Knowledge, Attitude and Practice (KAP) towards COVID-19 Pandemic: A Cross-Sectional Survey Study among Higher Learning Institutions (HLIs) Students of Tanzania

Isaac Mawala[1] and Elimeleck P. Akyoo[2]

[1]Assistant Lecturer
Department of Management Studies
Tanzania Institute of Accountancy, Mbeya Campus
[2]Senior Lecturer
Department of Management Studies,
Tanzania Institute of Accountancy, Mbeya Campus
Corresponding author email: isaacmawalla@gmail.com

Abstract

There is paucity on both the level of knowledge about COVID-19 and whether the level of knowledge among students of HLIs is related to their practices regarding measures proposed for prevention against COVID-19. The objective of this study was to analyse the level of knowledge, attitude, misconceptions and practices of students in HLIs in order to improve protection measures being undertaken by the students and staff at HLIs. The study employed a cross-sectional research design involving 385 HLIs students who were selected randomly using simple and systematic sampling techniques from four institutions of HLIs in four regions. The data were collected through using a questionnaire and analysed with the aid of Statistical Package for Social Sciences (SPSS) whereby descriptive statistics, Chi-square test were analysed. Results indicate that the general knowledge about COVID-19 was low among students, and it was different between male and female students; female students had relatively lower level of knowledge about COVID-19 compared to their male counterparts. Most students were not aware of how COVID- 19 is transmitted. Most students had positive attitudes towards COVID-19 control. It can be concluded that, generally students had low overall levels of knowledge, attitude and practices towards COVID-19. It is recommended that HLIs should create comprehensive awareness strategies suited to the needs of male and female HLIs students that are urgently needed in the fight against COVID-19.

1.0 Introduction
1.1 Background Information

Since the coronavirus disease (COVID-19) outbreak was declared a public health emergency of international concern (PHEIC) on 30th January 2020, its epidemiology has been reported to change rapidly as pointing to over 118,000 cases in over 110 countries (WHO 2020, as cited in Gennaro et al., 2020). In Tanzania, the first case of COVID-19 was confirmed on 16th March 2020; as of 3rd December 2020, Tanzania had only 509 confirmed cases of the virus and 21 deaths. No public update was provided since 8 May, 2021. In response to this, the government took several measures to prevent the spread of the disease. The efforts focused on curbing further spread of the disease including the suspension of all international flights, suspension of social and other mass gatherings of more than fifteen people such as those for sports, weddings and funerals. Other measures involved the closure of all education institutions including Universities, Colleges, Secondary and Primary schools, establishment of special medical camps for patients and suspects of COVID-19, enforcing quarantine and restrictions on travel and ban of large public gatherings (Manyengo, 2021; Tarimo and Wu, 2020).

According to the National Bureau of Statistics (2018), as cited in Msigwa (2020), there are more than 14,580,315 students enrolled in schools and colleges. Therefore, education was impacted by COVID-19, with school closures affecting 14.4 million students in Tanzania. The government also initiated public awareness campaigns through the media publicising WHO based health standards among citizens and instituting preventive measures to be followed to stay safe.

The COVID-19 pandemic resulted in temporary physical closures of schools and higher education institutions around the world. It is approximated that more than 1 billion and 575 million students globally were affected due to the closure of schools and universities (UNESCO 2020a, as cited in Dukaru and Hoxha, 2020). Higher education was hit the hardest; it is estimated that approximately 220 million students globally were affected due to the disruption caused by COVID-19. On another hand, policymakers and educational institutions faced unprecedented challenges on how to mitigate learning losses, how to deploy remote learning, how to safely reopen educational institutions and how to ensure that underrepresented, vulnerable and disadvantaged learners were not left behind (Farnell et al., 2021). Across the globe, the academic year 2019/2020 was more challenging than ever. The pandemic has transformed the way teaching takes place and contributed to increasing online learning and teaching, which

have begun in some parts of the world (Manyengo, 2021), although given the magnitude of the pandemic it has to be transformed. The pandemic has also had direct impact on how research is carried out, on university operations (in terms of campus closures and the shift to online learning) and on university governance, with management staff needing to take a range of emergency decisions and allow additional flexibility in many areas of activity. The pandemic has also highlighted the importance of universities' community engagement.

Education often provides a protective environment for students in higher learning institutions and an important referral pathway to access other essential services. As a result of the school closures, school girls were susceptible to harmful social practices such as female genital mutilation, early pregnancy and child marriage, which might consequently increase the number of out of school children once schools re-opened, and hence undermining progress. The disruptions to education caused by COVID-19 might create an additional barrier to return to education after the emergency. The Government and private based institutions of higher learning were all re-opened (Manyengo, 2021), and regular update of COVID-19 cases was withheld. Those government initiatives were anticipated to result into improved knowledge among people on how the disease spread and measures to contain it. Nevertheless, it is not well known about the level of knowledge about COVID-19 among students of the HLIs in Tanzania. Furthermore, there is paucity on how the knowledge about COVID-19 impacted behavioural change against proposed measures to control the spread of the pandemic.

COVID-19 has caused loss of human life and is still a threat (Gennaro et al., 2020). Higher learning institutions students as well as the staff of such institutions have been negatively affected by COVID-19. According to eLearning Africa (2020), COVID-19 has affected all levels of the education sectors, but each sector has suffered in different ways and with different consequences. Therefore, the impact of COVID-19 in higher learning institutions was devastating. COVID-19 caused deaths to skilled, experienced and highly trained manpower in HLIs. Since most of those who died from the diseases had been trained using government resources, it means loss in investment in education and intergeneration loss of knowledge as it took so many years and responses to train them to such higher level.

There is paucity on both the level of knowledge about COVID-19 and whether the level of knowledge among students of HLIs is translated into their practices

towards measures proposed for prevention against COVID-19. Experience from other pandemics such as HIV/AIDS revealed that higher level of awareness on the causes and means of transmission did not result in behavioural change (Nyamongo, 1996; Amuyunzu, 1997). In addition, misconception and level of risk perception about the pandemic is believed to have had impact of behavioural change. If the knowledge, attitude and practices towards COVID-19 are not well established and relevant measures taken there is high risk of the students contracting COVID 19 and/or infecting others at their home or at learning and working places.

Although different vaccines have been developed and used, many people have not received vaccine especially in developing countries. Due to the fact that the virus causing the spread of the COVID-19 is undergoing rapid changes through mutation, prevention and controlling further spread of the disease remains the most feasible option to contain it. Since the interaction between students from the HLIs, teaching staff and the community cannot be controlled; it is imperative to have empirical data on KAPs of students at HLIs in order to devise practical measures to curb further spread of the pandemic and mitigate its impact. Thus, the aim of this study was to analyse the levels of Knowledge, Attitudes and Practices of Higher Learning Institutions Students towards COVID 19. Specifically, the paper aimed to identify risk behaviour of students of HLIs in relation to the spread of COVID 19, determine knowledge of HLIs towards COVID 19, identify misconceptions about COVID-19 transmission among HLIs students and determine attitudes and practices of HLIs students towards COVID 19.

The study on which the paper is based was guided by the theory of Reasoned Action which was developed by Martin Fishbein and Icek Ajzen as an improvement over the Information Integration theory. The theory of Reasoned Action is explicitly concerned with behaviour. However, this theory also recognizes that there are situations (or factors) that limit the influence of attitude on behaviour. Therefore, Reasoned Action predicts behavioural intention, a compromise between stopping at attitude predictions and actually predicting behaviour. Because it separates behavioural intention from behaviour, Reasoned Action also discusses the factors that limit the influence of attitudes (or behavioural intention) on behaviour.

Specifically, Reasoned Action predicts that behavioural intent is created or caused by two factors: our attitudes and our subjective norms which is implicitly the function of the level of knowledge. The second component influencing

behavioural intent, subjective norms, also have two components: normative beliefs (what I think others would want or expect me to do) and motivation to comply (how important it is to do what I think others expect). The experience of the previous pandemic especially the HIV/AIDS revealed that knowledge and attitude were not necessarily important predictors of behavioural changes. However, given the nature of the COVID-19 spread, it is not well known whether a similar trend could be happening, hence the essence of this study. The study was guided by following four hypotheses:

(i) Students with high knowledge about COVID-19 are less likely to engage in risk-taking behaviour than their counterparts.
(ii) Young and unmarried students are more likely to engage in risk behaviour than their counterparts.
(iii) Students with high levels of misconception are more likely to be female students.
(iv) Students who have negative attitude towards COVID-19 are more likely to be female students.

2.0 Methodology

The study was conducted in four regions in Tanzania which are Dar es Salaam, Morogoro, Mbeya and Singida. The regions were selected because they are among ones hosting most of the HLIs in Tanzania (Dar es Salaam, Mwanza, Morogoro and Mbeya). Singida region was included as a control for relatively less populated regions and with few HLIs. These regions host students from all over Tanzania including some of the oldest HLIs in Tanzania, hence a good reflection of students KAPs in HLIs in Tanzania.

A cross-sectional research design was adopted in order to analyse knowledge, attitude and practice of HLIs students towards COVID-19. The design was considered to be favourable because of the nature of the study to collect a snapshot of what exists from a relatively big sample but with limitations on both resource and time for data collection. The adoption of the cross-sectional design was also justifiable on the basis that it is the most common design used in survey research to compare extents to which at least two groups of people differ on a dependent variable (de Vaus, 1993).

The population from which the sample for this study was drawn involved HLIs students pursuing studies leading to first degree. The sample size for the study was estimated to be 400 students; the choice of this figure was based on the simple formula of selecting sample sizes according to Fisher et al. (1991) for a population which exceeds 10,000, as detailed below.

The simple formula used is:

$$n = \frac{Z^2\, pq}{d^2}$$ where:

n = sample size when the population is greater than 10,000

Z = Standard normal deviate, set at 1.96 (about at 2.0), corresponding to 95% Confidence level,

p = proportion in the target population, estimated to have a particular characteristic; if not known use 50%.

q = 1.0 – p

d = degree of accuracy desired, set at .05 or .02.

Therefore, the sample size was:

$$n = \frac{Z^2\, pq}{d^2} \quad = \quad \frac{(2)^2\,(0.50 \times 0.50)}{(0.05)^2} \quad = \quad \frac{4 \times 0.25}{0.0025} \quad = \quad \frac{1}{0.0025}$$

= 400 respondents.

Due to non-response and incompleteness of some questionnaire copies, 385 questionnaire copies, equivalent to 96.25% of the sample, were suitable for data analysis. A multistage sampling technique was adopted. This method allows more than one sampling method to be used and involves sampling in phases (Singleton et al., 1993). In this case a combination of simple and systematic random sampling techniques was applied to obtain respondents. This method is useful in large and diverse populations (Singleton et al., 1993). Simple random sampling technique was used to obtain the faculties/schools and degree programmes from each faculty whereas systematic sampling was used to obtain respondents in each degree programme selected**.**

The data collected were coded, entered into the Statistical Package for Social Sciences (SPSS) Version 20 computer software, and verified and cleaned before analysis before being analysed. Descriptive statistics such as means, frequencies and percentages were computed to find the extent of risk behaviour with regard to COVID-19 among students with different variables. Index scales were constructed to gauge levels of knowledge, attitude and misconception about means of transmission of COVID-19, attitude and barriers to behavioural change. Chi square test was used to determine association between knowledge, attitudes and misconceptions between male and female students in HLIs at 5% (0.05) level of significance.

3.0. Results and Discussion
3.1 Socio-Demographic Characteristics

The characteristics of the study participants are presented in Table 1. The results indicate that 39.1% of the students interviewed below 23 years of age. The sex composition of the students interviewed indicates that 49.9% were male students and the remaining 50.1% were male. The ratio between male and female students was nearly 1:1. This might be due to the fact that most of the students interviewed were studying social science courses which attract many female students.

Table 1: Socio Demographic Characteristics (n = 385 for all tables)

SN	Variable	Frequency	Per cent
1	Age		
	20-22 Years	142	39.1
	23-25 Years	134	36.9
	26-30 Years	62	17.1
	31 Years and above	11	3.0
	18-20	14	3.9
2	**What is your sex**		
	Male	192	49.9
	Female	191	49.6
3	**Marital status**		
	Single	350	91.6
	Married	31	8.1
	Cohabitating	1	.3
4	**Year of Study**		
	1	127	33.0
	2	103	26.8
	3	155	40.3

5	How did you join this college/institute/university		
	Direct(fresh from school)	327	84.9
	Equivalent(mature age entry)	54	14.0
	Special female programme	4	1.0
6	Who is you financial sponsor for your study at the university		
	Family/Relative	257	66.8
	HESLB	108	28.1
	Employer	10	2.6
	Spouse(husband/wife)	7	1.8
	Personal	3	0.8
7	Area of residence while on campus		
	Private accommodation	155	40.3
	In off campus university hostels	107	27.8
	At the university campus hostels	84	21.8
	Home with parents/relatives	39	10.1
8	Religion		
	Christian	289	75.1
	Muslim	96	24.9

The results further indicate that the majority of the students interviewed were not married, which means that most of them were single. The students interviewed were distributed in first year, second year and third years, with highest proportion being that of third year students (40.3%). Out of the 385 interviewed students, the majority (84.9%) had entered university through direct admission. This reflects increase in enrolment in secondary schools since 2016 when secondary education started being provided free of charge. The

increase led to increase in number of students joining HLIs. Over 40% of students interviewed were leaving in private hostels. This implies that most HLIs campus hostels cannot accommodate all students enrolled.

3.2 Knowledge of Students in HLIs Concerning COVID-19

The results in Table 2 indicate that 50.6% of HLIs students had higher knowledge about COVID-19 spread. This implies that most HLIs students were aware of the common signs and symptoms of COVID-19, including fever, cough and shortness of breath. These findings are consistent with findings of a previous study by Fatmi et al. (2020) who found that the majority of respondents had higher knowledge of common signs and symptoms of COVID-19 and that the majority (55.2 %) of students who had low knowledge of COVID-19 (55.2%) were male students.

Table 2: Knowledge, Attitudes and Practices towardsCOVID-19. Knowledge (n = 385)

SN	Variable	Frequency	Per cent
1	**The main clinical symptoms of COVID-19 are fever, fatigue ,dry cough and myalgia**		
	Yes	324	84.2
	No	22	5.7
	Maybe	38	9.9
2	**Symptoms of COVID-19 are similar to the common symptoms of flue**		
	Yes	227	59.1
	No	95	24.7
	Maybe	62	16.1
3	**COVID-19 infection causes severe symptoms in all patients**		
	Yes	212	55.2
	No	86	22.4
	Maybe	86	22.4
4	**Person with COVID-19 can infect the virus to others when a fiver is not present**		
	Yes	191	49.7
	No	118	30.7
	Maybe	75	19.5
5	**COVID-19 infection causes a serious disease**		
	Yes	311	81.0
	No	27	7.0
	Maybe	46	12.0

Overall Level of knowledge about COVID -19					
Male		Female		All	
Frequency	Per cent	Frequency	Per cent	Frequency	Per cent

High	106	55.2	89	46.6	195	50.6
Low	86	44.8	102	53.4	190	49.4

More than half (50.6%) of the participants didn't know COVID-19; the rest (49.4%) had higher knowledge of COVID-19 vaccines (Table 2).These findings differ from the findings by Hong et al. (2022), Aklil and Temesgan (2021) and Mesesle (2021) who found that most HLIs students had higher knowledge about COVID-19. The possible reasons for the difference in findings might be that some of students involved in the previous studies were medical students who are expected to have high knowledge about COVID-19.

The study revealed that there was a statistically significant association between sex of a student and knowledge level of COVID-19 (χ^2 =38.44; p < 0.05), as shown in Table 4. This means that female students had higher knowledge about COVID-19 than their male counterpart. These results are surprising as one would expect male students to have higher knowledge than female students due to the fact that male people are more exposed for different media and individuals than female people; the exposure helps the former gather updated information about COVID-19.

Table 4: Knowledge level of COVID -19 by sex of students (n=385)

Level of Knowledge	Male student counts	Female student Counts	Total Counts	Chi-square/Sig.
Low	106	89	195	38.438
High	86	102	190	0.000*

*The Chi-square statistic is significant at the 0.01

The difference in knowledge about COVID-19 between male and female HLIs students contradict with results of some previous studies, for example a study by Aklil and Temesgan (2021) who reported that HLIs male students had higher knowledge of COVID-19 than female students. The differences might be due to the fact that the previous study included medical students most of whom were male students.

3.3 Misconceptions about Means of Transmission of COVID- 19 among Students in HLIs

More than a half (52.7%) of the respondents had serious misconceptions about transmission of COVID-19 (Table 5). This shows that most of them were not aware of means of transmission of COVID -19.

Table 5: Misconception about the spread of COVID-19 (n = 385)

	Statement	Agree	Disagree	Undecided
1	Do you agree COVID-19 mainly affects older people?	83.4	4.2	12.5
2	Do you believe that it is easy to become infected with COVID-19 on an airplane?	38.3	32.8	28.9
3	Do you believe that it is safe to receive packages from foreigners?	35.5	22.7	41.8
4	Do you think that wearing a face mask is enough to protect you from catching COVID-19	34.0	10.9	55.1
5	A hot cup of coffee or tea will help kill the virus.	26.0	28.3	45.7
6	Eating garlic and onions will help ward off the virus.	41.0	30.1	28.8
7	Drinking alcohol does not protect you against COVID-19	59.9	8.3	31.8
8	COVID-19 virus can be transmitted in areas with hot and humid climates.	39.7	19.7	40.5
9	COVID-19 does not affect Africans	10.4	8.8	80.8
10	Spray alcohol and chlorine all over your body to protect against COVID-19.	15.3	27.8	56.9
11	Adding pepper to your soup or other meals does prevent or cure COVID-19.	22.9	32.5	44.7

As Table 6 shows, more male students had high misconception (54.7%) compared to their female counterparts (40.3%). This implies that male students were more misinformed compared to female students. This is very concerning, as it indicates that misconception could affect the effort to reduce spread of COVID-19 and take precaution measures towards COVID-19. One could expect HLIs to have understanding about transmission of COVID-19. The implications of misconception might be that HLIs did not introduce measures to cope with the spread of the pandemic. The differences in misconception about COVID-19 affect knowledge level of males and female students. These findings are in contradiction with findings of previous studies, for example ones by Aklil and Temesgan (2021) who reported that female students had low knowledge about COVID-19 than male students.

Table 6: Overall Level of misconception about COVID-19 (n = 385)

Those who had misconception	Male		Female		All	
	n	%	n	%	n	%
Low	87	45.3	114	59.7	203	52.7
High	105	54.7	77	40.3	182	47.3

The study revealed that there was statistically significant association in terms of level of misconception about COVID-19 and sex of student (χ^2 = 10.289, p < 0.05) (Table 7), male students being more associated with misconception about COVID-19 compared to male students.

Table 7: Level of misconception about COVID-19 by sex of students

Level of Knowledge	Male student counts	Female student counts	Total Counts	Chi-square/Sig.
Low	87	114	203	10.289
High	105	77	182	0.000*

*The Chi-square statistic is significant at the 0.05

Studies have indicated that male students are frequently visiting social media that could have increased their level of awareness about COVID-19 (Ciardi et al., 2021).

3.4 Attitude of HLIs Students towards COVID-19

The overall attitude towards COVID-19 was positive (52.7%) (Table 8). This implies that most students were aware of COVID-19. This is in line with studies by Aklil and Temesgan (2021) who reported that students in Ethiopia had positive attitude towards COVID-19. However, this finding differs from findings of a study conducted by Guillon (2021) who reported negative attitudes towards COVID-19. The possible explanation for the inconsistent findings might be due to difference in study population and study time.

Table 8: Attitudes towards Covid-19 (n=385)

SN	Variable	Frequency	per cent
1	**Do you think school closure is an effective way for preventing the spread of the disease?**		
	Yes	145	37.8
	No	170	44.3
	Maybe	69	18.0

2	Do you think curfew is an effective way of preventing the spread of the disease?		
	Yes	111	28.9
	No	112	29.2
	Maybe	161	41.9
3	Do you think that COVID-19 will spread widely in Tanzania	114	29.7
	Yes	86	22.4
	No	184	47.9
	Maybe		
4	Do you think that COVID-19 will be successfully controlled?		
	Yes	218	56.8
	No	55	14.3
	Maybe	111	28.9

Moreover, male students had more positive attitudes towards COVID 19 than their female counterparts. This could be due to higher awareness of male students on the significance of COVID 19 as they are more active in searching information from social media than female students.

Table 6: Overall Level of Attitudes towards COVID-19 (n=385)

	Overall Level of attitudes towards COVID -19					
	Male		Female		All	
	Frequency	per cent	Frequency	per cent	Frequency	per cent
Negative Attitude	87	45.3	77	40.3	182	47.3
Positive Attitude	105	54.7	114	59.7	203	52.7

These findings are consistent with ones of a previous study by Mesesle (2021) in Ethiopia who reported that students who have more access to mass media would have better national and international information about COVID-19 and its vaccine.

The study findings revealed that there was a statistically association between sex of student and the level of attitude towards COVID 19 ($\chi^2 = 9.09$; $p < 0.05$) (Table 7). This implies that more male students had positive attitude toward COVID-19 compared to female students.

Table 7: Level of attitude about COVID -19 by sex of students (n=385)

Level of Knowledge	Male student counts	Female student Counts	Total Counts	Chi-square/Sig.
Negative	87	77	182	9.09
Positive	105	114	203	0.011*

*The Chi-square statistic is significant at the 0.01

This might be due to the fact that male students are more open minded and more likely to search different sources of information compared to female students. These findings are the same as findings of a previous study by Hajure et al. (2021) who found that there is association between sex of respondents and attitudes towards COVID-19.

The majority of HLIs students had positive attitude towards COVID 19 with exception of SUA students whose majority had negative attitudes towards COVID 19 (Table 7).

Table 7: Attitudes toward COVID 19 among higher learning institution (n=385)

Learning Institution		Frequency	Percentage
SUA	Negative attitude	54	54.5
	Positive attitude	45	45.5
TIA Singida	Negative attitude	30	30.9
	Positive attitude	67	69.1
TIA Mbeya	Negative attitude	40	40.4
	Positive attitude	59	59.6
CBE Dar	Negative attitude	40	44.4
	Positive attitude	50	55.6

This also might be due to geographical differences in which higher learning institutions are located. During COVID-19 every region and learning institution had their own approaches to COVID-19 control. This finding is consistent with findings of previous studies by Ciardi et al., 2021; Tahir et al. (2021) and El-Elimat et al. (2021), who reported that differences in attitude towards COVID 19 was due to differences in sample size, study population and socio-demographic characteristics of respondents like residence and education.

3.5 Practices towards COVID- 19

The results in Table 8 indicate that wearing masks (39.3%) and avoiding crowded areas (27.7%) were fairly common modified working habits for students in higher learning institutions.

Table 8: Practice towards working habits (n=224)

	Modified working habits	
	Frequency	Per cent
Wearing mask and Avoiding crowded areas	88	39.3
Avoiding crowded areas	62	27.7
Using Disinfectant	43	19.2
Reduce unnecessary travelling and Avoiding crowded areas	31	13.8

A higher proportion of study participants, as indicated in Table 9, were supportive of correct practices that could reduce the incidence of COVID-19. This practice included avoiding travel to a high risk region for work or pleasure (50.1%), advising relatives to go to hospital when they were sick (63.2%), modifying working habit (55.3%) and accepting vaccine for COVID -19 (42.1%).

Table 9: Practices regarding towards Covid-19 prevention (n = 385)

	Practices towards COVID -19	Yes	No	Don't know
1	Would you travel to a high risk region for work or pleasure	37.9	50.1	11.9
2	Would you advise your families/relatives to take traditional medicine when their sick	63.2	36.3	.5
3	Would you advise your families/relatives to go to drug shop when their sick?	33.0	67.0	0
4	Would you advise your families/relatives to go to hospital when their sick?	82.3	17.7	**0**
5	Would you report any suspected case of COVID 19	73.8	17.4	8.8
6	Would associate with a person who was infected with COVID19 but treated and later discharged?	43.6	29.1	27.3
7	In the past three months have you modified your working habits for fear of getting COVID 19	55.3	44.5	.3
8	Would you still attend wedding celebration despite the COVID 19	55.8	19.2	24.9
9	Would you still attend funeral prayers despite the COVID 19	62.2	22.4	15.4
10	Would you still attend Friday prayers despite the COVID 19	61.7	22.9	15.4
11	Would you accept the vaccine of COVID 19	42.1	29.4	28.6
12	How do you rate your fear of getting COVID 19 on 1 to 10 scale	11.9	18.3	69.8

Incorrect practices regarding COVID-19 control were also supported by respondents. The incorrect practices included advising relatives/families to take traditional medicines when sick (63.2%) and advising relatives/families to go to pharmacy shops when they were sick (67%). Having incorrect practices regarding COVID-19 control implies that most students were not aware of the inappropriate practices which could put them at the risk of contracting corona virus. These findings are similar to findings of previous studies by Hussain et al. (2020) and Salman et al. (2020) who reported that most HLIs students had poor knowledge about COVID-19, and hence practised incorrect practices that could escalate the incidence of COVID-19 infection and spread.

4.0 Conclusions and Recommendations

It can be conclude that, generally, students had low overall levels of knowledge, attitudes and practices regarding COVID-19. It is also evidenced that overall levels of awareness, attitude and practices differ significantly between male and female students and between HLIs. It is recommended that interventions to improve knowledge should focus on reducing fear and improving attitudes towards the care of COVID 19 patients as well as promotion of preventive practices.

References

Amuyunzu, M. (1997). Community perceptions regarding critical adolescent sexual and reproductive health: Need and solutions. Promotion and Education Journal 4 (4): pp. 16-19.

Ciardi F, Menon V, Jensen JL, Shariff MA, Pillai A, Venugopal U, (2021). Knowledge, Attitudes and Perceptions of covid-19 Vaccination among Healthcare Workers of an inner-city hospital in New York. Vaccines, 2 (5): pp. 1–16.

Danabal KGM, Magesh SS, Saravanan S, Gopichandran V. (2021). Attitude towards COVID-19 vaccines and vaccine hesitancy in urban and rural communities in Tamil Nadu, India – a community based survey. BMC Health Service Resistant, 221 (1): pp. 1–10.

Daraku, Z. and Hoxha, L. (2020). The impact of COVID-19 on education and on the well-being of teachers, parents, and students: Challenges related to remote (online) learning and opportunities for advancing the quality of education. Impact of the COVID-19 Pandemic on Education and Wellbeing, August 2021.

De Vaus, D.A. (1983). Survey in Social Research (Third edition), UCL Press. 379 pp.

eLearning Africa (2020). The effect of COVID-19 on Education in Africa and its Implications for the Use of Technology. A Survey of the Experience and Opinions of Educators and Technilogy Specialists, September, 2020.

El-Elimat T, AbuAlSamen MM, Almomani BA, Al-Sawalha NA, Alali FQ. (2021). Acceptance and Attitudes Towards COVID-19 Vaccines: A cross-sectional study from Jordan. PLoS One 1,16 (4):e0250555. doi:10.1371/journal.pone.0250555.

Fatmi Z; Mahmood S; Hameed W; Qazi I; Siddiqui MM; Dhanwani A; (2020).Knowledge, Attitudes and Practices towards COVID-19 among Pakistani residents: Information Access and Low Literacy Vulnerabilities. East Mediterranean Health Journal, (12): 1446–1455. https://doi.org/10.26719/emhj.20.133.

Farnell, T., SkledarMatijević, A., Šćukanec Schmidt, N. (2021). 'The impact of COVID-19 on higher education: A review of emerging evidence', NESET report, Luxembourg: Publications Office of the European Union. doi: 10.2766/069216.

Fisher, A. A., Laing, J.E., Stoekel, J.E., Townsend, J. W. (1991). Hand Book for Family Planning Operations Research Design. Population Council, New York, 45 pp.

Gennaro, F. et al. (2020). Coronavirus Diseases (COVID-19) Current Status and Future Perspectives: A Narrative Review. International Journal of Environmental Research and Public Health, 17 (2690).

Guillon M., Kergall P. (2021). Factors associated with COVID-19 vaccination intentions and attitudes in France. Public Health, 198: pp. 200–2007.

Hajure M, Tariku M, Bekele F., Abdu Z, Dule A, Mohammedhussein M, (2021). Attitude towards COVID-19 vaccination among healthcare workers: A Systematic Review. Infect Drug Resist, 2021, 14:3883.

Hussain I, Majeed A., Imran I., Ullah M, Hashmi F., Saeed H., Chaudhry, M. O. (2021). Knowledge, Attitude, and Practices toward COVID-19 in Primary Healthcare Providers: a cross-sectional study from three tertiary care hospitals of Peshawar, Pakistan. Journal of Community Health, (6):1–9

Manyengo, P. (2021). Digitization in teaching and education in the context of COVID-19: United Republic of Tanzania. Digitization, the future of work and the teaching profession project, ILO 2021

Msigwa, F. (2020). COVID-19 Pandemic and its Implications on Education Systems in Tanzania. International Journal of Science and Research (IJSR), 9 (9).

Mesesle M. (2021). Awareness and Attitude towards COVID-19 Vaccination and associated Factors in Ethiopia: Cross-sectional study. Infect Drug Resistant, 14: 2193–2199.

Nyamongo, I. (1996). Sexual Behaviour: A comparative study of secondary school adolescent from rural and urban Kenya. Unpublished report. [http/htc.acu.edu.au/pdfs/resistance-ch1.pdf]. Site visited on 2.8.2021.

Salman M, Mustafa ZU, Asif N, Zaidi HA, Hussain K, Shehzadi N, (2020). Knowledge, Attitude and Preventive Practices Related to COVID-19: A cross-sectional study in two Pakistani University populations. Drugs Perspective. doi: 10.1007/ s40267-020-00737-7.

Singleton, R.A., Bruce, C., Margret, M.S. (1993). Approaches to Social Science Research, 2nd edition, Oxford University Press, New York. 95 pp. WHO, (2020).

Tahir MJ, Saqlain M, Tariq W, Waheed S, Tan SHS, Nasir SI,(2021). Population Preferences and Attitudes Towards COVID-19 Vaccination: a cross-sectional study from Pakistan. BMC Public Health,21 (1):1–12.

Tarimo, C. and Wu, J. (2020). The First Confirmed Case of COVID-19 in Tanzania: recommendation based on lesson learned from China. Tropical Medicine and Health, 48 (25).

World Health Organization declares COVID-19 a 'pandemic.' Here's what that means. Cited in [https://time.com/5791661/who-coronavirus-pandemicdeclaration/]. Accessed 20 March 2020.