

## Knowledge, Attitude and Preventive Practices Towards COVID-19 Among The University's Population of Ngaoundere-Cameroon

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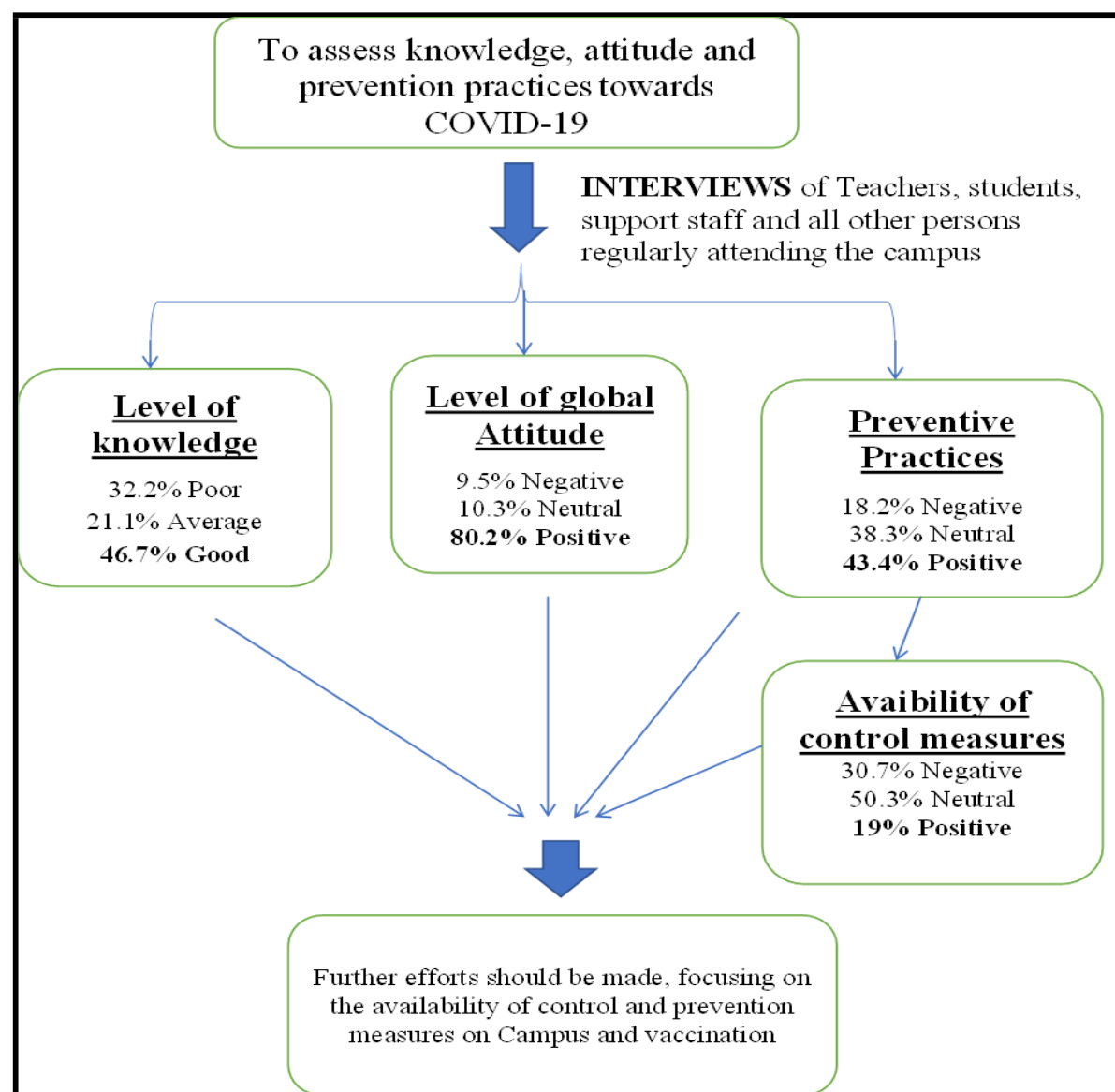
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### Abstract

Despite the abundance of information available on COVID-19 prevention, it still persists after its outbreak. The present study aims to assess knowledge, attitude and prevention practices towards COVID-19 among the university population's of Ngaoundere - Cameroon. A cross-sectional investigation was carried on a group of 2682 people regularly attending the Campus. Respondents having a good level of knowledge about COVID-19 were 46.7%. The great majority of participants (87.9%) believed that prevention is very important to control the transmission of the infection while, 17.45% always wear face masks, 7.56% always maintain the required physical distance and 16.89% do not touch their eyes, nose or mouth with unwashed hands. Respondents agreeing that the vaccine protects were 51.0%, but only 24.6% of them were vaccinated. Only 19% agreed that control measures on Campus were good. In conclusion, Focus should be made on the availability of control and prevention measures on Campus.

**Keywords:** COVID-19; Knowledge; Attitude; Practice; University of Ngaoundere- Cameroon

### Graphical Abstract



## Introduction

At the end of December 2019, an emerging zoonosis appeared. The World Health Organization (WHO) reported that it was responsible for pneumopathy cases linked to a live animal market in Wuhan, China [1]. It was a new coronavirus, identified as coronavirus 2, responsible for severe acute respiratory syndrome (SARS-CoV-2). This virus causes an emerging infectious disease known as coronavirus disease 2019 (COVID-19), which disseminates swiftly throughout the world in January 2020. The epidemic was declared by the WHO as a "Public Health Emergency of International Concern" (USPPI) on January 30, 2020, and became a global pandemic on March 11, 2020 [2].

Human-to-human transmission of the SARS-CoV-2 virus was demonstrated in February 2020 after an intra-familial contamination was reported [3]. It was suggested that it could be transmitted by droplets, airborne transmission and human contact [4, 5]. Various clinical manifestations were recorded, ranging from paucisymptomatic forms to those suggestive of pneumonia, with or without signs of severity (ARDS, even multivisceral failure). Nonetheless, initially non-febrile forms with gastrointestinal symptoms and altered mental states often occur in the elderly population [6]. Patients suffering from chronic pathologies such as cardiovascular and cerebrovascular diseases, hypertension and diabetes mellitus exhibit highest susceptibility to COVID-19 infection [7].

The first case in Cameroon was reported on March 06, 2020. By early June 2022, Cameroon had reported 119,947 cases and 1,930 deaths [8]. Many universities around the world switched to emergency distance learning using online platforms due to government shutdowns [9]. With the state's approval, universities in Cameroon reopened after two and a half month of confinement.

The transmission of COVID-19 among university students might have been high due to various contributing factors. Actually, students are very active both on social media and within their community. They live far away from their families and have the opportunity to make their own judgments. Furthermore, they can take part in various activities presenting significant risks of contracting COVID-19 such as sports clubs and academic internships [9].

The fight against COVID-19 is still ongoing, and almost all countries have implemented various preventive measures to curb transmission of the virus [10]. Such as hand-washing facilities, provision of face masks, alcohol-based hand sanitizers made available. Disease prevention and control require its knowledge, attitudes and prevention practices (KAP) towards it. Although studies have been carried out on the KAP amongst university's population in different parts of the world, there are very few studies in Cameroon.

In addition, various preventive measures, such as hand-washing facilities, provision of face masks, alcohol-based hand sanitizers available on campus. Disease prevention and control require knowledge, attitude and prevention practices (KAP). Although

research has been carried out on the KAP of the university population in different parts of the world, there is very little in the case of Cameroon. The KAP survey is an important cognitive key in public health with regard to disease prevention and health promotion. It involves a wide range of beliefs about first disease causes and exacerbation factors, secondly symptom identification then available treatment methods and lastly its consequences [11]. Beliefs about COVID-19 come from a variety of sources, such as stereotypes about similar viral diseases, government information, social media/ the internet, previous personal experiences and medical sources. The accuracy of these beliefs might vary within the population and then may lead to different prevention behaviors [12].

Knowing that, the assessment of the KAP amongst University's populations of different institutions plays a great role in scaling up information to the whole population; the conclusion of this study will therefore play an important role in the reducing the transmission of the disease and the designing a intervention to control its transmission. Consequently, the study aims to assess the knowledge, attitude and preventive practices towards COVID-19 among students, teachers, support staff and other people regularly coming to University of Ngaoundere-Cameroon Campus.

## Methods

### Design, Period, Scope Of Study And Participants

A cross-sectional survey was conducted at the University of Ngaoundere- Cameroon. The study was carried out on a group of 2682 people over the period from June 06 to July 29, then from September 05 to October 31, 2022. The study population was made up of students, teachers, support staff and all other persons regularly attending the campus. The inclusion criteria were any member of the UN community who agreed to take part in the study by signing the informed consent form and completing the questionnaire.

The sample size was calculated using the LORENTZ formula, to ensure a minimum participant size. The estimated knowledge level was 60%. [13] with a margin of error of 2%, for a confidence interval of 95%. The recommended sample size was 2305. Adding the 10% non-response factor, the final minimum sample size was 2536.

### Study Instrument

Data were collected via a physical questionnaire consisting of five sections. The survey questions were adapted and modified from previously published literature concerning viral epidemics linked to MERS-CoV disease [14,15], infection prevention and control measures for COVID-19 by the World Health Organization and guidelines suggested by the country's Institute of Epidemiology, Disease Control and Research (IEDCR) [12].

The first section consisted of the socio-demographic characteristics of the participants (age, gender, status, faculty and level of study).

The second section comprised knowledge and contained six items, with each question offering three (03) possible answers (except the first question regarding sources of information, which allowed multiple answers) of "Yes", "No" and "I don't know" (e.g., *is the COVID-19 virus spread by direct contact with contaminated hands, fomite, contaminated surfaces?*). Knowledge was assessed using five questions on signs and symptoms, at-risk groups, modes of transmission, and preventive measures. Each correct answer received 1 point, while an incorrect answer received 0 points. The knowledge score ranged from 0 to 5, a threshold of  $\geq 4$  or  $\geq 80\%$  was considered to have good knowledge of COVID-19, while a threshold of  $=3$  or a score equal to 60% was considered to have average knowledge of COVID-19 and a threshold of  $\leq 2$  or a score less than or equal to 40% was considered to have poor knowledge of COVID-19.

The third section assessed attitude and included 10 items evaluating overall attitude in response to COVID-19, divided into 4 parts: 02 questions on perceived susceptibility, one question on perceived severity, 06 on perceived belief and 02 on risk of having COVID-19. Each item was answered by "Never", "Rarely", "Sometimes" and "Always" (e.g., I believe that, to stop shaking hands with people is useful for me, to prevent me from COVID-19) worth 01 point, 02 points, 03 points and 04 points respectively. The total score of the attitude items ranged from 0 to 9, with a higher overall score indicating more frequent practices towards COVID-19. A threshold of  $>30$  or above 75% was set for a positive attitude; between 20 and 30 for a neutral attitude and a threshold of  $<20$  or below 50% for a poor attitude.

The fourth part focused on practices, with 9 items measuring general practices on the university campus in response to COVID-19. Each item was answered with "Never", "Rarely", "Sometimes" and "Always" (e.g., I wear a face mask when I go into crowded areas (school)) worth 01 points, 02 points, 03 points and 04 points respectively. Total practice item scores ranged from 0 to 9, with a higher overall score indicating more frequent practices towards COVID-19. A threshold of  $\geq 25$  was set for positive practice; between

18 and 24 for neutral practice and a threshold of  $<9$  for negative practice.

A final section was designed to assess the availability of COVID-19 control measures on campus. The section included 6 items measuring availability, and each item was answered with "Never", "Rarely", "Sometimes" and "Always" (e.g., Respect for social distancing in class) worth 01 point, 02 points, 03 points and 04 points respectively. Total scores for availability of COVID-19 control measures items ranged from 0 to 6, with a higher overall score indicating more frequent availability towards COVID-19. A threshold of  $>18$  or above 75% was set for good availability; between 12 and 18 for average availability and a threshold of  $<12$  or below 50% for low availability.

### Data Analysis

Data were entered in Sphinx Plus<sup>2</sup> - Edition Lexica-V5 Excel 2016 (Microsoft Office 2016) and then analyzed in SPSS version 2.0. Qualitative and quantitative variables are presented respectively as percentages with 95% confidence intervals (CI= 95%). The chi-square test ( $\chi^2$ ) was used to compare proportions. The threshold of statistical significance was established at a p-value  $< 0.05$ .

### Ethical Consideration

The study was approved by the National Committee for Ethics in Human Health Research of Cameroon (N°2022/03/1443/CE/CNERSH/SP). In addition, written informed consent was included in the survey. Participation in this study was voluntary.

### Results

Socio-demographic characteristics of study participants.

Participants ranged in age from 14 to 78. The average age was 23.38, with the most represented age group being [20-30] (72.6%). Of 2682 respondents, 1901 (70.9%) were male and 781 (29.1%) female. The faculty with the highest number of respondents was the University Institute of Technology (29.60%), and student status was the most representative (96.60%) (**Table I**).

**Table I:** Socio-demographic characteristics of the KAP study

Variables	Modalities	Workforce (N)	Percentage (%)
Gender	Male	1901	70.90
	Female	781	29.10
Age	[15-24]	1811	67.52
	[25-34]	801	29.87
	[35-44]	41	1.53
	[45-54]	14	0.52
	[55-64]	13	0.48
	[65-74]	1	0.04
	[75-84]	1	0.04
Status	Student	2591	96.60

	Teacher	27	1.00
	Support staff	26	1.00
	Other	38	1.40
<b>Faculties</b>	Faculty of Science (FS)	356	13.30
	Faculty of Arts Letters and Social Sciences (FALSS)	526	19.60
	University Institute of Technology (UIT)	793	29.60
	Faculty of Law and Political Sciences (FLPS)	172	6.40
	Faculty of Economic Management (FEM)	208	7.80
	National School of Agro-Industrial Sciences (NSAIS)	302	11.30
	School of Veterinary Science and Medicine (SVSM)	33	1.20
	Faculty of Education (FE)	156	5.80
	School of Chemical Engineering and Mineral Industries (SCEMI)	68	2.50

### Participants level of knowledge

Tables II and III show participants level of knowledge of COVID-19. Only 46.7% of participants had a good knowledge of COVID-19. Specifically, only half know that the vaccine protects (51%), that asymptomatic people can carry the virus and thus transmit the disease (52.1%), and that young adults should take measures to protect

themselves against the disease (56.9%). The highest levels of knowledge about the virus relate to the routes of transmission through respiratory droplets when speaking or sneezing (73.0%), or through contact with soiled surfaces such as contaminated hands (81.5%).

Table II: Distribution of participants according to knowledge

COVID-19 knowledge assessment questions	Correct answers
A person with COVID-19 cannot transmit the virus to others when signs and symptoms are not presents (N*)	1398 (52,10%)
No need for young adults to take measures to prevent COVID-19 (N*)	1525 (56,9%)
Is the COVID-19 virus spread via respiratory droplets from infected people during sneezing, coughing or talking (Y*)?	1959 (73.0%)
Is the COVID-19 virus spread by direct contact with contaminated hands, fomite, surfaces, etc. (Y*)	2187 (81,5%)
The vaccine protects against COVID-19 (Y*)	1368 (51.0%)

Y, Yes; N, No

Table III: Distribution of participants by level of overall knowledge

Overall knowledge	Workforce	Percentage (%)
Poor	864	32.2
Average	565	21.1
Good	1253	46.7
<b>Total</b>	2682	100

### Distribution of socio-demographic characteristics according to global knowledge

Table IV shows overall knowledge as a function of gender and status. In general, the relationships between general knowledge and these variables are not significant. However, general knowledge of the disease was high among teachers (63%) and support staff (69.2%) and low (44.7%) among other participants.

A significant relationship (P<0.0001) was observed between the source of information and the level of knowledge about COVID-19 (figure 1). Overall, most participants (53.2%) informed by television,

the media, etc. had a good level of knowledge, whereas most participants with no source of information (47.7%) had a low level, with only 25% of the latter having a good knowledge of the disease. Participants' age, level of education and institution of origin were all significantly dependent on overall knowledge (P<0.005). In figure 3, we can see that, in general, the good level of knowledge increases with age (figure 2). Master's level students (level 4) have the best knowledge levels (figure 4), and the majority of students from scientific faculties (FS, UIT, SCEMI, NSAIS and SVSM) have knowledge levels above 50% (figure 3).

Table IV: Overall knowledge by gender and status

Variables	Modalities	GLOBAL KNOWLEDGE			P-Value
		Little	Average	Good	
Gender	Male	627 (33.0%)	401 (21.1%)	873 (45.9%)	0.353
	Female	237 (30.3%)	164 (21.0%)	380 (48.7%)	
	<b>TOTAL</b>	864 (32.2%)	565 (21.1%)	1253 (46.7%)	
Status	Student	837 (32.30%)	550 (21.20%)	1204 (46.50%)	0.079
	Teacher	5 (18.50%)	5 (18.50%)	17 (63.00%)	
	Support staff	5 (19.20%)	3 (11.50%)	18 (69.20%)	
	Other	17 (44.70%)	7 (18.40%)	14 (36.80%)	
	<b>TOTAL</b>	864 (32.20%)	565 (21.10%)	1253 (46.70%)	

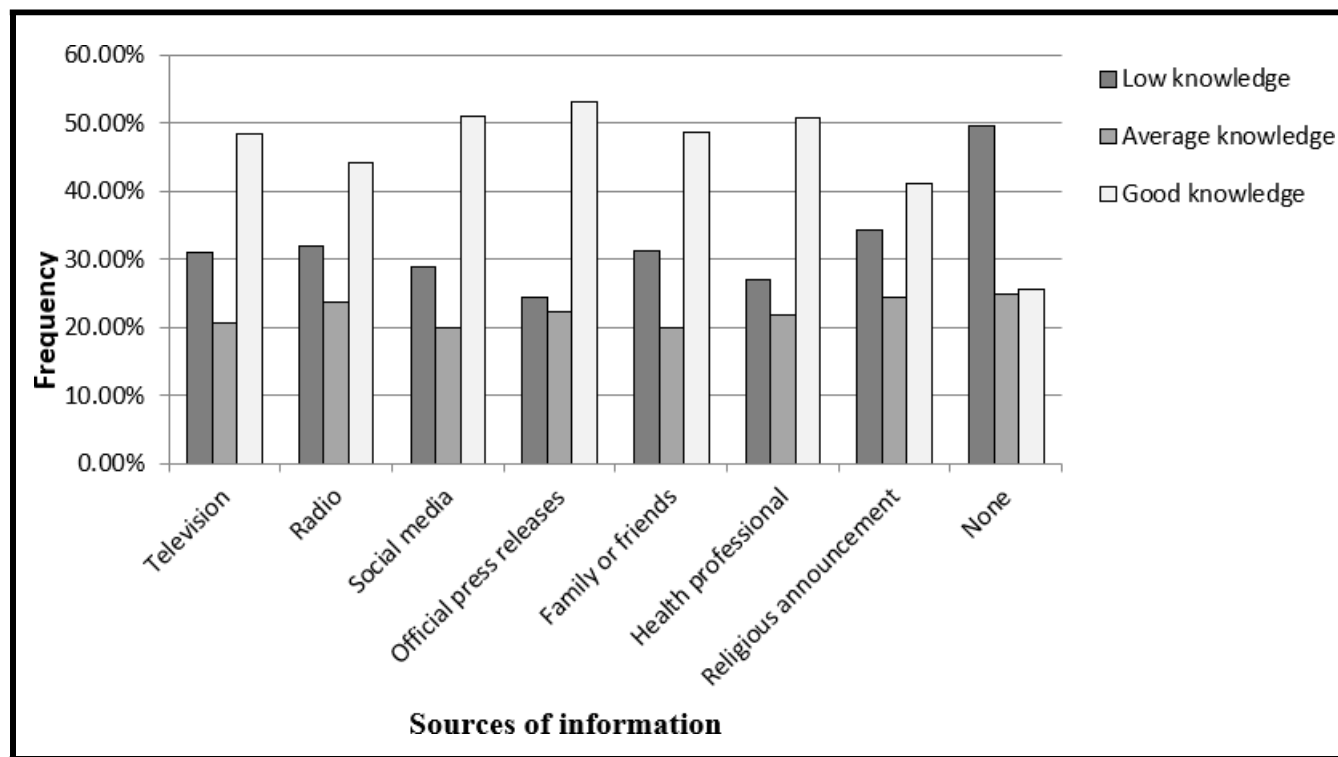


Figure 1: Distribution of Overall Knowledge according to sources of information about COVID-19

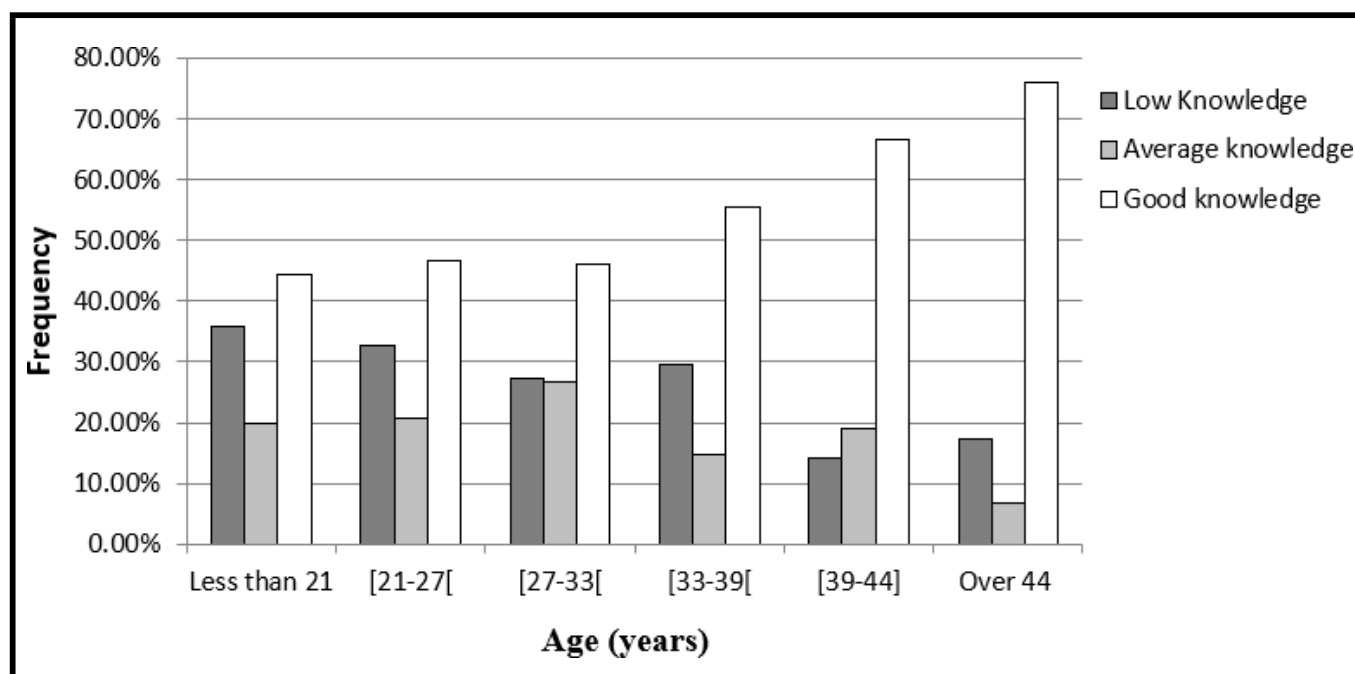


Figure 2: Global knowledge by age

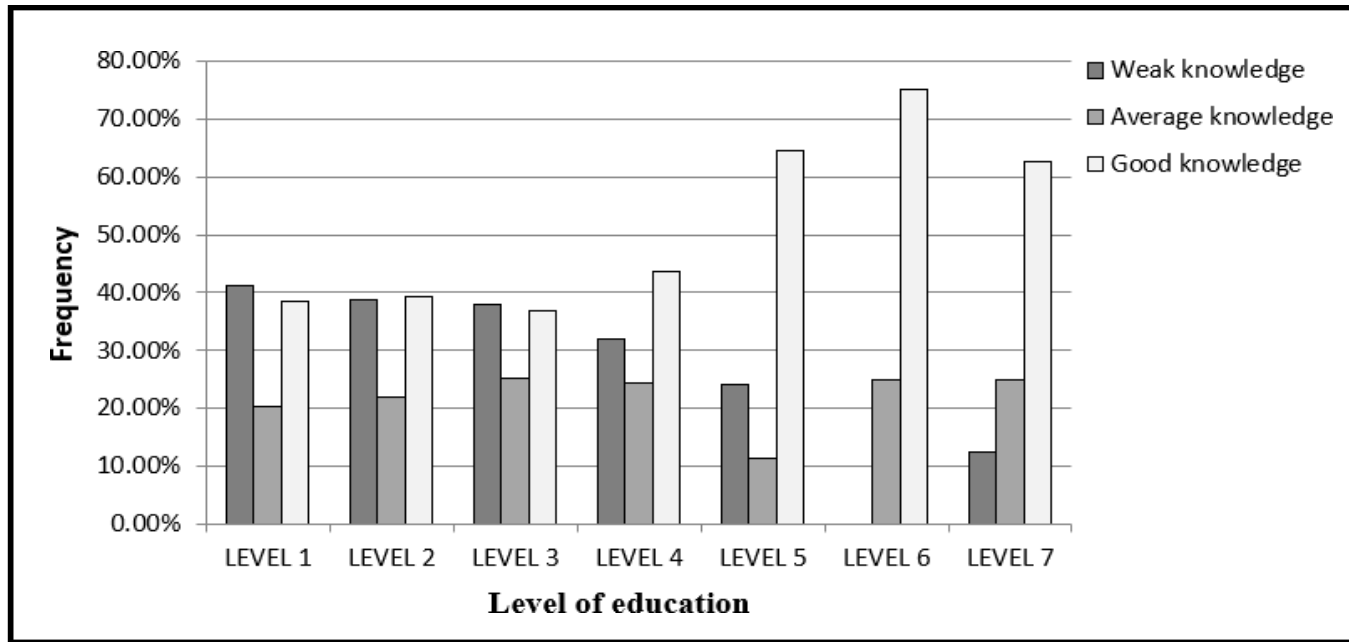


Figure 3: Global knowledge by level of education

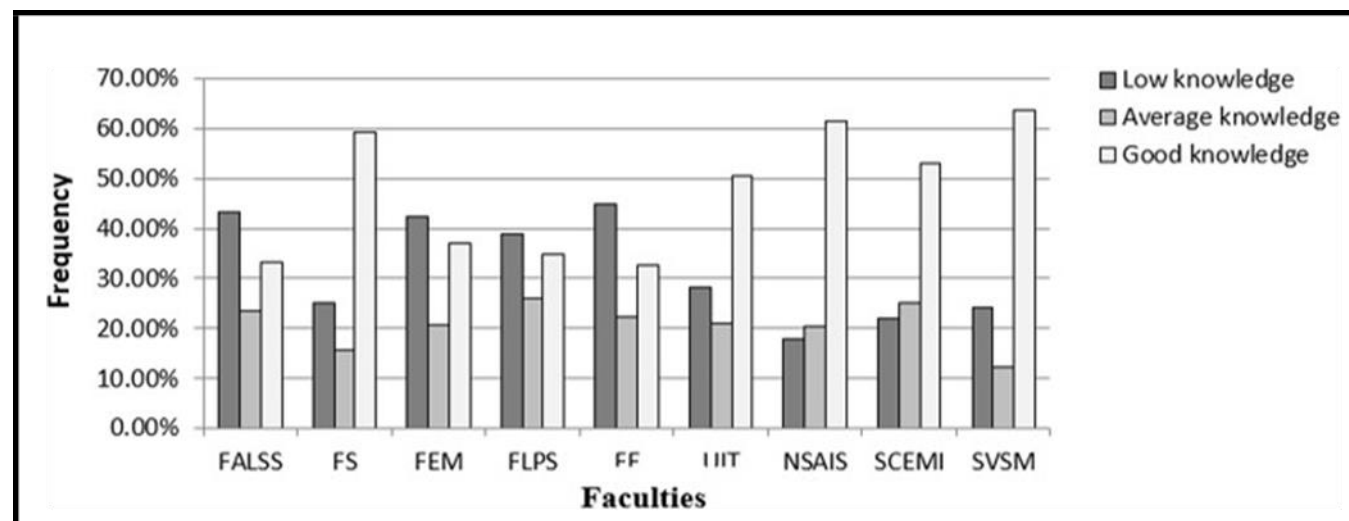


Figure 4: Global knowledge by faculty

### Distribution of participants according to overall attitudes

In general, the attitudes of the participants (80.2%) are positive towards COVID-19 (Table VI). However, Table VII specifically shows that the majority of our population do not consider COVID-19 a serious disease (31.28% no, 20.68% rarely) and are no longer

susceptible to COVID-19 (55.26%). Overall susceptibility is predominantly neutral at 51.3%, overall belief perception is positive at 72.7%, and the risk of having COVID-19 is positive at 83.7% (Table V).

Table V: Distribution of participants according to general attitude subgroups

Global Attitudes	Negative (%)	Neutral (%)	Positive (%)
Overall Perceived Susceptibility	872 (32.8)	1364 (51.3)	424 (17.9)
Global Belief Perception	273 (10.3)	453 (17.0)	1934 (72.7)
Risk of having COVID-19	254 (9.5)	180 (6.8)	2226 (83.7)

Table VI: Distribution of participants according to attitudes

COVI-19 attitude assessment questions.	Answers (%)			
	No	Rarely	Often	Yes
<b>Perceived Susceptibility</b>				
I think I'm sensitive to COVID-19	55.26	9.85	11.02	23.87
I don't worry about this disease and I go about my daily activities as before.	39.62	6.92	22.59	30.86
<b>Perceived severity</b>				
I think COVID-19 is a serious disease, if not prevented.	31.28	20.68	22.89	25.15
<b>Perception of belief</b>				
I think hand washing is useful for me, to prevent me from COVID-19.	11.28	2.52	10.83	75.38
I think that the recommended social distancing is useful for me, to prevent me from COVID-19.	12.63	3.76	11.92	71.69
I think avoiding overcrowding is useful for me, to prevent me from COVID-19.	18.72	4.85	13.98	62.44
I think wearing a mask is useful for me, to prevent me from COVID-19.	12.71	4.06	12.82	70.41

I think that stopping shaking hands with people is useful for me, to prevent me from COVID-19.	17.48	5.71	17.11	59.70
<b>Risk of having COVID-19</b>				
I need a COVID-19 test only if I have symptoms	50.64	3.98	6.65	38.72
If I or a family member or friend is infected with COVID-19, self-isolation is necessary.	19.96	3.46	6.50	70.08

**Table VII:** Distribution of participants according to the level of global attitudes

Overall attitude	Workforce	Percentage (%)
Negative	252	9.5
Neutral	275	10.3
Positive	2133	80.2
<b>Total:</b>	2660	100

**Distribution of socio-demographic characteristics, gender and status, according to overall attitudes**

Attitudes are not the same according to status (**Table VIII**), here

support staff and teachers have a more positive attitude level (respectively 69.2% and 63.0%) as opposed to "others" who have a more negative attitude level 44.7% (P=0.005).

**Table VIII:** Distribution of gender and status, according to overall attitudes

Variables	Modalities	GLOBAL ATTITUDE			P-Value
		Negative	Neutral	Positive	
<b>Gender</b>	Male	173 (9.20%)	205 (10.90%)	1509 (80.00%)	0.299
	Female	79 (10.20%)	70 (9.10%)	624 (80.70%)	
	<b>TOTAL</b>	252 (9.50%)	275 (10.30%)	2133 (80.20%)	
<b>Status</b>	Student	837 (32.30%)	550 (21.20%)	1204 (46.50%)	0.005
	Teacher	5 (18.50%)	5 (18.50%)	17 (63.00%)	
	Support staff	5 (19.20%)	3 (11.50%)	18 (69.20%)	
	Other	17 (44.70%)	7 (18,40%)	14 (36.80%)	
	<b>TOTAL</b>	864 (32.20%)	565 (21.10%)	1253 (46.70%)	

**Breakdown of participants according to global practices**

The majority of 2647 participants claim to practice measures likely to limit the spread of SARS-CoV-2, apart from vaccination (**table IX**). The level of positive practice is mostly relatively average (43.4%). Specifically, barrier measures are rarely practiced, the most common being hand washing (31.85%), covering the mouth when sneezing

(40.50%), and using disinfectants to wash hands (26.2%). Almost all barrier measures are practised sometimes, and always, with the exception of vaccination, which is never carried out in the majority of cases (66.5%), while mouth coverage is always applied in 40.50% of cases.

**Table IX:** Distribution of participants according to general practices on campus

Questions for assessing practices in relation to COVID-19	Answers (%)			
	Never	Rarely	Sometimes	Always
I wash my hands	15.45	16.62	36.08	31.85
I do not touch my eyes, nose or mouth with unwashed hands.	21.65	21.53	39.93	16.89
I use hand sanitizers when soap and water are not available	18.02	18.55	37.21	26.22
I stay home when I'm sick or have a cold	26.67	19.87	38.53	14.92
I cover my mouth and nose when I cough or sneeze	12.05	14.81	32.64	40.50
I practice physical distancing at least 1 meter from others	26.26	25.69	40.50	7.56
I disinfect the surfaces I own (e.g. telephone)	31.09	25.20	33.36	10.35
I wear a face mask when I go into crowded areas (School)	19.76	21.16	41.63	17.45
I vaccinated myself against COVID-19 to protect myself and those around me.	66.5			24.6

**Table X:** Breakdown of participants according to level of overall practice

GLOBAL PRACTICE	Workforce	Percentage (%)
Negative	483	18.2
Neutral	1015	38.3
Positive	1149	43.4
<b>Total</b>	<b>2647</b>	<b>100</b>

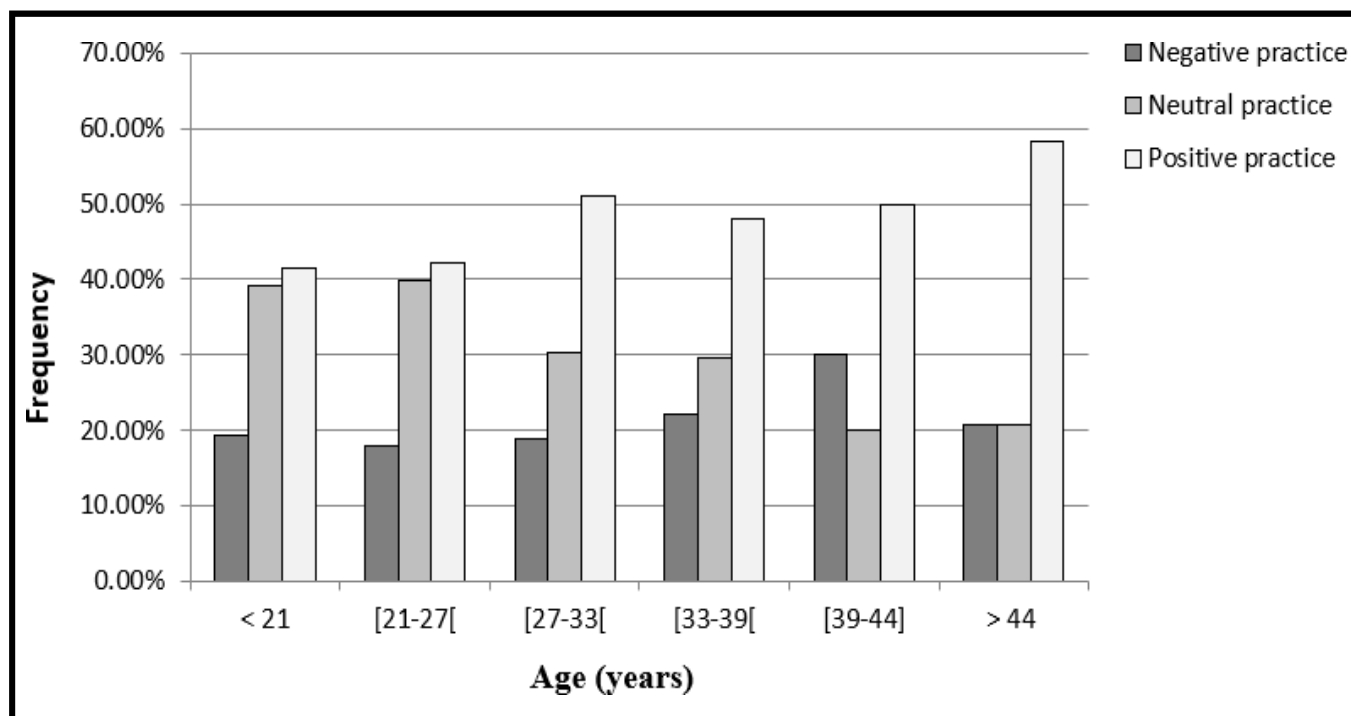
**Breakdown of participants according to socio-demographic characteristics and global practices**

Table XI shows the distribution of gender and status, according to overall practices. Support staff and teachers have a more positive level of practice (63.6% and 60.0% respectively), while "other" have a more negative level of practice (45.5%,  $P < 0.05$ ).

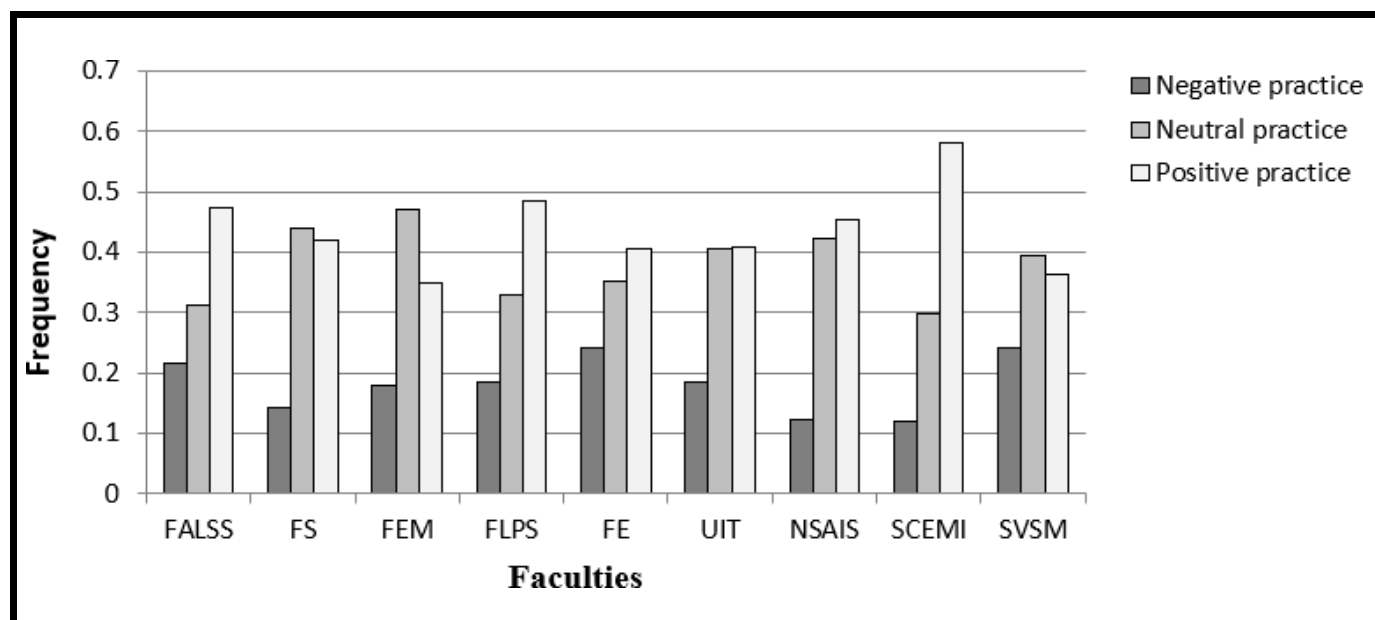
Concerning the distribution of participants age and faculty, participants aged over 44 have more positive practices than the rest of the population (figure 5), although the dependency is not significant. The faculty variable, on the other hand, showed a significant dependance on the level of practice ( $P < 0.05$ ), with SCEMI having the best level practice (58.2%), while FEM had the lowest (35.0%) (Figure 6).

Distribution of participants according to overall availability of control measures on campus

Provisions have been put in place on campus to limit the spread of COVID-19, but they remain weak in relation to the results obtained. In particular, social distancing is not really respected (43.47% no, 21.77% rarely). These data are summarized in Table XII. The overall availability of measurements is good in 19.0% of cases (Table XIII). We note in particular that the presence of hand-washing stations, the presence of disinfectants, the restriction on campus in the absence of masks, social distancing and posters to obtain information on COVID are not always the most widely shared. On the other hand, the availability of masks around campus is well represented (38.13%).



**Figure 5:** Age distribution, according to global practices



**Figure 6:** Distribution of faculties according to global practices



**Table XI:** Gender and status distribution, according to global practices

Variables	Modalities	GLOBAL PRACTICE			P-Value
		Negative	Neutral	Positive	
<b>Gender</b>	Male	336 (17.90%)	719 (38.30%)	824 (43.90%)	0.677
	Female	147 (19.10%)	296 (38.50%)	325 (42.30%)	
	<b>TOTAL</b>	483 (18.20%)	1015 (38.30%)	1149 (43.40%)	
<b>Status</b>	Student	463 (18.00%)	995 (38.80%)	1109 (43.20%)	<b>0.001</b>
	Teacher	3 (12.00%)	7 (28.00%)	15 (60.00%)	
	Support staff	2 (9.10%)	6 (27.30%)	14 (63.60%)	
	Other	15 (45.50%)	7 (21.20%)	11 (33.30%)	
	<b>TOTAL</b>	483 (18.20%)	1015 (38.30%)	1149 (43.40%)	

**Table XII:** Distribution of participants according to availability of control measures on campus

Questions to assess the availability of COVID-19 control measures on campus	Answers (%)			
	Never	Rarely	Sometimes	Always
Presence of hand-washing stations	33.85	20.79	20.86	24.50
Presence of hand sanitizers	38.17	22.15	21.05	18.63
Restrictions on campus in the absence of a Mask	37.07	21.62	23.97	17.34
Masks available around campus (for purchase)	23.17	17.76	20.94	38.13
Respect for social distancing in the classroom	43.47	21.77	21.17	13.59
Posters on campus to provide information on SARS-CoV-2	31.39	20.30	19.88	28.44

**Table XIII:** Distribution of participants according to the level of availability of control measures on campus

Level of availability	Workforce	Percentage (%)
Low	811	30.7
Average	1328	50.3
Good	502	19
<b>Total</b>	2641	100

## Discussion

A cross-sectional study was carried out among people frequently attending the University of Ngaoundere-Cameroon campus from June 6 to July 29 and from September 5 to October 31, 2022. The study aimed to assess the knowledge, attitudes, and practices about COVID-19 prevention and the associated factors within this population.

The results indicated that 46.7%, 80.2%, and 43.4% of participants exhibited good knowledge, a positive attitude, and positive preventive practices towards COVID-19, respectively. Age, faculty, level of study, and status were factors influencing the KAP of this university population towards COVID-19. The findings indicated that less than half of participants (46.7%) possessed an excellent knowledge of COVID-19, contrasting with the results from Ethiopia (73.8%) [16] and India (70%) [17]. The disparity may be attributed to differences in age, faculty, level, and status of the participants. Indeed, 67.52% of participants were under 24 years of age, and those with a scientific background showed superior knowledge of COVID-19 compared to others. This agrees with the findings of other studies [11, 18, 19, 20]. More than three-quarters (80.2%) of participants had a positive attitude towards COVID-19, which was similar to findings in Nigeria (79.5%)

[21] and Pakistan (82.16%) [22]. This result may be due to the participants' status (students, teachers, support staff, or others), which significantly affected attitudes towards COVID-19. Teachers and support staff exhibited a more positive attitude (63% and 69.20%, respectively) compared to students and other participants (46.50% and 36.80%, respectively). This may be explained by the perception of teachers and support staff as exemplary figures on campus, leading to greater observance.

Fewer than half of the individuals (43.4%) exhibited commendable preventive practices, surpassing the outcome seen in Bangladesh (22.7%) [23]. Nonetheless, it was inferior to the finding in Ethiopia (67%) [19]. (65%) [24], (65%), [25]. Faculty and participant status were factors influencing COVID-19 preventive practices.

The general awareness of COVID-19 within the community was poor, at 46.7%. 51.0% were aware that the vaccine provided protection against COVID-19, although only 24.6% of the study participants had received the vaccination. Despite 80.20% positive attitude towards COVID-19, it did not affect the execution of preventive measures on campus. This can be attributed, firstly, to the participants' perception

of the disease as no longer serious, with seriousness perceived negatively at 31.28%, and secondly, to the limited availability of COVID-19 control measures on campus, which was deemed satisfactory by only 19% of respondents. For instance, 75.38% of participants assert that recommended hand-washing is useful in preventing COVID-19; however, the availability of operational hand-washing stations on campus was just 24.50%, which may justify why hand-washing is practiced by only 31.85% of individuals. The belief that recommended social distancing is useful for reducing COVID-19 stood at 71.69%, although adherence to social distancing in college classrooms was only 13.59%, explaining why hand-washing as a preventive measure on campus remains at only 7.56%.

### Study limits

The limitations of the study was that practice-related questions were gathered only from participants' responses, rather than through direct observation of their actions regarding COVID-19 preventative measures.

### Conclusion

Our findings indicate a notably poor degree of awareness regarding positive attitudes and preventive practices towards COVID-19 on campus. Age, educational level, availability of COVID-19 control measures on campus, faculty affiliation, and participant status were factors influencing Knowledge, Attitude, and Practice (KAP). Therefore, several information circulation strategies must be implemented to enhance knowledge, attitudes, and preventive practices regarding COVID-19. Furthermore, adherence to social

distancing in classrooms, the establishment of hand-washing stations, and the availability of alcohol-based hand sanitizers should be implemented to facilitate the complete eradication of COVID-19 and the prevention of other similarly transmitted diseases within the University of Ngaoundere.

### List of Abbreviations

KAP: Knowledge, Attitudes and Practices CoV: Coronavirus

COVID-19: Coronavirus Disease 2019

FIND: Foundation of Innovative New Diagnostics UN: University of Ngaoundere

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- **Njouom Richard :** study design
- **Njintang Yanou Nicolas :** study design and supervisor of all steps the work

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