists of response efficacy and self-efficacy. Response efficacy is the individual's expectancy that carrying out recommendations can remove the threat. Self-efficacy is the belief in one's ability to execute the courses of action successfully (Boss et al., 2015).

Westcott et al. (2017) explored how PMT could be used to improve on public safety strategies in natural hazards. The literature suggested that PMT is robust, versatile and is still in widespread use after four decades. Its enduring relevance is a key indicator of its usefulness and dynamic applicability, and its evolution since 1975 suggests a baseline theory with considerable scope.

Haque et al. (2020) examined decision factors such as perceived severity, susceptibility, response efficacy, self-efficacy and social distancing intention for students in Malaysia in response to the COVID-19 pandemic. The analyses revealed that two variables (response efficacy and self-efficacy) of the PMT were significant predictors of social distancing intention during the ongoing COVID-19 pandemic crisis. However, perceived severity and perceived susceptibility were not significant predictors of intention to engage in social distancing behaviour. The findings demonstrated that PMT was a constructive framework for understanding intention to engage in social distancing behaviour during a pandemic. The findings assist in determining the possible catalyst to adherence to the safety protocols (FDS), the focus of this study.

Furthermore, Baghianimoghadam et al. (2011) applied the PMT for driving skin cancer prevention behaviour. Results supported the effectiveness of a PMT-based intervention to change the attitude and behaviour associated with skin cancer risk.

Theory-based intervention can motivate people to alert their attitudes and behaviours regarding sun exposure.

The review of some studies conducted on the basis of the PMT indicate that, though the relevance of the PMT to some areas studied might be minimal (Boss et al., 2015; Plotnikoff and Trinh, 2010), its impetus and impact in research have been registered especially in health-related endeavours (Baghianimoghadam et al., 2011; Westcott et al., 2017). It was on account of the impact of the theory and the bearing it had on the current study that the PMT was considered fit to drive this research, especially due to its indicated strength for promoting self-motivated attitudinal change for health protection from the COVID-19 threat. The theory's relevance to this study is felt in the ability to use it to explain why members of the university communities would adopt a strict adherence to the FDS as a health safety measure against the threat of the COVID-19 pandemic, especially considering the cognitive impact of the numerous and copious advertisements and announcements promoted in the fight against the pandemic.

It is significant to indicate that the two theories reviewed share a confluence in the promotion of decision-making towards a behavioural change. Consequently, whether or not a person knows of an impending risk (like COVID-19), perceives its severity on his/her life, feels vulnerable and therefore would be able to adhere to recommended panacea towards safety, the denominator is either to save or lose his/her life based on change. Such a decision is what this current study sought to project and therefore gives much credence to this investigation. However, the study would be largely driven by the PMT since the study is a reflection of the theory.

Attention is now directed to empirical studies related to the current study as a basis for undertaking this research.

### **3 Empirical review**

Evidence from literature projects a number of research undertaken by scholars on the COVID-19 pandemic, especially in relation to its impact, interventions against the spread of the virus (the safety and preventive protocols) and interventions towards alternative modes of learning in Ghana. Studies that have a bearing on this current study and dealt with settings outside and inside university establishments are discussed as a platform for this investigation.

Onyeukwu et al. (2020) investigated telecommuting as a Panacea to COVID-19 spread in Nigerian universities found that telecommuting strongly affected the spread of COVID-19. Furthermore, it was found that online teaching could help with social distancing and internet usage could as well curb the spread of coronavirus in Nigerian University. Their study links with the study conducted by Kajiita et al. (2020) on alternative teaching and learning technology interventions. Such studies relate to the current study due to the catalyst or independent variable of investigation (COVID-19 pandemic); the setting and population of those studies; and the projection of alternative teaching and learning interventions that promote physical distancing against the COVID-19 pandemic.

On the contrary, their focuses do not impinge on the adherence to the FDS to check the spread of the pandemic in university communities. Rather, their intervention was towards facilitating an alternative to a face-to-face learning platform. Additionally, even though Oumar et al. (2021) corroborate the idea of Onyeukwu et al. (2020) that a remote

teaching and learning system is useful in promoting education in this COVID-19 era, Kajiita et al. (2020) maintain that the country or institutions are not ready yet for that system due to the concomitant challenges associated with the alternative teaching and learning system. The lack of requisite and reliable resources as well as skills for full participation in the virtual teaching and learning system engenders the understanding that the face-to-face system is inevitable and therefore the express need for this current research to present findings that would help promote the fight against the spread of the pandemic in university communities.

Another study conducted on 'Adherence to social distancing and wearing of masks within public transportation during the COVID-19 pandemic' revealed that the policy on physical distancing within vehicles was adhered to. However, the policy on the use of face masks in vehicles required stricter enforcement (Dzisi and Dei, 2020). In this previous study, the variables under investigation (adherence to face-masking and physical distancing) are in tandem with this current research to a large extent, making the (Dzisi and Dei, 2020) findings closely relevant to drive this current research. However, the two studies in comparison vary in respect of the settings (transport sector and education sector) and demographics of the populations studied (commercial drivers and educational trainers/trainees) as well as the hand sanitisation which the previous study did not consider.

Howard et al. (2020) found that public mask wearing is most effective at stopping spread of the virus when compliance is high. The decreased transmissibility could substantially reduce the death toll and economic impact while the cost of the intervention is low.

Bonful et al. (2020) assessed the ecological readiness and compliance to hand washing, social and physical distancing recommendations in selected public transportation stations in the GAR. The study revealed that though the stations studied, presented a crowded circumstance, the safety protocols, especially the handwashing and sanitising, physical distancing and face-masking were poorly practiced. The element of assessment of compliance audit for the COVID-19 safety protocols in the Bonful et al. (2020) support this current study.

Afful et al. (2021) investigated the effectiveness of the observance of the protocols on the spread of the COVID-19 virus. In conclusion, adherence to safety protocols had a positive impact in controlling the spread of the pandemic. The study is essential to the current study on the basis that 'face-masking' and 'sanitising,' elements of the selected protocols under the FDS of this current study, recorded the highest percentages of compliance (97.9 and 94.8 respectively), while 'distancing' enjoyed less patronage (49%). This offers a good platform for this current study to confirm or negate the findings of the previous research at stake and gives the Ghanaian Government the impetus to sustain messages on adherence and augment the provision of relevant PPEs to the public. It also sets a platform for the relevance of this current research especially where the previous research and the current were conducted online (physical distancing for safety).

It is deduced that a number of research have been conducted on the COVID-19 global pandemic, its implications and interventions rolled out by countries on the globe. Some of these studies have focused on the adherence to the safety protocols instituted by the WHO, which Ghana has not been in isolation of the policy. Research findings on the issue of adherence to the safety protocols have revealed that though the Ghanaian Government had rolled out the safety protocols, especially the FDS for public



compliance, the levels of compliance had not been encouraging to curb the COVID-19 spread. Similarly, the PPEs in some settings observed were inadequate to encourage patronage of same. This situation ignited the propensity of the virus to spread throughout the country, especially the university communities which is the focus of this study, if practical interventions were not employed for mitigation.

Although some schools of thought think that virtual education is a panacea to stop the spread of the virus (Oumar et al., 2021), others also think that Ghanaian universities were not ready for that alternative teaching and learning system. Kajjita et al. (2020) and Onyeukwu et al. (2020) concluded that the universities lack the appropriate infrastructure to facilitate virtual learning and teaching. Such a situation gives much credence to the adherence to the safety protocols (FDS) and much impetus to this current study.

It is therefore in the light of such outcomes that this current research becomes paramount as far as university communities in the Ashanti Region of Ghana are concerned. Findings from reviewed empirical studies have projected the current study as a grey area which required investigation. This investigation was therefore aimed at supporting the government's concerted efforts to stop the spread of the virus as members of the university communities pursued academic activities despite the advent and administration of vaccines in Ghana.

#### **4 Methodology**

This study employed a quantitative design and utilised a multi-stage sampling approach to gather data through a survey. The survey was conducted online, and a semi-structured questionnaire instrument was developed to align with the research objectives. The duration for the data collection was two months, that is, from August to October. The reason was that it was the period when active school activities were ongoing. To ensure representation from the Ashanti Region, specific universities, such as Kwame Nkrumah University of Science and Technology, Kumasi Technical University, and Christian Service University College were sampled using a stratified sampling technique. Within each university, a simple random sampling technique was used to select 70 members of the university community, resulting in a total sample size of 191 participants.

The questionnaire used for this study consisted of structured and close-ended statements designed on a five-point Likert scale, where respondents could express their level of agreement or disagreement on a scale from 1 to 5. The scale ranged from 'strongly disagree' to 'strongly agree', where strongly disagreed had a scale of 1 and strongly agreed had a scale of 5. The questionnaire was designed to capture the perspectives of the respondents within the established strata and in relation to the research questions. The variables of the study were measured based on the framework developed by Afful et al. (2021). This approach ensured consistency and allowed for comparison with previous research, providing a solid foundation for analysing the collected data. Also, the Cronbach alpha shows that the data was reliable as it was above 0.750 (that is 0.938).

The data gathered was imported into SPSS version 27 and analysed. The cross-tabulation among university community members (students, faculty, and administrators) and the various themes were performed and presented in graphs (Figures 1 to 5). The descriptive statistics performed are also presented in the finding section so the paper. The mean score of the ranks was computed as perception index (PI) specified as:

$$P_i = \frac{(f_{sa} \times 5) + (f_a \times 4) + (f_n \times 3) + (f_d \times 2) + (f_{sd} \times 1)}{x}$$

where  $P_i$  = PI,  $f_{sa}$  = frequency of strongly agreed,  $f_a$  = frequency of agreed,  $f_n$  = frequency of neutral,  $f_d$  = frequency of disagreed,  $f_{sd}$  = frequency of strongly disagree and  $X$  = number of respondents who responded to the specific perception statement. Where the constants terms (5, 4, 3, 2, and 1) represent the Likert-scale ranges. A mean score of 2.50 constituted a benchmark for affirmative response.

## 5 Findings

### 5.1 Demographics of respondents

A total of 210 respondents were scheduled to participate in the survey. Out of the number, 191 responses were received as the actual sample for the study. From the data, a majority of 63% was males while a minority of 37% was females who participated in the survey. Out of the total number, a majority (81%) of respondents were within the age range of 20–29 while a minority (19%) were within the age range of 17–19/30–52. With regard to the university community membership, a majority of 82% of respondents were students while a minority of 6% were administrators and faculty members. These demographics are presented in Table 1.

**Table 1** Demographic characteristic of respondents

<i>Demographic characteristics</i>	<i>Category</i>	<i>Status in data</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Gender	Male	Majority	120	63
	Female	Minority	71	37
Age	20-29	Majority	154	81
	17–19/30–52	Minority	37	19
Community Membership	Students	Majority	156	82
	Administrators/faculty	Minority	35	12

**Table 2** Reliability statistics and mean

	<i>Cronbach's alpha</i>	<i>Mean</i>
Overall	0.938	3.6771
Awareness	0.867	3.9619
Adherence	0.794	3.5504
Preventive	0.765	3.733
Implications	0.768	3.5065
Impact	0.78	3.6335

Since Table 2 shows that all the mean scores of responses to the various study themes are above 2.50 which is the benchmark for affirmative response, the study concluded that the responses are indications of affirmations.

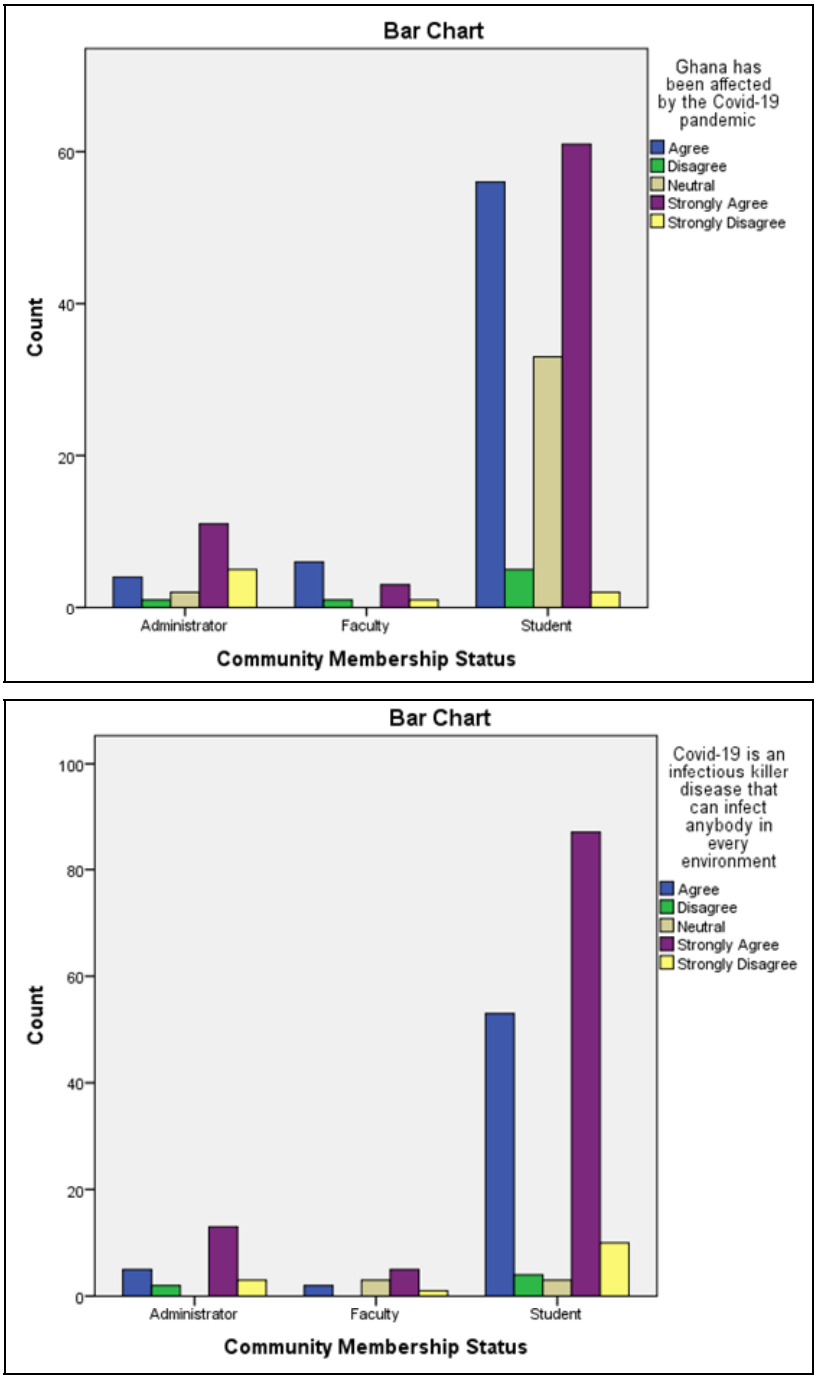
## 5.2 Responses to tested research questions

The second section of the questionnaire aimed to determine the level of awareness among the Ghanaian public regarding the COVID-19 pandemic. This section was administered after the demographic section, and it included seven statements that were directed towards members of the university community, including students, faculty, and administrators. The responses to these statements are presented in Figure 1. The statements presented to the respondents were centred around several key aspects of the COVID-19 pandemic, such as Ghana's status as an affected country, the nature of the disease as an infectious killer that can affect anyone in any environment, the modes of transmission of the virus through oral and nasal droplets of infected persons, the display of symptoms such as fever, cough, shortness of breath, and headache by infected individuals, the implementation of safety protocols, including the FDS, by the government to prevent the transmission of the disease, and the importance of strict adherence to FDS protocols in preventing infection and transmission of the virus. The responses to the statements presented in Figure 1 indicate that most respondents, including students, faculty, and administrators, strongly agreed with the statement that public awareness of the COVID-19 pandemic was high. Furthermore, a significant number of respondents agreed with all seven statements, indicating a high level of awareness among members of the university community. It is noteworthy that Figure 1 shows that in most cases, fewer or none of the administrators and faculty expressed strong disagreement with the statements regarding the awareness of the COVID-19 pandemic.

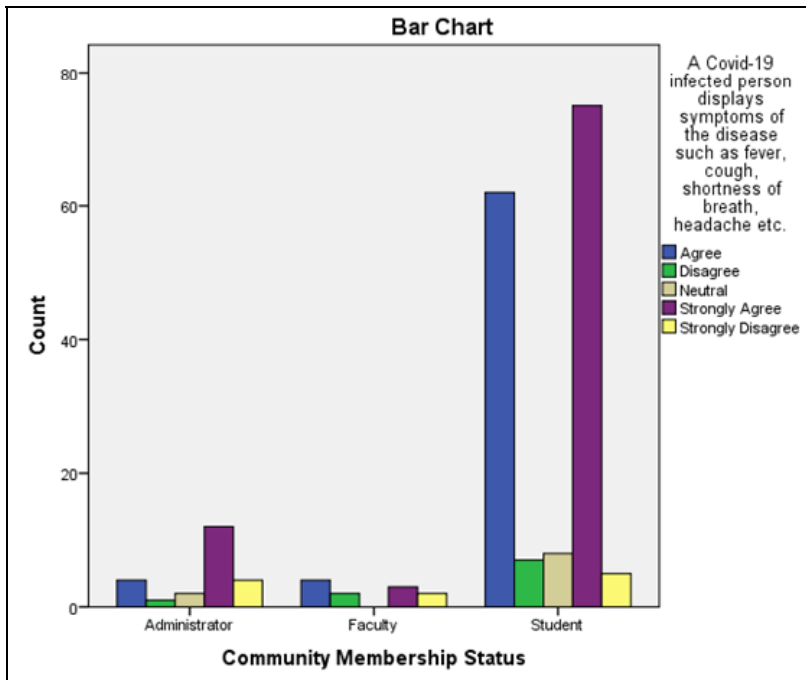
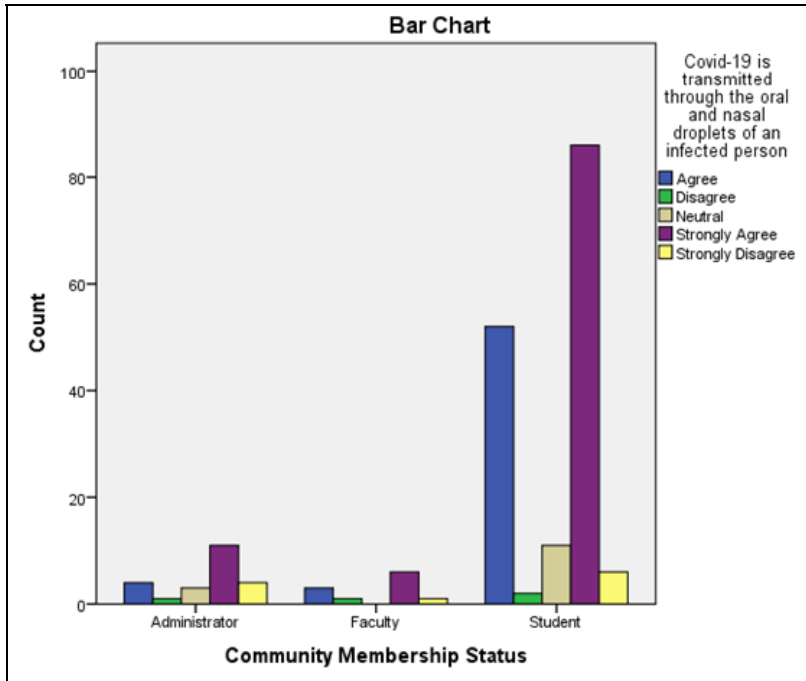
The results of the study presented a similar situation as seen in Figure 1. Under this variable, the majority of students, faculty, administrators agreed with the eight statements on the *adherence status of FDS safety protocols against COVID-19 pandemic* presented in Figure 2. Respondents agreed with the statement that members adhered to the FDS protocols out of the fear of contracting COVID-19, for personal self-protection, and when their attention is drawn to the protocols. Additionally, respondents agreed with the statement that the dissemination of information on campus regarding COVID-19 safety protocols and the university authorities' policy and enforcement of the protocols during campus interactions promoted adherence to the FDS. Despite the overall agreement on the adherence to the safety protocols, some respondents expressed neutrality towards this statement which was quite high. This could be interpreted as either respondents in that bracket did not adhere to the FDS or had not accessed the widely published COVID-19 information to stay safe.

The primary focus of the research question was to ascertain the effectiveness of the FDS in preventing the spread of COVID-19 presented in Figure 2. Five statements were presented to the study participants, and the results of the cross-tabulation analysis indicated that over 70% of the community members, including faculty, administrators and students, agreed with the statements that the FDS were effective in preventing the spread of the disease. On the other hand, less than 15% of respondents expressed strong disagreement with this statement.

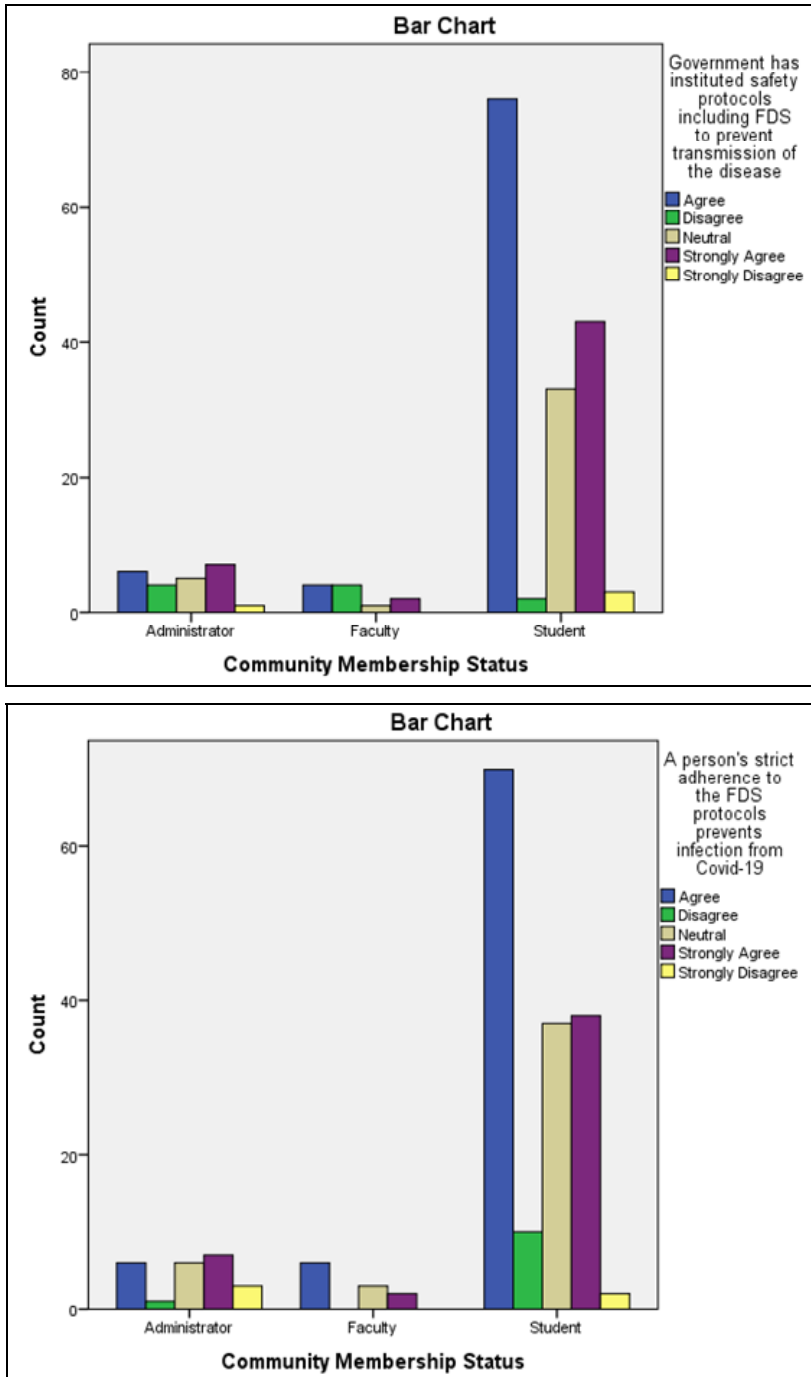
**Figure 1** Whether or not members of the university communities were aware of the COVID-19 safety protocols, especially the FDS (see online version for colours)



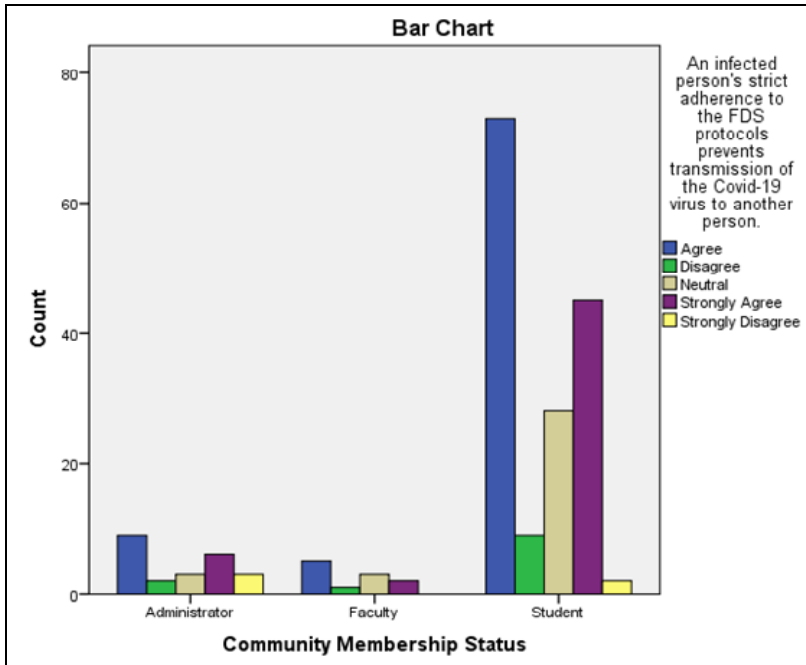
**Figure 1** Whether or not members of the university communities were aware of the COVID-19 safety protocols, especially the FDS (continued) (see online version for colours)



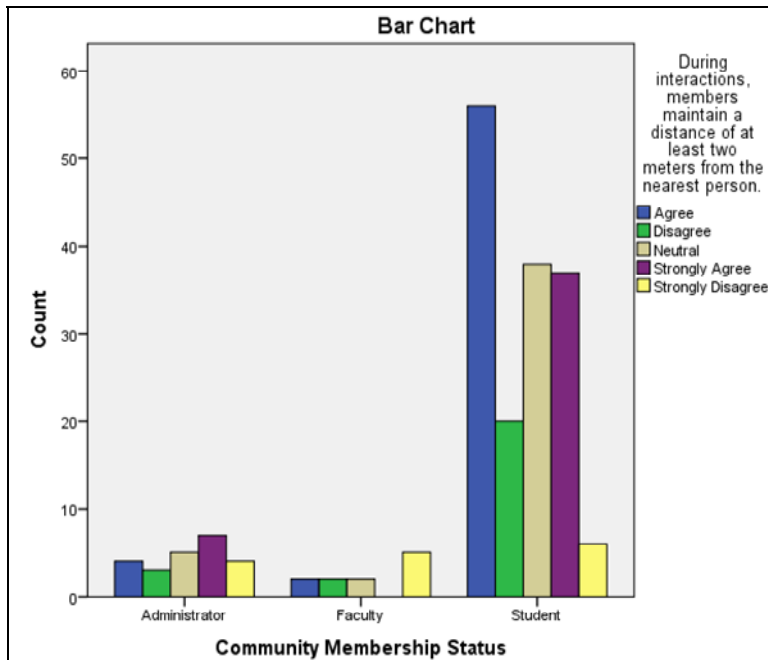
**Figure 1** Whether or not members of the university communities were aware of the COVID-19 safety protocols, especially the FDS (continued) (see online version for colours)



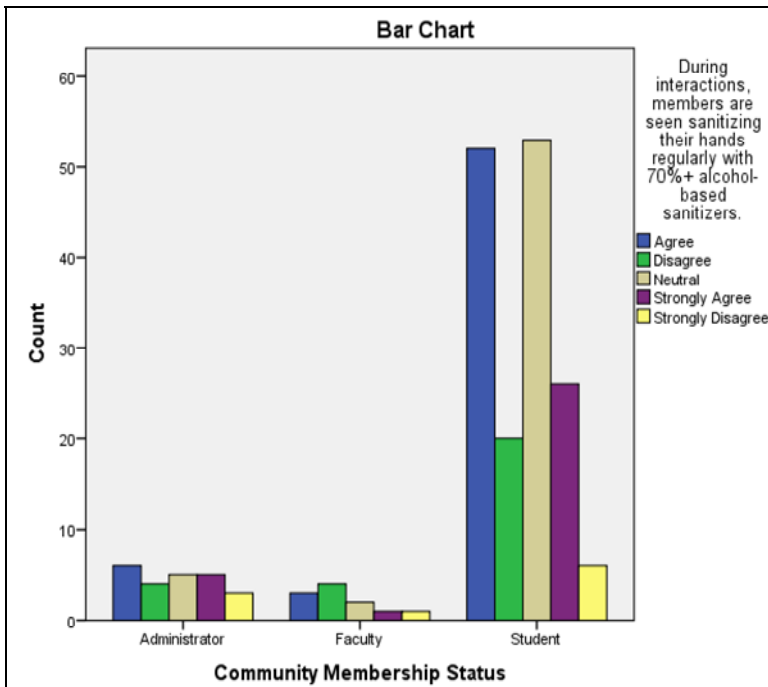
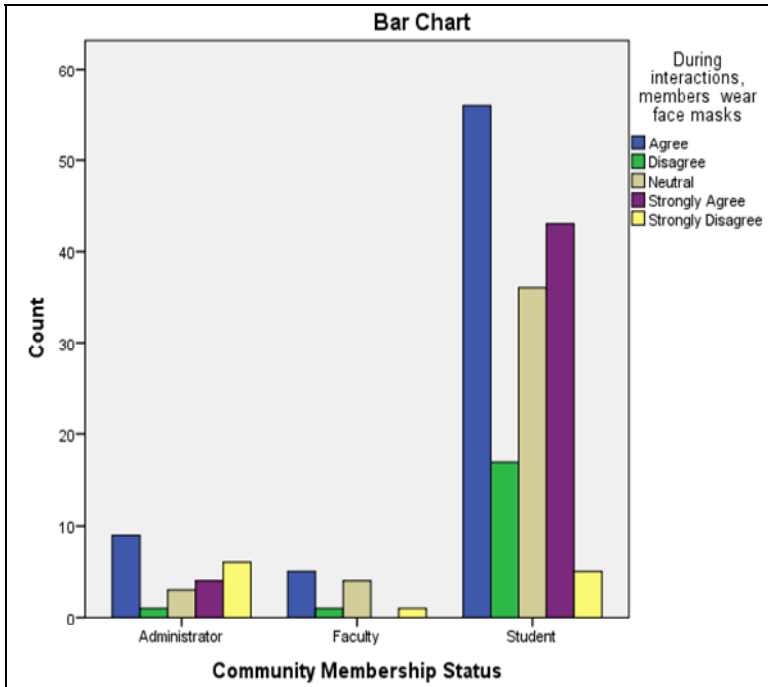
**Figure 1** Whether or not members of the university communities were aware of the COVID-19 safety protocols, especially the FDS (continued) (see online version for colours)



**Figure 2** Whether or not members of the university communities adhered strictly to the FDS (see online version for colours)

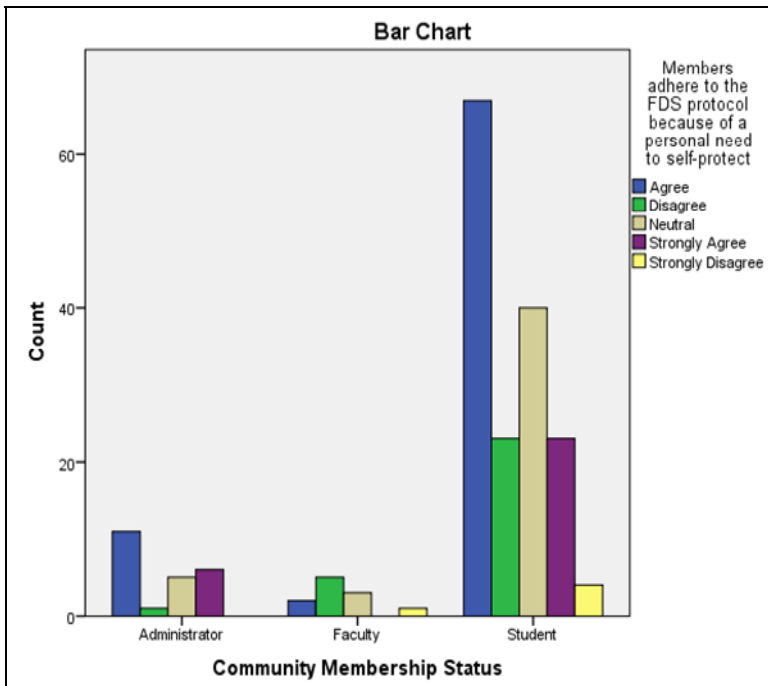
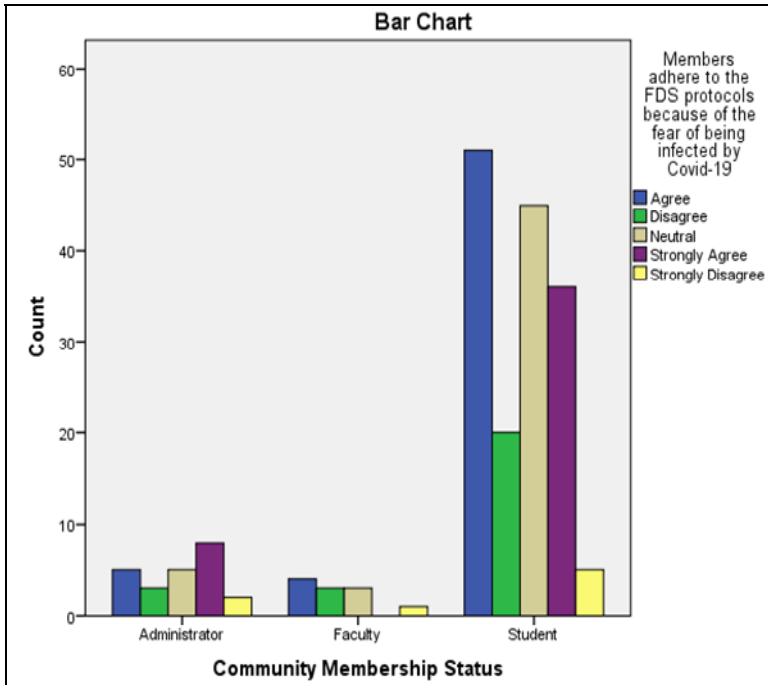


**Figure 2** Whether or not members of the university communities adhered strictly to the FDS (continued) (see online version for colours)

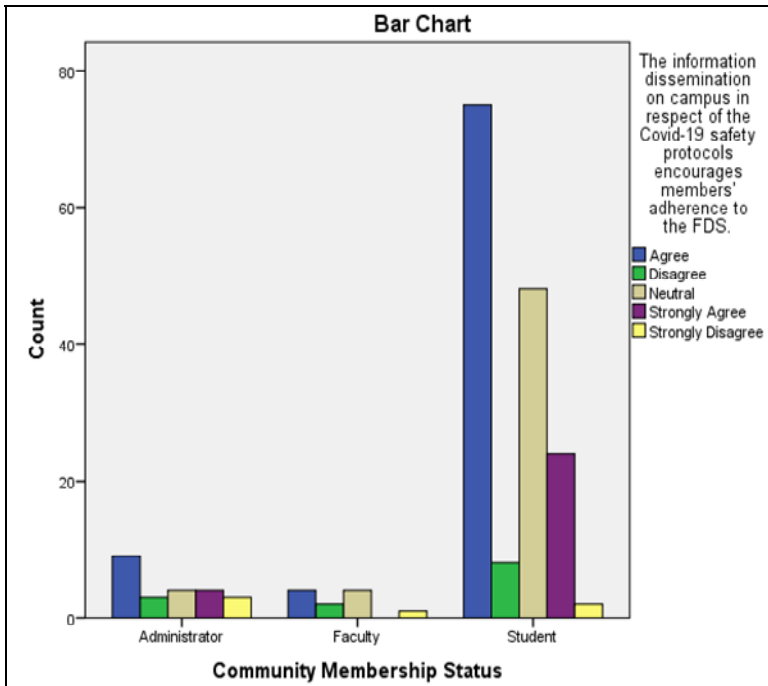
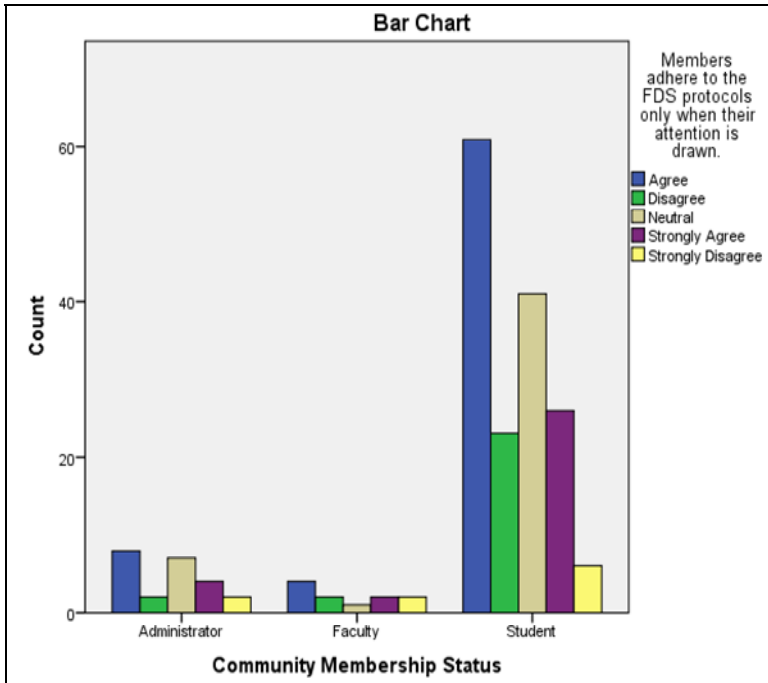




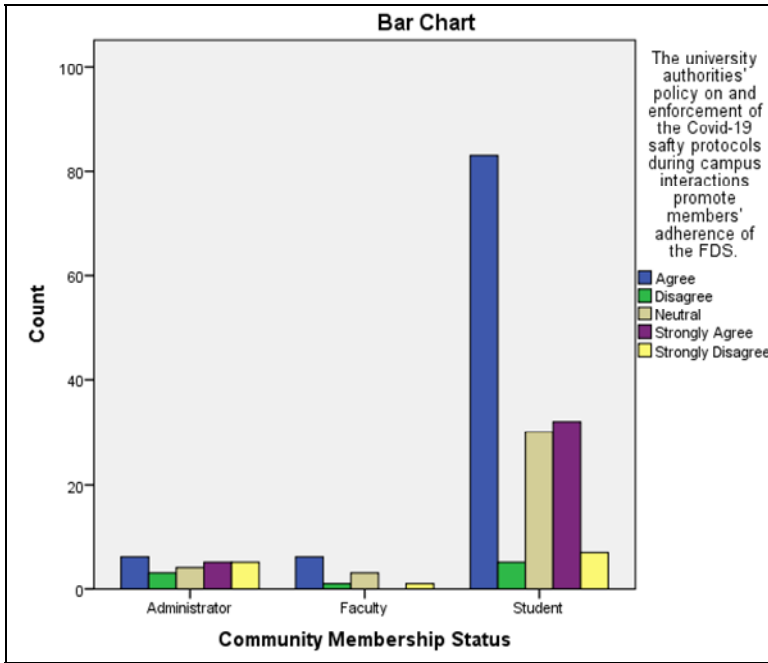
**Figure 2** Whether or not members of the university communities adhered strictly to the FDS (continued) (see online version for colours)



**Figure 2** Whether or not members of the university communities adhered strictly to the FDS (continued) (see online version for colours)



**Figure 2** Whether or not members of the university communities adhered strictly to the FDS (continued) (see online version for colours)

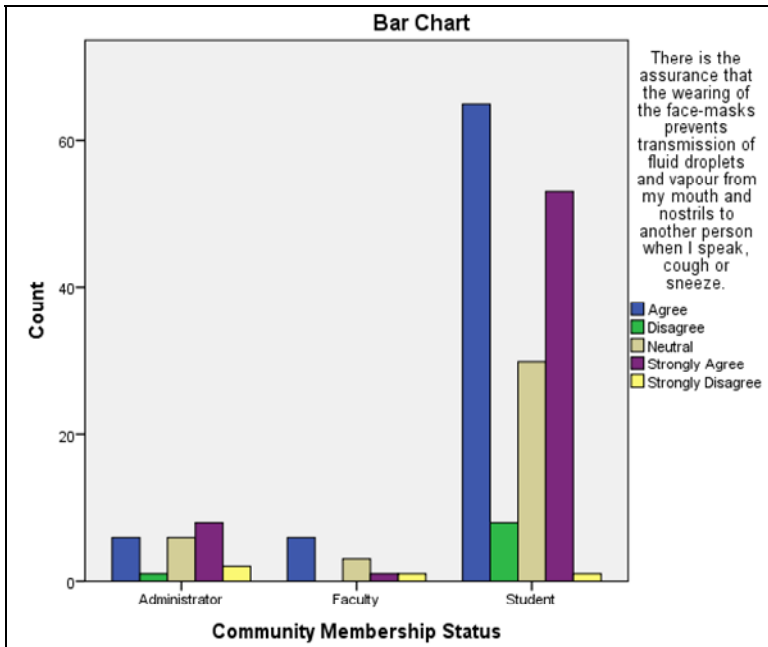
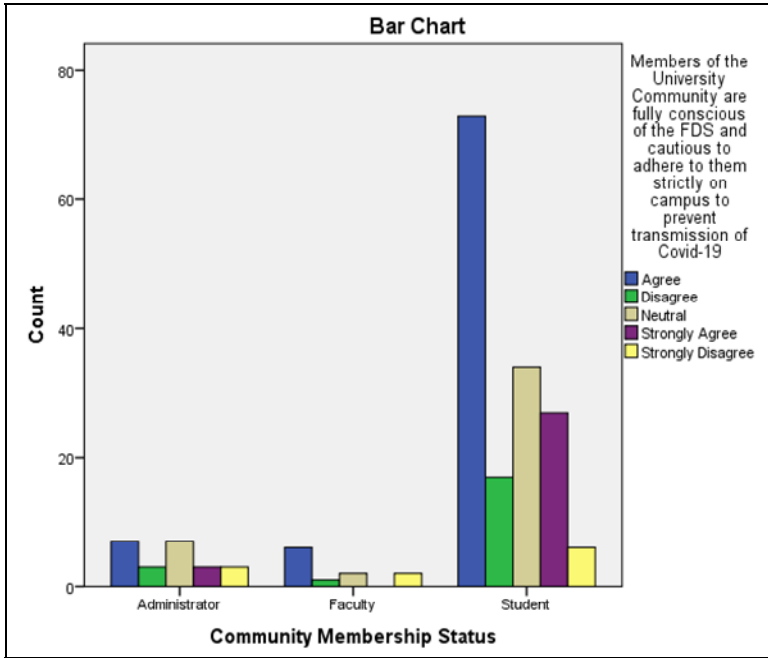


Under this section, four different statements were asked respondents as in Figure 4. These were ‘adherence to the FDS makes members of the university to freely participate in all lectures, laboratory work, research, sit-in exams, and social interaction on campus’; ‘The FDS has ensured a continuous university academic calendar without interruption from the incidence of COVID-19’; ‘the FDS has ensured successful students’ academic progression on campus’ and ‘the adherence to the FDS protocols has reduced the threat of the COVID-19 infection to academic activities on campus.’ Under all the four statements, most students agreed to the statements, followed by those who remained neutral and those who strongly agreed. Fewer of the students strongly disagreed with the four statements. The responses from the faculty and administrators indicated a majority agreement and strong agreement, respectively to all the statements. This suggest that adherence was higher among the university community.

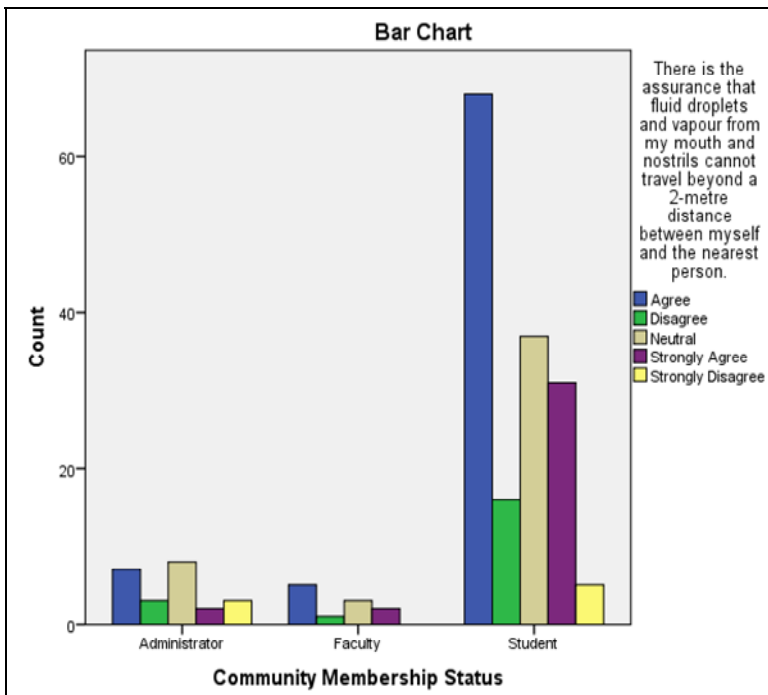
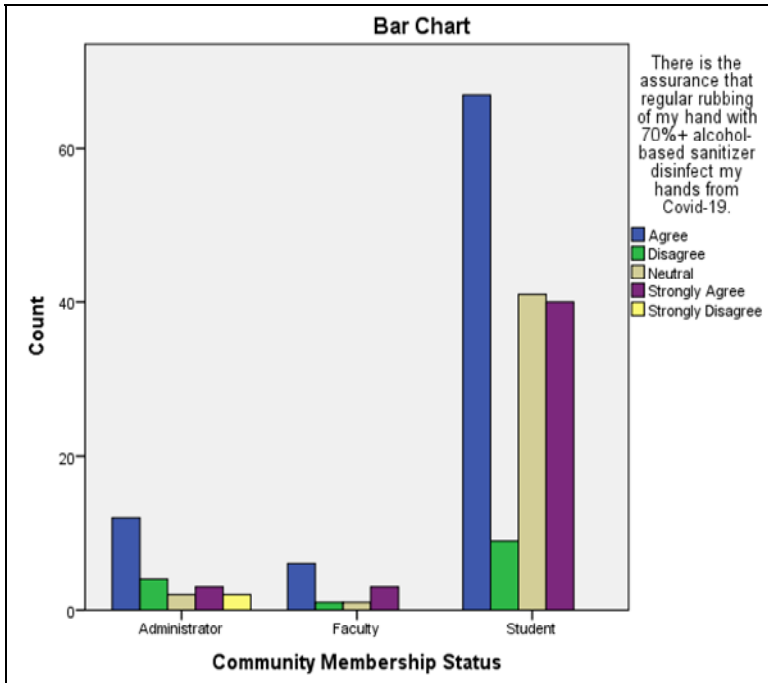
Figure 5 presents the responses to five statements under the research question ‘What impact had the conduct of strict adherence to the FDS had on the fight against COVID-19 in the universities.’ Cross-tabulation results revealed that majority (over 60%) of respondents led by students agreed to the fact that the FDS protocols had reduced the threat of the pandemic on campus, especially where no cases had been recorded since January 2021. The disagreement levels of respondents under the theme were about 35% maximum and especially with respect to the question ‘All campus activities are on-going without any hindrance from fear of COVID-19 infection’, led by students. However, the height of disagreement was still in the minority. The pandemic-free situation on the campuses, therefore, fostered the conduct of all academic activities, engendering the universities’ ability to graduate students who had fulfilled all academic requirements to contribute to national development. Similarly, majority of participants acknowledged

becoming accustomed to the ‘new normal life’ brought on by the COVID-19 pandemic. However, participants who disagreed and strongly disagreed with the five statements were in the minority, while some respondents, especially students remained neutral.

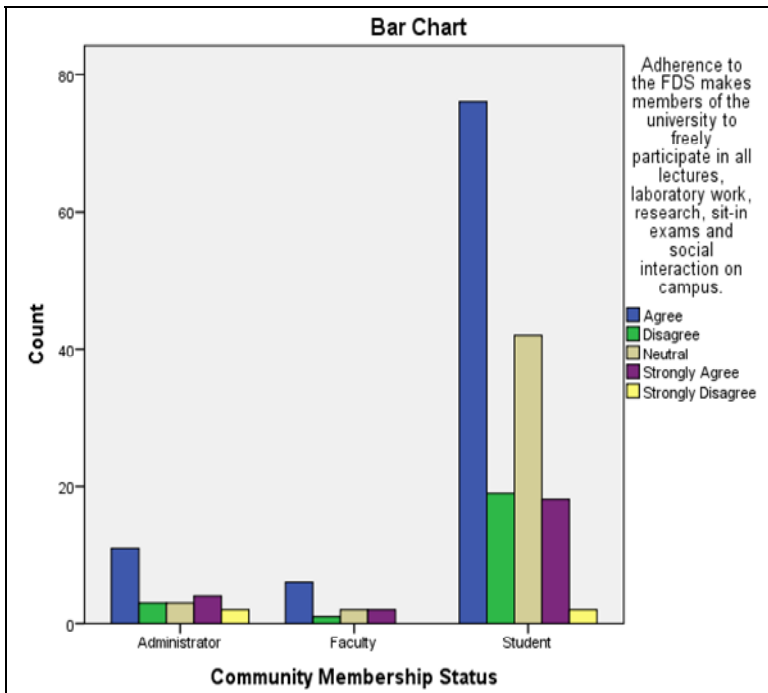
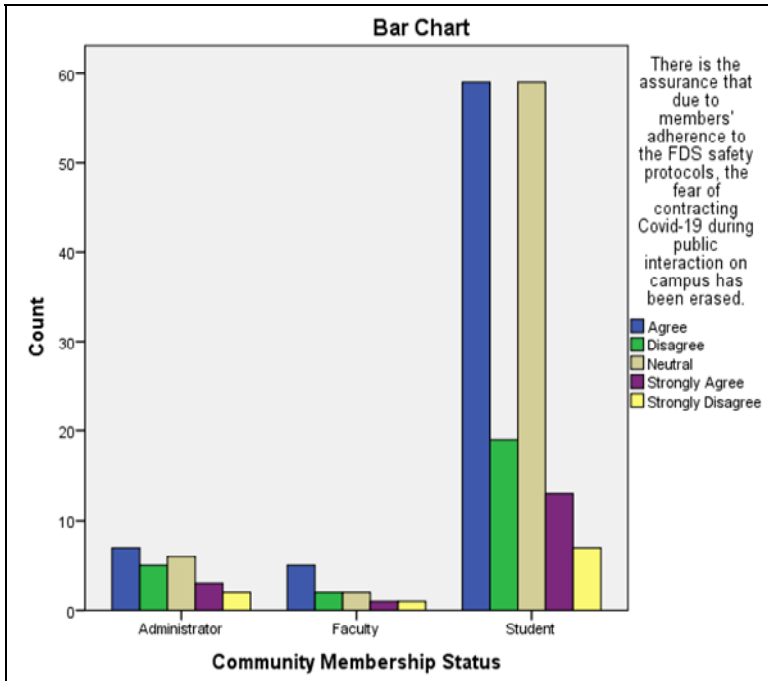
**Figure 3** To what extent had the adherence to the FDS prevented the spread of COVID-19 in the universities (see online version for colours)



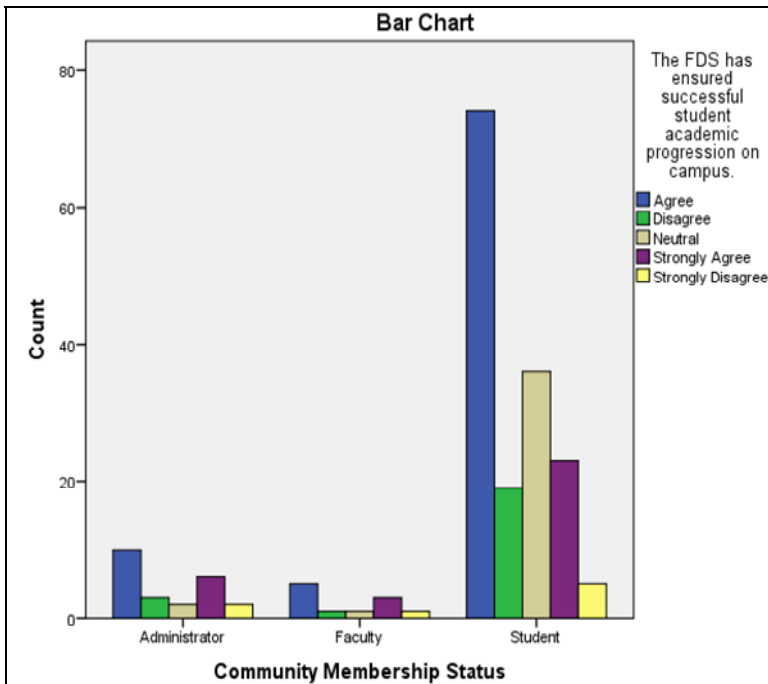
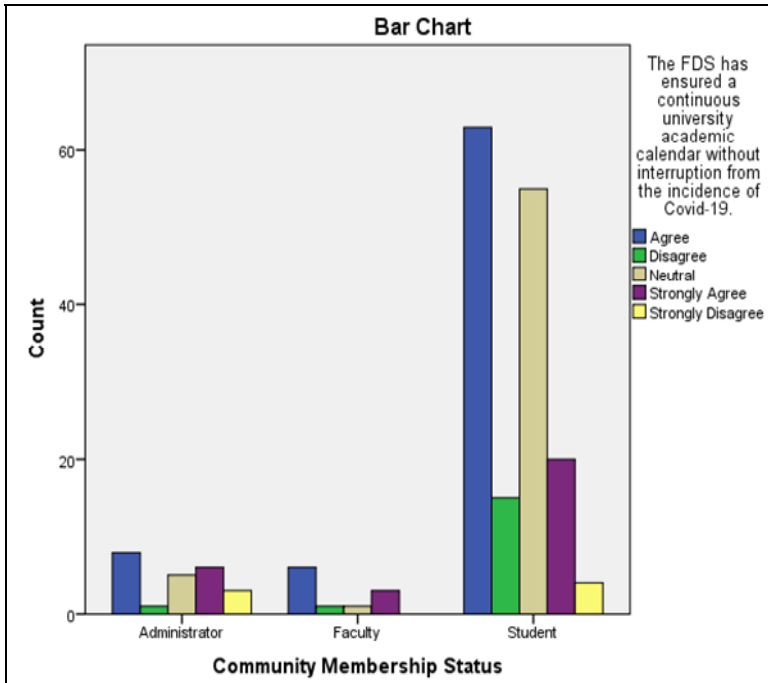
**Figure 3** To what extent had the adherence to the FDS prevented the spread of COVID-19 in the universities (continued) (see online version for colours)



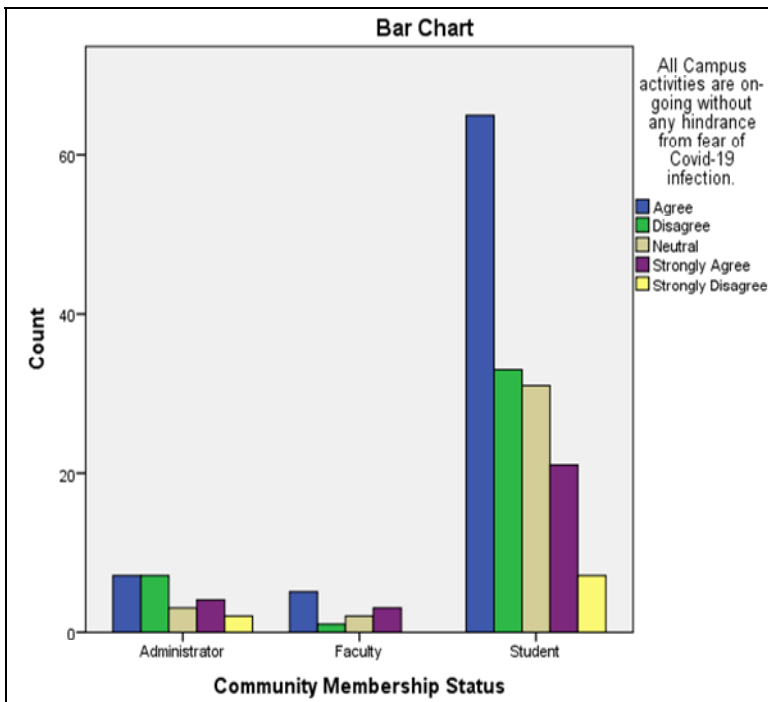
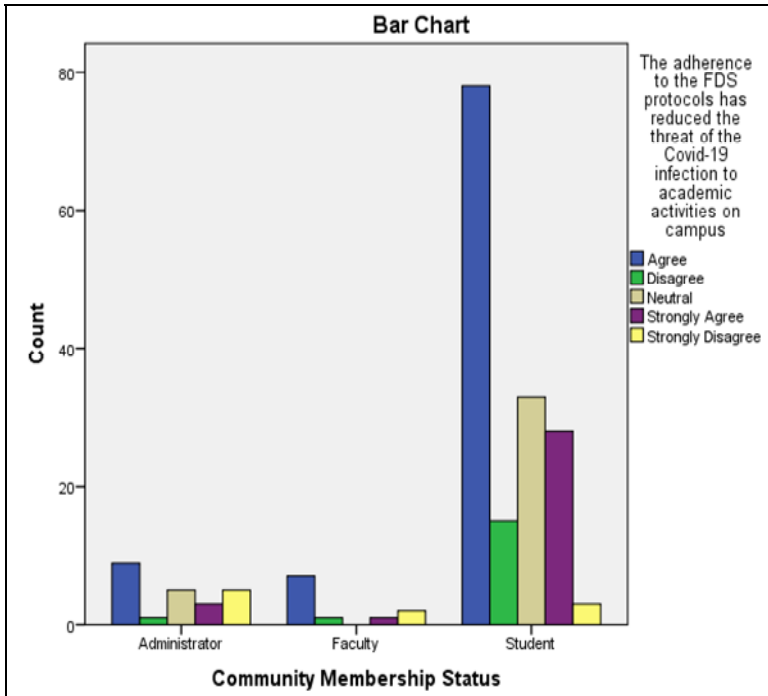
**Figure 4** Whether or not the adherence to the FDS had promoted academic interactions in the universities (see online version for colours)



**Figure 4** Whether or not the adherence to the FDS had promoted academic interactions in the universities (continued) (see online version for colours)

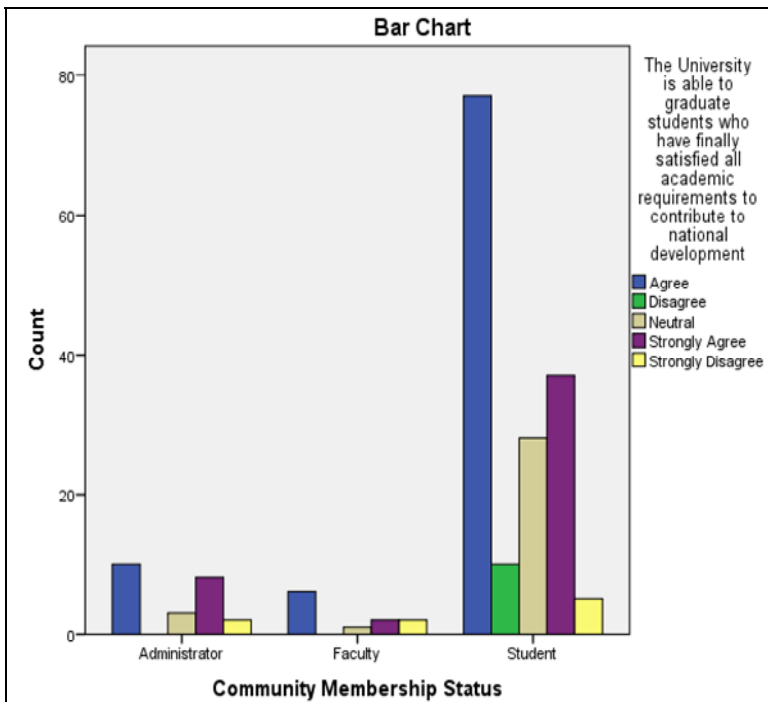
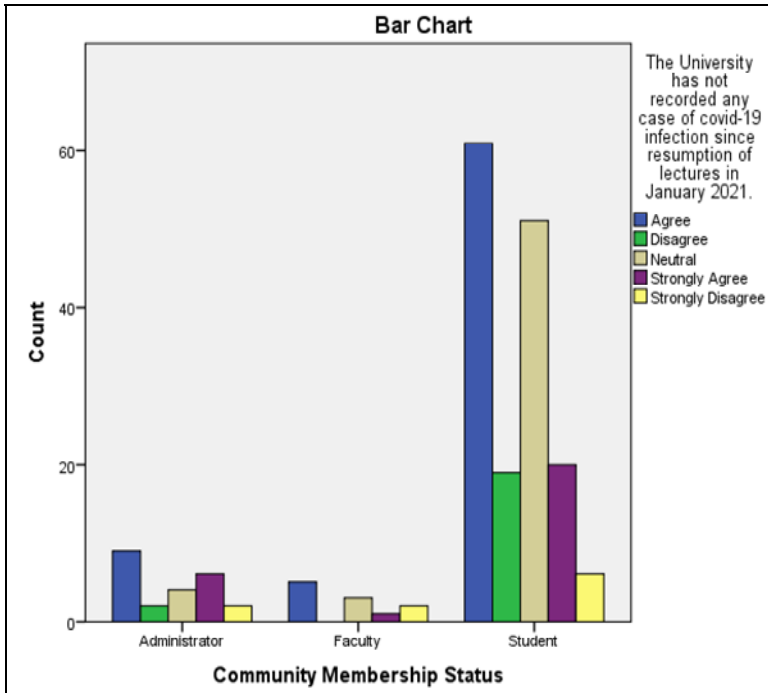


**Figure 5** What impact had the conduct of strict adherence to the FDS had on the fight against COVID-19 in the universities (see online version for colours)

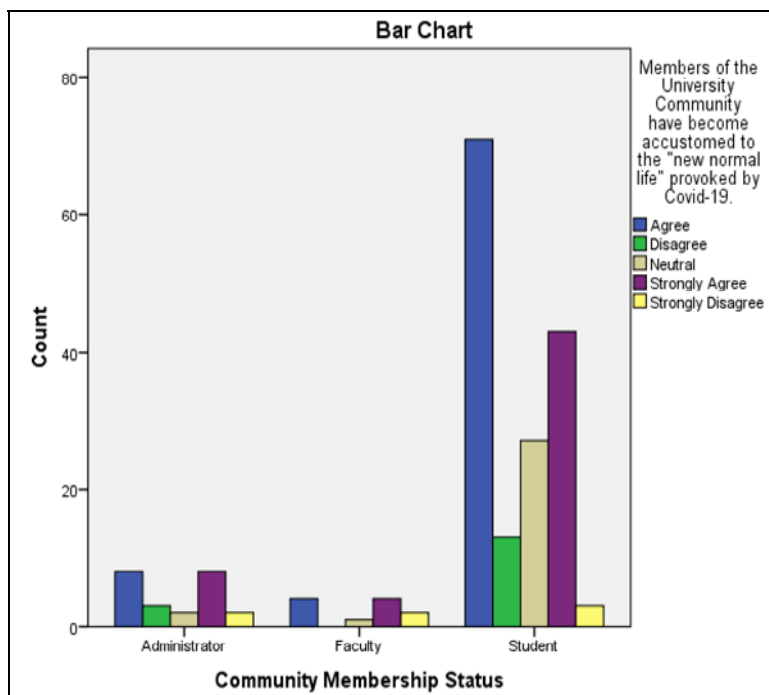




**Figure 5** What impact had the conduct of strict adherence to the FDS had on the fight against COVID-19 in the universities (continued) (see online version for colours)



**Figure 5** What impact had the conduct of strict adherence to the FDS had on the fight against COVID-19 in the universities (continued) (see online version for colours)



## 6 Discussion

It is deduced from the findings of the study that majority of respondents agreed to the statements presented under each tested theme in the questionnaire as shown in the entire figures presented under each theme. The predominantly consistent trend of majority of respondents' agreement and strong agreement to the various statements under Figure 1 projected the idea of high public awareness of the COVID-19 pandemic, its nature, transmission dynamics, implications as well as the capacity of safety protocols (especially the FDS) to protect. The findings further projected the fact that the sensitisation drive by the government through the newspapers, radio, television and other social media platforms was effective, thereby suggesting that the media in general played a significant role in times of crisis to create public awareness. The results agree with the findings of Galle et al. (2020) who studied the COVID-19 awareness level of students of three universities in Italy.

The overall perceptions of respondents under the theme 'Adherence status of FDS safety protocols against COVID-19 pandemic', in Figure 2 projected a height of agreement. This showed that majority of the respondents agreed to the knowledge, usage and benefits of the FDS protocols and active usage of the FDS during academic interactions on campus to specifically self-protect themselves for fear of being infected by the COVID-19 pandemic. The height of patronage of the entire FDS safety protocols, revealed by the cross tabulations of respondents' perceptions, projected the strict

adherence to the FDS and the potential of the FDS to protect members of the university community from COVID-19 infection to a good extent.

The above-mentioned outcome confirms the findings of Afful et al. (2021) that the adherence to the COVID-19 safety protocols had a positive impact in controlling the spread of the pandemic, with face-masking recording the highest patronage of 97.9, sanitising (94.8) and distancing – 49%. The leading ability of the face-masking is also corroborated by the findings of Howard et al. (2020) who projected its efficacy against the pandemic. The outcome further portrayed that though adherence to the FDS safety protocols was positive because of fear of infection, prompting from the university management's COVID-19 adherence policy information, disseminated on campus further served as a catalyst towards members' level of adherence. Relatedly, members' fear of being infected by the pandemic and therefore adopting and practicing the FDS intervention gives much credence to the HBM and the PMT. Specifically, members' perception of their vulnerability of being infected by the pandemic, their perceived severity of the COVID-19 infection and their fear of being infected generated their decision to adopt and adapt the FDS (safety interventions) with the confidence and assurance of being protected from the COVID-19 pandemic. Consequently, the HBM and the PMT are useful theoretical frameworks for undertaking research, especially in the field of health, prevention-related and asymptomatic health situations. Thus, a strict adherence to the FDS safety protocols is an assurance of checking the spread of COVID-19 and protecting lives from same.

In relation to the theme 'Preventive ability of FDS against COVID-19 pandemic', the height of respondents' agreement showed that the FDS safety protocols had the capacity to protect members against infection from the pandemic. Consequently, members' adherence to the FDS protocols prevented the spread of the COVID-19 pandemic. Additionally, this outcome provides assurance in the capacity of the protocols as a new behaviour for safety of life and gives much credence to the HBM and the PMT which were reviewed as a guide to this research. The evidence is situated in the potential positive benefits of adopting and using the FDS intervention identified for the COVID-19 pandemic as projected under the HBM as well as the perceived response efficacy of the FDS as projected in the PMT.

Furthermore, the cross tabulations for the theme 'Implications of adherence to FDS safety protocols against COVID-19 on academic interactions' demonstrated that majority of respondents confirmed the fact that the FDS protocols served a great deal to promote academic interactions and activities in the universities even in the midst of the killer disease, 'COVID-19'. This finding suggests that because of the perceived efficacy of the FDS, the COVID-19 pandemic was no more considered a threat that engendered fear among members of the university community during academic. Consequently, all academic interactions and activities on campus progressed without any interruption by the pandemic, resulting in student academic progressions and graduations as prescribed by the universities' academic calendars. This outcome confirms two underlying principles of the HBM about the belief in a prescribed health intervention (the FDS) to protect one against a health crisis (COVID-19 pandemic) as well as the confidence of in the ability to succeed in the adopted intervention. Practically, members of the university communities had belief in the government's prescribed FDS safety protocols to protect their lives against the COVID-19 pandemic and were confident that they would be able to adhere to the FDS protocols to protect their lives during academic interactions on campus.

Finally, the cross tabulations computed for the theme ‘Effect of adherence to FDS safety protocols on fight against COVID-19’ showed that majority of respondents agreed to the statements under the variable. This indicated that since COVID-19 was no more a threat to academic activities on campus due to the FDS, members of the university community no longer feared to actively interact in pursuit of their academic activities in order to achieve academic progression and graduation. Consequently, members had become acclimatised with the adherence to the FDS as though a new culture. However, the range of neutral responses revealed in the cross tabulations is significant and seeks to suggest that those respondents had not felt the threat of the pandemic and did not see themselves vulnerable to being infected. Consequently, the essence of the FDS safety protocols as a catalyst to the promotion of their academic interactions and activities was not felt.

The outcome of the themes tested has indicated that the strict adherence to the FDS safety protocols had prevented members of the university community from being infected with the COVID-19 pandemic and had positively promoted the success of academic activities on campus. By extension, the objective of the Government of Ghana to fight the pandemic for the safety of members in the universities and to ensure that all academic activities did not run to a halt had been achieved. This positive effect of the adherence of the FDS safety protocols under this research is also a reflection of the high positive effect of the same intervention against the spread of the COVID-19 pandemic as assessed by Afful et al. (2021), though the two studies varied in settings and demographics of the samples used. Moreover, the positive effect is a reflection of the theoretical frameworks (HBM & PMT) used for the study projecting the benefits of adopting and adapting an intervention in the case of a health crisis on the basis of the prospects of that intervention; in this case, the FDS safety protocols against infection from the COVID-19 pandemic.

## **7 Conclusions**

The study sought to ascertain members of the university communities’ compliance to the Ghana Government’s prescribed safety protocols against the COVID-19 pandemic. The high compliance level for the FDS safety protocols, as appraised by this study, suggested that the protocols were useful interventions to check the spread of the COVID-19 pandemic among members of the university communities in Ghana. Adherence to the FDS safety protocols, whether or not it was done on the aegis of the height of members’ self-protection, fear of infection or a catalyst (influence from information about the consequences of COVID-19 infection), was moderately positive, especially where the mean scores of all five themes tested were above the mean score of 2.50 which constituted a benchmark for affirmative responses in this study.

The findings showed that the FDS safety protocols, which were part of government’s interventions introduced in Ghana during the COVID-19 pandemic, were effective strategies for preventing the spread of transmissible viruses, especially the COVID-19 pandemic and even in current experience, the monkey pox. Additionally, the FDS protocols were effective means for ensuring successful academic interactions among members of the university communities and academic activities in the universities. The findings of this study therefore corroborated existing literature (Afful et al., 2021; Howard et al., 2020) on the positive adherence status of the FDS safety protocols and the potential of the face-masking intervention in the prevention of transmission of the

COVID-19 pandemic. Moreover, the findings also gave much credence to the essence of the HBM and PMT as useful theoretical frameworks having the proclivity to drive any health crisis-related research and guide the development of solutions by societies, organisations and governments worldwide against any unexpected, but eventful health crisis.

## **8 Recommendations**

Following the findings obtained from this study and the conclusions drawn, the following recommendations are presented for the consumption of the university communities, the government as well as organisations and other institutions:

It is recommended that in the event of any health pandemic outbreak, the government, organisations and institutions should use the traditional and social media platforms to disseminate information and educate the public about the pandemic including its nature, root causes, implications and interventions evolved since they are reliable and effective channels for public awareness creation.

Furthermore, recommendation is given that in the event of the outbreak of an airborne communicable pandemic, the government, organisations and institutions' efforts to widely disseminate information and educate the public about the profile of the pandemic, including its nature, root causes, implications and interventions can enforce public adherence to behavioural change interventions identified and save people's lives.

Moreover, it is recommended that in the event of an outbreak of an airborne communicable pandemic, the government, organisations and institutions should adopt and enforce a strict adherence to face-masking, physical distancing and hand sanitising interventions in view of the ability of the interventions to prevent transmission of such pandemic, protect people's lives and promote daily human interactions and activities in organisations, institutions and in public places.

Also, it is recommended that in the event of the outbreak of an airborne communicable pandemic, the government, organisations and institutions should enforce a strict adherence to behavioural change interventions at the work and public places. This would ensure that the pandemic does not threaten the daily work activities and human interactions earmarked to promote production of goods and services.

Finally, the HBM and PMT should be adopted as frameworks to investigate health-related crisis that erupt in a particular environment since the theories provide in-depth insights to how crisis can be effectively managed to safeguard lives.

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