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Knowledge, Attitude, Practice, and Fear of Monkeypox Infection among Kampala International University Students

Uwase Clemence

Faculty of Medicine and Surgery at Kampala International University Western Campus Uganda.

ABSTRACT

The general objective of the present study is to evaluate the knowledge, attitude, practice, and fear of monkeypox infection among Kampala International University Students. A cross-sectional descriptive study was conducted anonymously among students of Kampala International University, Uganda. The result of the analysis of the level of knowledge of monkeypox among KIU students revealed a greater proportion of female respondents and the middle age category had higher knowledge scores. Respondents in their third year of study and above and medical students had higher knowledge scores. More students studying a medical course and in their third year and above had a better (acceptable) attitude toward the prevention of the spread of monkeypox. More female and young adult respondents also had better attitudes toward the prevention of the spread of monkeypox infection. The analysis of practices among KIU students revealed that most medical students inculcated good practices compared to their nonmedical counterparts. In conclusion, programs promoting health-seeking behaviour among students should be put in place. Programs should be designed to particularly target younger adults and those with low levels of education.

Keywords: Monkeypox infection, medical students, nonmedical students, health-seeking behaviour, and younger adults.

INTRODUCTION

Monkeypox virus (MPX) was first discovered in 1959 in Copenhagen among Asian monkeys belonging to the genus Orthopox virus in the Poxviridae family [1]. The report shows monkeypox can affect different numbers of animals [1]. In the Democratic Republic of the Congo (DRC), in 1970 the first case of human monkeypox virus was reported just nine months after the eradication of the smallpox virus [2]. Therefore, after a while case were discovered within countries in central and West Africa [3]. One of the studies was conducted to discover the cause of smallpox-like in 1970 to 1979 within western and central Africa to compare the relationship between human smallpox and monkeypox and their epidemiology and ecology [4]. The clinical features of monkeypox are almost alike to those of smallpox the differences lie within the lymph node and fever, within 1-3 days of affection usually appears rash then lymphadenopathy, fever, and lesion all occur simultaneously [5]. Monkeypox is a virus that has high infection prevalence it has several species such as squirrels belonging to the genus Funisciurus and genus Heliosciurus [6]. Early studies on the ecology of the monkeypox virus were conducted in primates because the early virus was isolated in monkeys, while the antibodies were detected in several species of forest-dwelling monkeys such as Cercopithecus Ascanius, C. petaurista, Colobus Badius, and Allenopithecus Nigroviridis [6]; [7]. The disease has been contracted mostly through saliva/respiratory contact, faeces, and lesion [8]. Based on the early reports of epidemiological reports of the 67 human monkeypox virus, 64.5% of patients indicated that they had contact with monkeys during the calculated time of

contact while 11.8% have contact with both squirrels and antelopes [9]. The cases related to children were reported cases who had contact with a sick squirrel and a chimpanzee [9]. Reports have shown that the infection can last for about 4 weeks and it accompanies some secondary complications; gastrointestinal involvement, dehydration, sepsis, bacterial infections, bronchopneumonia, respiratory distress, and corneal infection with ensuing loss of vision. Although, there is no infective treatment for this virus [7]. Monkeypox virus in Africa most of the time misdiagnosed as the disease that caused the rash, the example most of the suspected diseases in DRC are chicken pox, not the monkeypox virus [10]. Both diseases can affect an individual same time however, epidemiology is not clear monkeypox might be diagnosed as cutaneous anthrax, HIV patients with a fungal infection, bacterial infection rash, and other rash-related diseases [11]. Monkeypox virus can further be divided generically into two clades Central African and West African clades and they are geographically divided which makes them have specific clinical and epidemiological differences [11]. The case fatality (CFR) of the West African clade is <1% and there is no human-to-human transmission documented, While the Central African clade shows 11% CFR, and human-to-human was recorded [10]. Within West Africa, they have recorded cases from different countries but the country that has more with about 2000 suspected cases per year is the Congo Basin clade [2]. Monkeypox has been considered a rare disease that rarely spreads to humans but is life-threatening [2]. The main reason why there might be little information on the monkeypox virus is that the scientific society because having been focused on other outbreaks of another disease such as Ebola which reduces the number of research on the monkeypox virus that's why up to now there is no proper treatment for monkeypox virus differences [11]. The monkeypox virus is the second most pathogenic poxvirus after smallpox and there are rare reports of the outbreak of monkeypox [12]. According to reports in 1996–1997, the outbreak of monkeypox virus had about 511 cases this case the proportion of secondary was higher than the fatality case within that time [11]. However, since 2018 about 2500 were recorded with 2.4% fatality cases [11].

In 2003, in the United States, the first monkeypox virus was first reported as a result of contact with pet mammals mainly rodents who were transported from Ghana to Texas, a total of 81 human monkeypox viruses were recorded [13]. In September 2018 in the UK there was a report of patients with MPX who just visited Nigeria and the Health professionals reported to Nigeria's health profession [13]. While in October of the same year, Israel recorded the first case from someone who visited Nigeria [13]. Singapore recorded its first case in May 2019 from someone who visited Nigeria [12]. Despite the majority of the report of outbreaks being from DRC but there have been reports of outbreaks from other African countries including Uganda [9]. From 2016 to 2017 there has been an outbreak in many countries such as Sierra Leone, Cameroon, the Central African Republic, Liberia, Nigeria, Republic of the Congo [9]. In 2017, the largest outbreak of monkeypox was recorded in Nigeria 113 confirmed cases among 311 suspected cases [9]. The outbreak and causes of MPX incidence are not well known but might be due to a reduction in immunity in the population as a result of the outbreak of smallpox vaccination or modification of ecosystem and human-to-animal interactions [7]. The recent reemergence of monkeypox in nonendemic countries calls for great concern. Therefore, this research aimed to evaluate the knowledge, attitude, practice, and fear of monkeypox infection among Kampala International University Students.

METHODOLOGY

Study Design

A cross-sectional descriptive study was conducted anonymously among students of Kampala International University, Uganda.

Area of Study

The study was conducted at Kampala International University, located in the Bushenyi district, western Uganda.

Study Population

The study population was made up of university students at Kampala International University, Uganda.

Inclusion criteria

Students attending KIU-Uganda are above the age of 18 years.

Exclusion criteria

Primary and secondary school students and graduates were excluded from the study. Students of KIU-Uganda who refused to consent to participate in the study were excluded.

Sample Size Determination

This descriptive cross-sectional study comprised 150 respondents, both men and women of age group 18 to 69 years in southwestern Uganda. This was among undergraduate medical students and lecturers at Kampala International University Western Campus who had consented to the study. The sample size was determined using the Raosoft sample size calculator (http://www.raosoft.com/samplesize.html) with an error margin of 9.4%, a 95% confidence interval, a population size of 2000, and a response distribution of 50%. We approximated the number to 138.

Sampling Techniques

Sampling is the process whereby the subject, items or respondents are selected from the target population to ensure that participants are representative of the total population. The techniques selected for the study were based on random probability sampling.

Data Collection Tool

Self-administered structured questionnaires were used to collect data from the respondents through online forms. The questionnaire contains four segments; the sociodemographic features of our respondents, knowledge of monkeypox, attitude towards the spread of monkeypox, and practices.

Quality Control

The researcher ensured quality in the study by, getting himself and the research assistants (data collectors), trained and orientated about the research, the instruments, and the field procedures required for effective and efficient field data collection. Each data collector was given a sheet containing the basic field protocol. The principal researcher monitored and supervised the overall study to ensure research procedures were adhered to by the research team. The team consisted of the principal researcher, who was monitoring and supervising ongoing data collection. And three assistances. All completed forms from the field were reviewed daily.

Data Analysis

Collected data was verified to ensure completeness, coded, entered in an Excel (Microsoft Corporation) spreadsheet, cleaned and edited for inconsistency before they were exported into STATA software for analysis.

RESULTS

Level of Knowledge of Monkeypox among KIU Students

The result of the analysis of the level of knowledge of monkeypox among KIU students revealed a greater proportion of female respondents ($x^2 = 10.113^a$, df = 2, p-value = 0.006) and the middle age category ($x^2 = 3.675^a$, df = 2, p-value = 0.159) had higher knowledge scores. Respondents in their third year of study and above ($x^2 = 22.087^a$, df = 2, p-value = 0.000) and medical students ($x^2 = 6.431^a$, df = 2, p-value = 0.040) had higher knowledge scores (Table 1).

Table 1: Knowledge of the different SARS CoV-2 variants among KIU students

		Knowledge			Total			
		High	Moderate	Low		x^2	df	p-value
Sex	Male	32	14	8	54	10.113[a]	2	0.006
		59.3%	25.9%	14.8%	100.0%			
	Female	70	10	4	84			
		83.3%	11.9%	4.8%	100.0%			
Age_group	Young Adult	78	22	8	108	3.675[a]	2	0.159
		72.2%	20.4%	7.4%	100.0%			
	Middle Aged	24	2	4	30			
		80.0%	6.7%	13.3%	100.0%			
Year of study2	< 3 years	6	6	6	18	22.087[a]	2	0.000
		33.3%	33.3%	33.3%	100.0%			
	>= 3years	96	18	6	120			
		80.0%	15.0%	5.0%	100.0%			
Course of study	Medical	98	20	10	128	6.431[a]	2	0.040
		76.6%	15.6%	7.8%	100.0%			
	Non-Medical	4	4	2	10			
		40.0%	40.0%	20.0%	100.0%			
Total		102	24	12	138			
		73.9%	17.4%	8.7%	100.0%			

Attitude to the prevention of monkeypox infection

More students studying a medical course ($x^2 = 0.003^a$, df = 2, p-value = 0.953) and in their third year and above ($x^2 = 0.245^a$, df = 2, p-value = 0.620) had a better (acceptable) attitude towards the prevention of the spread of monkeypox. More female ($x^2 = 10.048^a$, df = 2, p-value = 0.002) and young adult ($x^2 = 7.010^a$, df = 2, p-value = 0.008) respondents also had better attitudes towards the prevention of the spread of monkeypox infection (Table 2).

Table 2: Attitude to the prevention of monkeypox infection

Categories		Attitude		Total			
		Acceptable	Non-acceptable		x^2	df	p-value
Course of study	Medical	78	50	128	0.003[a]	1	0.953
		60.9%	39.1%	100.0%			
	Non-Medical	6	4	10			
		60.0%	40.0%	100.0%			
Year of study2	< 3 years	10	8	18	0.245[a]	1	0.620
		55.6%	44.4%	100.0%			
	>= 3years	74	46	120			
		61.7%	38.3%	100.0%			
Age_group	Young Adult	72	36	108	7.010[a]	1	0.008
		66.7%	33.3%	100.0%			
	Middle Aged	12	18	30			
		40.0%	60.0%	100.0%			
Sex	Male	24	30	54	10.048[a]	1	0.002
		44.4%	55.6%	100.0%			
	Female	60	24	84			
		71.4%	28.6%	100.0%			
Total		84	54	138			
		60.9%	39.1%	100.0%			

Practices

The result of the analysis of practices among KIU students revealed the majority of the medical student's uncalculated good practices compared to their nonmedical counterparts ($x^2 = 0.640^a$, df = 1, p-value = 0.424). More students in their third year and above had good practices ($x^2 = 0.496^a$, df = 1, p-value = 0.481). Practices was good among respondents in the middle-age category ($x^2 = 0.021^a$, df = 1, p-value = 0.886) and the female respondents ($x^2 = 0.004^a$, df = 1, p-value = 0.952) (Table 3).

Table 3: Practices toward preventing the spread of monkeypox

		Practices		Total			
		Good	Poor		x^2	df	p-value
Course of study	Medical	68	60	128	0.640[a]	1	0.424
		53.1%	46.9%	100.0%			
	Non-Medical	4	6	10			
		40.0%	60.0%	100.0%			
Year of study2	< 3years	8	10	18	0.496[a]	1	0.481
		44.4%	55.6%	100.0%			
	>= 3years	64	56	120			
		53.3%	46.7%	100.0%			
Age_group	Young Adult	56	52	108	0.021[a]	1	0.886
		51.9%	48.1%	100.0%			
	Middle Aged	16	14	30			
		53.3%	46.7%	100.0%			
Sex	Male	28	26	54	0.004[a]	1	0.952
		51.9%	48.1%	100.0%			
	Female	44	40	84			
		52.4%	47.6%	100.0%			
Total		72	66	138			
		52.2%	47.8%	100.0%			

DISCUSSIONS

The recent increase in the number of monkeypox cases reported outside regions it was an endemic call for great concern. Early detection and quick response/management in the management of monkeypox were very important. However, a report by the WHO showed that one of the challenges faced in preventing the re-emergence of monkeypox was a lack of knowledge of monkeypox (Monkeypox - United Kingdom of Great Britain and Northern Ireland, n.d.). Therefore, it is very important to pay attention to what the general population knows and how they react to infectious disease outbreaks. The result of the analysis of the level of knowledge of monkeypox among KIU students revealed a greater proportion of female respondents and the middle age category had higher knowledge scores. Respondents in their third year of study and above and medical students had higher knowledge scores. The higher level of knowledge among female respondents in the present study may be linked with possibly higher knowledge-seeking attitudes among the female gender when compared to their male country, who tend to be more carefree behaviour. This observation is in line with the findings of [14]-[17] who reported that the level of knowledge on monkeypox was higher among females than in their male counterparts. The observed higher level of knowledge among medical students could also be linked to their educational exposure. Generally, It is believed that the level of knowledge is expected to influence attitudes and practices among any given population. More students studying a medical course and in their third year and above had a better (acceptable) attitude toward the prevention of the spread of monkeypox. More female and young adult respondents also had better attitudes toward the prevention of the spread of monkeypox infection. The observed attitude correlated with their level of knowledge.

The analysis of practices among KIU students revealed that most medical students inculcated good practices

compared to their nonmedical counterparts. More students in their third year and above had good practices. Practices were good among respondents in the middle-age category and the female respondents.

CONCLUSION

The result of the analysis of the level of knowledge of monkeypox among KIU students revealed a greater proportion of female respondents and the middle age category had higher knowledge scores. Respondents in their third year of study and above and medical students had higher knowledge scores. More students studying a medical course and in their third year and above had a better (acceptable) attitude toward the prevention of the spread of monkeypox. More female and young adult respondents also had better attitudes toward the prevention of the spread of monkeypox infection. The analysis of practices among KIU students revealed that most medical students inculcated good practices compared to their nonmedical counterparts.

Recommendations

We recommend that increased efforts should focus on sensitizing the general public to the necessary preventive measure in the fight against monkeypox. Programs promoting health-seeking behaviour among students should be put in place. Programs should be designed to particularly target younger adults and those with low levels of education.

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