

Practices of COVID-19 Pandemic Containment Measures among TVET Students in Kakamega County, Kenya

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Abstract

The COVID-19 pandemic affected all areas in the country. One area whose functioning had been significantly impacted by COVID-19 was education. The goal of this research was to determine practices of covid-19 pandemic containment measures among TVET students in Kakamega County. Cross-sectional research was conducted using a questionnaire. TVET students around the country filled out the survey after it was made available to them online. It was determined whether or not there was a statistically significant correlation between KAP (knowledge and attitude) and other socio-demographic factors by using chi-square testing. Using binary logistic regression, we were able to isolate and adjust for any confounding variables. SPSS was used for the statistical analysis (version 26). According to the respondents' demographic information, the vast majority of participants were male. Participants' average age was under 24. Majority of the respondents were single (n = 306, 78.1%) and were studying for diploma qualification (n = 238, 60.7%). In addition, most of them were in their second year of study (n = 192, 49.0%). With regard to practices, at least six practices were adhered to by 212 (54.1%) of the respondents. These eight PP include things like washing hands and using proper hygiene (70.7%), wearing of face masks (51.0%), and avoiding public places and maintaining a safe distance between individuals (50.9%). (74.0 percent and 64.3 percent respectively). According to the results of the binary logistic regression, females engaged in less harmful activities than men did with respect to COVID-19 (OR = 0.323, p 0.001). Age and academic year were also shown to have a role in the respondents' habits. Students aged 30 and over had a lower odd of engaging in negative behaviors than those aged 24 and under (OR = 0.631, p = 0.0083). In conclusion, over half of respondents were found to adhere to at least six measures, including hand washing and other forms of cleanliness, mask use, avoiding crowded areas, and keeping a safe space between themselves and others. However, a sizable percentage engaged in at least three harmful habits. Based on the findings of this research, the following are the recommended that for future studies, it will be important to get feedback from educators as well as students. The results of such research in the future would add to the body of data supporting the use of confinement techniques.

Keywords: TVET, students, practices, sociodemographic characteristics, prevalence, COVID 19.

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INTRODUCTION

The COVID-19 pandemic has had significant effects that people have felt and experienced across the world. Ever since the first coronavirus case surfaced in Wuhan, China, the world has never been the same because the pandemic's effects continue to manifest in 2022, more than one year since the pandemic struck the world. The virus spread rapidly, making governments institute travel restrictions on the regional and the international front (Daniel, 2020). Nevertheless, the virus proved fatal, forcing many governments to establish strict measures to control its spread. They banned congregations, meetings, and closed businesses

to prevent people from interacting. Emergency services started to respond to the pandemic's severity, and the situation has not been alleviated yet. While many economies have been going down the toilet because of the pandemic, other areas, including education, have suffered much (Daniel, 2020). When governments closed schools to avoid student's physical interactions, schools started developing very important learning methods to ensure that learning continued. Underdeveloped nations that lacked infrastructure closed completely to await the pandemic's alleviation, meaning that these countries' learning halted for some time (Toquero, 2020). These occurrences have continued to affect students on their academic

perceptions and social development. Changes in the learning process, like introducing online classes and closing schools to prevent the spread of the virus have been detrimental to many students (Toquero, 2020). Nevertheless, although coronavirus vaccines have started to be distributed in various developed nations like the United States (U.S.), United Kingdom, and Israel, COVID-19 effects on education and the damage it has caused on students is still prevalent.

Kenya was only one of several nations whose institutions were forced to switch to distant education as a result of the epidemic. However, we recognize that this may worsen existing mental health issues among college students (Sahu, 2020; Sharma & Bhaskar, 2020) and provide new difficulties for students during an already stressful period. Some research from the United States (US) found that in the wake of the COVID-19 epidemic, the stress and anxiety levels of nearly 70% of college students rose; in China, these numbers were lower. This is supported by a number of upcoming studies (Son *et al.*, 2020; Cao *et al.*, 2020; Wang *et al.*, 2020).

Practice research reveals a gap, with just a small percentage of institutions regularly using preventative measures (Buzzi *et al.*, 2020). A study in Ethiopia revealed that seventy-one percent of respondents said they didn't shake hands, thirty-six percent said they wore a face mask, one hundred fifty-four (38.2%) said they went to a crowded place, twenty-four percent (55%) didn't clean frequently touched surfaces and objects, and twenty-nine percent (29.9%) didn't practice physical distance (Akalu *et al.*, 2020). In another study, 336 (63.3%) didn't wear a face-mask when they went outside and seventy-five percent of the respondents, said they used sterilizers before and after handling an inanimate item (Peng *et al.*, 2020). However, a lack of previous studies determining the impacts of strategies on students affected their reliance

on positively impacting learners' perception of academic performance and social-emotional development (Akalu *et al.*, 2020). Students' responses to the spread of the COVID-19 epidemic in different parts of the world are mostly unknown (Buzzi *et al.*, 2020). Because of this context, the study sought to evaluate students' practices towards pandemic containment measures against covid-19 in Kakamega County, Kenya.

METHODS

This study focused on gathering quantitative information through the implementation of a cross-sectional study design. Participants were excluded because of an incomplete questionnaire and others due to lack of a consent form. The purpose of the study and the procedures of the questionnaire were explained to the participants. Those who agreed to participate completed an informed consent form and the questionnaire. The participants completed the questionnaires in person enabling them to ask questions or withdraw from the study at any time during the data collection. No incentive was provided to participants. All study protocols and the survey instrument were approved by the University Human Research Ethics committees and conducted in accordance with the ethical principles of the Declaration of Helsinki. To conduct the study among Kakamega students, a research authorization from the National Council of Science and Technology (NACOSTI) was sought. NACOSTI License Number was NACOSTI/P/22/17110.

Study Area

The research was conducted in Kakamega County, which is in the western part of Kenya among three Technical and vocational training institutions. A breakdown of enrolment at three Kakamega County technical schools is shown in Table 1.

Table 1: Summary of number of students as per the registry office

Sub-county.	Name of institution	Students
Ikolomani	Sigalagala National Polytechnic	6566
Lurambi	Bukura Agricultural College.	5978
Malava	Shamberere	5090
	Total	17634

Source: Respective institution registry office as at 2021 (Bukura and Sigalagala and Shamberere)

Participants

The population of current study was students. Then the targets, sets of measures, research procedures, sampling days, and details of the study which were conducted according to the study process, was explained to the subjects, and they were asked to hand in the consent form, and study and sign the written pledge. The inclusion criteria for the volunteers were that they were students. Researchers excluded potential participants who did not meet these criteria from the

study. Random sampling was used to obtain a sample for inclusion in this research in the first phase of the study. The study population was 412 (Table 2). The total response rate was 89.9 percent, meaning that more students responded to the survey than were anticipated during the sample size calculation process. A response rate of 50% is considered sufficient, 60% is considered excellent, and 70% is considered very good by Mugenda & Mugenda (2003).

Table 2: Number and percentage of surveyed students as compared to number of planned number of students by institution

	Clusters/Overall	Number of Students planned	Number of Students surveyed	%
1	Sigalagala	162	150	92.6%
2	Bukura	148	128	86.5%
3	Shamberere	126	114	90.5%
	Total	436	392	89.9%

Protocol

The information was gathered over the course of two weeks via the use of a self-administered questionnaire that had been pre-coded based on previous research (Li *et al.*, 2020; Zhong *et al.*, 2020; Azlan *et al.*, 2020). Students were given the questionnaires and consent letters either by a research assistant or via an internet connection. Similar studies conducted in other countries have shown the reliability of using self-report as a behavior measurement tool (Azlan *et al.*, 2020).

The sequencing and subject of questions in the questionnaire was based on the research objectives. The questionnaire contained 3 different domains: 1) demographics; 2) practice items; on covid-19 containment measures. Data were presented descriptively, and a 8-item scale was constructed to measure participants' practices. The scale's internal consistency was calculated to be 0.77 using the Cronbach's alpha value. At the Shagungu Vocational Training Centre, the questionnaire instrument was pre-tested. Deficits were identified by comparing data from the preliminary test. Discrepancies with the instrument were corrected using necessary adjustments before using it to ensure validity.

Statistical Analysis

The expectation-maximization (EM) technique will be used to randomly impute missing data in order to remove any potential statistical biases that might arise from utilizing more conventional missing data

processes, such as list-wise deletion or pair-wise deletion (Schlomer, Bauman, & Card, 2010). Descriptive statistics such as mean and standard deviation were used to describe data. Both univariate and multivariate statistical methods were utilized to examine the correlation and dissimilarity between the dependent and independent variables. Chi square test of independence and logistic regression were used to check association between categorical variables. Findings were considered significant at $p < 0.05$. Researchers used IBM SPSS version 26 for statistical analysis.

RESULTS

The background results of the respondents revealed that majority of the respondents were male ($n = 197$, 50.3%). The average age of the respondents was less than 24 years ($n=197$, 50.3%). Majority of the respondents were single ($n = 306$, 78.1%) and were studying for diploma qualification ($n = 238$, 60.7%). In addition, most of them were in their second year of study ($n = 192$, 49.0%). Summary of findings in frequencies and percentages are presented in Table 3. Chi-square test of independence was performed to examine the relation between social demographics and respondents' institution. The relation between institution and the variable education ($\chi^2(df=1, n=392) = 48.28, p < 0.01$) and year of study ($\chi^2(df=2, n=392) = 63.46, p < 0.01$) were statistically significant and the rest were all not statistically significant.

Table 3: Socio-demographic characteristics of respondents

Socio-demographic characteristics		Total	Institution						χ^2, p
			Shamberere		Sigalagala		Bukura		
		N	%	N	%	n	%		
Gender	Male	197(50.3%)	61	15.6%	78	19.9%	58	14.8%	1.916, P=0.384
	Female	195(49.7%)	53	13.5%	72	18.4%	70	17.9%	
Age	<=24 yrs	197(50.3%)	58	14.8%	80	20.4%	59	15.1%	1.551, P=0.818
	25-29 yrs	102(26.0%)	29	7.4%	36	9.2%	37	9.4%	
	>30 yrs	93(23.7%)	27	6.9%	34	8.7%	32	8.2%	
Marital status	Single	306(78.1%)	90	23.0%	114	29.1%	102	26.0%	0.622, P=0.733
	Married	86(21.9%)	24	6.1%	36	9.2%	26	6.6%	
Education level	Certificate	154(39.3%)	72	18.4%	57	14.5%	25	6.4%	48.28, P=0.00
	Diploma	238(60.7%)	42	10.7%	93	23.7%	103	26.3%	
Year of study	First	122(31.1%)	60	15.3%	46	11.7%	16	4.1%	63.46, P=0.00
	Second	192(49.0%)	24	6.1%	82	20.9%	86	21.9%	
	Third	78(19.9%)	30	7.7%	22	5.6%	26	6.6%	

Note. Due to rounding error, percentages may not sum to 100%, *The Chi-square statistic is significant at .05 level

Practices towards COVID -19

Table 4 displays that among the eight positive practices (PP) observed by the individuals for self and others' safety, at least six practices were adhered to by 212 (54.1%) of the respondents. These eight PP include things like washing hands and using proper hygiene

(70.7%), wearing of face masks (51.0%), and avoiding public places and maintaining a safe distance between individuals (50.9%). (74.0 percent and 64.3 percent respectively). But 180 of them (45.9 percent) were found to be using at least three problematic procedures.

Table 5: Students' practices with regard to COVID-19

Statement	Often or more: <i>n</i> (%)	Rarely or less: <i>n</i> (%)
After the Kenyan government declared a state of emergency, were you committed to washing your hands with soap and water and using disinfectants on a regular basis? (Positive practice)	277(70.7)	115(29.3)
After the Kenyan government declared a state of emergency, did you practice the proper methods of coughing and sneezing etiquette? (Positive practice)	181(46.2)	211(53.8)
After the Kenyan government declared a state of emergency, did you wear a face mask correctly when you left the house? (Negative practice)	200(51.0)	192(49.0)
After the Kenyan government declared a state of emergency, do you avoid places where people gathered? (Negative practice)	290(74.0)	102(26.0)
After the Kenyan government declared a state of emergency, did you reduce your presence in public places and adhere to the state of emergency? (Positive practice)	286(73.0)	106(27.0)
After the Kenyan government declared a state of emergency, did you maintain a safe distance between you and the individuals around you? (Positive practice)	252(64.3)	140(35.7)
After the Kenyan government declared a state of emergency, did you supply your home with antipyretics and necessary medications? (Positive practice)	266(67.9)	126(32.1)
After the Kenyan government declared a state of emergency, did you supply your home with vitamins and nutritional supplements? (Positive practice)	243(62.0)	149(38.0)

According to the results of the binary logistic regression reported in Table 4.8, females engaged in less harmful activities than men did with respect to COVID-19 (OR = 0.323, *p* 0.001). Age and academic year were also shown to have a role in the respondents' habits. Students aged 30 and over had a lower odd of

engaging in negative behaviors than those aged 24 and under (OR = 0.631, *p* = 0.0083), whereas students in their third year of college were more likely to engage in less positive activities than those in their first year (OR = 3.362, *p* = 0.004).

Table 6: Effect of different significant variables on positive practices of respondents obtained by binary logistic regression (odds ratios and 95% confidence intervals)

Independent variable		Less PP: <i>n</i> (%)	More PP: <i>n</i> (%)	<i>P</i> - value	Regression coefficient <i>B</i>	OR (95% CI)
Gender	Male	86(21.9)	111(28.3)	Reference		
	Female	94(24.0)	101(25.8)	<i>P</i> -value < 0.001	-1.130	0.323 (0.212–0.491)
Age	<=24 years	91(23.2)	106(27.0)	Reference		
	25-29 years	38(9.7)	64(16.3)	0.834	-0.048	0.953 (0.607–1.497)
	>30 years	51(13.0)	42(10.7)	0.0083	-0.461	0.631 (0.375–1.062)
Marital status	Single	139(35.5)	167(42.6)	0.577 not significant, no regression had been done		
	Married	41(10.5)	45(11.5)			
Education level	Certificate	68(17.3)	86(21.9)	0.329 not significant, no regression had been done		
	Diploma	112(28.6)	126(32.1)			
Year of study	First	55(14.0)	67(17.1)	Reference		
	Second	87(22.2)	105(26.8)	0.567	-0.162	0.850 (0.488–1.481)
	Third	38(9.7)	40(10.2)	0.004	1.213	3.362 (1.458–7.755)
Institution of study	Shamberere	56(14.3)	58(14.8)	0.276 not significant, no regression had done		
	Sigalagala	64(16.3)	86(21.9)			
	Bukura	60(15.3)	68(17.3)			

DISCUSSION

The objective of this study was to assess practices of TVET students towards COVID-19 containment measures. The study found that nearly half of participants (45.9%) showed execution of at least three incorrect activities whereas at least half (54%) followed at least six of ten suggested steps to prevent the spread of the COVID-19 pandemic. We found that 74% of students avoided crowded places, 46% employed appropriate coughing and sneezing techniques, 70% frequently washed their hands with soap and water, and 73% either did not travel across governorates or significantly reduced their time spent in public during the height of the COVID-19 epidemic. A further 64.3% of the student body maintained an appropriate distance from their neighbors. The Kenyan government has implemented severe preventative and control measures, and broad education regarding the disease's transmission mechanism and the belief that good personal cleanliness is the best way to avoid infection has contributed to this decline. Our results were encouraging because they demonstrate that the transmission of COVID-19 may be slowed by preventative measures including better hygiene, stronger behavioral commitment, and less social interaction. These results are in line with a survey of college students in China, which found that 57.5% of them and 40.7% of students using social media saw these platforms as a reliable source for learning new information. Zhong *et al.*, 2020 discovered that 75% and 70% of students who participated in the study had a good viewpoint on the COVID-19 epidemic, and that these findings were consistent with past studies in which participants exhibited generally suitable favorable sentiments about the disease (Truong *et al.*, 2019; Khan *et al.*, 2020; Al Nsour *et al.*, 2020).

Half of respondents did not use face masks in public, and just 35% separated themselves physically from others during the COVID-19 pandemic. At this point, it is very crucial that everyone abides by the pandemic restrictions; else, the spread of the disease might spiral out of control. We found that the age and gender of the precipitant were both significantly associated with the preventative measures they took during the COVID-19 epidemic. During the height of the epidemic, females were seen to practice better hygiene than males by avoiding crowded places, covering their mouths while coughing or sneezing, washing their hands often, and remaining within their own governorates. Previous studies and our findings also demonstrate that there is a correlation between gender and several forms of prophylactic action done in response to COVID-19 (Truong *et al.*, 2019; Zhong *et al.*, 2020; Khader *et al.*, 2020). The findings show that first-year students are the most likely to abide by the COVID-19 standards. This agrees with the results of earlier studies that assessed the levels of COVID-19-related knowledge, attitude, and practice (KAP) across

different populations (Truong *et al.*, 2019; Hussain *et al.*, 2020).

CONCLUSIONS

In conclusion, over half of respondents were found to adhere to at least six measures, including hand washing and other forms of cleanliness, mask use, avoiding crowded areas, and keeping a safe space between themselves and others. However, a sizable percentage engaged in at least three harmful habits. Based on the results of a binary logistic regression analysis of the various factors influencing COVID-19-related practices, it was shown that females were less likely to engage in harmful behaviors than men. Age and academic year were also shown to have a role in the respondents' habits.

RECOMMENDATIONS

Based on the findings of this research, the following are the recommended that for future studies, it will be important to get feedback from educators as well as students. The results of such research in the future would add to the body of data supporting the use of confinement techniques.

Strengths and Limitations

It's important to keep in mind that this research may have certain flaws. Most importantly, the study's subjects were all college students; therefore their answers may not be indicative of the public at large in Kenya. Self-selection bias, in which participants voluntarily choose to take part in research, further reduces the study's generalizability.

DECLARATIONS

Ethics Approval

Ethical clearance was obtained from Masinde Muliro University of Science and Technology Ethics Committee Consent.

Competing Interest

The authors declare that they have no competing interests.

Disclaimer

The findings and conclusions presented in this manuscript are those of the authors and do not necessarily reflect the official position of Masinde Muliro University.

Abbreviations and Acronyms

COVID-19: Corona virus disease-19,
MERS: Middle East Respiratory Syndrome,
NACOSTI: National Council of Science and Technology,
SPSS: Statistical Package for Social Sciences version,
TVET: Technical Vocational Education and Training,
WHO: World Health Organization.

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