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Determinants of COVID-19 Response Strategies in Selected African Countries

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Abstract

Using protection motivation theory as the theoretical framework, this study investigates the factors that motivate COVID-19 response in Ghana, Cameroon, Lesotho and Uganda. Through simple random and snowball sampling techniques, 651 participants were selected. The study collected data with the aid of a survey questionnaire, which was analyzed through descriptive and inferential statistics. Results show high perceived COVID-19 threats among the respondents. Consequently, response strategies, such as wearing of nose mask, hand sanitizer application and social distancing, which are perceived to be effective, have been adopted. It is evident that respondents' demographics influence their COVID-19 threats and coping strategies. Nevertheless, the severity of COVID-19 impacts ($p = .00$), efficacy of response strategies ($p = .00$) and access to COVID-19 information ($p = .02$) were the significant predictors of COVID-19 response, even though the efficacy of COVID-19 response strategies (beta = .55) emerged as the best predictor. It is imperative for African governments to prioritize COVID-19 education to control the spread of the pandemic and minimize its impact.

Keywords

COVID-19, protection motivation theory, threats, coping response, Africa

Introduction

The COVID-19 pandemic has been a major global health, economic and development concern since its detection in China. The COVID-19 virus has been characterized to have super spreading potential (Perlman 2020), and the new variants in the United Kingdom and other places,

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including Africa, have greater capacity to spread faster than the initial virus detected in December 2019 in China (Johns Hopkins Medicine 2021; World Health Organization [WHO] 2020c, 2021a). Apart from its super spreading nature, studies have reported symptoms associated with the virus, thereby improving our knowledge of the pandemic. For instance, Huang et al. (2020) noted in their clinical study that patients suffering from COVID-19 showed symptoms of dyspnea, dry cough, sore throat and fever. These symptoms, in addition to kidney failure, shortness of breath, pneumonia and sever acute respiratory syndrome (SARS), have been reported by the WHO (2020a).

Globally, about 187,086,096 cases had been confirmed across the globe, with about 4,042,921 deaths (WHO 2021b). Similarly, about 3,327,841,570 people have been vaccinated across the globe. Nevertheless, the pandemic has and continues to have a toll on global health and economy, as sharp contractions in economies are recorded (World Bank 2020). Studies show that the COVID-19 pandemic has stressed existing health infrastructure and resources, globally (Perlman 2020), with corresponding financial/fiscal pressure on governments and societies, particularly in developing economies. In extreme situations, the pressure on existing scarce resources has escalated into conflicts, leading to the worsening of the impact of the pandemic on poor and vulnerable people. In addition to the health impact of COVID-19, studies have reported grave impact of the pandemic on agriculture and food security, and the associated rising prices of food commodities, thereby pushing about 150 million people in vulnerable communities into hunger and abject poverty (Malpass 2021). Again, an average of 27 percent reduction in sale by businesses globally, has been reported (World Bank 2021).

Indeed, poor and vulnerable African countries are experiencing the brunt of the COVID-19 pandemic (Nishio 2021). As on July 13 2021, the number of confirmed cases in Africa stood at 4,437,998, with 103,602 deaths (WHO 2020b, 2021b). Public budgets in many African countries have been strained by the pandemic, leading to rising national debt stock (African Union 2020; World Bank 2020). A recent study in Africa (Diop and Asongu 2021) reveals that the COVID-19 pandemic has increased poverty by $0.1, $0.19 and $0.32 per day, respectively, for extreme, middle and higher categories of the poverty line in Africa. The Mo Ibrahim Foundation posits that African youth and women have been particularly hit hard by the pandemic, largely due to loss of employment and income (Mo Ibrahim Foundation 2020; Ndlovu 2020). While the entire African continent is at risk and vulnerable to COVID-19, economies with high dependence on tourism and oil production are the most affected by the pandemic (African Union 2020).

Like many African countries, Ghana, Cameroon, Lesotho and Uganda have observed adverse impact of the pandemic (see WHO 2021b). For instance, about 801 deaths and 97,585 confirmed cases have been reported in Ghana (Ghana Health Service 2021). In Cameroon, 80,858 and 1,324 confirmed cases and deaths, respectively, have been recorded while that of Lesotho stood at 11,903 cases and 335 deaths. Uganda has also reported 88,194 and 2,164 cases and deaths, respectively. Consequently, governments in many countries, including Ghana, Cameroon, Uganda and Lesotho, have put in place responsive measures to the pandemic. For instance, lockdowns, which have economic repercussions, have been implemented to restrict human movement and control the spread of the virus (Alemanno 2020; Bari et al. 2021; Ranscombe 2020). According to Zhang et al. (2020), although lockdowns are harsher measures, they have greater capacity to swiftly respond to the pandemic. Similarly, while vaccination has progressed in regions of the world, African countries lag behind (WHO 2021b).

Without doubt, the safety responsibility of individuals during a pandemic is very imperative, which explains why wearing of nose mask, social distancing, the application of hand sanitizer, among others, have been employed by many people in both developed and developing economies, as conventional strategies to minimize the impact and spread of the pandemic (Bari et al. 2021; Laestadius et al. 2020; WHO 2020b). In addition to the conventional strategies, a recent study by Asare-Nuamah et al. (N.d.) noted that communities in rural Ghana respond to the

pandemic through non-conventional strategies, such as bathing and drinking of medicinal herbs, which is consistent with reports in Cameroon (Reuters 2020) and Madagascar (Africa News 2020).

Nevertheless, existing studies indicate that responding to pandemics, such as COVID-19 is differentiated by geographic regions (Laestadius et al. 2020), risk perception and fear (Fetzer et al. 2020; Parikh et al. 2020), socioeconomic conditions (Mackworth-Young et al. 2020; Ranscombe 2020; Shah 2020), trust in authorities, including health professionals (Parikh et al. 2020), health beliefs (Renner et al. 2008) and the availability of accurate and reliable information (WHO 2020a). In Africa, in general, and rural communities, in particular, there is high misconception about COVID-19 (Asare-Nuamah et al., N.d.), which may affect response to the pandemic. Interestingly, there is however, a dearth of literature on the factors influencing adherence to COVID-19 response strategies in Africa in general and Ghana, Cameroon, Uganda and Lesotho in particular. With Africa being highly vulnerable to the pandemic, coupled with the spread of the new COVID-19 variants in the continent, the need to understand the factors that shape people's response to the pandemic is very essential, thereby contributing to achieving the dual goal of minimizing the spread of the pandemic and lessening its impact on society. This study's overarching objective is therefore to fill the identified gap by exploring the determinants of COVID-19 response strategies in selected African countries. This underlying question, which related to the objective of the study, was posed: What factors drive response to COVID-19 in the selected African countries? The significance of this study lies in its contribution to policies and practice that minimize the spread and impact of the pandemic in the selected African countries, in particular, and Africa, in general, by offering a better understanding of the socioeconomic, demographic and environmental factors the shape people's response to the pandemic.

Theoretical Framework: Protection Motivation Theory

This study is guided by the protection motivation theory (PMT), which explores and explains the factors that influence people's response to health crisis or pandemics (Rogers 1975). The theory postulates that during a pandemic, fear appeal necessitates response and that fear appeal is dependent on three critical components: the probability of the event occurring; the magnitude of harm caused by the event and the effectiveness of response to the event. To this end, threat and coping appraisal of a pandemic is essential to understanding the factors that drive people's response or preventive behavior (see Figure 1).

Threat appraisal deals with the evaluation and profiling of people's perception and knowledge in relation to a particular pandemic. As a cognitive process that enables individuals to subjectively evaluate a pandemic, threat appraisal constitutes multiple interrelated components. These, according to Rogers (1975), include individual/public knowledge about the indicators or symptoms of the pandemic, the perceived impact of the pandemic, severity of the impact of the pandemic, and perceived risk and vulnerability. Typically, when individuals perceive a pandemic to be severe with adverse impact on society, they are likely to respond to minimize its impact on their lives and livelihood. This contends with Parikh et al. (2020) who noted that high public fear and risk perception of a pandemic motivate people's response.

In addition to threat appraisal, coping appraisal refers to how individuals respond to, mitigate or minimize the adverse impact of a pandemic or crisis. Coping appraisal particularly focusses on two main components: self-efficacy and response efficacy (Rogers 1975). Self-efficacy is the conviction in ones' own strength in responding to a pandemic while response efficacy is the belief held by an individual that particular response strategies are effective in mitigating the pandemic. Self-efficacy considers the adaptive capacity, including monetary and time value or cost, involved in responding to a particular pandemic. Poussin, Botzen, and Aerts (2014) argue that coping appraisal has greater influence in responding to a pandemic than threat appraisal, largely

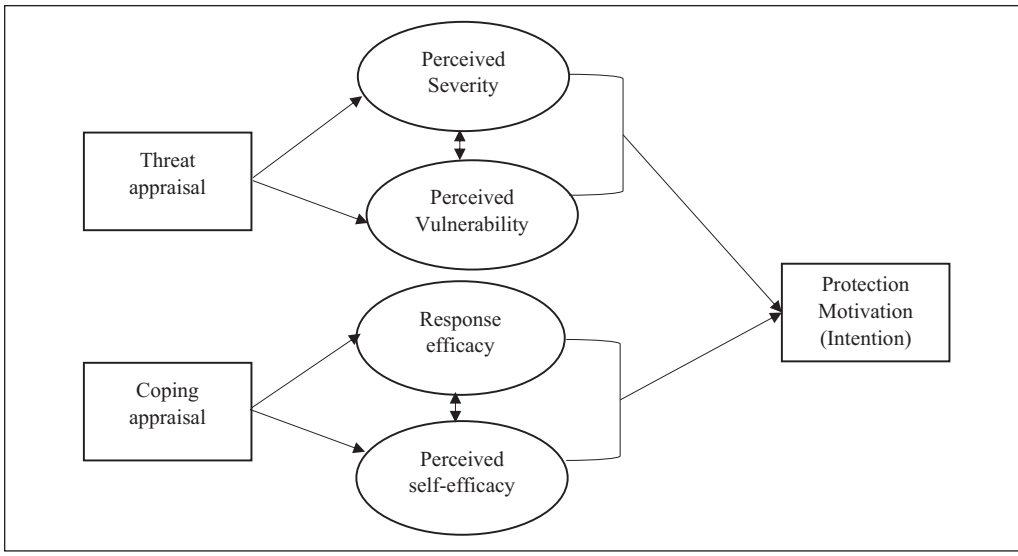

Figure 1. Protection motivation theory.
Source. Adapted from Rogers (1975).

due to the role of adaptive capacity in reducing risk and vulnerability (Asare-Nuamah, Botchway, and Onumah 2019).

Although PMT was initially developed to explore the factors motivating preventive behavior during a health pandemic, the theory has been extended to other areas of research such as climate risks and stressors (Bagagnan et al. 2019; Grothmann and Reusswig 2006; Regasa and Akirso 2019). Poussin et al. (2014) assert that understanding preventive or mitigating behavior requires a comprehension of the socioeconomic conditions of individuals and communities, which the PMT fails to capture. The authors therefore extended the PMT to capture the influence of socioeconomic factors in exploring the factors that determine flood mitigation behavior. The PMT is particularly appropriate for this study as it helps to appraise respondents' COVID-19 threats and coping strategies; examine the influence of demography in COVID-19 threats and coping strategies; and evaluate the factors that influence response to COVID-19.

Materials and Methods

Study Design and Context

This study adopted a quantitative cross-sectional design, which allowed the collection of quantified data from different categories of respondents (rural/urban and nationalities; Creswell 2014). The study was conducted in Ghana, Cameroon, Lesotho and Uganda, and these countries were randomly selected from Western, Central, Southern and Eastern regions of Africa. Contextually, the selected countries exhibit typical vulnerable African societies. Like many other African countries, poor access to quality healthcare, poor sanitation, high poverty and the accompanying high unemployment rate as well as nutrition-related challenges, among others (Nishio 2021; WHO 2020b; World Bank 2016, 2018a, 2018b), increase vulnerability and risk to health crisis, including COVID-19. Specific to COVID-19 infection and deaths rates, most of the selected countries had reported high infection and death rates (WHO 2021b). Again, like many other African countries, the selected countries have limited capacity to vaccinate their citizens coupled with high skepticism among citizens regarding the efficiency of vaccines. .

Participants and Sampling Procedure

The study adopted both simple random and snowball sampling techniques. In the first stage, the authors shared the questionnaire link with randomly selected social media networks. From there, the snowballing technique took effect, as the selected networks further shared the questionnaire with their networks, to increase the number of responses. Amoah and Amoah (2021) employed similar snowball process in their econometric study. For this study, the adopted techniques were appropriate due to restrictions on movement in many parts of the world, including the study countries. Again, with lockdowns in place, online data collection was suitable for the study, which also necessitated the adopted sampling techniques. The adopted techniques enabled the authors to comply with the COVID-19 protocols, as physical engagement, which is the main medium of transmission of the virus, was minimized. The target population for the study involved citizens who employed one or more of the COVID-19 protocols and had access to the internet.

A total of 663 participants voluntarily responded to the questionnaire, representing the sample size for the study. Out of this, 651 respondents were used for the analysis, due to incomplete responses. About 50.8 percent of the respondents were females, while 49.2 percent were males (see Table 5). Similarly, there were more urban participants (74.7 percent) than rural. In terms of occupation, about 56.4 percent were employed, while 43.6 percent were not. Education profile of the participants showed that about 61, 26 and 9 percent had tertiary, secondary and basic levels of education, respectively. Country wise, 37 percent were from Ghana, while 20 percent were from Cameroon. About 30 and 12 percent of the participants were also from Lesotho and Uganda, respectively. Furthermore, the age distribution of the participants indicated that the majority of them were between 25 and 34 years (55 percent), and between 18 and 24 years (25 percent). Again, the majority (98.6 percent) of the respondents indicated that they had access to COVID-19 information, with internet and social media (83.6 percent), radio and television (63.1 percent), and family and friends (50.1 percent) being the major sources of COVID-19 information among the respondents.

Instruments and Data Collection Procedure

The study used questionnaire survey, which was developed after an extensive review of the literature and the underlying variables of the PMT (see Rogers 1975; WHO 2020b, 2020c; Zhang et al. 2020). The instrument was divided into seven sections, with the first section focussing on demographic profile of the respondents (see the appendix for details of the instrument). The second to the fourth sections constituted the threat appraisal, while the fifth to the seventh sections also constituted the coping appraisal. Threat appraisal included knowledge of COVID-19 symptoms/indicators, impact of the pandemic and the severity of the pandemic. Coping appraisal also constituted COVID-19 response strategies, effectiveness of the strategies and the cost of response strategies. Except the first section, all other sections used 5-point Likert-type scale. Mean scores of 4 and above were interpreted as positive, high, severe or costly.

The instrument was piloted with 10 participants, which helped to revise the questions to properly capture the construct under study, thereby enhancing both content and face validity. Similarly, review of the instruments by three experts also improved its validity. The instrument's reliability was then examined using Cronbach's alpha computation, which yielded coefficients of .79 and .75 for threat and coping appraisal, respectively. Pallant (2016) posits that coefficient greater than .7 indicates high internal consistency (reliability) of the instrument. Due to COVID-19 restrictions on human movement, such as lockdowns, the study collected data via the internet. Collaborators from the study countries were selected, who assisted in the online dissemination and administration of the instrument. It is established that online data collection is associated with delay and high non-response rate (Kothari and Garg 2013). It is therefore not surprising that the anticipated minimum of 200 participants per country was not achieved within 4-month period

of data collection. It took an average of 15 minutes to respond to the questionnaire. The data collection procedure, which lasted from July to October 2020, adhered to ethical issues of informed consent and voluntary participation, as enforced in the introductory part of the instrument. Similarly, the objectives of the study were clearly stated to enable the respondents make informed decision to participate in the study.

Data Analysis

The data were analyzed using Statistical Package for Social Sciences (SPSS) version 20. The data were initially edited and missing data were rectified using descriptive and frequency statistics. Although Field (2017) posits that large sample size data are mostly normally distributed, the study, however, explored normality assumption using normal probability and residual scatter plots. Multicollinearity analysis was computed using tolerance values and variance inflation factor (VIF). None of the variables had tolerance values less than .10 nor VIF greater than 10 (Pallant 2016). Levene's test for equality and homogeneity of variance showed no violation of equal variance assumption in t-test and analysis of variance (ANOVA), respectively. However, Welsh's robust test for equality of means was resorted to when homogeneity of variance assumption was violated (Pallant 2016).

Basic descriptive statistics (means and standard deviation) was computed to understand COVID-19 threats and coping strategies. In addition, parametric tests that included t-test, ANOVA, and hierarchical regression were computed. To perform these computations, the 5-point Likert-type scale was converted into continuous variables (see Kothari and Garg 2013), which was also used to produce line graph depicting the country distribution of the responses. T-test and ANOVA computations helped to understand the influence of demography in COVID-19 threat and coping strategies. While ANOVA was suitable for demographic variables with three or more levels of measurement, such as age, country and education level, t-test was equally suitable for variables with two levels of measurement, such as gender, and access to COVID-19 information. With the aid of Tukey's honestly significant difference (HSD) test, post hoc comparison was employed to further examine the differences in the ANOVA results. To determine the magnitude of differences, the effect size statistics (eta-squared) was calculated. Cohen's guidelines for interpreting the magnitude of effect size (.01 = small, .06 = moderate and .14 = large effect) were adopted in this study (see Pallant 2016:210).

To examine the factors that influence respondents' response strategies to COVID-19, a hierarchical multiple regression was computed. This analysis was appropriate as it enabled the study to control for the effect of certain independent variables on response strategies of respondents (Field 2017; Pallant 2016). For instance, age, gender and other demographic variables have been reported in previous studies to influence response strategies. Hence, they were controlled for to understand how threat and coping appraisal influence response to COVID-19. This was necessary as the PMT argues that responding to a pandemic, such as COVID-19, is largely dependent on threats and coping appraisal. Hence, it was essential to control for the effect of demographic variables. The unique contribution (relative importance) of each variable in the model was determined using partial/part correlation coefficients (Pallant 2016). The coefficients were squared to know their unique contributions to the R^2 value. The results of the squared coefficients were also converted into percentages.

Results

Threat Appraisal

The section provides results on respondents' COVID-19 threat appraisal. Table 1 presents the respondents knowledge of the indicators of COVID-19. It is evident that the majority of the

Table 1. Respondents' Knowledge of COVID-19.

Variable	*M*	*SD*
Fever	4.16	1.094
Dyspnea (difficulty in breathing)	4.44	1.028
Sore throat	4.03	1.174
Cough	4.16	1.099
Shortness of breath	4.24	1.088
Pneumonia	3.60	1.342
Severe acute respiratory syndrome	4.10	1.135
Kidney failure	2.95	1.508

Source. Authors' computation from fieldwork, 2020.

Table 2. COVID-19 Impact and Severity of Impact.

	COVID-19 impact		Severity of COVID-19 impact	
Variable	*M*	*SD*	*M*	*SD*
Loss of lives	4.34	1.065	4.25	1.147
Impact on health and wellbeing	4.54	.864	4.45	.793
Impact on sociocultural norms and practices	4.46	.952	4.40	.860
Loss/reduction of income	4.57	.830	4.50	.829
Increases unemployment	4.51	.974	4.53	.856
Increases poverty	4.51	.914	4.43	.865
Impact on agricultural production	4.14	1.125	4.16	.992
Increases hunger/food insecurity	4.38	.935	4.34	.943
Disruption of education system	4.63	.881	4.57	.854
Restrictions of human rights	4.20	1.097	4.18	1.044
Creates fear and panic (emotional/psychological impacts)	4.55	.896	4.49	.827
Impact on social network and relations	4.16	1.069	4.19	1.014

Source. Authors' computation from fieldwork, 2020.

respondents have high knowledge of the indicators of COVI19: dyspnea ($M = 4.44$, $SD = 1.03$), shortness of breath ($M = 4.24$, $SD = 1.09$), fever ($M = 4.16$, $SD = 1.09$) and cough ($M = 4.16$, $SD = 1.10$). However, the respondents have moderate knowledge on kidney failure ($M = 2.95$, $SD = 1.51$) as an indicator of COVID-19. Country wise, respondents from Uganda were highly positive of the indicators of COVID-19 (see Figure 1 in the appendix). In Table 2, the majority of the respondents were also positive that COVID-19 affects human society and economy, as the pandemic disrupts educational system ($M = 4.63$, $SD = .88$), leads to loss of income ($M = 4.57$, $SD = .85$), creates fear and panic ($M = 4.55$, $SD = .90$), affects health and wellbeing ($M = 4.54$, $SD = .86$), increases unemployment ($M = 4.51$, $SD = .97$) and poverty ($M = 4.51$, $SD = .91$).

It is indicative from Table 2 that the pandemic has severe impact on human society and economy. The pandemic has severely affected education systems ($M = 4.57$, $SD = .85$), worsened unemployment ($M = 4.53$, $SD = .86$) and drastically reduced income of households ($M = 4.50$, $SD = .83$). The participants were also positive that the impacts of the pandemic on health and wellbeing ($M = 4.45$, $SD = .79$), loss of lives ($M = 4.25$, $SD = 1.15$), food security ($M = 4.34$, $SD = .94$) and poverty ($M = 4.43$, $SD = .87$) have been severe. There has also been severe impact of the pandemic on social network and relations ($M = 4.19$, $SD = 1.01$), agricultural

Table 3. Coping/Response Strategies to COVID-19.

	Coping strategies		Efficacy of coping strategies	
Variables	*M*	*SD*	*M*	*SD*
Regular washing of hands	4.59	.788	4.35	.921
Practice social distancing	4.45	.913	4.30	1.042
Apply sanitizer	4.48	.905	4.29	.954
Practice personal hygiene	4.47	.893	4.28	.973
Wear of nose masks	4.52	.838	4.24	.991
Regular check-up	3.67	1.298	3.80	1.162
Cover nose and mouth with elbow when sneezing/coughing	4.40	.978	4.14	1.062
Regular water intake	4.22	.978	4.08	1.038
Regular intake of fruits and immune boosters	4.21	1.066	4.17	1.066
Disinfect surfaces regularly	4.16	1.099	4.08	1.073
Regular exercise	3.95	1.151	3.90	1.107
Withdraw from infected persons	4.17	1.094	4.15	1.037
Work or study from home	4.18	1.066	4.23	.969

Source. Authors' computation from fieldwork, 2020.

production ($M = 4.16$, $SD = .99$) and human rights restrictions ($M = 4.18$, $SD = 1.04$). The impact of the pandemic and its severity were high among respondents from Lesotho, as shown in Figure 1.

Coping Appraisal

In the section, the study presents results on respondents' COVID-19 coping appraisal. The strategies employed by the participants to respond to the COVID-19 pandemic are reported in Table 3. Regular washing of hands ($M = 4.59$, $SD = .79$), wearing of nose mask ($M = 4.52$, $SD = .84$), application of hand sanitizer ($M = 4.48$, $SD = .91$), practicing personal hygiene ($M = 4.47$, $SD = .89$) and social distancing ($M = 4.45$, $SD = .91$) were common response strategies among the majority of the respondents. Other strategies employed included covering of nose and mouth when sneezing ($M = 4.40$, $SD = .98$), regular water intake ($M = 4.22$, $SD = .98$) and intake of fruits/immune boosters ($M = 4.21$, $SD = 1.07$). Table 3 further presents the efficacy of the coping strategies of the respondents. The majority of the respondents were positive that the adopted coping strategies are effective in preventing the contraction and spread of the pandemic. For instance, regular washing of hands ($M = 4.35$, $SD = .92$), social distancing ($M = 4.30$, $SD = 1.04$), sanitizer application ($M = 4.29$, $SD = .95$), personal hygiene ($M = 4.28$, $SD = .97$), wearing of nose mask ($M = 4.24$, $SD = .99$) and working/studying from home ($M = 4.23$, $SD = .97$) were all effective in preventing the spread of the virus. Both respondents from Ghana and Lesotho were highly positive on applying most of the response strategies (see Figure 1).

Table 4 presents the findings on the cost (monetary and time) of COVID-19 coping strategies, with respondents from Cameroon and Uganda highly positive of the cost associated with responding to the pandemic. The results indicate that responding to COVID-19 by the participants involved less to moderate cost. For instance, covering of nose and mouth when sneezing/coughing ($M = 2.35$, $SD = 1.52$), regular exercise ($M = 2.54$, $SD = 1.47$) and water intake ($M = 2.61$, $SD = 1.51$), withdrawal from infected persons ($M = 2.78$, $SD = 1.47$), social distancing ($M = 2.78$, $SD = 1.52$) and regular washing of hands ($M = 2.99$, $SD = 1.53$) were less

Table 4. Cost of Coping Strategies.

Variables	*M*	*SD*
Regular washing of hands	2.99	1.533
Practice social distancing	2.78	1.522
Apply sanitizer	3.96	1.143
Practice personal hygiene	3.00	1.413
Wear nose masks	3.42	1.347
Regular check-up	3.97	1.186
Cover nose and mouth with elbow when sneezing/coughing	2.35	1.519
Regular water intake	2.61	1.514
Regular intake of fruits and immune boosters	3.81	1.138
Disinfect surfaces regularly	3.81	1.277
Regular exercise	2.54	1.473
Withdraw from infected persons	2.78	1.466
Work or study from home	3.49	1.468

Source. Authors' computation from fieldwork, 2020.

costly response strategies. Moderate costly response strategies included sanitizer application ($M = 3.96$, $SD = 1.14$), regular check-up ($M = 3.97$, $SD = 1.19$), regular intake of fruits/immune boosters ($M = 3.81$, $SD = 1.14$), disinfection of surfaces ($M = 3.81$, $SD = 1.13$), work/study from home ($M = 3.49$, $SD = 1.47$) and wearing of nose mask ($M = 3.00$, $SD = 1.41$).

The Influence of Demography on COVID-19 Threat and Coping Strategies

The results of the influence of respondents' demographics on COVID-19 threats and coping strategies are reported in Table 5. There was a significant difference in the severity of COVID-19 impact for females ($M = 57.6$, $SD = 8.1$) and males, $M = 56.1$, $SD = 8.6$; $t(649) = 2.3$, $p = .021$. Intuitively, females were more likely to experience severe impact of COVID-19 than males. Similarly, significant difference existed for the coping strategies of females ($M = 56.4$, $SD = 8.6$) and males, $M = 54.5$, $SD = 9.8$; $t(649) = 2.7$, $p = .007$. There was also a significant difference in the efficacy of coping strategies of males and females ($M = 55.4$, $SD = 9.6$) and males, $M = 52.6$, $SD = 10.6$; $t(649) = 3.45$, $p = .001$. Similar differences were found between females and males and the impact of COVID-19, as females ($M = 58.0$, $SD = 10.0$) were more likely to be impacted than males, $M = 56.7$, $SD = 8.5$; $t(649) = 2.31$, $p = .050$. However, the magnitude of the mean differences observed was very small.

In the case of locality, significant differences existed between rural and urban respondents with respect to knowledge of COVID-19 indicators, impact of COVID-19, coping strategies and the efficacy of coping strategies. For instance, rural respondents ($M = 32.7$, $SD = 7.0$) were more likely to have low knowledge of the pandemic compared with urban respondents, $M = 31.3$, $SD = 7.3$; $t(649) = 2.51$, $p = .012$. Again, rural respondents ($M = 58.6$, $SD = 7.2$) were more likely to be impacted by COVID-19 than urban respondents, $M = 56.9$, $SD = 9.9$; $t(649) = 2.36$, $p = .019$. In addition, urban respondents ($M = 54.6$, $SD = 10.4$) were more positive in responding better to COVID-19 than their counterparts in the rural communities, $M = 52.3$, $SD = 9.3$; $t(649) = -2.55$, $p = .011$.

Significant differences were also observed between respondents with and without access to COVID-19 information and their knowledge of COVID-19 and coping strategies. For instance, respondents with access to COVID-19 information ($M = 36.2$, $SD = 2.6$) had higher knowledge of the pandemic than those without access to information on the pandemic, $M = 31.6$, $SD = 7.3$; $t(649) = 4.98$, $p = .001$. Significant differences were also detected in the employment status of

Table 5. Influence of Demography on Threat and Coping Appraisal.

Demography variables	Categories	Sample size ($N = 651$)	Threat appraisal			Coping appraisal		
			Knowledge of COVID-19 indicators	COVID-19 Impact	Severity of impact	Coping strategies	Efficacy of coping strategies	Cost of coping strategies
Gender	Female	331 (50.8 percent)	31.4 (7.6)	58.0 (10.0)	57.6 (8.1)	56.4 (8.6)	55.4 (9.6)	42.0 (13.6)
	Male	320 (49.2 percent)	32.0 (6.9)	56.7 (8.5)	56.1 (8.6)	54.5 (9.8)	52.6 (10.6)	41.2 (12.3)
	t		−1.05	1.71*	2.31*	2.70**	3.45**	.78
	Eta-squared		.0017	.0048	.0082	.1111	.0180	.0009
Locality	Rural	165 (25.3 percent)	32.9 (7.0)	58.6 (7.2)	57.6 (7.8)	54.3 (8.1)	52.3 (9.3)	40.3 (11.7)
	Urban	486 (74.7 percent)	31.3 (7.3)	56.9 (9.9)	56.6 (8.5)	55.9 (9.6)	54.6 (10.4)	40.0 (13.3)
	T		2.51*	2.36*	1.27	−1.88*	−–2.55*	−1.63
	Eta-squared		.0039	.0085	.0025	.0054	.0099	.0041
Access to COVID-19 informationn	Yes	9 (1.4 percent)	36.2 (2.6)	60.0 (3.5)	57.2 (8.6)	50.0 (9.8)	53.9 (9.6)	39.3 (9.6)
	No	642 (98.6 percent)	31.6 (7.3)	5.7.3 (9.4)	56.9 (8.4)	55.5 (9.2)	54.0 (10.2)	41.6 (12.9)
	t		4.98**	.86	.13	−1.79*	−.03	−.52
	Eta-squared		.0151	.0026	.00003	.0049	.00002	.0004
Occupation	Not employed	284 (43.6 percent)	31.7 (7.1)	57.7 (9.2)	57.6 (7.1)	55.4 (9.1)	53.1 (10.6)	41.0 (13.0)
	Employed	367 (56.4 percent)	31.7 (7.3)	5.7.0 (9.4)	56.3 (9.2)	55.5 (9.4)	54.7 (9.8)	42.0 (12.9)
	t		.14	.99	1.95*	−.15*	−2.00*	−1.00
	Eta-squared		.00003	.0015	.0058	.0017	.0092	.0015

(continued)

Table 5. (continued)

Demography variables	Categories	Sample size ($N = 651$)	Threat appraisal			Coping appraisal		
			Knowledge of COVID-19 indicators	COVID-19 Impact	Severity of impact	Coping strategies	Efficacy of coping strategies	Cost of coping strategies
Education	No formal education	28 (4.3 percent)	32.2 (7.5)	59.3 (2.80)	57.1 (5.2)	56.7 (6.9)	55.2 (7.2)	43.8 (10.9)
	Basic education	55 (8.8 percent)	34.9 (6.1)	59.3 (7.2)	57.8 (8.2)	53.7 (10.0)	51.2 (12.2)	50.2 (13.0)
	Secondary education	170 (26.1 percent)	32.5 (6.6)	57.7 (7.8)	57.3 (7.4)	54.3 (9.3)	52.6 (10.7)	42.2 (12.6)
	Tertiary	398 (60.8)	30.9 (7.5)	56.8 (10.4)	56.5 (8.9)	56.1 (9.2)	54.9 (9.6)	40.0 (12.7)
	F		6.02**	1.76	.57	2.50	3.77*	10.98**
	Eta-squared		.0272	.0081	.0026	.0114	.0172	.0484
Age	18–24 years	161 (24.7 percent)	30.2 (6.3)	58.9 (6.9)	58.2 (7.3)	55.3 (9.1)	52.2 (10.9)	40.7 (14.1)
	25–34 years	356 (54.7 percent)	30.6 (8.0)	56.2 (11.1)	55.8 (9.1)	55.4 (9.9)	54.2 (10.3)	41.9 (12.7)
	35–44 years	99 (15.2 percent)	33.7 (5.7)	58.2 (6.0)	57.8 (7.5)	55.6 (7.7)	55.2 (9.0)	41.3 (11.8)
	45 years and above	35 (5.4 percent)	35.8 (4.4)	59.6 (5.1)	59.2 (5.6)	56.6 (7.2)	57.4 (6.1)	43.9 (13.3)
	F		6.95**	3.08*	3.58*	.15	2.59*	.65
	Eta-squared		.0413	.0187	.0021	.0009	.0158	.0040
Country	Ghana	243 (37.3 percent)	32.3 (6.7)	57.5 (8.0)	57.0 (8.5)	56.1 (9.0)	54.1 (11.2)	41.8 (13.2)
	Cameroon	130 (20.0 percent)	28.3 (8.1)	53.8 (14.1)	53.4 (10.0)	53.9 (10.4)	51.5 (10.1)	43.2 (11.3)
	Lesotho	198 (30.4 percent)	32.5 (8.0)	59.5 (5.8)	58.9 (6.3)	56.6 (8.4)	55.7 (9.0)	39.6 (13.9)
	Uganda	80 (12.3 percent)	33.5 (6.4)	57.3 (9.0)	57.2 (8.0)	53.5 (9.3)	53.5 (9.2)	43.1 (11.7)
	F		13.48**	10.33**	12.12**	3.80**	4.57*	2.69*
	Eta squared		.0588	.0457	.0532	.0173	.0207	.0123

Source. Authors' computation from fieldwork, 2020.
Correlation is significant at *$p = .05$ and **$p = .01$.

respondents (employed and unemployed) and severity of impact, coping strategies and the efficacy of responses. In the case of severity of impact, for instance, unemployed respondents ($M = 57.6$, $SD = 7.1$) were more likely to have severe impact of the pandemic than those employed, $M = 56.3$, $SD = 9.2$; $t(649) = 1.95$, $p = .051$. Also, those employed ($M = 54.7$, $SD = 9.8$) were more likely to response better to the pandemic than the unemployed respondents, $M = 53.1$, $SD = 10.6$; $t(649) = -2.00$, $p = .046$.

The results of the ANOVA test also showed significant differences in the level of education of participants and their knowledge of COVID-19, $F(3, 647) = 6.02$, $p = .000$, efficacy of coping strategies, $F(3, 647) = 3.77$, $p = .011$, and the cost of coping strategies, $F(3, 647) = 10.98$, $p = .000$. The significant difference in the knowledge of COVID-19, according to the post hoc test, was found between participants with basic ($M = 34.9$, $SD = 6.1$) and tertiary ($M = 30.9$, $SD = 7.5$) educational qualification. In the case of the cost of responding to COVID-19, the post hoc results showed significant differences between participants with basic ($M = 50.2$, $SD = 13.0$), secondary ($M = 42.2$, $SD = 12.6$) and tertiary ($M = 40.0$, $SD = 12.7$) education qualification. However, the post hoc results showed no significant difference between level of education and efficacy of coping strategies to COVID-19.

In the case of age, except coping strategies and the cost of responding to COVID-19, significant differences were detected in knowledge of COVID-19 indicators, $F(4, 646) = 6.95$, $p = .000$, impact of COVID-19, $F(4, 646) = 3.08$, $p = .016$, severity of COVID-19 impact, $F(4, 646) = 3.58$, $p = .007$, and the efficacy of COVID-19 coping strategies, $F(4, 646) = 2.59$, $p = .036$. In addition, the results also showed significant differences between the participants' countries and knowledge of COVID-19, $F(3, 647) = 13.48$, $p = .000$, impact of the pandemic, $F(3, 647) = 10.33$, $p = .000$, severity of impact, $F(3, 647) = 12.12$, $p = .000$, coping strategies, $F(3, 647) = 3.80$, $p = .010$, efficacy, $F(3, 647) = 4.57$, $p = .004$, and cost, $F(3, 647) = 2.69$, $p = .046$, of coping strategies.

Post hoc test also revealed significant differences between COVID-19 impact on Ghanaian ($M = 32.3$, $SD = 6.7$) and Cameroonian ($M = 28.2$, $SD = 8.1$) respondents as well as Cameroonian ($M = 28.2$, $SD = 8.1$) and Ugandan ($M = 33.5$, $SD = 6.4$) respondents. Similarly, Tukey's HSD results further showed significant difference between respondents from Lesotho ($M = 58.9$, $SD = 6.3$) and Cameroon ($M = 53.4$, $SD = 10.0$) and the severity of the impact of the pandemic. For coping strategies, significant differences existed between respondents from Cameroon ($M = 53.8$, $SD = 10.4$) and Lesotho ($M = 56.6$, $SD = 8.4$).

Determinants of COVID-19 Response Strategies

Pearson product–moment correlation analysis was computed to examine the relationship between the variables under study. Knowledge of COVID-19 had small to medium significant positive relationship with COVID-19 impact ($r = .588$, $p = .001$), severity of COVID-19 impact ($r = .414$, $p = .000$), coping strategies ($r = .119$, $p = .002$) and cost of coping strategies ($r = .107$, $p = .007$). There was a significant positive relationship between the impact of COVID-19 and severity of impact ($r = .728$, $p = .000$), coping strategies ($r = .290$, $p = .000$) and efficacy of coping strategies ($r = .197$, $p = .000$). Again, severity of COVID-19 impact significantly and positively correlated with coping strategies ($r = .432$, $p = .000$), efficacy of response ($r = .331$, $p = .000$) and cost of response ($r = .169$, $p = .000$). Similarly, there was a significant positive relationship between coping strategies and efficacy of response ($r = .663$, $p = .000$), and cost of response ($r = .123$, $p = .000$).

Table 6 shows the results of the hierarchical multiple regression analysis. The model as a whole accounted for a statistically significant 46.8 percent variance in the dependent variable, $F(12, 638) = 46.79$, $p = .000$; see Table A1 in the appendix. Independent demographic variables in model 1 accounted for 2.8 percent variation in the dependent variable, which was statistically

Table 6. Hierarchical Regression Model of the Predictors of Coping Strategies.

Model	*B*	*SE B*	B	*t*	*p*	Relative importance
1						
Gender	−2.37	.74	−.13	−3.20	.00**	.016 (1.6 percent)
Locality of residence	1.50	.85	.07	1.76	.08	.005 (0.5 percent)
Access to COVID-19 information	5.01	3.11	.06	1.61	.11	.004 (0.4 percent)
Occupation	−.17	.82	−.01	−.20	.84	.0001 (0.01 percent)
Education	−2.00	1.79	−.04	−1.12	.26	.003 (0.3 percent)
Country	1.43	.79	.08	1.80	.07	.005 (0.5 percent)
Age	−.27	.92	−.01	−.29	.77	.0001 (0.01 percent)
2						
Gender	−.30	.56	−.02	−.54	.59	.0002 (0.02 percent
Locality of residence	.51	.64	.02	.80	.42	.0005 (0.05 percent)
Access to COVID-19 information	5.38	2.32	.07	2.28	.02*	.0044 (0.44 percent)
Occupation	−.62	.61	−.03	−1.02	.31	.0009 (0.09 percent)
Education	−.73	1.34	−.02	−.55	.58	.0003 (0.03 percent)
Country	1.11	.59	.06	1.89	.05*	.0030 (0.3 percent)
Age	.42	.69	.02	.61	.52	.0003 (0.03 percent)
Knowledge of COVID-19 indicators	−.04	.05	−.03	−.09	.93	.00000
COVID-19 impact	.01	.05	.01	.25	.81	.0001 (0.01 percent)
Severity of impact	.25	.50	.23	5.10	.00**	.0216 (2.16 percent)
Efficacy of coping strategies	.51	.03	.55	17.40	.00**	.2520 (25.2 percent)
Cost of coping strategies	.03	.02	.04	1.58	.12	.0021 (0.21 percent)

Source. Authors' computation from fieldwork, 2020.
Correlation is significant at *$p = .05$ and **$p = .01$.

significant, $F(7, 643) = 2.68$, $p = .010$. In model 2, the variables of interest (thus, knowledge of COVID-19, COVID-19 impact, severity of impact, efficacy of response strategies and cost of response strategies) contributed 44.0 percent additional variance in COVID-19 response strategies, after controlling for the effect of demographic variables.

In model 1, only gender (beta = −.13, $p = .00$) significantly predicted COVID-19 coping strategies. However, in model 2, access to COVID-19 information (beta = .07, $p = .02$), country of respondents (beta = .06, $p = .05$), severity of COVID impact (beta = .23, $p = .00$), and efficacy of COVID-19 coping strategies (beta = .55, $p = .00$) emerged as the significant predictors of COVID-19 coping strategies. Comparatively, efficacy of coping strategies (beta = .55) was the best predictor of COVID-19 response strategies, accounting for about 25 percent of the variation in the model. This is followed by severity of impact (beta = .23), which accounted for 2.2 percent, access to COVID-19 information (beta = .07, .44 percent) and country of respondents (beta = .06, .3 percent).

Discussion

The impact and widespread of COVID-19 call for the urgent need to respond to the pandemic (WHO 2020b). However, responding to the pandemic is dependent on other factors, especially the threats it poses on public health, livelihoods and economies, and the adaptive capacity of communities to respond effectively to the pandemic (Rogers 1975). This is the argument championed by the PMT, which served as the theoretical framework of this study. Indeed, the study provides interesting insights that support the arguments of the theory to a greater extent. The results point to high public knowledge of the indicators of the COVID-19 pandemic. The

respondents, especially those from Uganda, Ghana and Lesotho, showed high knowledge of fever, dyspnea, cough, sore throat and difficulty in breathing, as some of the common symptoms of COVID-19, which is consistent with existing studies that reported high public knowledge of the pandemic (see Fetzer et al. 2020; Parikh et al. 2020).

Consistence with previous studies (Mo Ibrahim Foundation 2020; Ndlovu 2020), this study shows grave impact of the COVID-19 pandemic on health and wellbeing, including loss of lives, increased poverty and food insecurity, loss of income and employment and disruption in educational systems. The impacts of the pandemic have been reported to be severe among the respondents, especially those from Lesotho, owing largely to vulnerable and poor conditions of many African countries (Diop and Asongu 2021; WHO 2020b) and public fear (Perlman 2020). This is no surprise as poverty rates in Lesotho have been reported to be very high (World Bank 2019). Several studies have equally reported micro and macro impacts of the pandemic in different settings, with particular emphasis on COVID-19-induced poverty (Ataguba 2020; Diop and Asongu 2021; Vos, Martin, and Laborde 2020). Intuitively, COVID-19 impacts, in general, and their severity, in particular, have greater potential to erode efforts toward achieving sustainable development goals (SDGs), especially those pertaining to eradication of poverty (SDG 1), improved food security, agriculture and zero hunger (SDG 2), quality healthcare (SDG 3) and education (SDG 4), and reduction in inequality, including gender (SDGs 5 and 10; United Nations 2015).

It is interesting to note that the respondents, especially those from Ghana and Lesotho, have resorted to wearing of nose masks, applying sanitizer, practicing social distance and working or studying from home, among others, which are effective in controlling the contraction and spread of the pandemic, as well as minimize its impact. In the case of Ghana, for instance, the use of security agencies to ensure strict compliance to wearing of nose mask might have contributed to responding to the pandemic. The findings are consistent with results from previous studies on COVID-19 response strategies (Fetzer et al. 2020; Parikh et al. 2020). Maclntyre et al. (2015) also emphasize wearing of nose masks in dealing with SARS, Ebola and influenza pandemics. One of the unique findings of this study is the cost associated with COVID-19 response strategies, which was high among respondents from Cameroon and Uganda. It is evident that responding to COVID-19 involves low to medium cost to the individual, even though state-assisted strategies such as ventilators and mass testing have been reported to be costly, especially in developing African economies (McCaffrey 2020; Nishio 2021; World Bank 2020). Most importantly, responding to COVID-19 has serious financial implications on household income and expenditure in poor and vulnerable rural communities (Ranscombe 2020).

The study highlights the influence of respondents' demographics in COVID-19 threat and coping strategies, which corroborates the arguments by Poussin et al. (2014) and Asare-Nuamah (2020) that demographic variables motivate adaptation behavior . The gender variance in COVID-19 impact and response, for instance, needs particular mention, as political, economic and sociocultural conditions in Africa intersect to make female more vulnerable, due to limited access to essential assets and resources that enhance adaptive capacity and resilient to shocks (Adzawla and Kane 2019; Fisher and Carr 2015). Implicitly, gender variance creates distinct and differential impact and coping response among males and females (Carr and Thompson 2014), with females likely to be the most affected by the pandemic (United Nations 2020). Similarly, knowledge of the COVID-19 pandemic, its impacts and coping response are also differentiated by rural and urban locality of respondents. Without doubt, rural communities are more vulnerable than their urban counterparts due to limited and poor access to information and essential socioeconomic resources (Ranscombe 2020).

The findings further point to the influence of access to COVID-19 information in respondents' knowledge and coping response, which concurs with WHO's (2020a) argument that

having access to accurate and reliable information enhances informed decision making. In the case of occupation, differences in severity of COVID-19 impact and response were observed between employed and unemployed participants. Indeed, Mo Ibrahim Foundation (2020) noted that loss of income increases the severity of the pandemic on unemployed African youth, thereby affecting their adaptive capacity. Essentially, increasing the economic status of people through decent jobs can cushion their adaptive capacity to respond to stressors and shocks (Ataguba 2020; Mo Ibrahim Foundation 2020). Again, the educational differences among the respondents also create differences in their knowledge of COVID-19, efficacy and cost of coping strategies. Without doubt, educated individuals are well-informed and are therefore in a better position to respond to the pandemic by employing effective strategies as opposed to the uneducated. Education also forms a critical component of the human development index due to its role in enhancing access to decent jobs and income, which are essential to resilience and adaptive capacity of individuals (United Nations Development Programme 2020).

It is no surprise that the respondents' age differences also engender differences in threats and coping strategies to COVID-19. This confirms the results of Ho et al. (2020) that an exponential association between age and COVID-19 mortality exists, as the aged (75 years and above) have relatively higher mortality risk to COVID-19. It is also evident from the study that significant differences in COVID-19 threats and coping strategies exist on the basis of the respondents' country of origin. Implicitly, intra-country differences in human development index (health, education and standard of living) coupled with government expenditure on infrastructure in the continent may aggravate or alleviate COVID-19 threats and coping response (Diop and Asongu 2021; World Bank 2020). This supports McCaffrey's (2020) assertion that limited availability of COVID-19 ventilators in some West African countries is explained by their economic conditions. Thus, states with improved economic conditions are in a better position to respond to pandemics such as COVID-19 than their counterparts.

In consonance with the PMT (Rogers 1975), responding to the COVID-19 pandemic is largely explained by threat appraisal (severity of the impact of the pandemic) and coping appraisal (efficacy of coping response). Thus, people are likely to respond to the pandemic when they perceive it to have severe impact on individuals and economies. In addition, the available response strategies must be perceived to be effective to control the pandemic and minimize its impact. However, it emerged from the study that coping appraisal (efficacy of response strategies) is a better predictor of people's mitigation behavior to the pandemic than threat appraisal. This corroborates the findings of Poussin et al. (2014) that coping appraisal exert greater influence in predicting adaptation behavior than threat appraisal.

Conclusion

Using a quantitative cross sectional research design and PMT as the theoretical framework, this study sheds interesting insights into the factors that influence response to COVID-19 in selected African countries. Indeed, the major insights from the study show that there are high perceived COVID-19 threats among the respondents, which necessitate the search for and adoption of coping strategies, such as wearing of nose masks, social distancing and applying hand sanitizer, which are perceived to be effective in controlling the contraction and spread of the pandemic while minimizing its impact. The results also point to the influence of respondents' socioeconomic characteristics on COVID-19 threats and coping appraisal, by engendering variations among the respondents. The results further confirm the proposition by PMT that responding to the COVID-19 pandemic is dependent on the perceived severity of the pandemic and the efficacy of coping strategies, even though the efficacy of coping strategies exerts greater influence in such prediction than the severity of the pandemic.

On the basis of the results, it is imperative for governments in Africa to prioritize COVID-19 education, with particular emphasis on improving public knowledge on the impact of the pandemic and the existing effective response strategies. Such an approach, as argued by PMT, will increase mass response to the pandemic, thereby minimizing its spread and impact. In addition, social intervention programs and incentives that address inequality and vulnerability, and trampoline people from the adverse impact of the pandemic, should be strengthened, particularly in vulnerable communities.

Furthermore, government expenditure on infrastructure, especially those pertaining to human development index (health, education and standard of living) should be improved, to enhance COVID-19 resilience and green recovery in the continent. Further studies should investigate indigenous adaptation strategies that are effective in responding to the pandemic in Africa. It is important to note that the results from the study should be interpreted with caution, as the adopted sampling technique makes it difficult to generalize. Again, the participants included citizens with access to the internet, which may not be representative of the population in the study countries. Notwithstanding the weakness associated with the study, the results offer better understanding of the factors influencing coping response to the pandemic. Further studies involving larger sample size with diversities such as online and offline, rural and urban participants among others, should be considered.

Appendix

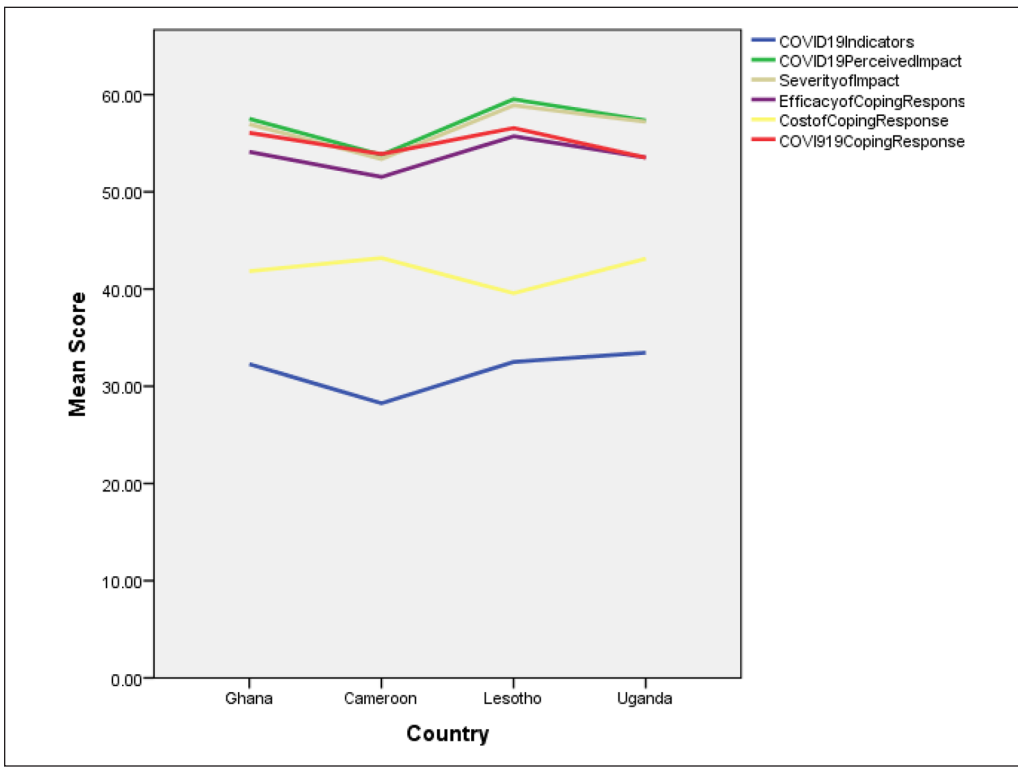

Figure A1. Country distribution of responses.

Table A1. Regression Model Summary.

Model	R	R^2	Adjusted R^2	Std. error of the estimate	F	Sig.
1	.168	.028	.018	9.1508	2.676	.010
2	.684	.468	.458	6.7967	46.785	.000

Source. Authors' computation from fieldwork, 2020.

Questionnaire

This study seeks to examine the determinants of COVID-19 response strategies in selected African countries (Cameroon, Ghana, Lesotho and Rwanda). We seek your consent to participate in this study. Your responses are very much needed and they will be used strictly for academic purpose. Your participation in this study is voluntary and you reserve the right to opt out at any point in time. Your responses will be kept confident and anonymous. Thank you for your participation.

Section A: Demographic profile

1. Gender: [ ] Male [ ] Female
2. Level of education: [ ] No formal education [ ] Basic [ ] Tertiary [ ] Postgraduate
3. Country: [ ] Cameroon [ ] Ghana [ ] Lesotho [ ] Rwanda
4. Locality (residence): [ ] Urban [ ] Rural
5. Age: [ ] 18–24 [ ] 25–34 [ ] 35–44 [ ] 45–54 [ ] 55 and above
6. Access to Covid19 information: [ ] Yes [ ] No
7. Source of access to Covid19 information: [ ] Internet and social media [ ] Radio and Television [ ] Family and friends
8. Occupation: [ ] Employed [ ] Unemployed

Section B: Perceived indicators of COVID-19

Use the scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, 5 = *strongly agree*) to answer the question: What are the indicators (symptoms) of COVID-19?

Variables	1	2	3	4	5
Fever					
Dyspnea (difficulty in breathing)					
Sore throat					
Excessive coughs					
Pneumonia					
Severe acute respiratory syndrome					
Kidney failure					

Section C: Perceived impacts of COVID-19 on society and economy

Use the scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, 5 = *strongly agree*) to answer the question: What are the impacts of COVID-19 on society and economy?

Variables	1	2	3	4	5
Mass infection					
Loss of lives					
Impact on health and wellbeing					
Impact on sociocultural norms and practices					
Loss/reduction of income					
Increases unemployment					
Increases poverty					
Impact on agricultural production					
Increases hunger/food insecurity					
Disruption of education system					
Restrictions of human rights					
Creates fear and panic (emotional/psychological impacts)					
Impact on social network and relations					

Section D: Severity of perceived impacts of COVID-19 on society and economy

Use the scale (1 = *not very severe*, 2 = *not severe*, 3 = *neutral*, 4 = *severe*, 5 = *very severe*) to answer the question: How severe are the impacts of COVID-19 on society and economy?

Variables	1	2	3	4	5
Mass infection					
Loss of lives					
Impact on health and wellbeing					
Impact on sociocultural norms and practices					
Loss/reduction in income					
Increases unemployment					
Increases poverty					
Impact on agricultural production					
Increases hunger/food insecurity					
Disruption of education system					
Restrictions of human rights					
Creates fear and panic (emotional/psychological challenges)					
Impact on social network and relations					

Section E: Coping/response strategies

Use the scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, 5 = *strongly agree*) to answer the question: Have you responded to COVID-19 with the following coping response?

Variables	1	2	3	4	5
Regular washing of hands					
Practice social distancing					
Apply sanitizer					
Practice personal hygiene					
Wear nose masks					
Regular check-up					
Cover nose and mouth with elbow when sneezing/coughing, etc.					
Regular water intake					
Regular intake of fruits and immune boosters					
Disinfect surfaces regularly					
Regular exercise					
Withdraw from infected persons					
Work or study from home					

Section F: Efficacy of coping strategies

Use the scale (1 = *highly ineffective*, 2 = *ineffective*, 3 = *neutral*, 4 = *effective*, 5 = *highly effective*) to answer the question: How effective are the following coping strategies in preventing the spread and reducing the impact of COVID-19?

Variables	1	2	3	4	5
Regular washing of hands					
Practice social distancing					
Apply sanitizers					
Practice personal hygiene					
Wear nose masks					
Regular check-up					
Cover nose and mouth with elbow when sneezing/coughing, etc.					
Regular water intake					
Regular intake of fruits and immune boosters					
Disinfect surfaces regularly					
Regular exercise					
Withdraw from infected persons					
Work or study from home					

Section G: Cost of coping strategies (money and time)

Use the scale (1 = *not very costly*, 2 = *not costly*, 3 = *neutral*, 4 = *costly*, 5 = *very costly*) to answer the question: How is costly (money and time) is to practice the following coping strategies?

Variables	1	2	3	4	5
Regular washing of hands					
Practice social distancing					
Apply sanitizers					
Practice personal hygiene					
Wear nose masks					
Regular check-up					
Cover nose and mouth with elbow when sneezing/coughing, etc.					
Regular water intake					
Regular intake of fruits and immune boosters					
Disinfect surfaces regularly					
Regular exercise					
Withdraw from infected persons					
Work or study from home					

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