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COVID-19 Perception Regarding Preventive Behaviour Among Undergraduate Students at Chreso University in Lusaka, Zambia

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Abstract: This study sought to explore risk perception, health seeking behaviours and adherence to preventive behaviours towards COVID-19 infection among undergraduate students at CHRESO University in Lusaka, Zambia. A total of 181 students aged between 18 and 45 years from all faculties at Chreso University whose COVID-19 status was not known were selected via simple random sampling technique to participate in this study. Data was collected from the respondents using a structured interview questionnaire with closed ended questions. Data was analyzed using Statistical Package for Social Sciences (SPSS version 20) and was presented by Tables. The correlations between predictors and end results variables were categorized by multivariate logistic regression analysis. The study uncovered that, most of the respondents (76%) had an adequate level of knowledge on COVID-19 as most of them knew that the causative organism of COVID-19 was not bacteria. Sex and age were found to have a statistically substantial relationship with the level of knowledge about COVID-19 infection preventive measures among students ($p<0.05$). The study also shows that the vast majority of the participants (32%) had

moderate risk perception of COVID-19 infection while 37% of study participants had low risk perception due to lack of vaccination. Marriage was found to have a strong statistical association with the level of risk perception of COVID-19 infection among students ($P < 0.05$). The majority of the participants also had poor adherence to COVID-19 preventive measures because many of them were able to put on their masks (45%) and use hand sanitizer (37%) only when advised to do so. The results also show that the participants had poor health seeking behaviors in that 59% of the respondents had never accessed COVID-19 screening facilities while 52% did not even know if at all there was a cost associated with testing. Religion and marital status were found to have a significant statistical relationship with the level of adherence to COVID-19 preventive measures among students ($P < 0.05$). Nevertheless, it is strongly recommended that university Students should be sensitized on COVID-19 infection prevention and control measures and encouraged to regularly engage in health-seeking behaviours. The university authority through the Ministry of Health should develop risk communication policies aimed at helping students understand the gravity of COVID-19 infection and the potential repercussions of not adhering to preventive measures.

Keywords: COVID-19**,** Perception, Health Seeking Behaviour, Zambia

1. Introduction

Coronavirus disease 2019 (COVID-19) is an infectious illness brought on by the SARS-CoV-2 coronavirus, which spreads from an infected person's mouth or nose to another person when they talk, sing, sneeze, or cough in minute liquid particles. Globally, the COVID-19 pandemic, which has resulted in numerous fatalities and morbidities, has been acknowledged as one of the most significant pandemics and deadly illnesses in human history. People must follow the advised preventative measures in the absence of an effective cure and a sufficient supply of COVID-19 vaccination, which can be facilitated by an increased awareness of the infection's danger. But understanding the risks and following medical advice is one of the most important components of self-care [1].

Evidence shows that one of the main ways COVID-19 might spread is by inhalation of air containing SARS-CoV-2 virus-carrying droplets or aerosol particles when one is close to an infected person or in poorly ventilated places with ill individuals. Additionally, it can spread when SARS-CoV-2 virus-carrying droplets and particles touch the eyes, nose, or mouth, especially when they do so through splashes and sprays from coughing or sneezing. It can also spread when SARS-CoV-2 virus-carrying particles land on the hands and then touch the eyes, nose, or mouth. People who are near to sick individuals run the risk of inhaling or catching infectious droplets in their lips, nostrils, or lungs [2].

Although the majority of participants adhered to preventive measures and had favorable perceptions of their efficacy, another study on the risk perception and adherence to preventive behaviors related to the COVID-19 pandemic in Iran revealed that some people who did not follow these healthy behaviors may play a significant role in the disease's next wave [3].

Evidence also suggests that it is crucial to understand how people's perceptions of illness risk (including perceived susceptibility and severity) affect their decision to adopt healthy practices. This is due to the fact that whether or not people choose to take measures is heavily influenced by their beliefs of their vulnerability to diseases. Perceived susceptibility is a reflection of the subjective likelihood of contracting an infection or finding oneself in a situation with adverse health effects. In fact, those who don't think they may get sick are less likely to take care of themselves, endangering both themselves and others [4].

2. Method

Both retrospective and descriptive cross-sectional studies were used to determine COVID-19 risk perception, health seeking behaviours and adherence to preventive behaviours among undergraduate students aged between 18 and 45 from 2020 to 2022 at Chreso University in Lusaka, Zambia. This study was conducted at Chreso University in Lusaka Zambia because it was a government approved and registered institution of higher learning by Higher Education Authority (HEA) to offer degree courses in Business, Public Health, Nursing, Psychology and Counseling. The target population for this research comprised of undergraduate students aged between 18 and 45 years from the faculties of Business, Public Health, Nursing, Psychology and Counseling at Chreso University. Pilot study was conducted at Texila American University in order to exclude particular variables and create benchmarks that prove the viability of the large-scale endeavor which in turn aided researchers in defining and further refining the initial research issue. Therefore, Texila American University was not part and parcel of the final study in order to avoid bias. Not only that, a simple random sampling technique was used to recruit participants for this study because it accorded every research respondent equivalent prospect to be chosen as a participant to take part in the research. The total sample size for this study was 181. The study participants comprised of educated and non-educated people, from low and high socioeconomic status and had both genders. It also comprised of people who were in formal employment, informal employment and those who were not in any employment which fully represented the study population.

Moreover, permission was gotten from Chreso University and Texila American University respectively before the researcher proceeded with the study. The data collection tool was evaluated by three investigators and their contributions

were included in the final data collection instrument. Each and every gathered data from the study participants was kept under strict confidentiality and no identity of the respondents such as their names, phone numbers, IDs or their places of origin appeared on the questionnaires so as to uphold privacy, promote cooperation and confidence among them. The study's purpose was also communicated to every study participant in order to promote understanding among them about the study in which they were taking part. Also informed consent was gotten from the study participants before data collection exercise commenced. No participant was forced to participate in the research and they were all granted the liberty to withdraw from the research at any stage. Data was collected from the respondents using a structured interview questionnaire with closed ended questions. Data for this study was analyzed using Statistical Package for Social Sciences (SPSS version 20) and was presented by Tables. Also correlations between predictors and end results variables were categorized by multivariate logistic regression analysis.

3. Results

The vast majority of study participants 65% (107) were females while a good number of the respondents 35% (58) were males. The study has also disclosed that most of the respondents 67.3% (111) were aged between 18 and 24 years. Not only that, a good proportion of study participants 78% (129) were single while 22% (36) of the respondents were married. Other than that, most of the respondents 35% (57) were student nurses while 20% (34) were students in the faculty of business. Apart from that, a good proportion of study participants 98.2% (162) were Christians while 1.2% (2) of the respondents were Muslim. And many of the study participants were in the first year (28%) and third year (28%) respectively while 25% (41) were fourth year students. The study has also revealed that a wide array of the respondents 41% (68) were residing in Urban areas while 32% (53) of the respondents were residing in rural areas.

Table 1. *Demographic Data (n-165).*

Variable	Frequency (n)	Percentage %
SEX	FREQUENCY (n)	PERCENTAGE %
MALE	58	35%
FEMALE	107	65%
TOTAL	165	100%
AGE	FREQUENCY (n)	PERCENTAGE %
18-24	111	67.3%
25-29	36	21.8%
30-34	13	7.8%
35-39	2	1.2%
40 years and above	3	1.8%
TOTAL	165	100%
MARITAL STATUS	FREQUENCY (n)	PERCENTAGE %
SINGLE	129	78%
MARRIED	36	22%
TOTAL	165	100%
FACULTIES	FREQUENCY (n)	PERCENTAGE %
EDUCATION	26	16%
BUSINESS STUDIES	34	20%
NURSING	57	35%
PUBLIC HEALTH	31	18%
HOSPITALITY	17	11%
TOTAL	165	100%
RELIGION	FREQUENCY (n)	PERCENTAGE %
CHRISTIAN	162	98.2%
MUSLIM	2	1.2%
HINDU	1	0.6%
TOTAL	165	100%
YEAR OF STUDY	FREQUENCY (n)	PERCENTAGE %
FIRST YEAR	46	28%
SECOND YEAR	32	19%
THIRD YEAR	46	28%
FOURTH YEAR	41	25%
TOTAL	165	100
LOCATION	FREQUENCY	PERCENTAGE
URBAN	68	41%
PERI-URBAN	53	32%
RURAL	41	25%
REMOTE	3	2%
TOTALS	165	100%

Table 2 below shows that, the majority of the respondents (76%) had an adequate level of knowledge on COVID-19 as

most of them knew that the causative organism of COVID-19 was not bacteria. They also knew that wearing face mask in public (85%), covering their mouth with elbow when coughing or sneezing (86%) as well as washing and sanitizing hands (90%) reduces the risk of COVID-19 infection spread. The study also disclosed that, most of the respondents knew that isolating infected people (87%), closure of the land, sea and borders (90%) helped prevent the fast spread of COVID-19 infection. Other respondents revealed that implementation of a lockdown, curfew, and staying at home (87%) when sick also helps to reduce the fast spread of COVID-19 infection.

Table 2. *Level of knowledge of people on COVID-19.*

	Level of Knowledge on COVID-19	Agree n (%)	Disagree n (%)	No Idea (%)
1	COVID-19 is a bacterial infection	33 (21%)	127 (76%)	5 (3%)
2	Wearing face mask when going out can protect from infection with the virus	141 (85%)	22 (13%)	2 (2%)
3	Covering mouth with elbow when coughing or sneezing can reduce the spread	143 (86%)	12 (8%)	10 (6%)
4	Drinking water is a good practice to help contain the spread of the virus	51 (31%)	51 (31%)	63 (38%)
5	Using hand sanitizer and washing hand frequently can help to reduce the risk of infection	149 (90%)	3 (2%)	12 (8%)
6	Cleaning and sanitizing surfaces is a good habit to help limit the spread	148 (90%)	6 (4%)	10 (6%)
7	Frequently taking ginger and garlic can help prevent infection with the virus	65 (39%)	32 (19%)	68 (42%)
8	Increase in body salt intake can limit the risk of infection	14 (9%)	64 (38%)	87 (53%)
9	Touching eyes, nose and mouth can reduce the spread of the virus	6 (4%)	130 (78.8%)	29 (18%)
10	Taking very hot water bath will prevent someone from being infected	47 (28%)	75 (45%)	43 (27%)
11	Wearing of hand gloves will protect from infection with the virus	91 (56%)	37 (22%)	37 (22%)
12	Isolating infected people can help contain the spread of the virus	145 (87%)	12 (8%)	8 (5%)
13	Land, seas and border closure/restrictions can help reduce the spread of the virus	149 (90%)	12 (8%)	4 (2%)
14	Lockdown, curfew and staying at home can reduce the spread of the virus	144 (87%)	19 (13%)	0 (0%)
15	Schools and universities closure can help control the spread	97 (58%)	68 (42%)	0 (0%)
16	Vaccinations can prevent COVID-19 infection	112 (68%)	33 (20%)	20 (12%)

The results in table 3 shows that the vast majority of the participants (32%) had moderate risk perception of COVID-19 infection. The study further revealed that an equal proportion of the respondents (32%) had low risk of perceived severity to COVID-19 infection. The study also revealed that 37% of the respondents had a low risk perception due to complications brought about by lack of vaccination. The study further revealed that most of the participants had a moderate risk perception of others contracting COVID-19 (40%) and developing COVID-19 complications (40%) while sharing the same classroom.

Table 3. *COVID-19 Risk Perception.*

		Very Low	Low	Moderate	High	Very High
	Study participants' personal perceived risk					
1	Likelihood that you will get COVID-19 infection in your lifetime?	39 (24%)	38 (23%)	53 (32%)	31 (19%)	4 (3%)
2	Likelihood that you will get complications or sever disease if infected with COVID-19?	28 (17%)	53 (32%)	47 (28%)	31 (19%)	6 (4%)
3	Likelihood that you will get COVID-19 complications if not vaccinated against COVID-19	20 (12%)	15 (9%)	45 (28%)	62 (37%)	23 (14%)
	STUDY PARTICIPANTS' PERCEIVED RISK FOR OTHERS					
4	Likelihood that your classmates can contract COVID-19 when in the same class	17 (10%)	51 (31%)	66 (40%)	24 (15%)	7 (4%)
5	Likelihood that your classmates can develop complications of COVID-19 if they got it	13 (8%)	48 (29%)	66 (40%)	31 (19%)	7 (4%)
6	Likelihood that your classmates will develop severe complications if they are not vaccinated	20 (12%)	25 (15%)	56 (34%)	38 (23%)	26 (16%)

The findings of this study in table 4 shows that the majority of the participants had poor adherence to COVID-19 preventive measures. This was so due to the fact that very few of them were able to put on their masks (45%) and use hand sanitizer when passing through entry points (37%) only when advised to do so while others were able to wash their hands (45%) and practice social distance (27%) only when they were advised to do so as well. Other respondents indicated that they could do so sometimes (37%) only when they were in the company of friends. Finally, the findings of this study showed that some participants representing 42% were able to cover their mouths with elbow when coughing or sneezing from time to time.

Table 4. *Level of Adherence to COVID-19 Preventive Measures.*

No	Level of adherence to COVID-19 preventive measures	Always n (%)	Only When Advised n (%)	Sometimes n (%)	Rarely n (%)
1	How often do you wear face masks when in public transport?	39 (23%)	57 (34%)	53 (32%)	16 (11%)
2	How often do you wear face masks when in class?	47 (28%)	74 (45%)	36 (22%)	8 (5%)
3	How often do you wear face masks when in open air at campus?	55 (33%)	59 (36%)	41 (25%)	10 (6%)
4	How often do you cover mouth with elbow when coughing or sneezing to reduce the spread?	53 (32%)	15 (10%)	70 (42%)	27 (12%)
5	How often do you use hand sanitizer when passing through entry points to reduce the risk of	60 (36%)	61 (37%)	39 (24%)	5 (3%)

No	Level of adherence to COVID-19 preventive measures	Always n (%)	Only When Advised n (%)	Sometimes n (%)	Rarely n (%)
	infection?				
6	How often do you wash your hand at entrances to reduce the risk of infection?	50 (30%)	74 (45%)	32 (20%)	9 (5%)
7	How often do you practice social distance in class to reduce the risk of infection?	44 (27%)	58 (35%)	56 (34%)	7 (4%)
8	How often do you practice social distance in when with friends to reduce the risk of infection?	29 (18)	37 (22)	61 (37)	38 (23)
9	How often do you practice cleaning and sanitizing surfaces as a good habit to help limit the spread?	42 (25)	31 (19)	36 (22)	56 (34)

The results in Table 5 shows that health seeking behaviors among the participants were poor. This is so because 59% of the respondents had never accessed COVID-19 screening facilities. Also 52% did not even know if at all there was a cost associawted with testing. The study also revealed that 56% had never tested for COVID-19 while 60% of them had not received COVID-19 vaccines despite all these services being free and available at the campus. The study also revealed that, most of the participants (42%) were knowledgeable on the role and importance of vaccination in the prevention and control of COVID-19 infections.

Table 5. *Health Seeking Behaviors Towards COVID-19.*

WHETHER HAD ACCESS TO COVID-19 SCREENING		
Response	Frequency	Percentage
Yes	67	41%
No	98	59%
Total	165	100%
KNOWLEDGE OF AVAILABLE SCREENING SERVICES		
Services	Frequency	Percentage
Nasal swab	108	65%
Blood test	33	20%
I don't know	24	15%
Total	165	100%
WHETHER THERE ARE COSTS FOR TESTING		
Response	Frequency	Percentage
Yes	38	23%
No	85	52%
I don't know	42	25%
Total	165	100%
WHETHER EVER TESTED FOR COVID-19		
Response	Frequency	Percentage
Yes	73	44%
No	92	56%
Total	165	100%
WHETHER VACCINATED AGAINST COVID-19		
Response	Frequency	Percentage
Yes	66	40%
No	99	60%
Total	165	100%
LIKELIHOOD THAT COVID-19 CAN BE PREVENTED THROUGH VACCINATION		
Response	Frequency	Percentage
Very likely	49	30%
Likely	69	42%
I don't know	27	16%
Unlikely	20	12%
Total	165	100%

The findings in Table 6 show that the school campus did not have adequate hand washing facilities (47%) for the prevention and control of COVID-19 infection. The study has also revealed that the majority of the respondents were not able to afford and access such personal protective equipment as face masks (47%) and hand sanitizers (42%) on the school campus. The current research findings have also revealed that many of the respondents lacked knowledge and awareness (53%) about COVID-19 infection and its preventive measures. The study has also disclosed that the vast majority of the study participants indicated that there was no proper enforcement of COVID-19 prevention and control measures (46%) in the school place environment by the University authorities.

Table 6. *Factors affecting adherence to COVID-19 prevention (n=165).*

No	Factors affecting adherence towards COVID-19 prevention	Always N (%)	Sometimes N (%)	Never n (%)
1	Availability of adequate hand washing facilities on this campus for COVID prevention.	46 (29%)	77 (47%)	42 (24%)
2	Availability and affordability of facemasks.	41 (23%)	47 (30%)	77 (47%)
3	Knowledge and awareness about COVID-19	22 (13%)	56 (34%)	87 (53%)
4	Availability of adequate sanitizing facilities on campus for COVID-19 prevention	38 (23%)	57 (35%)	70 (42%)
5	Enforcement of COVID-19 prevention measures by the University authorities	54 (33%)	51 (31%)	60 (46%)

Association between respondent's level of knowledge and socio-demographic variables is shown in table 7.

The association between the level of knowledge and socio-demographic variables of the respondents is shown in table 7. Sex and age were found to have a statistically substantial relationship with the level of knowledge about COVID-19 infection preventive measures among students at Chreso University in Lusaka, Zambia ($P < 0.05$).

Table 7. *Association between respondent's level of knowledge and socio-demographic variables.*

Socio-demographic variables	χ 2 value	Df	p value
SEX	21.436	5	0.000**
AGE	24..514	3	0.010**
MARITAL STATUS	23.612	6	0.537
RELIGION	22.521	5	0.316

**Significant at P<0.05.

Association between respondent's level of risk perception and socio-demographic variables is shown in table 8.

The correlation between the level of risk perception and socio-demographic variables of the study participants is demonstrated in table 8. Marriage was found to have a strong statistical association with the level of risk perception on COVID-19 infection among students at Chreso University in Lusaka, Zambia ($P < 0.05$).

Table 8. *Association between respondent's level of risk perception and socio-demographic variables is shown in table 8.*

Socio-demographic variables	χ 2 value	Df	p value
SEX	20.172	6	0.434
AGE	26..351	5	0.561
MARITAL STATUS	24.634	3	0.000**
RELIGION	25.361	6	0.418

**Significant at P<0.05.

Association between respondent's level of adherence to COVID-19 preventive measures and socio-demographic variables is shown in table 9.

The correlation between the level of adherence to COVID-19 preventive measures and socio-demographic variables of the study participants is demonstrated in table 9. Religion and marital status were found to have a significant statistical relationship with the level of adherence to COVID-19 preventive measures among students at Chreso University in Lusaka, Zambia ($P < 0.05$).

Table 9. *Association between respondent's level of adherence to COVID-19 preventive measures and socio-demographic variables.*

Socio-demographic variables	χ 2 value	Df	p value
SEX	22.361	4	0.271
AGE	24..162	6	0.373
MARITAL STATUS	21.351	5	0.001**
RELIGION	23.143	7	0.000**

**Significant at P<0.05.

4. Discussion of the Findings

This study has revealed that, the vast majority of study participants (65%) were females while 35% of the respondents were males. The study has also disclosed that most of the respondents (67.3%) were aged between 18 and 24 years while 21.8% of the respondents were aged between 25 and 29 years. The study has also uncovered that a large proportion of the respondents (78%) were single while 22% of the study participants were married. This study further explains that most of the respondents (98.2%) were Christians.

In addition, the findings in Table 2 shows that most of the respondents (76%) had an adequate level of knowledge on COVID-19 infection prevention and control measures because most of them knew that the causative organism for COVID-19 was not bacteria. They also knew that wearing face mask in public (85%), covering their mouth with elbow when coughing or sneezing (86%) as well as washing and sanitizing hands (90%) reduces the risk of COVID-19 infection spread. The study also disclosed that, most of the respondents knew that isolating infected people (87%), closure of the land, sea and borders (90%) helps to prevent the fast spread of COVID-19 infection among the populace. Other respondents revealed that implementation of a lockdown, curfew, and staying at home (87%) when sick also helps to reduce the fast spread of COVID-19 infection. Sex and age were found to have a statistically substantial relationship with the level of knowledge about COVID-19 infection preventive measures among students at Chreso University in Lusaka, Zambia ($P < 0.05$). The current findings are similar to the findings from the study which was conducted on knowledge, attitude and practice among people aged between 15 and 50 towards COVID-19 infection prevention and control measures in Mwandi District of Zambia. The study found that, 95% (361) of the respondents to the research had sufficient understanding of the COVID-19 infection prevention and control strategies.

Additionally, it was found that educational attainment, age, number of children, marital status, and employment were correlated with awareness of COVID-19 infection prevention and control measures. The fact that research participants had a sufficient degree of awareness about COVID-19 infection prevention and control tactics was largely attributable to widespread community education campaigns on COVID-19 infection, prevention, and control measures. It was also a result of widespread community participation in the COVID-19 infection prevention and control strategies by traditional healers, community based volunteers (CBVs), community health workers, village headmen, businessmen, politicians, faith based leaders, traditional leaders (chiefs), headmasters, teachers, adherent supporters, and members of district level COVID-19 task forces [5].

The findings from this study are in line with the findings from the cross-sectional study which was conducted in Malaysia among participants from 13 dental schools with the goal of identifying dental students' level of knowledge, perceived risk, and preventative practices in the context of the COVID-19 Pandemic. The study found that 93.5% of study participants scored highly on the COVID-19 knowledge scale. For perceived hazards and preventative activities, female respondents performed better than male respondents. The study further disclosed that Malay respondents had the greatest perceived danger score, while Chinese respondents had the highest knowledge score [6].

The results of this study are related to the findings from the study on the level of knowledge, risk perception, and preventative practices towards COVID-19 pandemic among undergraduate medical students. According to the study, it was found that 83% of university students had an appropriate level of awareness, and 92% of them engaged in preventative activities such as wearing masks, practicing physical distance and getting vaccinated against COVID-19 infection. Additionally, it was discovered that the majority of research participants believed that coronavirus infection was a serious condition with a high risk of death and had a high risk perception of contracting COVID-19. The study also revealed that 76.3% of respondents believed that there was a possibility of COVID-19 infection during ward rotations and 86.9% of respondents thought that a COVID-19-infected individual posed a major threat to society [7].

Other than that, the findings from this study are also similar to the findings from a study which was conducted in Palestine which found that most of the respondents (79%) had good awareness towards Coronavirus Disease 2019 (COVID-19) while 55.6% of the respondents had good level of knowledge on clinical manifestation of COVID-19. The study also disclosed that most of the respondents (81%) were sentient about COVID-19 infection prevention and control measures that had been put in place by the World Health Organization (WHO) and Palestinian government via its ministry of health in order to minimize the spread of the Coronavirus Disease 2019 (COVID-19) among the people in the Palestinian communities. Apart from that, the author also explains that most of the respondents (82%) were well conversant with the groups of people who were at greater risk of contracting and transmitting COVID-19 in Palestinian. Other than that, the study also revealed that 77% of the respondents adhered to the COVID-19 infection prevention and control measures. Also, the author expatiates that 62% of the respondent consented that stiff measures needed to be implemented country wide by the Palestinian authorities so as to curtail the spread of COVID-19 [8]. The study which was also carried out in Palestine exposed that there was need to conduct extensive public health education campaigns among the Palestinian people especially those with little level of education across the Palestinian in order to enhance knowledge, practice and attitudes of people on COVID-19 infection [9].

Apart from that, the findings from the current study are also akin to the findings from the study which was done in Dubai. The study found that, irrespective of their background, study participants typically had a high level of knowledge and awareness of contagiousness, transmission, incubation time, recovery and death rate, vulnerability of older persons, and the stay-at-home policy. This extensive level of knowledge was credited to the quick spread of information among the populace via social media. Health sciences participants had a considerably higher level of knowledge about specific preventative measures, the cause of infection, and how animals spread it ($p < 0.05$) [10].

In addition, the results in table 3 shows that the vast majority of the study participants (32%) had moderate risk perception of COVID-19 infection. The study further revealed that an equal proportion of the respondents (32%) had low risk of perceived severity to COVID-19 infection. The study also revealed that 37% of the respondents had a low risk perception due to complications brought about by lack of vaccination. The study further revealed that most of the participants had a moderate risk perception of others contracting COVID-19 (40%) and developing COVID-19 complications (40%) while sharing the same classroom. Marriage was found to have a strong statistical association with the level of risk perception of COVID-19 infection among students at Chreso University in Lusaka, Zambia ($P < 0.05$). The findings from this study are similar to the findings from the study which was conducted in Turkey on the University student's risk perception, protective measures and general health during COVID-19. The study found that 56.6% of the students thought about the possibility of contracting COVID-19. However, less actions were taken by students than was anticipated. The study further explains that, the amount of precautions students take is influenced by their heightened anxiety, perceived individual risk level, perceived lack of social support, and belief that the current pandemic is more dangerous than prior epidemics. It was also discovered that, during the social isolation period, students had sleep and study issues as well as suicide thoughts. Sex, medical school, COVID-19 worry, feeling unprepared to handle the epidemic, lack of confidence in one's ability to cope with it, and social support were all found to be risk factors for poor overall health, sleep and study issues, and suicide thoughts [11]. Not only that, these findings are similar to the

findings from another cross sectional study which was carried out among University students in Netherlands and Belgium. The study found that higher scores on personal (self) effectiveness to implement advised preventative measures were connected with higher felt danger. Personal and indirect encounters with COVID-19 were shown to be related to higher perceived threat. However, lower ratings for collective efficacy and faith in the government, as well as lower ratings for lack of information, were all linked to higher perceived danger. To improve students' perceptions of COVID-19 risk and to better prepare them for future variations and other outbreaks, the author applauded that further research is required on effective risk communication tactics that can raise perceptions of COVID-19 risk for students and young adults [12].

Other than that, the results of this study agree with those of a cross-sectional institutional study which was conducted among Ethiopian university students in Gondar. The survey found that university students' total COVID-19 preventative behavior was insufficient or poor. Age, sex, knowing a COVID-19 infected person, perceived vulnerability, and the type of program they had registered in all had an impact on students' COVID-19 preventative behavior. The results also showed that in order to increase this population's COVID-19 preventive behavior, health communication interventions aiming at altering people's views of COVID-19 and related preventative methods are urgently needed (Tsegaw et al, 2022). Moreover, the results of this investigation are consistent with those of a study that was conducted in Saudi Arabia among student nurses. Nearly all students (99.2%) were aware of the outbreak, and the majority (71.0%) learned about COVID-19 mostly through social media. More over three-fourths of the students (89.1%) and the Ministry of Health (MOH) (86.5%) thought the government and MOH were responding to the COVID-19 epidemic in the nation effectively. The knowledge questionnaire's total average score was 82.1%. The majority of students consistently engaged in the majority of the preventative behaviors noted in the survey, with the exception of daily cleaning and sanitizing commonly touched surfaces (41.6%) and washing hands with soap and water for at least 20 seconds after sniffling, coughing, or sneezing (39.2%). High actual understanding of the COVID-19 was connected with being female, being in the fourth year, and having superior perceived knowledge [13]. Not only that, the outcome of this study is also consistent with findings from another study, which found that a person's participation in disease prevention practices like hand washing, avoiding crowded areas, and social withdrawal is predicted by their perceived personal risk [14]. Unfortunately, most of the informed university students at the time of this study had neither received the free COVID-19 immunizations that were readily accessible nor had they tested for COVID-19 to determine their status. As a highly educated population, college and university students may not only lay the groundwork for future national development but may also impart their knowledge and keen sense of danger to the people around them [15].

Furthermore, the findings of this study in table 4 shows that the majority of the participants had poor adherence to COVID-19 preventive measures. This was so due to the fact that very few of them (45%) were able to put on their masks and use hand sanitizer when passing through entry points (37%) only when advised to do so. While others were able to wash their hands (45%) and practice social distance (27%) only when they were advised to do so as well. Other respondents indicated that they could only do so sometimes (37%) only when they were in the company of friends. Finally, the findings of this study showed that some participants representing 42% were able to cover their mouths with elbow when coughing or sneezing from time to time. Religion and marital status were found to have a significant statistical relationship with the level of adherence to COVID-19 preventive measures among students at Chreso University in Lusaka, Zambia ($P < 0.05$). The results of this research are consistent with those of another research which was conducted among students in southwest Ethiopia in which the respondents were asked to rate their compliance with COVID-19 preventative measures and the elements that were related to it in 2021. According to the study, it was found that of the 388 students who were included in the analysis, 14.7% demonstrated good levels of adherence to COVID-19 preventative measures. Only 6.9% of participants reported having a high degree of awareness, but almost 50% of respondents reported having a positive attitude about COVID-19 prevention efforts. The amount of adherence to COVID-19 preventative measures was shown to be statistically significantly correlated with factors such as female gender, availability to water and soap, and attitude [16]. Apart from that, the results of this study are also similar to those of a study which was conducted among male medical students in Egypt. The study found that among the investigated male medical students, the prevalence of adherence to COVID-19 preventative measures was low (28.1%), with no significant differences in the students' adherence status according to age, place of residence, family income, year of study, or academic standing. Aside from that, 58% of students reported using a face mask outside the home, 41.3% reported refraining from hugging or kissing others, and 20.7% reported keeping their distance from others. The danger of infection among pupils rises as a result of this harmful practice. Additionally, students expose their susceptible contacts to an illness [17]. The results of this study are comparable to those of a study that was carried out among students studying medicine and health sciences at Wolkite University in Ethiopia. The study discovered that 56.9% of participants used face masks frequently, 32.4% kept a physical distance of at least 2 meters, 68.8% covered their mouths while coughing or sneezing, and 90.2% regularly washed their hands with water and soap for at least 20 seconds, respectively. Overall, 41% of people showed excellent behavior when it came to COVID-19 mitigation measures [18].

In addition, the data presented in Table 5 indicates a concerning trend of inadequate health-seeking behaviors among the study participants. This is so largely because a

significant percentage (59%) of the respondents had never accessed COVID-19 screening facilities, did not know if testing had any associated costs, and had never tested for COVID-19 or received COVID-19 vaccines, despite these services being free and available on the University campus. Surprisingly, 52% of the participants were unaware of whether there were any costs associated with testing services or not. Moreover, the study found that 56% of the study participants had never been tested for COVID-19, and 60% of the respondents had not received COVID-19 vaccines, despite the fact that these services were readily available and provided free of charge to all students on campus. On a positive note, the research also highlighted that 42% of the participants showed good knowledge and understanding of the role and importance of vaccination in preventing and controlling COVID-19 infections. This finding aligns with arguments made by other scholars who suggested that individuals who engage in health information-seeking are more likely to possess improved health information, feel more confident discussing health issues with doctors, and engage in higher levels of health promotion practices compared to those who do not seek health information [19].

Understanding the information-seeking behavior of students is particularly important, as having access to relevant health information can reduce anxiety related to health issues, contribute to better risk management, faster recovery, increased self-care capabilities, and enhance active participation in health-related decision-making processes. The findings of this study are consistent with previous research which also reported that many students search for health information related to nutrition, physical activity, medical prescription side effects, drug instructions, therapy treatment risks, and complications. Accessing health information influenced students' decisions to visit physicians and alleviated concerns about their health conditions or illnesses. Nevertheless, the overall findings raise concerns about the need for improved awareness and education regarding the available health services and the importance of taking preventive measures in combating the pandemic especially among student populations [20].

Additionally, the findings from the current study are in line with the cross sectional study which was conducted in Denmark. The study found that, 59.9% of students had enough digital health literacy (DHL) and the majority of the students find it quite simple to locate material and are happy with the information they discover online. However, the study also found that some students (28.1%) find it challenging to evaluate the accuracy and dependability of the material. Students with a high level of digital health literacy are more likely to utilize search engines and the websites of formal institutions to get information, whereas students with a low level of DHL are more likely to turn to social media. Students with enough DHL are more likely to communicate health information and are less likely to seek assistance from their network [21]. The findings from this study are also similar to the findings of another study which was conducted among Chinese college students in China. According to the study, Chinese college students heavily rely on online health information (OHI) to manage their own and others' health since they lack the knowledge and abilities to recognize false information and disinformation, putting both their own and others' health at danger. College students should be adequately literate in health information given their prominence as internet users, future health information producers, and opinion leaders. The author reiterated that the supply of controlled, accurate, and actionable health information, guarantee of cybersecurity, and promotion of health information literacy in colleges by the responsible authorities are necessitated by their dangerous information-seeking activities [22].

According to Table 6's findings, hand washing facilities on the school site were found to be insufficient (47%) for the prevention and management of COVID-19 infection. The majority of the respondents in the study were also unable to acquire or purchase personal protective equipment like face masks (47%) or hand sanitizers (42%), which is another finding from the study. These findings highlight barriers that could hinder the implementation of preventive measures in educational settings. The results of the current study also showed that many respondents (53%) lacked understanding and awareness of the COVID-19 infection and associated protective measures. The study also revealed that 46% of the participants said that the university authorities had not properly enforced COVID-19 preventive and control measures in the school place environment. The findings from this study are consistent with the findings from a cross-sectional study which was conducted among 2637 Brazilian undergraduate nursing students using a self-reported online survey. The study revealed that student nurses exhibited limited level of knowledge, which in turn prompted the researcher to emphasize the urgent need to reassess the undergraduate nursing education concerning COVID-19 infection prevention and control, strategies. Notably, over 90% of graduates adopted recommended preventive measures, while 86.1% perceived an elevated risk of acquiring SARS-CoV-2 during clinical practice after enforcing COVID-19 preventive and control measures among the nursing students [23]. These collective findings underscore the imperative of addressing critical gaps in COVID-19 prevention measures within the university campuses. Inadequate hand washing facilities, restricted access to essential personal protective equipment (PPE), and knowledge gaps constitute substantial barriers to achieving effective infection prevention and control in educational settings. Furthermore, the absence of rigorous enforcement mechanisms by university authorities necessitates robust institutional support and comprehensive policy implementation. Drawing upon comparative analyses with prior research, this study emphasizes the universal nature of challenges faced across diverse educational contexts, warranting tailored strategies to promote adherence to preventive measures and ensure a safer learning place environment amidst the ongoing pandemic [24].

5. Conclusion

All in all, the study has revealed that most of the respondents (76%) had an adequate level of knowledge on COVID-19 as most of them knew that the causative organism of COVID-19 was not a bacteria. This study sheds light on the multifaceted factors influencing adherence to COVID-19 prevention measures within University campuses. The findings emphasize the importance of knowledge, behavior, and risk perception in shaping students' attitudes and practices regarding prevention. While the majority of students demonstrated adequate knowledge of fundamental preventive practices, such as wearing face masks and practicing hand hygiene, the study identified gaps in understanding aerosol precautions and hospital-specific preventive measures. This highlights the need for targeted educational campaigns to address knowledge disparities and improve overall awareness among students. Nevertheless, the study also revealed areas requiring improvement, particularly in health-seeking behaviors. Many students exhibited limited use of screening facilities and low awareness of available vaccines, necessitating efforts to enhance health-seeking behaviors to facilitate early detection and appropriate responses to COVID-19 cases. Thus, this study provides invaluable scholarly insights for designing and implementing effective COVID-19 prevention measures on school campuses. Tailored strategies, encompassing enhanced knowledge dissemination, improved access to resources, and promotion of positive health-seeking behaviors, are essential for achieving optimal infection control and fostering safer learning environments. Collaborative efforts at a global scale, based on evidence-driven interventions, will be instrumental in overcoming these challenges and combating the pandemic's impact on educational institutions. The study also revealed that the vast majority of the participants had poor risk perception of COVID-19 infection. This study thus underscored the critical role of risk perception in determining students' adherence to COVID preventive measures. Those perceiving a higher risk of COVID-19 infection are more likely to comply with preventive strategies. Consequently, interventions should address risk perception factors to promote greater adherence to COVID-19 preventive measures among University students.

6. Recommendations

It is strongly suggested that university Students should be sensitized on COVID-19 infection prevention and control measures and encouraged to regularly engage in health-seeking behaviours. The university authority should motivate students to be actively involved in COVID-19 screening programmes and raise awareness on the available COVID-19 vaccines, where to access them from and the importance of getting vaccinated against COVID-19. This will prevent the fast spreading and contraction of the virus which will enhance herd immunity. They should also dismiss any myths or anxieties that are associated with immunization, and emphasize on the advantages of early detection and effective interventions of COVID-19 cases.

The university authority should team up with influencial community leaders, student Union leadership and use various social media platforms for disseminating up-to-date and correct information regarding COVID-19 infection prevention and control measures and how it should be managed. This will help to reach out to a larger audience and encourage ethical health seeking behaviour which in turn will help to mitigate infodemics about COVID-19 among the students.

The university authorities should also ensure that students practice five golden rules of COVID-19 infection prevention and control measures such as masking up in public, maintaining Social/physical distance, washing hands or using hand sanitizer frequently, avoiding crowded places and staying at home when sick as well as seeking medical treatment early especially if an individual develops symptoms of COVID-19.

The University campuses, therefore, should equip students with the infection prevention and control materials such as face masks, hand sanitizers and improved handwashing facilities for easier accessibility by all students within their vicinity.

The university authority through the Ministry of Health should develop risk communication policies aimed at helping students understand the gravity of the COVID-19 infection and the potential repercussions of not adhering to preventive measures. This will help to address variables that affect how well preventative actions are followed when it comes to risk perception.

The university authority should also launch comprehensive public health education and risk communication programmes using various communication medias to improve health seeking behaviours, practice, and attitudes among students towards COVID-19 infection prevention and control measures.

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