

Fear of COVID-19 and the Media Influence on Herbal Medication Use in Uganda: A Cross-Sectional Study

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Background: The coronavirus disease-2019 (COVID-19) pandemic has created fear in people around the world. This has led to the widespread use of various herbal remedies in its prevention and treatment regardless of the paucity of scientific evidence about their safety and efficacy. This study assessed the fear of COVID-19 and the influence of media on the use of herbal medicine to prevent or treat COVID-19 in Uganda.

Methods: In the first 2 weeks of July 2021, a descriptive online cross-sectional study was carried out anonymously in the general population in Uganda. A validated questionnaire was used to collect data on herbal medicine use and the influence of media. Fear of COVID-19 was rated using the Fear of COVID-19 Scale (FCV-19S).

Results: We recruited 488 participants, 273 (55.9%) were female, with a median age of 25 (range: 18–73) years. Sixty-seven (57.8%) participants had a confirmed COVID-19 diagnosis. The mean FCV-19S score was 21.7 SD 5.9 with 53.3% reporting high levels of COVID-19 fear. About 57.4% of participants reported using herbal remedies either to prevent or treat COVID-19-like symptoms. Media was the main source of information, with more than 80% of the participants reporting seeing or accessing information about herbal medication use. Women (adjusted odds ratio (aOR): 1.74, 95% CI: 1.2–2.5, $p=0.003$) and people with a previously confirmed COVID-19 diagnosis (aOR: 3.1, 95% CI: 1.35–7.14, $p=0.008$) had a statistically significantly higher FCV-19S score. Being unemployed (aOR: 1.0, 95% CI: 1.1–2.3, $p=0.008$) and a female (aOR: 1.0, 95% CI: 1.1–2.3, $p=0.012$) were statistically significantly associated with herbal medicine use. Participants who used herbal remedies had a higher median FCV-19S score compared to non-users (23 versus 21, $p<0.001$).

Conclusion: The use of herbal medicines to treat or prevent COVID-19 is a widespread practice among the general population in Uganda amidst the high levels of fear of COVID-19.

Keywords: COVID-19, fear, media, herbal medicine, health awareness, Uganda

Introduction

The coronavirus disease-2019 (COVID-19) pandemic has affected over 190 million people with over 4.2 million deaths worldwide at the time of writing.¹ Uganda has so far suffered two waves of COVID-19 with the most recent associated with a highly infectious strain leading to over 93,000 cases and 2690 deaths as of 1st August 2021.¹

Globally, about 80% of the population is estimated to rely on herbal medicines for disease prevention and as alternative/complementary medicine.² Some of these have been approved and/or recommended for use by health professionals in the

prevention and treatment of diseases including COVID-19. For example, in Uganda, the National Drug Authority approved the use of COVIDEX a locally made herbal remedy as a supportive drug treatment for COVID-19.³ Due to the widespread use of herbal medicines, it has been suggested that policymakers emphasize education initiatives aimed at improving public awareness of herbal medicines use in disease prevention and treatment.⁴ Despite being readily available, herbal remedies are not without toxicities, and therefore, to ensure the safety of patients, their use must be evidence-based as supported by toxicology studies.^{2,4} Media has been a major portal through which information dissemination has occurred since the pronouncement of the COVID-19 pandemic though it has also served as a channel for misinformation to the general population.^{5,6} This includes information on herbal medicines use to address an array of COVID-19 symptoms.⁴ However, the downside is that adverse effects profiles of these herbal remedies are yet to be scientifically determined.²

The COVID-19 pandemic has led to profound psychological effects among people across the world including fear. Fear is defined as an unpleasant emotional state that is triggered by the perception of threatening stimuli.⁷ For example, in a recent study conducted in Canada, one-third of participants were found to be concerned about COVID-19.⁸ Similarly, studies conducted in Germany and the US reported the same concern.^{9,10} This fear has in itself contributed to the high mortality through suicide as noted in series of reports in different countries.^{11,12}

Unfortunately, there is a paucity of information on fear of COVID-19 and the influence of media on herbal medicines use in Uganda. Therefore, this study aimed to close this gap.

Methods

Study Design

In the first 2 weeks of July 2021, an online descriptive, cross-sectional study was conducted anonymously in the general population in Uganda.

Study Population

Eligible participants were those aged 18 years and above, able to access smartphones, and were within the social media channels namely WhatsApp Messenger and Facebook Inc. California, USA, or Telegram were included in the study. The participants were excluded if they were not in any social media channels or could not

access the internet. We had intended to perform a community-based national sampling survey, but it was not feasible due to the ongoing pandemic and lockdown measures to prevent the spread of COVID-19. Therefore, the data was collected via an online KoBo Toolbox, which included an electronic informed consent form on the first page. It was also made clear that participation in this study was entirely voluntary. Participants were then asked to complete the questionnaire.

Sample Size Calculation and Sampling

The sample size was calculated using Epi Info StatCalc for infinite population surveys. With a 5% acceptable margin of error, design effect of 1.0, cluster effect of 1.0, and a power of 80%, the estimated sample size at 95% confidence interval was 384 participants. To cater for non-response associated with online surveys, 30% of the estimated sample size was added leading to a final sample size of 499 participants.

Questionnaire Development

The questionnaire was divided into three sections: Sociodemographic characteristics (age, sex, tribe, religion, residence, level of education, employment status, and job), Questions on Fear of COVID-19, and the impact of media on public awareness concerning the use of natural remedies against COVID-19.

Measurements

Fear of COVID-19

It was assessed using seven⁷ items obtained from the fear of COVID-19 scale (FCV-19S)¹³ which is a reliable and validated tool in assessing fear of COVID-19 among the general population and is also useful in allaying COVID-19 fears among individuals. The participants indicated their level of agreement with the statements using a five-item Likert-type scale. Answers included “strongly disagree”, “disagree”, “neutral”, “agree”, and “strongly agree”. The minimum score possible for each question is 1, and the maximum is 5 ((1 = strongly disagree; 5 = strongly agree)). A total score was then calculated by adding up each item score (ranged from 7 to 35). A higher level of fear toward COVID-19 is indicated by the higher FCV-19S score. The mean FCV-19 score was used to define low (<mean) and high (\geq mean) levels of fear of COVID-19. In our study population, Cronbach's alpha for the response to FCV-19S was 0.87, indicating excellent internal reliability of this scale.

Herbal Medical Use

This was assessed by asking the participants to report their use of herbal remedies either to prevent or treat COVID-19-like symptoms themselves.

The Impact of Media on Public Awareness Concerning the Use of Natural Remedies Against COVID-19

A validated 5-item tool¹⁴ was used to evaluate the influence of media on herbal medicines use in the general population during the COVID-19 pandemic. The first question asked the participants if they have accessed media awareness messages correcting the misinformation about using natural remedies (herbs and food supplements) as preventive medicine. The next two questions (2nd and 3rd) asked them about the sources of those media messages and how they accessed them. The fourth question asked them how these messages affected their level of awareness concerning the use of natural remedies to fight COVID-19. The final question in this section was to evaluate the behavioral changes of the participants who watched the awareness messages by asking them which of the listed items (most common herbs and protective measures) they had stopped as a result of the awareness messages.

Data Analysis and Management

Fully completed questionnaires were extracted from KoBo Toolbox and exported to a Microsoft Excel 2016 for cleaning and coding. The cleaned data was exported to STATA 16 (StataCorp LLC, College Station, Texas, USA) for analysis. Numerical data were then summarized as means and standard deviations or median and range as appropriate. Categorical variables were summarized as frequencies and relative percentages. To assess the association between independent variables with fear of COVID-19 and herbal medicine use, chi-square test or Fishers' exact test (for categorical variables) and Mann-Whitney *U*-test (for continuous variables) were used at bivariate analysis. All independent variables with $p < 0.2$ at bivariate analysis were included in the stepwise multivariable logistic regression models to adjust for confounders. A $p < 0.05$ was considered statistically significant.

Ethics

The study was performed according to the Declaration of Helsinki, after obtaining approval from Mulago Hospital

Research and Ethics Committee (Approval number MHREC 2097).

COVID-19 Safety Precautions

The study was conducted following the Ministry of Health and the National COVID-19 task force guidelines of Uganda. All the study team meetings, training, recruitment, data collection, and manuscript drafting were conducted online.

Results

Characteristics of the Participants

We recruited 488 participants, 273 (55.9%) were female, with a median age of 25 (range: 18–73) years. The majority of the participants were from central Uganda (62.5%, $n=305$) and had attained tertiary education (89.0%, $n=436$). More than half were unemployed (56.6%) and over one-third were Catholics (34.8%). The majority (75.8%) of the participants self-reported to have ever suffered from COVID-19, however, only 57.8% were microbiologically confirmed COVID-19 cases. The majority had one or more relatives who suffered from COVID-19 (89.9%). [Table 1](#) summarizes the socio-demographic characteristics of the participants.

Fear of COVID-19

The mean FCV-19S score was 21.7 SD 5.9. Of the 488 participants, 260 (53.3%) had a high level of fear. At bivariate analysis, fear of COVID-19 was significantly associated with: being male ($p=0.003$), employment ($p=0.006$), being Anglican ($p=0.022$), previously confirmed diagnosis of COVID-19 ($p=0.005$), and having had any chronic illness ($p=0.024$). [Table 2](#) summarizes factors associated with fear of COVID-19. At multivariable analysis, predictors of fear of COVID-19 were: being female (adjusted odds ratio: 1.74, 95% CI: 1.2–2.5, $p=0.003$) and previously confirmed diagnosis of COVID-19 (aOR: 3.1, 95% CI: 1.35–7.14, $p=0.008$) ([Table 3](#)).

Herbal Medical Use

Of the 488 participants, 280 (57.4%) reported using herbal remedies for either prevention (46.7%, $n=228$) or treatment for COVID-19-like symptoms (46.3%, $n=222$) or both (34.8%, $n=170$) ([Figure 1](#)). Ginger was the most used natural remedy for prevention (40.7%, $n=88$) and treatment (36.6%, $n=74$), followed by lemon, prevention (40.3%, $n=87$) and treatment (33.7%, 68). Other used

Table 1 Socio-Demographic Characteristics of Participants

Variable	Frequency	Percentage
Age, median(range), years	24	18–73
<25	245	50.2
≥25	243	49.8
Sex		
Male	273	55.9
Female	215	44.1
Region of residence		
Central	305	62.5
East	56	11.5
West	34	6.97
North	93	19.1
Highest level of education		
Secondary	45	9.2
Tertiary	436	89.3
None	7	1.3
Employment status		
Employed	212	43.4
Not employed	276	56.6
Religion		
Anglican	152	31.2
Born again	51	10.5
Catholic	170	34.8
Islam	52	10.7
Pentecostal	28	5.7
Seventh days Adventist	24	4.9
Others	11	2.3
Ever suffered of COVID-19		
Yes	118	24.2
No	370	75.8
If yes, confirmed medically (n=116)		
Yes	67	57.8
No	49	42.2
Relative suffered from COVID-19		
Yes	439	89.9
No	49	10.1
Any chronic illness		
Yes	30	6.2
No	458	93.9

natural remedies were; COVIDEX (a recently approved herbal medicine drug for use in the Uganda), prevention (10.6%, n=23) and treatment (12.4%, n=25) and steaming, prevention (12%, n=26) and treatment 21 (10.4%, n=21).

Table 4 summarizes the herbal medicines (natural remedies) used for the prevention and treatment of COVID-19. At bivariate analysis, fear of COVID-19 was significantly linked with: being male ($p=0.013$), employed ($p=0.01$), having a relative who suffered from COVID-19 ($p=0.034$), high level of fear of COVID-19 ($p<0.0001$), and having had any chronic illness ($p=0.012$), Table 5 summarizes factors associated with herbal medicine use among the participants. At binary logistic regression, factors independently associated with herbal medication use were: being female (aOR: 1.59, 95% CI: 1.11–2.33, $p=0.012$) and being unemployed (aOR: 1.64, 95% CI: 1.15–2.38, $p=0.008$), (Table 6) Participants who used herbal remedies had a high median FCV-19S score compared to non-users (23 versus 21, $p<0.001$) (Figure 2).

The Impact of Media on Public Awareness Concerning the Use of Natural Remedies Against COVID-19

Media is the main source of information from which more than 80% of the participants reported to have seen or accessed messages about herbal medication use. Media further increased the use of herbal medication in 65% of the participants. Most of the media messages watched by our participants were sourced from the Uganda Ministry of Health (39.9%, n=157), followed by the WHO (28.1%, n=111).

Discussion

In the current study, more than half of the participants reported using herbal remedies for the prevention and treatment of COVID-19. Media was the main source of information about herbal medication use. Almost half of the participants self-reported high levels of fear of COVID-19.

Our findings were consistent with a similar study in Vietnam where nearly half of the participants were found to use herbal medicines for the treatment of COVID-19.¹⁵ However, in Saudi Arabia use of herbal medicines was way higher (92.7%) during this COVID-19 pandemic.¹⁶ In our study, female participants as well as the unemployed were found to be more likely to use herbal medicines. This finding is, however, contrary to that of Vietnam where low-income earners were less likely to use herbal medicines. This can be explained in part by the fact that herbal remedies in Uganda are cheap and easily accessible.

Table 2 Bivariate Analysis for Socio-Demographic Factors Associated with Level of Fear of COVID-19

Variable	Level of Fear of COVID-19			P-value
	ALL (n=488) Freq (%)	Low Level (n=228) Freq (%)	High Level (n=260) Freq (%)	
Age, median(range), years				
<25	24 (18-73)	24 (18-64)	25 (18-73)	0.3271
≥25	245 (50.2)	115 (50.4)	130 (50)	0.928
	243 (49.8)	113 (49.6)	130 (50)	
Sex				
Male	273 (56.0)	144 (63.2)	129 (49.6)	0.003
Female	215 (44.1)	84 (36.8)	131 (50.4)	
Region of residence				
Central	305(62.5)	148 (64.9)	157 (60.4)	0.780
East	56(11.5)	24 (10.5)	32 (12.3)	
West	93(19.1)	41 (28)	52 (20)	
North	34(7.0)	15 (6.6)	19 (7.3)	
Highest level of education				
Secondary	45 (9.22)	25 (11)	20 (7.7)	0.156
Tertiary	436 (89.34)	201 (88.2)	235 (90.4)	
None	7 (1.25)	2 (0.1)	5 (1.9)	
Employment status				
Employed	212 (43.44)	84(36.8)	128 (49.2)	0.006
Not employed	276 (56.56)	144(63.2)	132 (50.8)	
Religion				
Anglican	152 (31.2)	68 (29.8)	84 (32.3)	0.022
Born again	51 (10.5)	33 (14.5)	18 (6.9)	
Catholic	170 (34.8)	76 (33.3)	94 (36.4)	
Islam	52 (10.7)	17 (7.5)	35 (13.5)	
Pentecostal	28 (5.7)	15 (6.6)	13 (5)	
Seventh days Adventist	24 (4.9)	11 (4.8)	13 (5)	
Others	11 (2.3)	8 (3.5)	3 (1.2)	
Ever suffered from COVID-19				
Yes	118(24.2)	54 (23.7)	64 (24.6)	0.833
No	370(75.8)	174 (76.3)	196 (75.4)	
If yes, Confirmed by medical test (n=116)		(n=53)	(n=63)	
Yes	67(57.8)	23 (43.4)	44 (69.8)	0.005
No	49(42.2)	30 (56.6)	19 (30.2)	
Relative suffered from COVID-19				
Yes	439(90)	209 (91.7)	230 (88.5)	0.291
No	49(10)	19 (8.3)	30 (11.5)	
Impact of media				
I decreased the use	34(8.6)	8 (4.4)	26 (12.2)	<0.0001
I increased the use	176(44.7)	64 (35.4)	112 (52.6)	
No effect	184(46.7)	109 (60.2)	75 (35.2)	
Any chronic illness				
Yes	30(6.2)	8 (3.5)	22 (8.5)	0.024
No	458(93.8)	220 (96.5)	238 (91.5)	

Table 3 A Multivariable Logistic Regression Showing Predictors of Fear of COVID-19

Variable	Adjusted Odds Ratio	95% CI	P-value
Sex			
Male	1.0	–	0.003
Female	1.74	1.21–2.50	
Employment status			
Employed	1.0	–	0.158
Not employed	1.77	0.80–3.93	
Confirmed COVID-19 (n=116)			
Yes	3.1	1.35–7.14	0.008
No	1.0	–	
Herbal medical use			
Yes	1.0	–	0.755
No	1.14	0.49–2.68	
Any chronic illness			
Yes	1.0	–	0.198
No	0.23	0.03–2.14	
Religion			
Anglican	1.0	–	
Born again	0.957	0.4–2.27	0.920
Catholic	2.167	0.81–5.82	0.125
Islam	0.956	0.41–2.25	0.917
Pentecostal	3.152	0.67–14.86	0.147
Seventh days	1.364	0.46–4.07	0.578
Adventist			
Others	0.574	0.21–1.55	0.272

Additionally, low-income earners may not be able to afford the high costs of COVID-19 treatment hence opting for herbal remedies. Poor health-seeking behaviors and challenges associated with access to health facilities during the pandemic in Uganda are yet another fact that cannot be over-emphasized as this has been widely documented.³¹

Our results as well as those of a study conducted in Saudi Arabia¹⁶ showed that media was the main source of information from which more than 80% of the participants reported to have seen or accessed messages about herbal medication use. Media further increased the use of herbal medication in 65% of the participants which is consistent with what studies by Alotiby et al¹⁴ and Alyami et al⁴ reported that the biggest motivators for participants to pursue herbal products were Media

and the Internet.^{4,14} However, the majority of participants in our study reported that they would hold information from the Ministry of Health and WHO with high regard a finding consistent with that of Kwok et al²⁹ and Alotiby et al.¹⁴ In this respect, policymakers and health workers could use this opportunity to disseminate the right information to the public regarding the safe use of herbal remedies.³⁰

The current study revealed a mean FCV-19S score of 21.7 (SD=5.9, median=21). This was higher than reported in similar studies done in Eastern Europe (mean=17.2, median=17) and Japan (median=16.67) as well as in other countries like New Zealand, Spain, Russia, Israel, and Pakistan, where the mean scores were distributed between 15 and 19 points.^{17–22} The second wave of COVID-19 in Uganda was associated with higher mortality and morbidity which could have sparked fear among the general population hence this relatively higher score since the study was conducted during this wave. The FCV-19S score was higher among females compared to males which is similar to other studies carried out among adults living in the United States,²³ and others from Japan, Bangladesh, Greece, India, and China populations.¹⁸ This widespread finding could be explained among other factors by the fact that females show higher stress responsiveness than men.²⁴ Fear of COVID-19 was also high among those with a previously confirmed COVID-19 diagnosis similar to a study carried out in Brazil.²⁵ Similar to a report by Colizzi et al²⁶ contracting COVID-19 increases fear and could even worsen anxiety and post-traumatic stress disorder.²⁷ These findings continue to further underscore the importance of paying greater attention to the mental well-being of the general population in new COVID-19 waves, to curb the rising psychological impact of the COVID-19 pandemic.²⁸

Limitations

A number of limitations were taken into consideration as we interpreted these results. First, the study employed a non-random sample. Participation in the study was voluntary and no information was available about the characteristics of those who did not participate. Secondly, the cross-sectional design of our study does not allow for a causal interpretation of the results.

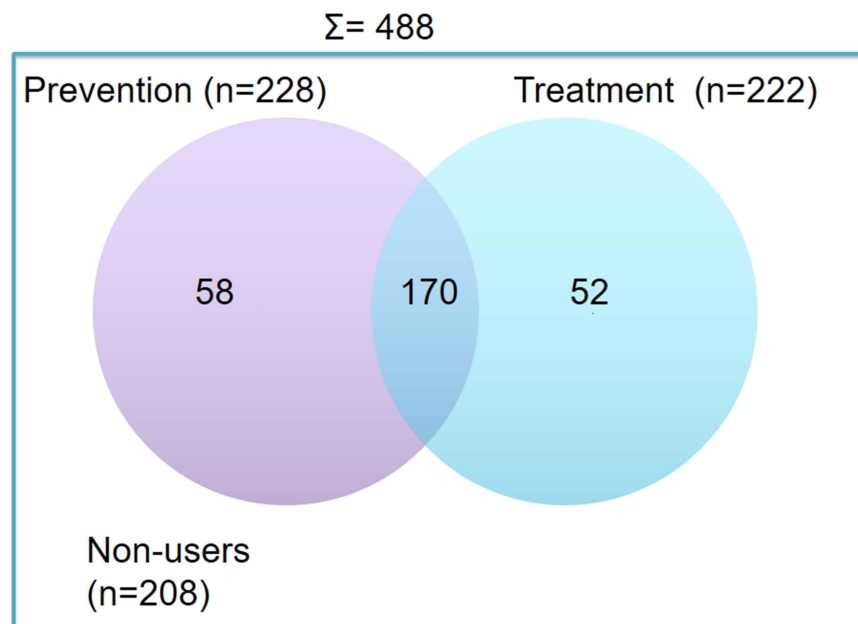


Figure 1 Herbal medical use to prevent or treat COVID-19.

Thirdly, due to the COVID-19 pandemic control measures, the study was conducted in a situation, where the country was in the second lockdown. The data collection was only possible via online methods hence missing out on the population that did not own smartphones, had poor connectivity to the internet, or could not meet the data costs for participating in this study. This could lead

to selection bias as those with poor connectivity to the internet or those that could not meet the data costs might have been missed, this limits the generalization of these findings. Fourthly, since the questionnaire was self-administered, there was a possibility of obtaining correct answers without a full understanding of the questions, recall bias and participants may have interpreted the questions differently. We also did not consider the quantity of ginger or garlic consumed that would be regarded as herbal medicine in our study. However, despite these limitations, this is the first study in Uganda assessing the fear of COVID-19 and the impact of media on herbal medication use against COVID-19.

Table 4 Herbal Medicines (Natural Remedies) Used for Prevention and Treatment of COVID-19

Variable	Prevention (N=216) n (%)	Treatment (N=202), n (%)
Ginger	88(40.7)	74(36.6)
Lemon	87(40.3)	68(33.7)
Garlic	64(29.6)	48(23.8)
Steaming	26(12)	21(10.4)
COVIDEX	23(10.6)	25(12.4)
Other concoctions	14(6.5)	5(2.5)
Mangoes	12(5.6)	3(1.5)
Eucalyptus	12(5.6)	9(4.5)
Onions	10(4.6)	9(4.5)
Avocado	6(2.8)	1(0.5)
Marijuana	5(2.3)	3(1.5)
Aloe vera	4(1.9)	2(1)
Guava	4(1.9)	2(1)
Mulondo	1(0.5)	0(0)

Conclusion

The use of herbal medicine during the COVID-19 pandemic is a widespread practice among the general population in Uganda amidst the high levels of fear of COVID-19. These findings may have implications for future medical research in Uganda, and policy-makers and those in the pharmaceutical industry concerning future regulations and product development. Continuous public health awareness is suggested on the different natural remedies and further studies on the role of herbal medicine in patient management are recommended.

Table 5 Bivariate Analysis for Socio-Demographic Factors Associated Herbal Medical Use

Variable	All, (n=488) Freq (%)	Herbal Medical Use		P-value
		Yes (280) Freq (%)	No (n=208) Freq (%)	
Age, median(range), years	24(18-73)	24(18-73)	25(18-64)	0.620
<25	245(50.2)	142(50.7)	103(49.5)	0.855
≥25	243(49.8)	138(49.3)	105(50.5)	
Sex				
Male	273(55.9)	143(51.7)	130(62.5)	0.013
Female	215(44.1)	137(49.3)	78(37.5)	
Region of residence				
Central	305(62.5)	188(67.2)	117(56.3)	0.077
East	56(11.5)	30(10.7)	26(12.5)	
West	93(19.1)	47(16.7)	46(22.1)	
North	34(6.9)	15(5.4)	19(9.1)	
Highest level of education				
Secondary	45(9.2)	30(10.7)	15(7.2)	0.451
Tertiary	436(89.3)	246(87.9)	190(91.4)	
Primary	7(1.5)	4(1.4)	3(1.4)	
Employment status				
Employed	212(43.4)	136(48.6)	76(36.5)	0.010
Not employed	276(56.6)	144(51.4)	132(63.5)	
Religion				
Anglican	152(31.2)	90(32.1)	62(29.8)	0.940
Born again	51(10.5)	28(10)	23(11.1)	
Catholic	170(34.8)	94(33.6)	76(36.5)	
Islam	52(10.7)	32(11.4)	20(9.6)	
Pentecostal	28(5.7)	17(6.1)	11(5.3)	
Seventh days Adventist	24(4.9)	14(5)	10(4.8)	
Others	11(2.3)	5(1.8)	6(2.9)	
Ever suffered from COVID-19				
Yes	118(24.2)	80(28.6)	38(18.3)	0.010
No	370(75.8)	200(71.4)	170(81.7)	
If yes, confirmed by medical test (n=116)		(n=80)	(n=36)	
Yes	67(57.7)	44(55)	23(63.9)	0.420
No	49(42.3)	36(45)	13(36.1)	
Relative suffered from COVID-19				
Yes	439(89.9)	259(92.5)	180(86.5)	0.034
No	49(10.1)	21(7.5)	28(13.5)	
Level of fear				
High level	260(53.3)	171(61.1)	89(42.8)	<0.0001
Low level	228(46.7)	109(38.9)	119(57.2)	
Media awareness message natural remedies against COVID-19				
Yes	394(80.7)	230(82.1)	164(78.9)	0.417
No	94(19.3)	50(17.9)	44(21.1)	

(Continued)

Table 5 (Continued).

Variable	All, (n=488) Freq (%)	Herbal Medical Use		P-value
		Yes (280) Freq (%)	No (n=208) Freq (%)	
Source of awareness message(n=394)				
WHO	111(28.1)	56(24.4)	55(33.5)	0.026
MOH	157(39.9)	89(38.7)	68(41.5)	
Others	126(32)	85(37)	41(25)	
Effect of these media messages on use of natural remedies (n=394)				
I decreased the use	34(8.6)	22(9.6)	12(7.3)	<0.0001
I increased the use	176(44.8)	133(57.8)	43(26.2)	
No effect	184(46.7)	75(32.6)	109(66.5)	
Any chronic illness				
Yes	30(6.2)	24(8.6)	6(2.9)	0.012
No	458(93.9)	256(91.4)	202(97.1)	

Table 6 A Multivariable Logistic Regression Showing Factors Associated with Herbal Medical Use

Variable	Adjusted Odds Ratio	95% CI	P-value
Sex			
Male	1.59	1.11–2.33	0.012
Female	1.0	–	
Employment status			
Employed	1.64	1.15–2.38	0.008
Not employed	1.0	–	
Ever suffered of COVID-19			
Yes	1.0		
No	N/A		
Source of awareness			
World Health Organization website	1.0		0.765
Ministry of Health, Uganda	0.92	0.55–1.56	
Other	1.48	0.85–2.56	
Effect of these media messages on use of natural remedies (n=394)			
I decreased the use	2.66	1.24–5.72	0.05
I increased the use	1.65	1.01–1.65	0.012
No effect	1.0		
Any chronic illness			
Yes	1.0		0.290
No	0.31	0.04–2.71	

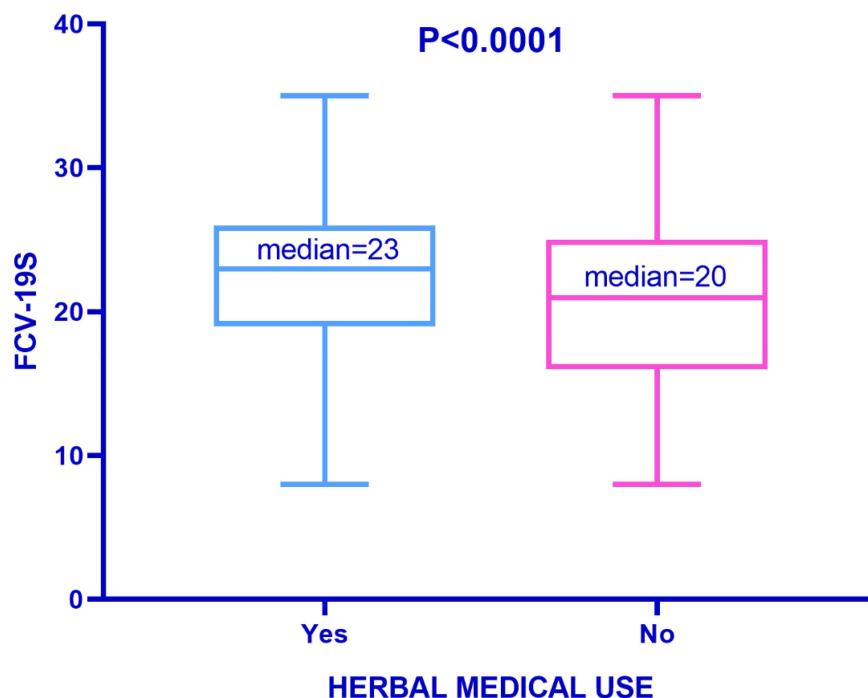


Figure 2 Fear of COVID-19 score stratified by herbal medicine use.

Data Sharing Statement

The data used to support the results of the research are available from the corresponding author upon request.

Author Contributions

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data, took part in drafting the article or revising it critically for important intellectual content, agreed to submit to the current journal, gave final approval to the version to be published, and agree to be accountable for all aspects of the work.

Funding

Research reported in this publication was supported by the Fogarty International Center of the National Institutes of Health, US Department of State's Office of the US Global AIDS Coordinator and Health Diplomacy (S/GAC), and President's Emergency Plan for AIDS Relief (PEPFAR) under Award Number 1R25TW011213. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Disclosure

The authors declare no potential conflicts of interest in this work.

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