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KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS COVID-19 PREVENTION AND CONTROL AMONG YOUTHS IN KIGALI CITY, RWANDA.

Author's: Henriette Brune Musabe[1*], Jean Damascene Iyamuremye[1],

Affiliations:

[1]Department of public Health, Mount Kenya University Rwanda Kigali Rwanda

Corresponding Author:

Henriette Brune Musabe

Kigali City, Nyarugenge District

E-mail: musabrune@gmail.com

Abstract

The new public health crises borne from Wuhan city, Hubei province to the China by December 2019, where a pneumonia with unknown etiology observed within a cluster of 27 new cases. The knowledge, attitudes and practices (KAP) of the people toward COVID-19 is critical to understanding the epidemiological dynamics of the disease and the effectiveness, compliance and success of IPC measures adopted in a country. The findings from this study helped to identify and amend incorrect behaviors and knowledge of the youths towards coronavirus prevention and control. This research was a descriptive cross-sectional study. The sample size for this study was equal to 384 youths that was selected using convenience sampling technique. A structured questionnaire was used to collect data. Data entry and statistical analysis was conducted by using SPSS version 21. The KAP Score assessment was done. The statistical significance was confirmed at the p-value < 0.05 with 95% of Confidence interval. The research findings showed that the majority of respondents 41.9% were aged between 20 to 22 Years. This study revealed that the majority of 75.80% youths had high level of knowledge while 24.2% youths had low level of knowledge, 85.2% respondents had positive attitude while 14.8% respondents had negative attitude and 69.0% respondents had good practice while 31.0% had poor practice. The research findings showed that there were statistically significant association between gender, age group, level of education, level of knowledge and level of attitude and youths' practices towards coronavirus prevention and control. This study revealed that the female youths were more likely to have good practice [AOR: 1.43; 95%CI: 0.671-8.349; P-value: 0.006] compared to male youths. As recommendation, RBC (Rwanda Biomedical center) is recommended tapping into the vast youth networks, for them to be ambassadors of behavior change and support dissemination of COVID-19 related information as they are a huge population segment spread across the country.

Keywords: Knowledge, Attitudes, Practices, Covid-19 prevention, Kigali city

Introduction

The new public health crises borne from the emergence and spread of the 2019 novel coronavirus (SARS-CoV-2), or COVID-19, are truly global in existence and impact. As of early 2021, there have been over 100 million cases of COVID-19, two million deaths and estimates of future deaths numbering in the millions [1].

Several mitigation strategies such as social distancing, hygiene measures and, in many cases total lockdown have been adopted by governments across the world. COVID-19 has been an obstacle for health systems despite many different restriction measures that governments set, especially in low-income countries [2]. The mitigation of COVID-19, came up with high investment in public health of poor countries to avoid economic burden related circumstances [3]. A false division between saving livelihoods and saving lives have been disseminated by the ways of pandemic responses [4].

Well-being of vulnerable and young people have significant concern worldwide, towards the pandemic results [5]. Severe morbidity has been experienced by vulnerable people including children and young people while governments intervene with strict social control measures is an impact of Covid-19 [6].

Despite the progress made in searching appropriate ways to stop this pandemic, there are still concerns of accessing to vaccines COVID-19 specifically in Africa because bigger countries in terms of economy are buying huge vaccine supplies and lower countries are not able to produce their vaccines on their own as well as unequal dissemination of available vaccines [7], [8].

Many of African countries are currently relying on existing preventive measures and hungry for different versions of vaccines to minimize the spread of COVID-19, thought those vaccines may not reduce or stop the transmission of the disease, but COVID-19 prevention measures should be remains useful and necessary in controlling the virus [9].

Knowledge, attitudes, and practices (KAP), found to be factors which contribute to adherence of COVID-19 recommended prevention measures especially for health care providers in Africa (KAP) [10], [11]. Thus, it is obvious that people are putting much efforts to be aware seek knowledge about policies of COVID-19 prevention in order for them to have positive attitudes in reducing risks of being infected [12].

Methods

Study design

In this study, a cross-sectional descriptive design was used to explore the KAPs toward COVID-19 among youths in Kigali City, Rwanda. A cross-sectional study is a type of research design in which you collect data from many different individuals at a single point in time. This study design helped researcher to collect quantitative data which was enabled the researcher to know the level of knowledge attitude and practice among youths of Kigali city.

Target Population

In this study, the target population was youths in the 15-24-year age group from the three districts (Gasabo, Kicukiro and Nyarugenge) of Kigali city, Rwanda.

Sample size and sampling procedure

The sample size was 384 participants and it was calculated basing on Cochran's formula as the target population is infinite. Probability sampling technique was used to select the sample under this study. Cluster sampling is a technique in which researchers usually use pre-existing unit such as, schools or cities as their clusters and then they randomly select among these clusters to form a sample. The researcher used pre-existing clusters which are selected sectors in each District and simple random sampling was used to select participants from each cluster accordingly. Sectors and cells with above 5% of positivity rate during mass testing conducted from 17th- 26th July 2021 and use simple random sampling was used to select participants from each cluster accordingly. The community health workers located in three Districts of Kigali city assisted the researcher to reach the youths who are located in their villages as they are one who know their living homes where the youths were found.

Reliability and validity of questionnaire

Validity refers to the extent to which a measurement is well founded accuracy collected measures or data while reliability lays to the degree of measurement consistency depending on validated meas. Pilot study was conducted on 18 people (10% of sample size) which was randomly sampled to test reliability where 6 people was selected randomly from each District but this pilot people excluded during the right data collection. To ensure the reliability of research tool, researcher verified the completeness of questionnaire and consistency of respondent's answers and then,

validity depends on the reliability of this research tool, when it reused in future studies it come up with the similar results with the previous research.

Data analysis and ethical consideration

The data entry and analysis was done by using SPSS V.21. Frequencies and percentages were calculated and cross-tabulated. Respondents were asked to respond to knowledge related questions as either Yes or No. Incorrect or uncertain (don't know) responses were given a score of zero, and correct answers were assigned a score of one. In the section on attitudes, scores will be calculated based on the respondents' answers to each attitudinal statement (Likert scale): 1 = disagree, 2 = disagree and 3 =not sure. For practice questions, respondents were asked to respond the statements by 1 = disagree, 2 = disagree and 3 =not sure. A score of one was given to answers that reflect good practice, and a score of zero was given for answers that reflect bad practice. On one hand, in the bivariate analysis, Pearson Chi-square test was used to measure the association between variables. One the other hand, variables that was found to be statistically significant in the bivariate analysis was submitted to the multivariate analysis to determine to which extent variables were associated each other.

To comply with ethical considerations, an authorization to conduct the research obtained from the Mount Kenya University Research Committee. An authorization to carry out the research was given from the City of Kigali's administration. The structured questionnaire was coded instead of using respondent's proper names as identification and hence, confidentiality was guaranteed throughout the study. Consent form was signed by the respondents and data were kept in the secured manner and a secured area.

Results

Presentation of the findings

The findings of this study are presented according to their research objectives which are to determine youths' knowledge, attitudes, the level of practice and identify factors associated with youths' practices towards coronavirus prevention and control among youths in Kigali city.

Socio-demographic characteristics of respondents

The table below presents socio-demographic characteristics of 384 respondents all reached and data collected using questionnaire through face to face interview.

Table 1 Socio-demographic Characteristics

Variables	Frequency	Percentage
Gender		
Male	147	38.3
Female	237	61.7
Age group		
<19 Years	117	30.5
20 to 22 Years	161	41.9
23 Years and above	106	27.6
Marital status		
Single	352	91.7
Married	32	8.3
Level of Education		
Illiterate	34	8.9
Primary	277	72.1
Secondary and above	73	19
Religion		
Christian	285	74.2
Muslims	61	15.9
No Religion	38	9.9
Occupation		
Student	121	31.5
Employed	121	31.5
Jobless	142	37
Wealth category		
First category	24	6.3
Second Category	90	23.4
Third Category	270	70.3

Table 1. of respondents' demographic characteristics interviewed shows that the majority of respondents 161(41.9%) were aged between 20 to 22 Years, 277(72.1%) of respondents had primary level of education and 285(74.2%) respondents were Christians. 121(31.5%) respondents were student, 142(37.0%) respondents were Jobless, 90(23.4%) respondents were belonged in second category while 270(70.3%) respondents were belonged in third category.

Youths' knowledge towards coronavirus prevention and control among youths in Kigali city.

The first objective of this study was to determine knowledge towards coronavirus prevention and control among youths in Kigali city and the score assessment of eleven variables has been done and nine variables were positive while two were negative. The mean score was 7.15 and youths with score less than mean score were considered to have low level of knowledge while the one with score greater than mean score were considered to have higher level of knowledge.

Table 2: Knowledge about COVID-19 among the participants

Variables	Frequency	Percentage
Clinical symptoms of Covid are fever, fatigue, dry cough, and myalgia.		
Yes	291	75.8
No	93	24.2
Unlike the common cold, stuffy nose, runny nose...		
Yes	275	71.6
No	109	28.4
There is no currently cure for COVID-19		
Yes	236	61.5
No	148	38.5
Not all person with Covid19 will develop severe cases		
Yes	327	85.2
No	57	14.8
Eating or touching wild animals		
Yes	285	74.2
No	99	25.8
Persons with COVID-19 cannot transmit the virus to others if they do not have a fever		
Yes	269	70.1
No	115	29.9
Covid-19 can spread via respiratory droplets		
Yes	254	66.1
No	130	33.9
The virus of Covid-19 is airborne		
Yes	286	74.5
No	98	25.5
It's not necessary for children and young adults to take measures to prevent infection with COVID-19		
Yes	263	68.5
No	121	31.5
To prevent the infection by COVID-19, individuals should avoid going to crowded places		

Yes	242	63
No	142	37
Isolation and treatment of people who are infected with COVID-19 are effective ways to reduce the spread of the virus		
Yes	317	82.6
No	67	17.4

Source: Primary data

The table above presents the eleven variables which used to assess knowledge, 291(75.8%) youths said that Clinical symptoms of Covid are fever, fatigue, dry cough, and myalgia, 269(70.1%) youths agreed that persons with COVID-19 cannot transmit the virus to others if they do not have a fever, 242(63.0%) youths said that to prevent the infection by COVID-19, individuals should avoid going to crowded places and 317(82.6%) youths agreed that isolation and treatment of people who are infected with COVID-19 are effective ways to reduce the spread of the virus**.**

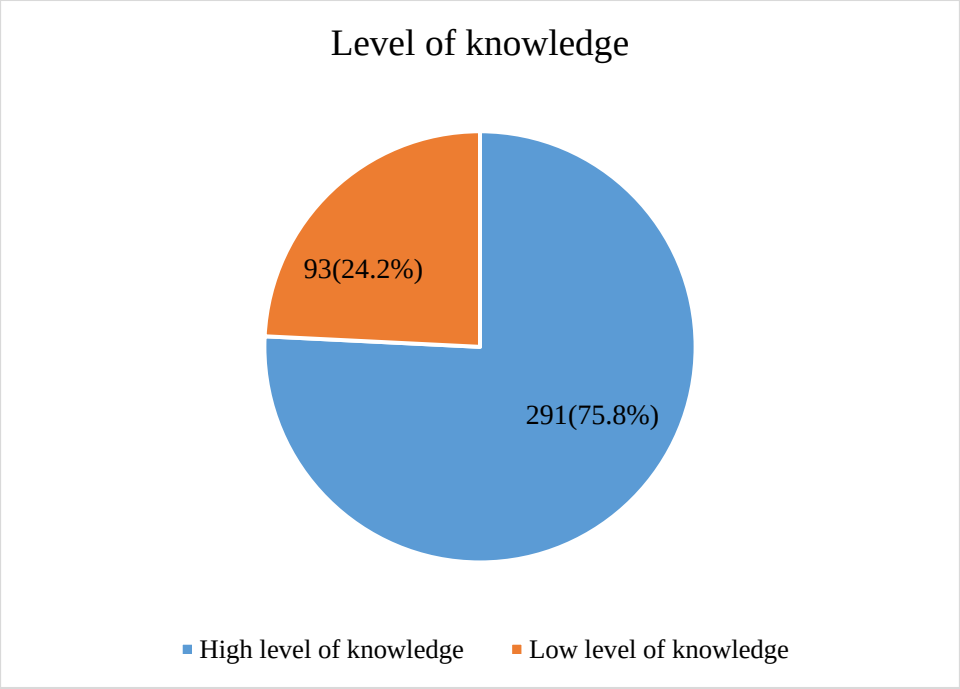

Figure 1. The level of knowledge

The findings of this study revealed that the majority of 291(75.80%) youths had high level of knowledge while 93(24.2%) youths had low level of knowledge.

Youths' attitude towards coronavirus prevention and control among youths in Kigali city.

The second objective of this study was to determine attitude towards coronavirus prevention and control among youths in Kigali city and the score assessment of five variables has been done and all were positive. The mean score was 3.42 and youths with score less than mean score were considered to have negative attitude while the one with score greater than mean score were considered to have positive attitude.

Table 3: Attitudes of respondents

Variables	Frequency	Percentage
Covid19 can finally be successfully controlled		
Agree	105	27.3
Disagree	138	35.9
Not sure	141	36.7
Rwanda is handling Covid 19 crisis well		
Agree	280	72.9
Disagree	73	19
Not sure	31	8.1
Awareness is necessary to be free from Covid19		
Agree	309	80.5
Disagree	44	11.5
Not sure	31	8.1
Covid 19 is a deadly disease		
Agree	306	79.7
Disagree	50	13
Not sure	28	7.3
People with any age can infected with Covid 19		
Agree	316	82.3
Disagree	43	11.2
Not sure	25	6.5

Source: Primary data

The table 3 presents the five variables which used to assess level of attitude, 291(75.8%) youths said that Covid19 can finally be successfully controlled, 280(72.9%) youths agreed that Rwanda is handling Covid 19 crisis well, 309(80.5%) youths agreed that awareness is necessary to be free from Covid19 and 316(82.3%) youths agreed that people with any age can infected with Covid 19.

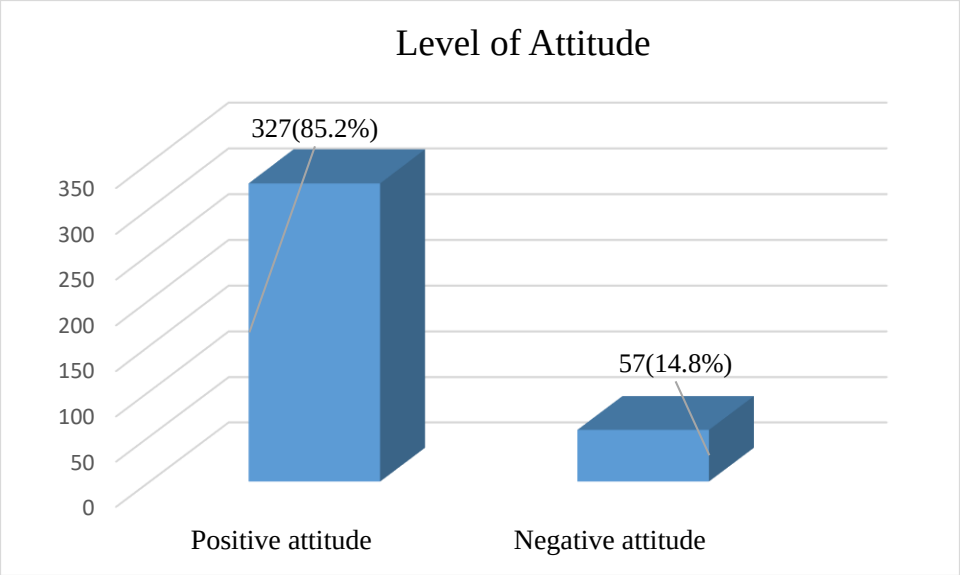

Figure 2. The level attitude

The findings of this study revealed that the majority of 327(85.2%) respondents had positive attitude while 57(14.8%) respondents had negative attitude.

Youths' practice towards coronavirus prevention and control among youths in Kigali city.

The third objective of this study was to determine practice towards coronavirus prevention and control among youths in Kigali city and the score assessment of five variables has been done and all were positive. The mean score was 3.63 and youths with score less than mean score were considered to have poor practice while the one with score greater than mean score were considered to have good practice.

Table 4 Practices of the participants toward Covid-19

Variables	Frequency	Percentage
In the recent days have you washed hands with soap		
Always	181	47.1
Occasionally	168	43.8
Never	35	9.1
In the recent days have you worm a mask when going		
Always	244	63.5
Occasionally	77	20.1
Never	63	16.4

In the recent days have you avoided touching nose		
Always	314	81.8
Occasionally	49	12.8
Never	21	5.5
In recent days have you maintained safe distance		
Always	314	81.8
Occasionally	49	12.8
Never	21	5.5
In recent days, have you avoided to go in any crowded place?		
Always	280	72.9
Occasionally	73	19
Never	31	8.1

The table 4 presents the five variables which used to assess level of practice, 168(43.8%) youths said that they wash hands with soap occasionally, 314(81.8%) youths agreed that to prevent Covid19, they always avoid touching the nose and 280(72.9%) youths agreed that in recent days, they always avoided to go in any crowded place.

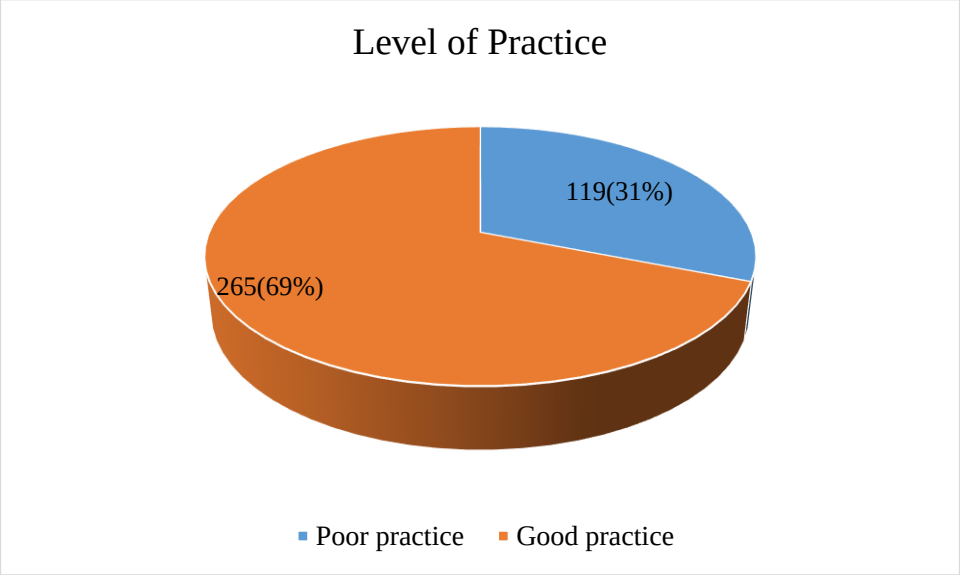

Figure 3. The level of practice

The findings of this study revealed that the majority of 265(69.0%) respondents had good practice while 119(31.0%) had poor practice.

Factors associated with youths' practices towards coronavirus prevention and control among youths in Kigali city.

The fourth objective of this study was to identify factors associated with youths' practices towards coronavirus prevention and control among youths in Kigali city. Socio demographic characteristics have been checked to see whether they are associated youths' practices towards coronavirus prevention and control.

Table 5 Factors associated with youths' practices towards coronavirus prevention and control among youths in Kigali city (Bivariate analysis).

Variables	Level of Practice		P-Value	Chi-Square
	Poor Practice%)	Good Practice n(%)		
Gender			**0.033**	8.231
Male	48(32.7)	99(67.3)		
Female	71(30.00)	166(70.00)		
Age group			**0.005**	14.195
<19 Years	39(33.30)	78(66.70)		
20 to 22 Years	49(30.40)	112(69.60)		
23 Years and above	31(29.20)	75(70.80)		
Marital status			0.574	0.309
Single	113(32.10)	239(67.90)		
Married	6(18.80)	26(81.30)		
Level of Education			**<0.001**	16.807
Illiterate	9(26.50)	25(73.50)		
Primary	86(31.00)	191(69.00)		
Secondary and above	24(32.90)	49(67.10)		
Religion			0.168	1.901
Christian	81(28.40)	204(71.60)		
Muslims	23(37.70)	38(62.30)		
No Religion	15(39.50)	23(60.50)		
Occupation			0.576	0.478
Student	45(37.20)	76(62.80)		
Employed	39(32.20)	82(67.80)		
Jobless	35(24.60)	107(75.40)		
Wealth category			0.396	0.721
First category	7(29.20)	17(70.80)		
Second Category	29(32.20)	61(67.80)		
Third Category	83(30.70)	187(69.30)		
Level of knowledge			**0.019**	9.107

Low level of knowledge	59(27.80)	153(72.20)		
High level of knowledge	60(34.90)	112(65.10)		
Level of attitude			**0.007**	13.888
Negative attitude	60(30.80)	135(69.20)		
Positive attitude	59(31.20)	130(68.80)		

The research findings showed that there were statistically significant association between gender, age group, level of education, level of knowledge and level of attitude and youths' practices towards coronavirus prevention and control with P-value <0.05 calculated at 95%CI.

Table 6 Factors associated with youths' practices towards coronavirus prevention and control among youths in Kigali city (Multivariate analysis).

Variables	**AOR**	**95%CI**		**P-Value**
		Lower	**upper**	
Gender				
Male	Ref			
Female	1.43	0.671	8.349	**0.006**
Age group				
<19 Years	Ref			
20 to 22 Years	3.67	0.821	10.156	**0.02**
23 Years and above	0.683	0.367	1.596	0.81
Level of education				
Illiterate	Ref			
Primary	1.206	0.702	2.072	0.497
Secondary and above	1.613	0.903	2.881	**0.01**
Level of knowledge				
Low level of knowledge	Ref			
High level of knowledge	9.71	5.871	26.523	**<0.001**
Level of attitude				
Negative attitude	Ref			
Positive attitude	5.009	1.231	25.066	**0.02**

Table 6 illustrates that the female youths were more likely to have good practice [AOR: 1.43; 95%CI: 0.671-8.349; P-value: 0.006] compared to male youths, youths aged 20 to 22 years were more likely to have good practice [AOR: 3.67; 95%CI: 0.821-10.156; P-value: 0.02] compared to youths aged below 19 years. Youths who had secondary level of education and above were more

likely to have good practice [AOR: 1.613; 95%CI: 0.903-2.881; P-value: 0.01] compared to youths who were illiterate, the youths with high level of knowledge were more likely to have good practice [AOR: 9.71; 95%CI: 5.871-26.523; P-value: <0.001] compared to youths with low level of knowledge and the youths with positive attitude were more likely to have good practice [AOR: 5.009; 95%CI: 1.231-25.066; P-value: 0.02] compared to youths with negative attitude.

Discussion

Youths are less likely to refuse engaging in risky health practices related to COVID-19 and they have compliance towards measures of controlling infection as well as mitigation practices to minimize the spread of diseases. By assessing public knowledge and awareness about the coronavirus, existing public perception of practices and deeper understandings can be gained to identify attributes which can influence the public in adopting healthy and responsive behavior[13].

The first objective of this study was to determine knowledge towards coronavirus prevention and control among youths in Kigali city and the score assessment of eleven variables has been done and nine variables were positive while two were negative. The mean score was 7.15 and youths with score less than mean score were considered to have low level of knowledge while the one with score greater than mean score were considered to have higher level of knowledge.
The findings of this study revealed that the majority of 75.80% youths had high level of knowledge while 24.2% youths had low level of knowledge.

The study conducted in Ethiopia was in the same line with the present study and this study revealed that the majority of study participants had knowledge about COVID-19, as revealed in the study conducted among students in southwest Ethiopia where they said that the main clinical symptoms of COVID-19 are dry cough and fever and they knew that it mostly caused by virus [14].

Knowledge on symptoms of COVID-19 was generally high, with most respondents being able to correctly identify an average of five symptoms of COVID-19, out of the ten examined. In terms of knowledge of preventive measures, the most common preventive measures mentioned by the respondents were: washing hands with soap and running.
The study conducted in Kenya aimed to collect information on the level of knowledge on signs and symptoms of COVID-19 was in the same line with the present study where it revealed that

Knowledge on symptoms of COVID-19 was generally high, with most respondents being able to correctly identify an average of five symptoms of COVID-19, out of the ten examined.

The second objective of this study was to determine attitude towards coronavirus prevention and control among youths in Kigali city and the score assessment of five variables has been done and all were positive. The mean score was 3.42 and youths with score less than mean score were considered to have negative attitude while the one with score greater than mean score were considered to have positive attitude. The findings of this study revealed that the majority of 85.2% respondents had positive attitude while 14.8% respondents had negative attitude.

The study which conducted in Bangladesh was not in the same line with the presents study where it found out that the majority of youths possessed a negative attitude toward controlling and defeating the pandemic [11].

The schools located from southwest Ethiopia, a study revealed that more than two-thirds (70.9%) respondents had a positive attitude and the minority of the respondents showed negative attitude towards COVID-19 and this study was not in the same line with the present study. The information related to control and preventive measures of COVID-19 should be kept and the community had to be updated for better handling of COVID-19[14].

The third objective of this study was to determine practice towards coronavirus prevention and control among youths in Kigali city and the score assessment of five variables has been done and all were positive. The mean score was 3.63 and youths with score less than mean score were considered to have poor practice while the one with score greater than mean score were considered to have good practice. The findings of this study revealed that the majority of 69.0% respondents had good practice while 31.0% had poor practice.

In terms of practices toward COVID-19 among participants, the study conducted in Bangladesh was not in the same line with the present study where it found that 75.2% always washed their hands with soap or hand-sanitizer thoroughly and up to 70.6% always wore a mask when going outside the home in recent days. However, 33.9% and 14.6 of participants reported “occasionally” and “never” maintained safe distance with people when going outside the home. Meanwhile, only 62.1% of participants avoided going to any crowded place, and the rate of reporting “occasionally” and “never” was 30.0% and 7.9%, respectively. The overall mean practice score of the participants was 2.5 and only 51.6% of participants had a good practice regarding COVID-19. Participant’s

mean practice score was significantly different in terms of gender, education level, monthly family income, and place of residence[8].

The fourth objective of this study was to identify factors associated with youths' practices towards coronavirus prevention and control among youths in Kigali city. Socio demographic characteristics have been checked to see whether they are associated youths' practices towards coronavirus prevention and control. The research findings showed that there were statistically significant association between gender, age group, level of education, level of knowledge and level of attitude and youths' practices towards coronavirus prevention and control.

The study conducted in Kenya was almost in the same line with the present study in its multivariate linear regression analysis which conducted to examine whether gender, education level and employment status predicts the level of awareness of signs and symptoms measured by total scores achieved. Female respondents had on average higher levels of awareness than males in identifying signs and symptoms compared to the male respondents [13].

Conclusion

The main objective of this study was to assess the knowledge, attitudes and practices towards COVID-19 prevention and control among youths in Kigali city and the research findings showed that there were statistically significant association between socio demographic factors and youths' practices towards coronavirus prevention.

Recommendation

Dissemination of précised and accurate information regarding COVID-19 coupled with mental health intervention based on necessity can improve the attitudes of youths. Public health experts and policymakers are suggesting the application of effective preventive measures for example personal hygiene (e.g. handwashing), different public health behaviors (i.e. social distancing) and stringent respiratory safeguards to halt the hasty transmission of COVID-19 and protect public health. We recommend tapping into the vast youth networks, for them to be ambassadors of behavior change and support dissemination of COVID-19 related information as they are a huge population segment spread across the country. Armed with proper personal protective equipment and information, the youth can support home based care and ensure health facilities are not overwhelmed during this pandemic period.

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