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# Coronavirus disease pandemic response in Uganda: government trust, risk perception and willingness to adhere to public health measures among social media users

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## Abstract

**Background:** The Coronavirus Disease (COVID-19) pandemic has greatly affected many nations, and continues to be a global public health challenge. There is progress in responding to the pandemic including universal access to vaccines in most of the developed countries while access to the vaccines in resource limited countries is still limited to only priority groups. Despite the availability of vaccines, promotion of preventive measures through public health risk communication remains essential. Effective risk communication depends on understanding population factors that affect the response. This study assessed government trust, risk perception and willingness to adhere to COVID-19 preventive measures among social media users.

**Methods:** This was an online analytical cross-sectional survey in Uganda. Data collection was conducted from 16-27 October 2020 using an online self-administered questionnaire. Data was analyzed using STATA and generalized linear modelling with modified Poisson regression was conducted to determine association between the variables.

**Results:** Of 1,014 respondents, most 69.3% (703) were males, 77.71% (788) had completed tertiary education and 72.3% (733) were salaried employees. Overall trust in government response to COVID-19 pandemic was 40.1%. Most of the respondents 69.9% (n=1008) believed that COVID-19 is extremely likely to spread across the country. However, over a half 65.4% (n=994) perceived little or no risk of getting infected with COVID-19. More than half 53.55% (1014) were willing to receive vaccination against COVID-19 in case it was available. Factors positively associated with trust in government response to COVID-19 included being a student (APR 1.56, CI: 1.14-2.12, p=0.005), being in the 36-59 (APR 1.36, CI: 1.16-1.60, p<0.001) and 60+ (APR 1.98, CI: 1.40-2.28, p<0.001) age groups. Being male was negatively associated with trust in government (APR 0.84, CI: 0.72-0.92, p=0.04). Risk perception was associated with trust in government (APR 1.37 CI: 1.42-1.65, p=0.001). There was high level of willingness to adhere to COVID-19 preventive measures among respondents in the 36-59 (APR 1.02, CI: 1.0-1.03, p<0.01) and 60+ (APR 1.03; CI: 1.0-1.04, p<0.01) age groups while low level of willingness was associated with little or no trust in government response to COVID-19 (APR 0.97, CI: 0.95-0.98, P<0.01).

**Conclusions:** The overall trust in government's response was low. Majority of respondents believed that COVID-19 is extremely likely to spread across the country, but over a half perceived a low risk of getting infected with the virus. Respondents with low trust in government were less willing to adhere to COVID-19 preventive measures. Therefore, there should be interventions designed to improve people's trust in government, as well as focusing public health risk communication to addressing misconceptions and misinformation about COVID-19 and improving risk perception by clarifying the key vulnerable populations.

**Keywords:** Coronavirus, Risk communication, Social media

## **Introduction**

The Coronavirus Disease (COVID-19) outbreak was declared by the People's Republic of China on 31<sup>st</sup> December, 2019 and subsequently a Public Health Emergency of International Concern (PHEIC) by World Health Organization (WHO) on January 30<sup>th</sup> 2020 [1]. The outbreak was later declared a global pandemic on March 11<sup>th</sup> 2020[2] and it had spread to all continents. In Africa, the COVID-19 index case was recorded in Egypt on February 14<sup>th</sup> 2020[3]. The index case on the continent was among travelers from high-risk countries in Asia, Europe and the United States [4]. Uganda announced its index case on March 21<sup>st</sup> 2020, a traveler who arrived at Entebbe International Airport through Dubai, United Arab Emirates [5].

Globally, there was an estimated 142,118,571 confirmed cases and 3,030,557 deaths due to COVID-19 as of April 20 2021[6]. Since March 21<sup>st</sup> 2020 when Uganda recorded her index case, the country had reported 41,023 confirmed cases and 335 deaths as of April 4<sup>th</sup> 2021[4]. This pandemic remains a challenge with devastating effects despite the progress in vaccine availability. In most low resource settings, vaccines are only available to high-risk persons but characterized by serious hesitancy. Even in the presence of vaccines, the current hope for the prevention and control of the pandemic still relies on non-pharmaceutical measures [7]. The measures include physical and social distancing, practicing personal and environmental hygiene and use of face masks [8-11]. The main approach to promote the available measures is largely through risk communication, sensitization and community engagement [12].

Effective risk communication is an essential element of outbreak management to ensure sustained behavior change among community members [12]. In Uganda, there is observed laxity and low level of adherence to the recommended COVID-19 measures besides the increasing number of cases with evidence of widespread community transmission. This could be attributed to low-risk perception of the disease or its perceived severity given that the recovery rate is high. The protection-motivation theory notes that individual intention to adopt preventive measures to any threat depends on their perceived severity and vulnerability to the threat [13]. However, the individual's perception also depends on available information about the threat [14-16] and the trust in the information [12, 17-20]. The trust-confidence model also illustrates that level of knowledge and awareness of the threat and level of trust in the information determines individual's risk perception [17, 21, 22]. People's risk perception can influence the intention to adopt recommended preventive measures and adherence to standard operation procedures (SOPs).

During the current COVID-19 pandemic, social media has been one of the key channels for risk communication and remains a vital channel of information sharing [23]. However, viral content on social media can negatively influence public opinion and may manipulate public conscience in the absence of clear mechanisms of countering misinformation [24]. To achieve faster and effective feedback about government response to the pandemic and promote adherence to COVID-19 preventive measures, there is need to understand the level of trust in the response and its determinants, the level of risk perception and willingness to take up public health measures. This study assessed trust in government response, risk perception and willingness to adhere to COVID-19 measures among social media users in Uganda. These findings will aid Uganda and other countries with similar context to inform their risk communication programming to maximize impact.

## **Methods**

### **Study design, setting and population**

This was an online analytical cross-sectional survey employing quantitative data collection methods. The study was conducted in Uganda with respondents from the four major regions namely: Central, Western,

Eastern and Northern. Uganda is a landlocked country in East Africa (1.3733°N, 32.2903°E), with an estimated population of 42,277,822 people [25]. The literacy rate is about 72.2% [26]. The country has about 10.67 million internet users and 2.50 million social media users as of January 2020[27].

The study population consisted of individuals residing in Uganda who were 18 years and older actively using social media. The study was conducted between 1332Hrs, October 16<sup>th</sup> 2020 and 1300Hrs, October 27<sup>th</sup> 2020. Only individuals who were able to coherently read, understand and answer questions in English language responded. The social media platforms considered were; Facebook, WhatsApp and Twitter.

### **Sample size and sampling**

The sample size was determined based on the Kish Leslie (1964) formula for cross-sectional studies. At 95% confidence level ( $Z_{\alpha}$ , 1.96), assuming the proportion of willingness to adhere to COVID-19 measures at 50% and an acceptable sampling error ( $\delta$ ) of 5%, we obtained a sample size of 385 respondents. A non-response rate of 10% was assumed and applied to the computed sample size raising it to 427. A design effect of 2 was then applied to cater for any differences by region in reference to accessing links to the data collection tool. This raised the minimum targeted sample size to 854. However, all the 1,014 respondents to the survey within the data collection period were considered at analysis. Sampling in this study was majorly convenient.

### **Data collection tools and procedure**

A self-administered semi-structured questionnaire was used to collect data. The questionnaire was adapted from van der Weerd [28] and modified to suit the COVID-19 context in Uganda. For quality control, pre-testing of the data collection tool was done among a random sample of staff at the Ministry of Health including partners. Adjustments were made according to findings from the pre-test. Data was collected online using Google Forms. The link was posted on Ministry of Health's different social media platforms i.e., Facebook page, Twitter handle and it was also shared widely on WhatsApp groups. Different media houses with a big social media following were also engaged to post the link to the tool on their Facebook pages. Study team members also posted the link on their personal social media walls and statuses to distribute the link further within their circles.

### **Study variables**

Independent variables included socio-demographic characteristics such as; sex, age, education, marital status, occupation, family composition, religion, region and sources of information on COVID-19. The major outcome variables were; risk perception, trust in government and willingness to adhere to COVID-19 preventive measures.

### **Variable measurement**

Government trust was measured on a Likert scale of 0-5 from no trust at all (0) to high-level trust (5). In line with the Trust and Confidence Model, overall trust in government included the five dimensions of trust, namely; trust in provided information; trust in effectiveness of measures already taken by government; trust in government's ability to fight the COVID-19 pandemic and trust in the government irrespective of the COVID-19 pandemic response as one concept.

For risk perception, the level of fear was measured as perceived likelihood of COVID-19 infection i.e., perception of the likelihood that COVID-19 will spread across the country, extent of worry about family safety due to COVID-19 and chances that respondent would get infected with COVID-19 at a point in time. Risk perception was measured on a Likert scale of 0-5, ranging from not at all likely (0) to extremely likely (5). Factors were later merged as one concept of fear forming three possible outcomes for each question

(i.e., a little likely, not at all likely and very-extremely likely) or (a little worried, not at all worried and very-extremely worried).

Willingness to take up and adhere to COVID-19 preventive measures was referred to as “intention”. Study respondents were asked if they personally intended to observe measures against COVID-19, if they would receive vaccination if it became available, their perception of home-based isolation and care strategy for asymptomatic patients and not severely ill patients. Responses were categorized as Yes, No and Maybe. For purposes of regression analysis, variables with options as No, and Maybe were merged to mean “No”. In order to obtain more information about COVID-19 response in Uganda, respondents were asked additional multiple-option questions about preferred sources of COVID-19 information, common sources of COVID-19 information, reasons for having no trust in current information (where applicable) and circumstances under which they would accept vaccination against COVID-19.

### **Data management and analyses**

Fully completed questionnaires were downloaded from google forms as a CSV file and then saved as Microsoft Excel 2013 file. The data collected was edited, checked for consistency, and variables were coded. Data cleaning was performed using Microsoft Excel after running frequencies using STATA version 14 to generate proportions of selected variables. Numerical data was summarized as means and standard deviations. Categorical data was summarized as frequencies and proportions. In order to generate a binary outcome for trust in government, the options a little trust and no trust at all were merged to form “No trust in government response” while options moderate trust and high-level Trust were merged to form “Trust in government response”. For Risk perception, the options a little likely and not at all likely were merged to form “No perceived risk” while options very likely and extremely likely were merged to form “perceived risk of COVID-19 infection”. About willingness to adhere to COVID-19 public health measures, options No and Maybe were merged to mean “No”. Forward generalized linear analyses with a modified Poisson regression were conducted to determine if independent variables were associated with the outcome measures. All statistical tests considered a 95% confidence interval and a p-value of <0.05 for statistical significance. Only factors with a p-value of <0.2 were considered for progression to the multivariable analysis.

### **Ethical considerations**

Informed consent to answer questions was obtained from every study participant after clearly stating the purpose and risks of this study. No respondent’s private information was collected.

## **Results**

### **Social-demographic characteristics of the study participants**

A total of 1,014 social media users aged 18 years and older participated in this study, of which most 69.33% (703) were males and 29.6% (300) were females. The majority 77.71% (788) had completed tertiary education and 72.3% (733) were salaried employees. Most of the participants belonged to the Anglican faith 35.8% (363), followed by Catholics 31.5% (319), Pentecostals 17.7% (179) and Muslims 6.6% (67). The details of social-demographic characteristics are shown in Table 1.

**Table 1: Showing distribution of socio-demographic characteristics**

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Region of Residence</b>		
Central	572	56.4
Northern	162	16

Western	142	14
Eastern	138	13.6
<b>Age Category</b>		
18-35	670	66.1
36-59	314	31
60+ years	30	2.9
<b>Religion</b>		
Catholic	319	31.5
Anglican	363	35.8
Muslim	67	6.6
Pentecostal	179	17.7
SDA	22	2.2
Others*	64	6.3
<b>Gender</b>		
Female	300	29.6
Male	703	69.3
Prefer not to say	11	1.1
<b>Marital status</b>		
Married	570	56.2
Single	444	43.8
<b>Highest Level of Education</b>		
Tertiary (University)	788	77.7
Tertiary (non-University)	136	13.4
Secondary	81	8
Primary	5	0.5
Adult Education	4	0.4
<b>Occupation</b>		
Salaried Employee	583	57.5
Business owner	150	14.8
Student	96	9.5
Un-employed	185	18.2
<b>Household composition</b>		
Live with children <5	535	56.5
Live with 60+ years	115	12.1
Live alone	297	31.4

**Religion other\***-Agnostic; Atheist; Bahai faith; Baptist; Buddhist; Christian; Evangelical-Lutheran; Hindu; Humanitarian; Jehovah Witness; Latter-Day Saints; Masian; Orthodox; Prefer not to say; Presbyterian; Sikh

### Government trust regarding COVID-19 response

The overall trust in government response to COVID-19 pandemic was 40.1% (n=1014). More than half 63.72% (n=1014) of the respondents had trust in COVID-19 information provided by the government. The majority 60.9% (n=1005) of the respondents trusted the effectiveness of measures already taken by the government against COVID-19 while more than half 53.88% (n=1014) trusted the government's ability in fighting the COVID-19 pandemic. Over three quarters, 76.8% (n=994) of the respondents thought that the current government's decisions in taking safety measures against the COVID-19 in Uganda were commendable. There was moderate to high trust 47.4% (n=1001) in the government regardless of the COVID-19 pandemic response. Details of government trust are presented in Table 2.

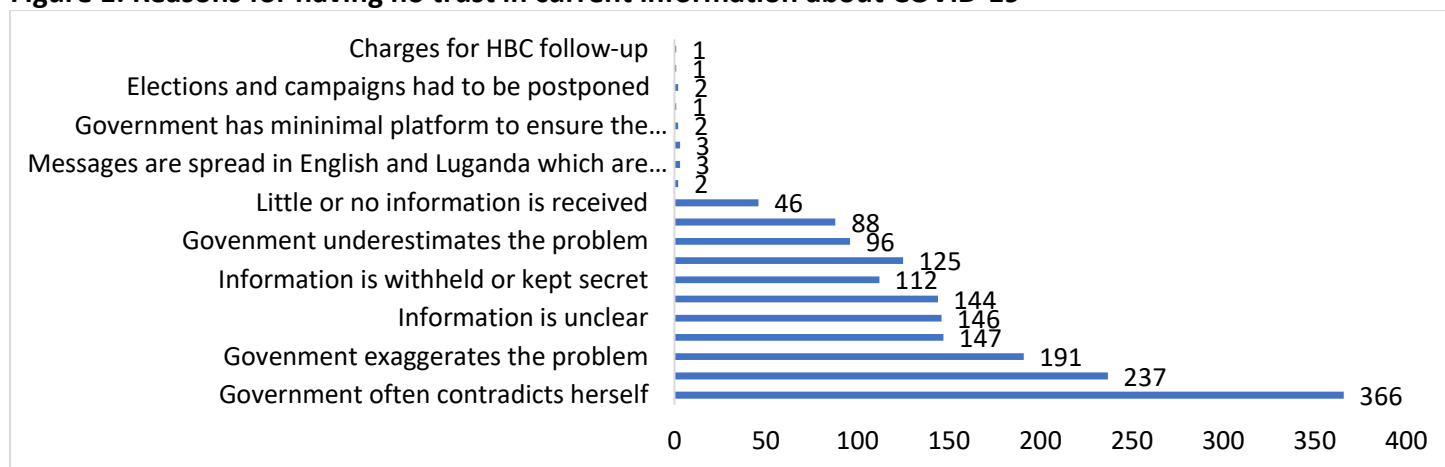
**Table 2: Government trust regarding COVID-19 public health response**

Variable	Frequency	Percentage
<b>Overall Trust in government response to Covid-19 pandemic in Uganda</b>		
Trust	407	40.1
No Trust	607	59.9
<b>Trust in information provided by the government about the COVID-19 pandemic</b>		
A little trust	266	26.4
Moderate-High level trust	641	63.7
No trust at all	99	9.8
<b>Trust in the effectiveness of measures already taken by the government against COVID-19</b>		
A little trust	282	28.1
Moderate-High level trust	612	60.9
No trust at all	111	11.0
<b>Trust in government's ability with respect to fighting the COVID-19 pandemic</b>		
A little trust	307	30.6
Moderate-High level trust	541	53.9
Not trust at all	156	15.5
<b>Thoughts about government's decisions in taking safety measures against COVID-19</b>		
Good	530	53.3
Poor	156	15.7
Very good	234	23.5
Very poor	74	7.4
<b>Trust in the government, irrespective of the COVID-19 pandemic response</b>		
A little trust	358	35.8
Moderate-High level trust	475	47.4
No trust at all	168	16.8

**Reasons for having no trust in current information about COVID-19 from government**

Study participants who expressed no trust in current information about COVID-19 from the government were asked to give reasons for the lack of trust (n=970). Accordingly, the highest number (366) said that the government always contradicts herself in regards to COVID-19. More so, a total of 237 indicated that, sometimes the government does not take its citizens seriously while 191 believes that the government exaggerates the COVID-19 problem. Details about reasons for having No Trust in government are shown in Figure 1.

**Figure 1: Reasons for having no trust in current information about COVID-19**



**Risk perception regarding COVID-19 among social media users in Uganda**

Study participants were asked a series of questions to ascertain the extent of fear or the level of risk perception regarding COVID-19 transmission at community, family and individual levels. As shown in Table 3, most of the respondents 69.9% (n=1008) believed that COVID-19 is extremely likely to spread across the country. Almost a half 49.3% of the participants (n=1007) were very worried about their family’s safety due to COVID-19. Over a half 65.4% (n=994) perceived little or no risk of getting infected with COVID-19.

**Table 3: Risk perception regarding COVID-19 among social media users in Uganda**

Variable	Frequency	Percentage
<b>Overall perception of the risk of COVID-19 infection among social media users</b>		
Perceived Risk	344	34.6
No perceived risk	650	65.4
<b>Perception of the likelihood that COVID-19 will spread across the country in Uganda</b>		
A little likely	250	24.8
Not at all likely	53	5.3
Very or Extremely likely	705	69.9
<b>Extent of worrying about family safety due to COVID-19 in Uganda</b>		
A little worried	396	39.3
Not at all worried	115	11.4
Very or Extremely worried	496	49.3
<b>Chances that you will get infected with COVID-19</b>		
A little likely	500	50.3
No chance at all	150	15.1
Very or Extremely likely	344	34.6
<b>Chances any of your family members will get infected with the COVID-19</b>		
A little likely	623	62.9

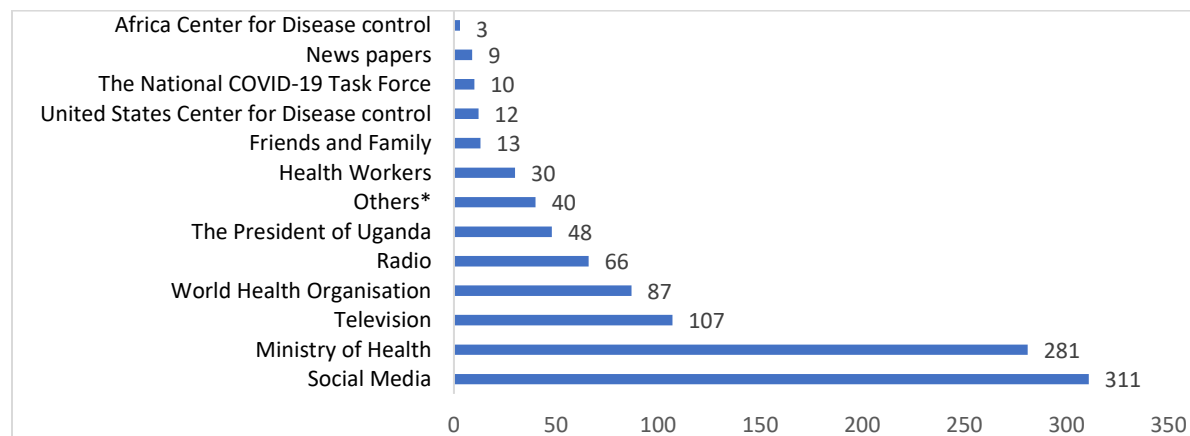


No chance at all	122	12.3
Very or Extremely likely	246	24.8

### The common sources of COVID-19 related information

Study participants revealed that most of the information about COVID-19 was obtained from social media (311 responses), Ministry of Health (281), Television (108), WHO updates (87) and radios (66). Newspapers were among the least common sources of information (9). Figure 2 shows details of common sources of COVID-19 information.

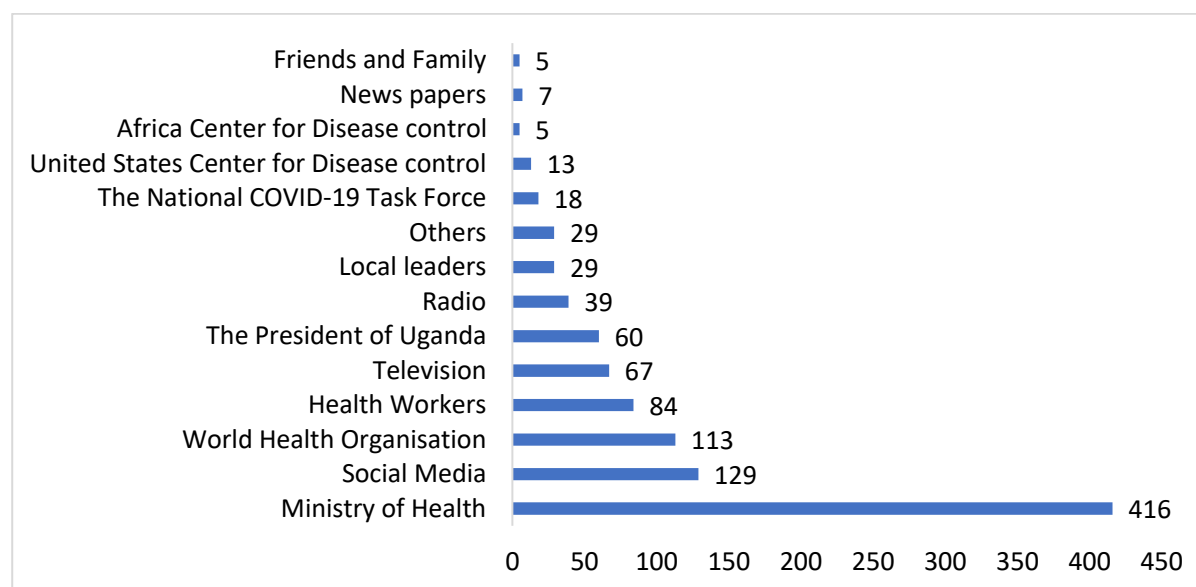
**Figure 2: Showing the common sources of COVID-19 related information**



### The preferred sources of COVID-19 related information among social media users

The most preferred source of information about COVID-19 was the Ministry of Health (416 responses). Social media was the second most preferred source of information about COVID-19 (129), followed by WHO (113), Healthcare workers (84) and Televisions (67). Details on preferred sources of COVID-19 information is shown in Figure 3.

**Figure 3: Preferred source of COVID-19 information among social media users**



### **Willingness to adhere to public health measures against COVID-19**

Results in Table 4 show that close to all, 94.87% (n=1014) of respondents expressed intention to observe COVID-19 measures to protect themselves and families from getting infected. More than half 53.55% (n=1014) were willing to receive vaccination against COVID-19 in case it was available. Most of the participants 63.65% (n=1007) commended the home-based isolation and care strategy for asymptomatic COVID-19 cases and the majority 81.85% (n=1008) were willing to isolate themselves at home if they got infected.

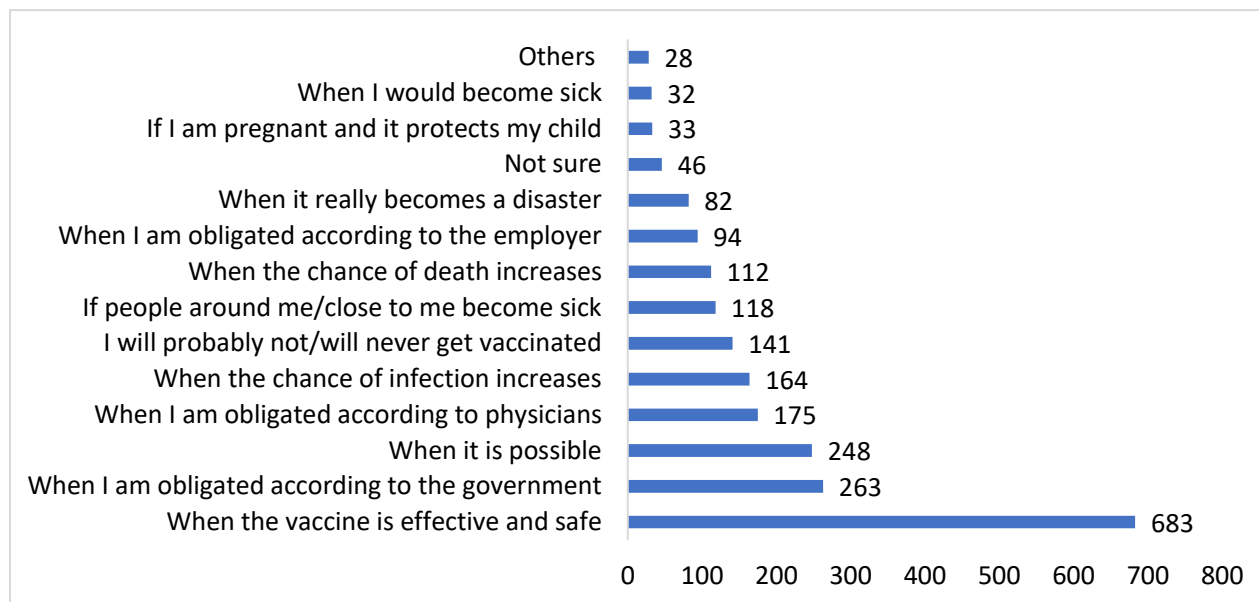
**Table 4: Willingness to adhere to COVID-19 public health measures**

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Intention to observe measures to protect self and family against the COVID-19</b>		
No	52	5.1
Yes	962	94.9
<b>Would receive vaccination against the COVID-19 if it was available</b>		
Maybe	229	22.6
No	242	23.9
Yes	543	53.5
<b>Promotion of home-based care for COVID-19 infected individuals who are asymptomatic and at low risk of adverse disease by the government is a good move</b>		
Maybe	112	11.1
No	254	25.2
Yes	641	63.6
<b>Would stay at home and isolate self from other family members if got infected and developed no signs or symptoms</b>		
Maybe	84	8.3
No	99	9.8
Yes	825	81.8

### **Circumstances under which one would receive COVID-19 vaccination**

Results presented in Figure 4 show that, most of the respondents (683 responses) reported that they would accept being vaccinated against COVID-19 if the vaccine is proven to be effective and safe. A reasonable number of respondents (46) were hesitant to accept getting vaccinated and a total of 141 would never accept to get vaccinated against COVID-19.

**Figure 4: Circumstances under which one would receive vaccination**



**Regression analysis of COVID-19 risk perception among social media users**

Respondents from the Western region were 28% more likely to believe that they are at risk of getting infected with COVID-19 (APR 1.28, CI: 1.01-1.62, p= 0.033) compared to those from the Central region. Respondents who had Trust in government were 37% more likely to believe that they are at risk of getting infected with COVID-19 (APR 1.37 CI: 1.42-1.65, p=0.001). On average over 60% of respondents in all regions felt they were less likely to get infected with COVID-19. Details of regression results of risk perception and dependent variables are shown in Table 5.

**Table 5: Showing factors associated with risk perception of COVID-19 infection**

Variable	Risk Perception about COVID-19		CrudePR (95% CI)	P-value	Adjusted PR (95% CI)	P-value
	No Risk	Risk				
<b>Region</b>						
Central	379(67.7)	181(32.3)	1.0		1.0	
Eastern	86 (64.7)	47 (35.3)	1.09(0.84-1.41)	0.500	1.07(0.83-1.39)	0.621
Northern	100 (62.5)	60 (37.5)	1.16(0.91-1.46)	0.212	1.17(0.93-1.48)	0.196
Western	85 (60.3)	56 (39.7)	1.22(0.97-1.55)	0.087*	1.28(1.01-1.62)	0.033*
<b>Occupation</b>						
Business owner	93(63.3)	54(36.7)	1.0			

Salaried Employee	356(62.6)	213(37.4)	1.02(0.80-1.29)	0.876	1.00 (0.78-1.27)	0.858
Student	73(76.0)	23(23.9)	0.65(0.43-0.98)	0.044*	0.69(0.42-1.13)	0.072
Un-employed	128(70.3)	54 (29.7)	0.80(0.59-1.09)	0.175	0.79(0.56-1.05)	0.142
<b>Trust</b>						
No	287(71.2)	116(28.8)	1.0			
Yes	363(61.4)	228(38.6)	1.34(1.11-1.61)	0.002*	1.37(1.42-1.65)	0.001*
<b>Marital Status</b>						
Married	352(63.4)	203(36.6)				
Single	298(67.9)	141(32.12)	0.87(0.74-1.04)	0.145	0.94(0.78-1.12)	0.471

#### Factors associated with trust in government response to COVID-19

Table 6 shows that respondents from Western region exhibited more trust in government response to COVID-19 than the Central region (APR 1.45, CI: 1.20-1.75,  $p < 0.01$ ). Compared to respondents who own businesses, students had more trust in government response to COVID-19 (APR 1.56, CI: 1.14-2.12,  $p = 0.005$ ). Unlike females, male participants expressed less trust in government (APR 0.84, CI: 0.72-0.92,  $p = 0.04$ ). When compared to age category 18-35 years, respondents who were aged 36-59 years (APR 1.36, CI: 1.16-1.60,  $p < 0.001$ ) and those aged 60 years and older (APR 1.98, CI: 1.40-2.28,  $p < 0.001$ ) had more trust in government.

**Table 6: Factors associated with government trust in COVID-19 response**

Variable	Government Trust		Crude PR (95% CI)	P-value	Adjusted PR (95% CI)	P-value
	No	Yes				
<b>Region</b>						
Central	352(61.5)	220(38.5)	1.0		1.0	
Eastern	89(64.5)	49(35.5)	0.92(0.72-1.18)	0.527	0.96(0.76-1.24)	0.804
Northern	99(61.1)	63(38.9)	1.01(0.81-1.25)	0.921	1.05(0.85-1.31)	0.622
Western	67(47.2)	75(52.8)	1.37(1.14-1.65)	0.001*	1.45(1.20-1.75)	0.000*
<b>Occupation</b>						
Business owner	99(66.0)	51(34.0)	1.0		1.0	
Salaried Employee	334(57.3)	249(42.7)	1.25(0.98-1.60)	0.065	1.27(0.99-1.61)	0.05

Student	50(52.1)	46(47.9)	1.40(1.04-1.91)	0.028*	1.56(1.14-2.12)	0.005
Un-employed	124(67.0)	61(32.9)	0.96(0.71-1.31)	0.843	0.98(0.73-1.32)	0.92
<b>Sex</b>						
Female	163(54.3)	137(45.7)	1.0		1.0	
Male	434(61.7)	269(38.3)	0.84(0.72-0.98)	0.091	0.84(0.72-0.92)	0.04
Prefer not to say	10(90.9)	1(9.1)	0.19(0.03-1.29)	0.005	0.20(0.03-1.30)	0.09
<b>Age group</b>						
18-35	429(64.0)	241(36.0)	1.0	0.917	1.0	
36-59	165(52.5)	149(47.4)	1.32(1.13-1.54)	0.000*	1.36(1.16-1.60)	0.000
60 years and above	13(43.3)	17(56.7)	1.57(1.13-2.19)	0.007	1.98(1.40-2.28)	0.000

### Regression analysis of willingness to observe COVID-19 measures instilled by government

As presented in Table 7, there was a low level of willingness to observe Public Health measures among respondents who had little or no trust in government response to COVID-19 (APR 0.97, CI: 0.95-0.98, P<0.01). Respondents in the age categories 36-59 (APR 1.02, CI: 1.0-1.03, p<0.01) and those aged 60+ years old (APR 1.03; CI:1.0-1.04, p<0.01) were more willing to observe Public Health measures than respondents aged 18-35 years old.

**Table 7: Showing association with willingness to observe COVID-19 public health measures**

Variable	Intend to Observe COVID-19 Measures		Crude PR (95% CI)	P-value	Adjusted PR (95% CI)	P-value
	No	Yes				
<b>Occupation</b>						
Business owner	6(4.0)	144(96.0)	1.0		1.0	
Salaried Employee	28(4.8)	555(95.2)	0.99(0.97-1.01)	0.660	0.99(0.98-1.01)	0.569
Student	4(4.2)	92(95.8)	0.99(0.97-1.02)	0.949	1.00(0.98-1.03)	0.843
Un-employed	14(7.6)	171(92.4)	0.98(0.95-1.00)	0.158	0.98(0.96-1.01)	0.245
<b>Government Trust</b>						

Trust	49(8.1)	558(91.9)	1.0			
No Trust	3(0.7)	404(99.3)	0.96(0.95-0.97)	0.000*	0.97(0.95-0.98)	0.000
<b>Age groups</b>						
18-35 years	45(6.7)	625(93.3)	1.0			
36-59years	7(2.2)	307(97.8)	1.02(1.01-1.04)	0.000*	1.02(1.00-1.03)	0.005
60 & older	0(0.0)	30(100)	1.03(1.02-1.04)	0.000	1.03(1.00-1.04)	0.000

## Discussion

This study was done among 1014 social media users to assess their trust in government, risk perception and willingness to adhere to COVID-19 preventive measures. Contrary to findings from an online survey in Saudi Arabia where participants demonstrated a high level of trust (98.2%) in the implemented precautionary measures [29], we found low trust in government response to COVID-19 pandemic (40%). This is worrying since the country is currently in phase 4 of the epidemic characterized by widespread community transmission and death [30]. The low trust in government response systems could stop people from adhering to public health measures as reported during the Ebola response in Democratic Republic of Congo [31]. We also found that the level of risk perception regarding COVID-19 infection was generally low (35%). This finding is contrary to the study in China which reported a high level of risk perception towards COVID-19 infection [32]. Unlike the China study which was conducted during the initial containment stage of the pandemic (January and February 2020) and very little was known about the disease, the low perception of the risk among Ugandan could be explained by the difference in study period in relation to the pandemic occurrence. It's worth noting that our survey was conducted during the seventh month of the pandemic when the population was probably undergoing prevention fatigue or even transiting to a stage of no fear of the virus after noticing that the majority of the cases in Uganda are asymptomatic thus low perceived vulnerability as postulated in the protection motivation theory. As experienced during the influenza A(H1N1) pandemic in the Netherlands, the trust and risk perception could have decreased over time due to the prolonged effect of the pandemic [28]. Interestingly, our study found that the willingness to adhere to COVID-19 measures instituted by the government was high (95%). This creates hope for the success of future public health measures and interventions if currently observed challenges are addressed.

More males (69%) than females participated in this survey. A similar result (64%) was reported in a study about misconceptions on COVID-19 in Uganda [33]. Such statistics imply that the female gender could be at a disadvantage in terms of access to services promoted through social media. Ideally, access to public health information should be equally distributed irrespective of gender disparities. Although men are believed to have more access and control over resources than women and are more likely to afford smartphones and internet data, they are also believed to be more at risk of COVID-19 infection [33]. In this study, more than three-quarters of study respondents (77%) had completed tertiary or university education. This confirms that social media platforms may be easily accessible to the elites, leaving out persons who are unable to read and comprehend written English content.

The Ministry of Health appeals to the general population to adhere to standard operating procedures (SOPs) to prevent the spread of COVID-19. Among the recommended measures are; wearing a face mask when in public, maintaining a social distance of at least 2 meters, washing hands with soap frequently, or use of alcohol-based hand sanitizers when hands are not visibly soiled [34]. In this study, 10% had no trust at all in the information provided and effectiveness of preventive measures respectively while 15% of them had no trust at all in government's ability to fight the COVID-19 pandemic. The low level of trust in government response requires urgent attention since both willingness to adhere to public health measures and risk perception were found to be associated with trust. In agreement with this, a community survey in North Kivu, Democratic Republic of Congo found that low government trust and belief in misinformation were associated with low adoption of preventive behaviors including acceptance of the vaccine against Ebola Virus Disease [31]. The reasons for the low level of trust in government efforts to contain the current pandemic were among others; government's failure to keep track of COVID-19 facts and failure to provide consolidated information with regards to COVID-19 cases and death.

As of November 9, 2020, the major transmissions in Uganda remain in the Kampala metropolitan area, Central region and the main hotspots being West Nile, Elgon sub-region and the Karamoja regions [34]. However, this study shows that respondents from western region expressed more trust in government response to COVID-19 than Kampala and other high transmission areas across the country (APR:1.45). If Uganda is to reduce the current trend of infection and death due to COVID-19, it's imperative that the population in the Central region, West Nile and the Karamoja regions be supported to better appreciate the disease context. We found that, among the preferred sources of COVID-19 information were; Ministry of Health, social media, and Televisions. These findings are consistent with studies on influenza in Australia and China [35, 36].

With regards to risk perception, respondents from the Western region were 28% more likely to believe that they are at risk of getting infected with COVID-19 than those from the Central. Findings of a study in China are in line with this study with 19% of the participants indicating that they perceived their level of risk as high or very high [37]. In our study, respondents who had trust in government were more likely to believe that they are at risk of getting infected with COVID-19. In a study among COVID-19 patients where social media was the main source for COVID-19 information, a higher level of perceived risk of COVID-19 infection was reported when compared to other health threats [36].

With the current trend of COVID-19 infections in Uganda, the health system is already overwhelmed and overstretched as more patients with severe forms of the disease are admitted despite the limited number of hospital admission beds as well as functional intensive care facilities [34]. This has called for the implementation of home-based isolation and care for asymptomatic COVID-19 cases and mild cases [30]. However, the success of this strategy and related programs depends on the willingness of the population to take up and adhere to recommended public health measures. Our study found that more than a half (53%) of social media users were willing to receive vaccination against COVID-19 if it becomes available. The level of willingness was much higher than that reported in Turkey where willingness to receive the Influenza A(H1N1) vaccine was about only at 12% [38]. When asked about individual opinion about home-based isolation and care, most (60%) of the respondents expressed interest in taking it in case they get infected

with COVID-19 but develop no signs or symptoms. This attitude among the population creates confidence in the government's COVID-19 response efforts, unlike in Hong Kong where the majority (73%) of community nurses studied did not want to receive a new influenza A (H1N1) vaccine [39]. Our study found a low level of willingness to observe COVID-19 measures among respondents who had little or no trust in government. However, respondents in the age categories 36-59 and those aged sixty years and older were more willing to observe the public health measures instilled by the government. These results are in agreement with previous studies from China [40-42]. This could be due to the fact that higher risk of severe illness has been noticed among people older than 60 years and this has been extensively communicated to the community.

## **Limitations**

This study may have desirability bias as different behaviors were assessed by self-administered questions where the quality of answers depends on honesty of respondents. In addition, tool deployment for only 11 days could have made us miss people who take a long time to log in to their social media accounts. Also, social media users with inability to read or answer in English language or had a disability that prevented them from fully expressing their views in regard to the study questions were not involved. This could have introduced volunteer bias.

## **Conclusion and recommendations**

The COVID-19 pandemic attracted multisectoral response, and majority of the respondents had received and preferred to receive COVID-19 related information from the Ministry of Health among other sources. However, our study found low overall trust in government's response. Among reasons for having no or less trust were contradictions in government information and actions, taking citizens for granted and belief that the government exaggerated the COVID-19 problem. Factors associated with high government trust included hailing from Western region, being a student, being female and being of age 36 years and above. There was high level of risk perception and most respondents believed that COVID-19 was extremely likely to spread across the country. Respondents from the Western region, and those who had trust in government were more likely to believe that they are at risk of getting infected with COVID-19. Close to all respondents expressed intention to observe COVID-19 measures to protect themselves and families from getting infected. However, only half were willing to receive vaccination against COVID-19 in case it was available.

Effective risk communication remains central in epidemic response and this study provides important information for improving the response. The government should design interventions to improve people's trust by establishing a technical committee to address the existing reporting discrepancies; prioritize the provision of accountabilities for COVID-19 resources; provide evidence for preventive measures and facilitate dissemination of authentic COVID-19 information to the masses. Risk communication should focus on addressing misconceptions and misinformation about COVID-19; improve risk perception by clarifying the key vulnerable populations and design campaigns to promote access to reliable COVID-19 related information especially on social media platforms.



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