Knowledge, Attitude and Perception of People towards the Novel Coronavirus Disease (COVID-19) Outbreak and its Effects on their Livelihoods: Perspectives from Diverse Populations

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Abstract

Background: People's behavior and compliance with COVID-19 control measures is associated with their knowledge, attitude and perceptions (KAP). To this end, we investigated the KAP among people from diverse populations towards the COVID-19 pandemic. We also examined the impact of the outbreak on their livelihoods.

Methods: A cross sectional study with the adoption of a 31-item questionnaire divided into five sections namely demographics, knowledge, attitudes, perception and effect on livelihood. Six countries were considered with Australia, United Kingdom and USA in developed countries category; India, Nigeria and South Africa were considered in developing countries category. Reponses were compared by development status.

Results: A total of 577 responses were received with 55.5% female and 49% below the age of 35 years. Respondents from developed countries had significantly better knowledge than their counterparts from developing countries on majority (67%) of the items including symptoms, high risk groups, transmission routes and treatment options for COVID-19. Majority of respondents from both groups were genuinely worried as expected in pandemics. Their top two concerns were lack of cure and inadequate medical facilities. All respondents perceive COVID-19 as a serious public health challenge. Developing countries had more respondents employed in private sector and experienced higher job loss rate (13.2%) than developing countries (7.0%). Most persons from developing countries disagree that their governments are doing enough to provide financial and material support to the citizens.

Conclusion: Knowledge gaps were identified, particularly in developing countries. Attitudes and perceptions are mostly comparable between both groups. Health education programs can help improve people's perception and attitude toward the disease. We encourage the governments to develop economic initiatives to stem the effect of the disease on people's livelihoods.

Keywords: COVID-19 • Knowledge • Attitude • Perception • Livelihood

Introduction

Coronaviruses (CoVs) are enveloped positive-sense single-stranded RNA viruses belonging to the large family *Coronaviridae* in the order *Nidovirales*. They are one of the largest RNA virus group with genome size ranging approximately from 26 to 32 kilobases [1]. CoVs are widely distributed among birds and small mammals, however, they have adapted to infect humans in recent decades, causing mild to fatal respiratory tract infections such as pneumonia. Common clinical presentation of coronavirus infection may include fever, cough, and fatigue, while diarrhea and dyspnea have also been reported in some patients infected with the virus [2]. Coronavirus strains have been responsible for a number of outbreaks in recent years including the severe acute respiratory syndrome (SARS-CoV) of 2003, the Middle-East respiratory syndrome (MERS-CoV) of 2012 and most recently, the coronavirus disease 2019 (COVID-19) [3].

The COVID-19 was initially linked to the outbreak of a respiratory illness in Wuhan, China at the start of December 2019, by the end of January 2020, the spread of the epidemic has been reported in about twenty other countries with about 11791 confirmed infection cases and two hundred and thirteen mortalities [4]. This prompted the World Health Organization (WHO) to declare the disease a public health emergency of international concern on 31 January 2020 [5] and a global pandemic on 11 March 2020 [6].

The aetiological agent of the COVID-19 outbreaks is a novel CoV strain designated SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2), which many health experts believed to have originated in bats or pangolins and subsequently gained an advantage of overcoming the animal-human barrier [7] noted that there is a high possibility of periodical emergence of novel coronavirus strains due to a number of factors such as high prevalence and wide distribution of coronaviruses, the large genetic diversity and frequent recombination of their genomes, and increasing human-animal interface activities, among others. Recent genomic comparisons of the SARS-CoV-2, however, suggested that the virus resulted from recombination between two different virus strains, leaving many gray areas as to the origin of the virus presently [8,9].

Rising international travels, unprepared health systems across the world and various other complex underlying factors have inadvertently contributed to the transmission of diseases during recent outbreaks, including the current COVID-19 pandemic, even in highly developed countries [10,11]. According to the WHO and the ECDC [12] the global statistics of the COVID-19 pandemic stands at over 4 500 000 infections and more than 300 000 deaths by mid-May 2020 [13], placing the global public health in an unprecedented situation with health systems in many countries being incredibly overwhelmed as a result of the burden of the outbreak. Besides the public health implications of global pandemic events, the socioeconomic consequences of infectious disease outbreaks are far-reaching but are often not considered in risk assessments. With rapid and extensive international travel and trade, the COVID-19 pandemic has elicited economic shock waves far beyond the realm of traditional health sectors across the world. Greater appreciation of the economy-wide impacts of epidemics is necessary [14]. Although the risk and transmission of infectious diseases are often complex, policymakers have various tools which they deployed to limit the proliferation of outbreaks and minimize the health and economic impacts of outbreaks that cannot be prevented or immediately contained.

Given the pandemic proportion of the COVID-19 as well as its health and socioeconomic impacts, the WHO has responded rapidly by advising various national and local authorities and the general public on measures to curtail the spread of the diseases. These include regular and thorough washing of hands using soap and water or alcohol-based sanitizers, maintaining social distancing, stay-at-home and self-isolation directives, among others [15]. Different countries have reacted differently to some of these unprecedented control measures. Generally, the knowledge, attitude and perceptions (KAP) of various countries determines the acceptance and adherence to these measures which in most cases have had profound effects on peoples' general way of living. It is known that human behavior is affected by knowledge and perceptions [16,17]. Health education programs aimed at improving knowledge about COVID-19 will assist individuals to hold optimistic attitude and maintain appropriate perceptions. To facilitate the management of outbreaks, it is necessary to understand the public's awareness of the COVID-19 pandemic at this critical moment.

Based on the aforementioned, the objective of this study were to investigate the KAP towards the COVID-19 and how effective the efforts of governments have been in mitigating the spread of the disease and to determine the effects of the outbreak on sources of livelihood among diverse populations around the world. An understanding of the public behavior towards the health, economic and socio-political sides of the COVID-19 pandemic will surely assist policymakers and the academia in bringing new evidence towards fighting the disease and future outbreaks and may drive the progress of relevant models.

Materials and Methods

Study design

This was a cross-sectional, descriptive, quantitative study that employed questionnaire for data collection among a convenience sample of respondents.

Population

The target populations were residents of the six countries of Australia, India, Nigeria, South Africa, United Kingdom (UK) and United States of America (USA). Given that there are notable differences in education levels, cultures, customs and beliefs, access to information, including those regarding health, [18,19]. The Institute for the Study of Human Knowledge [20,21] we decided to segment the responses by country's development status.

We used the World Economic Situation and Prospects [22] classification by the United Nations (2014) to classify these countries into developed versus developing categories. Six countries were selected. Australia, UK and the USA were the selected in the developed countries category while India, Nigeria and South Africa were selected in the developing countries group.

Design of questionnaire

The study questionnaire was designed specifically to collect information relating to knowledge, perception and attitude towards COVID-19 and the impact on the livelihoods of the respondents. It also included items to collect certain socio-demographic characteristics. In all, there were 31 items divided into five sections. The sections were background characteristics (5 items), knowledge (11 items), attitude (6 items), perception (5 items) and livelihood (4 items). Most questions were closed-ended with a few designed as semi-open to allow for the incorporation of an "other" category where respondents were able to specify options not explicitly listed under the question. Evaluation of participants' knowledge, attitude and perceptions included questions on the cause, clinical presentations and prevention of the proliferation of COVID-19. Assessment of effects on livelihood seeks to evaluate government interventions and their direct and indirect impacts of individuals and family livelihoods.

Sample size estimate

Sample size was estimated using the Raosoft online sample size calculator [23]. Given that there was no prior knowledge of the parameters to be estimated, we took a radical approach and assumed a 50%-50% response distribution which estimates a higher sample size in order to meet the target precision. This along with a 95% confidence level and a 5% margin of error resulted in an estimated minimum sample size of 384.

Data collection

The survey was deployed from approximately five weeks (April 18 to May 24, 2020) when most countries were on lockdown, either totally or partially or some other form of restrictions. Data were collected online using google forms. We relied on the authors' networks to distribute the link to the survey. The link, along with a brief message outlining the objectives and voluntary nature of the sure, was distributed using social media platforms such as WhatsApp, Twitter, and Facebook and Telegram. The message and the accompanying link were also posted to several message board sites including Reddit. Individuals were also encouraged to share the message, along with the link emails.

Statistical Analysis

Statistical analysis techniques used included descriptive statistics (count with percentages and mean with standard deviations) to summarize the responses. Chi-square test of independence was used to test if there exist significant associations between categorical responses and development status of countries. Fisher's exact test was performed when at least one expected frequency was less than 5. For the single continuous variable included, an independent samples t-test was used to test for significant difference in means of responses. The level of significance for all tests was set at $\alpha = 0.05$. For knowledge-based questions, only correct response categories were compared. The correct responses are denoted by asterisks (*) in Table 2. All analyses were performed using R Studio 1.1.463 [24] running R 3.6.3. [25].

Results and Discussions

A total of 577 responses were received from these countries during the survey period. This breaks down to 31 responses from Australia, 37 from UK and 167 from USA for a total of 235 from developed countries. Responses received from the three developing countries of India, Nigeria and South Africa were 64, 218 and 60 respectively for a total of 342. The significant difference in the response rate between both categories of countries was not surprising; [26] noted in their report of a Pew Research Center survey that individuals in developing countries generally network through social media more than those in developed countries despite individuals in developed countries having greater access to the internet and communication gadgets. The implication of this for our study was a lower distribution rate of the survey link in developed countries, as noted above.

From examining the background characteristics of respondents, proportion of female respondents was significantly lower in developed countries (66.4%) compared to 48.0% in developing countries ($p<.001$). Overall, female made up 55.5% of the sample. In terms of age, majority of the respondents were in the 25-34 age category. There was an association between age groups and development status of country ($p<.001$). An overwhelming majority of the respondents are well educated with 57.9% having a post-graduate/advanced/professional education and 36.6% having undergraduate/first degree/college education in developed countries. These percentages are 57.3% and 38.6% respectively in developing countries and are comparable to those from the developed countries ($p=.112$). Majority of respondents were married but there were disparities in the distributions of marital status based on development status ($p<.001$). The detailed background characteristics of respondents are presented in Table 1.

These findings support those of Poushter et al. in which they found that younger people use the internet than their older counterparts and that well-educated adults use the internet than their less-educated counterparts. We had a greater proportion of our respondents to be female while Poushter et al. found that men are generally more likely to use the internet particularly in the developing world. In developing countries, our results revealed that lower proportion of female participated in our study. Poushter et al. had noted that females were less likely to use the internet compared to males; they, however, did not find any significant overall gender difference in internet usage [26].

Knowledge of COVID-19

In Table 2, we present the distribution of the knowledge of the respondents by country and development status. Respondents from developed countries generally showed a better knowledge of COVID-19 than their counterparts from developing countries. Of the twenty-one correct response categories

Table 1: Characteristics of respondents.

	Developed Countries				Developing Countries				*p*-value†
	Australia	United Kingdom	USA	Total	India	Nigeria	South Africa	Total	
C1. Number of respondents	31	37	167	235	64	218	60	342	<.001
C2. Female	14 (45.2)	19 (51.4)	123 (73.7)	156 (66.4)	30 (46.9)	108 (49.5)	26 (43.3)	164 (48.0)	<.001
C3. Age group									
24 and below	2 (6.5)	2 (5.4)	21 (12.6)	25 (10.6)	16 (25.0)	63 (28.9)	6 (10.0)	85 (24.9)	<.001
25 – 34	15 (48.4)	8 (21.6)	43 (25.7)	66 (28.1)	19 (29.7)	63 (28.9)	25 (41.7)	107 (31.3)	
35 – 44	4 (12.9)	14 (37.8)	34 (20.4)	52 (22.1)	9 (14.1)	57 (26.1)	23 (38.3)	89 (26.0)	
45 – 54	4 (12.9)	7 (18.9)	31 (18.6)	42 (17.9)	13 (20.3)	23 (10.6)	5 (8.3)	41 (12)	
55 – 64	3 (9.7)	5 (13.5)	28 (16.8)	36 (15.3)	4 (6.3)	11 (5.0)	1 (1.7)	16 (4.7)	
65 and above	3 (9.7)	1 (2.7)	10 (6.0)	14 (6.0)	3 (4.7)	1 (0.5)	0 (0.0)	4 (1.2)	
C4. Education									
Elementary/primary education	0 (0.0)	0 (0.0)	4 (2.4)	4 (1.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0.112
High school/secondary education	3 (9.7)	1 (2.7)	5 (3.0)	9 (3.8)	5 (7.8)	7 (3.2)	2 (3.3)	14 (4.1)	
Undergraduate/first degree/college education	9 (29.0)	11 (29.7)	66 (39.5)	86 (36.6)	16 (25)	103 (47.2)	13 (21.7)	132 (38.6)	
Post-graduate/advanced/professional education	19 (61.3)	25 (67.6)	92 (55.1)	136 (57.9)	43 (67.2)	108 (49.5)	45 (75.0)	196 (57.3)	
C5. Marital status									
Co-habiting	3 (9.7)	0 (0.0)	10 (6.0)	13 (5.5)	0 (0.0)	0 (0.0)	3 (5.0)	3 (0.9)	<.001
Divorced	0 (0.0)	2 (5.4)	10 (6.0)	12 (5.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	
Married	18 (58.1)	29 (78.4)	91 (54.5)	138 (58.7)	35 (54.7)	97 (44.5)	29 (48.3)	161 (47.1)	
Re-married	1 (3.2)	0 (0.0)	0 (0.0)	1 (0.4)	1 (1.6)	0 (0.0)	0 (0.0)	1 (0.3)	
Separated	0 (0.0)	0 (0.0)	1 (0.6)	1 (0.4)	0 (0.0)	3 (1.4)	0 (0.0)	3 (0.9)	
Single	9 (29.0)	6 (16.2)	54 (32.3)	69 (29.4)	28 (43.8)	116 (53.2)	28 (46.7)	172 (50.3)	
Widowed	0 (0.0)	0 (0.0)	1 (0.6)	1 (0.4)	0 (0.0)	2 (0.9)	0 (0.0)	2 (0.6)	

Data represent n (%) except for C1 which shows number of respondents
†*p*-value represents comparison of developed countries and developing countries totals

(denoted with * in Table 2) that were compared, fourteen were significantly different based on development status with developed countries having a greater proportion in all categories. The knowledge-based categories that are significantly different based on development status [with proportions listed as developed versus developing] are symptoms of COVID-19 (65.1% vs. 41.5%), groups at higher risk for severe illness due to COVID-19 [Older adults usually of 65 years of age and above (70.6% vs. 57.0%); People of any age who have serious underlying medical conditions (87.7% vs. 69.6%); People with severe obesity (29.3% vs. 32%)], and mode of transmission [Through airborne droplets produced when an infected person coughs or sneezes (91.9% vs. 79.2%); By touching a surface or object contaminated by the virus and then touching ones mouth, nose, or eyes (96.6% vs. 86.3%)]. Others are knowledge of no proven and approved cure of COVID-19 (90.6% vs. 76.9%), knowledge of treatment options used to manage COVID-19 (61.3% vs. 39.5%) and the use of previous antiviral drugs for treatment (40.9% vs. 20.5%) and use of ventilators (50.6% vs. 29.2%).

A slightly greater proportion (90.1%) of developing countries respondents believe that spread of COVID-19 can be mitigated, compared to 85.1% for developed countries; however, there was no significant difference in these proportions (p = .095).

The differences in knowledge experienced between the groups might be due to varying factors such as access to information sources or information available, literacy level, government effort at educating the citizens among others. However, this disparity is unsurprising, it is known that many developing countries suffer from inadequate knowledge and education to prevent diseases or adequately treat them [27]. Good knowledge of COVID-19 is particularly essential especially how to prevent and manage the disease if contracted along with symptoms to watch out for given that no vaccine or generally proven and acceptable treatment method currently exists Table 2.

Attitude towards COVID-19

Table 3 shows the results for respondents' attitude towards COVID-19. The results show that majority of respondents from developed (87.7%) and developing (85.1%) countries, have some form of worry about contracting the virus. Both groups of respondents have the same top two causes of worries although there were significant differences in the proportions for both based on development status. Listed as developed versus developing, these causes were lack of cure (63.4% vs. 52.0%) and lack of adequate medical facilities/equipment (46.0% vs. 57.9%). Completing the top three for developed countries was fear of death (40.4%) while lack of adequate medical personnel (36.3%) completes the top three for developing countries. Lack of adequate medical personnel ranked fourth on the list of causes of worry for developed countries with 34.0% and it was surprising that this proportion was not significantly different from 36.3% for developing countries despite a documented healthcare worker inadequacy in developing countries [28, 29]. An overwhelming majority of the respondents have also altered their daily routines in one way or another; there was no significance difference in this category with only 1.7% from developed countries and 2% from developing countries having not changed their routine at all. Also, majority now wear facemasks with 13.2% from developed countries and 21.9% from developing countries never wearing facemasks. In developed countries, 94.5% were staying at home and practice social distancing; the rate for developing countries was comparable at 94.7%. In developed countries, most of the few that were not staying at home, practicing social distancing essential workers; this was not the case in developing countries.

The worry by most of the respondents were genuine, this is not uncommon during pandemics. According to a survey by [30] conducted during the same time as our study, a high percentage of respondents from the three countries

Table 2: Knowledge of COVID-19.

	Developed Countries				Developing Countries				*p*-value†
	Australia	United kingdom	USA	Total	India	Nigeria	South Africa	Total	
K1. What do you understand COVID-19 to be?									
A biological weapon by the world's superpower countries	2 (6.5)	3 (8.1)	8 (4.8)	13 (5.5)	10 (15.6)	10 (4.6)	10 (16.7)	30 (8.8)	
A punishment by the higher power (God) for human's immoral behaviors	1 (3.2)	2 (5.4)	1 (0.6)	4 (1.7)	3 (4.7)	8 (3.7)	3 (5)	14 (4.1)	
A respiratory illness caused by Coronavirus*	28 (90.3)	31 (83.8)	150 (89.8)	209 (88.9)	49 (76.6)	197 (90.4)	46 (76.7)	292 (85.4)	0.265
I don't know	0 (0.0)	1 (2.7)	2 (1.2)	3 (1.3)	2 (3.1)	1 (0.5)	0 (0.0)	3 (0.9)	
Other	0 (0.0)	0 (0.0)	6 (3.6)	6 (2.6)	0 (0.0)	2 (0.9)	1 (1.7)	3 (0.9)	
K2. What are the symptoms of COVID-19?									
Fever	0 (0.0)	1 (2.7)	1 (0.6)	2 (0.9)	2 (3.1)	0 (0.0)	0 (0.0)	2 (0.6)	
Dry cough	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (6.3)	0 (0.0)	2 (3.3)	6 (1.8)	
Difficulty in breathing	0 (0.0)	1 (2.7)	4 (2.4)	5 (2.1)	3 (4.7)	5 (2.3)	3 (5.0)	11 (3.2)	
Sneezing	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.9)	0 (0.0)	2 (0.6)	
Fever, dry cough and difficulty in breathing only*	24 (77.4)	23 (62.2)	106 (63.5)	153 (65.1)	35 (54.7)	84 (38.5)	23 (38.3)	142 (41.5)	<.001
All of the above	7 (22.6)	12 (32.4)	56 (33.5)	75 (31.9)	19 (29.7)	126 (57.8)	32 (53.3)	177 (51.8)	
None of the above	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.6)	1 (0.5)	0 (0.0)	2 (0.6)	
K3. Individuals who come in contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place for an observation period of 14 days.									
Yes*	30 (96.8)	36 (97.3)	162 (97)	228 (97)	63 (98.4)	217 (99.5)	56 (93.3)	336 (98.2)	0.491
No	1 (3.2)	1 (2.7)	3 (1.8)	5 (2.1)	1 (1.6)	0 (0.0)	2 (3.3)	3 (0.9)	
I don't know	0 (0.0)	0 (0.0)	2 (1.2)	2 (0.9)	0 (0.0)	1 (0.5)	2 (3.3)	3 (0.9)	
K4. Which group(s) is/are at higher risk for severe illness due to COVID-19? ‡‡									
Older adults usually of 65 years of age and above*	25 (80.6)	20 (54.1)	121 (72.5)	166 (70.6)	42 (65.6)	120 (55)	33 (55)	195 (57.0)	0.001
People of any age who have serious underlying medical conditions*	26 (83.9)	34 (91.9)	146 (87.4)	206 (87.7)	37 (57.8)	155 (71.1)	46 (76.7)	238 (69.6)	<.001
People with severe obesity*	5 (16.1)	8 (21.6)	57 (34.1)	70 (29.8)	4 (6.3)	6 (2.8)	1 (1.7)	11 (3.2)	<.001
Children, youths and adolescents	1 (3.2)	2 (5.4)	13 (7.8)	16 (6.8)	6 (9.4)	5 (2.3)	1 (1.7)	12 (3.5)	
Other	0 (0.0)	0 (0.0)	4 (2.4)	4 (1.7)	0 (0.0)	2 (0.9)	1 (1.7)	3 (0.9)	
K5. What are the modes of transmission of COVID-19? ‡‡									
Handshake*	26 (83.9)	28 (75.7)	111 (66.5)	165 (70.2)	41 (64.1)	147 (67.4)	42 (70.0)	230 (67.3)	0.509
Through airborne droplets produced when an infected person coughs or sneezes*	30 (96.8)	35 (94.6)	151 (90.4)	216 (91.9)	43 (67.2)	181 (83.0)	47 (78.3)	271 (79.2)	<.001
By touching a surface or object contaminated by the virus and then touching ones mouth, nose or eyes*	30 (96.8)	36 (97.3)	161 (96.4)	227 (96.6)	53 (82.8)	189 (86.7)	53 (88.3)	295 (86.3)	<.001
Body Contacts	21 (67.7)	18 (48.6)	81 (48.5)	120 (51.1)	30 (46.9)	125 (57.3)	27 (45.0)	182 (53.2)	
Immoral behaviors	2 (6.5)	4 (10.8)	8 (4.8)	14 (6.0)	4 (6.3)	24 (11.0)	3 (5.0)	31 (9.1)	
5G network	1 (3.2)	0 (0.0)	1 (0.6)	2 (0.9)	0 (0.0)	1 (0.5)	4 (6.7)	5 (1.5)	
K6. Can we mitigate the spread of COVID-19?									
Yes*	30 (96.8)	31 (83.8)	139 (83.2)	200 (85.1)	52 (81.3)	207 (95)	49 (81.7)	308 (90.1)	0.095
No (Skip to question K8)	0 (0.0)	1 (2.7)	3 (1.8)	4 (1.7)	0 (0.0)	1 (0.5)	0 (0.0)	1 (0.3)	
Not sure (Skip to question K8)	1 (3.2)	5 (13.5)	25 (15)	31 (13.2)	12 (18.8)	10 (4.6)	11 (18.3)	33 (9.6)	

K7. How can we mitigate the spread of COVID-19? ‡‡									
(This is a follow-up to "yes" on question K6)									
Social distancing/avoiding crowds*	29 (93.5)	30 (81.1)	138 (82.6)	197 (83.8)	52 (81.3)	195 (89.4)	46 (76.7)	293 (85.7)	0.625
Use of protective gear e.g. face mask*	28 (90.3)	29 (78.4)	136 (81.4)	193 (82.1)	42 (65.6)	180 (82.6)	41 (68.3)	263 (76.9)	0.158
Regular hand washing/use of hand sanitizer*	30 (96.8)	30 (81.1)	135 (80.8)	195 (83.0)	42 (65.6)	186 (85.3)	43 (71.7)	271 (79.2)	0.312
Coughing and Sneezing into the elbow*	27 (87.1)	24 (64.9)	122 (73.1)	173 (73.6)	31 (48.4)	169 (77.5)	38 (63.3)	238 (69.6)	0.339
Prayers to a higher power (God)	3 (9.7)	14 (37.8)	54 (32.3)	71 (30.2)	9 (14.1)	121 (55.5)	27 (45)	157 (45.9)	
Other	0 (0.0)	0 (0.0)	2 (1.2)	2 (0.9)	0 (0.0)	7 (3.2)	4 (6.7)	11 (3.2)	
K8. Is there any proven and approved cure of COVID-19?									
Yes	0 (0.0)	0 (0.0)	4 (2.4)	4 (1.7)	5 (7.8)	7 (3.2)	4 (6.7)	16 (4.7)	
No (Skip to question K10)*	31 (100.0)	36 (97.3)	146 (87.4)	213 (90.6)	47 (73.4)	171 (78.4)	45 (75.0)	263 (76.9)	<.001
Not sure (Skip to question K10)	0 (0.0)	1 (2.7)	17 (10.2)	18 (7.7)	12 (18.8)	40 (18.3)	11 (18.3)	63 (18.4)	
K9. Which of the following is/are proven and approved cure of COVID-19? ‡‡									
(This is a follow-up to "yes" on question K8)									
Hydroxychloroquine	0 (0.0)	0 (0.0)	3 (1.8)	3 (1.3)	5 (7.8)	5 (2.3)	1 (1.7)	11 (3.2)	
Some previous antiviral drugs e.g. Remdesivir etc.	0 (0.0)	0 (0.0)	2 (1.2)	2 (0.9)	1 (1.6)	2 (0.9)	0 (0.0)	3 (0.9)	
Ventilators/oxygen machines	0 (0.0)	0 (0.0)	1 (0.6)	1 (0.4)	1 (1.6)	5 (2.3)	1 (1.7)	7 (2.0)	
Vitamin C	0 (0.0)	0 (0.0)	3 (1.8)	3 (1.3)	1 (1.6)	6 (2.8)	0 (0.0)	7 (2.0)	
Herbal Medicine	0 (0.0)	0 (0.0)	3 (1.8)	3 (1.3)	1 (1.6)	3 (1.4)	1 (1.7)	5 (1.5)	
Tea/lemon drinks	0 (0.0)	0 (0.0)	1 (0.6)	1 (0.4)	0 (0.0)	5 (2.3)	0 (0.0)	5 (1.5)	
Spiritual therapy	0 (0.0)	0 (0.0)	1 (0.6)	1 (0.4)	0 (0.0)	1 (0.5)	1 (1.7)	2 (0.6)	
Other	0 (0.0)	0 (0.0)	1 (0.6)	1 (0.4)	0 (0.0)	2 (0.9)	0 (0.0)	2 (0.6)	
K10. Since you are not sure or do not know of any proven and approved cure, do you know of any treatment options used by health professionals and individuals for the management of the health of those that have COVID-19 disease?									
(This is a follow-up to "no" and "not sure" on question K8)									
Yes*	16 (51.6)	20 (54.1)	108 (64.7)	144 (61.3)	29 (45.3)	89 (40.8)	17 (28.3)	135 (39.5)	<.001
No	12 (38.7)	10 (27.0)	39 (23.4)	61 (26.0)	22 (34.4)	107 (49.1)	31 (51.7)	160 (46.8)	
Not sure	3 (9.7)	7 (18.9)	16 (9.6)	26 (11.1)	9 (14.1)	15 (6.9)	8 (13.3)	32 (9.4)	
K11. Which COVID-19 treatment option(s) are you aware of? ‡‡									
(This is a follow-up to question K10)									
Hydroxychloroquine	13 (41.9)	12 (32.4)	85 (50.9)	110 (46.8)	25 (39.1)	70 (32.1)	10 (16.7)	105 (30.7)	
Some previous antiviral drugs e.g. Remdesivir etc.*	13 (41.9)	10 (27)	73 (43.7)	96 (40.9)	17 (26.6)	44 (20.2)	9 (15.0)	70 (20.5)	<.001
Ventilators/oxygen machines*	14 (45.2)	16 (43.2)	89 (53.3)	119 (50.6)	18 (28.1)	70 (32.1)	12 (20.0)	100 (29.2)	<.001
Vitamin C	7 (22.6)	10 (27)	48 (28.7)	65 (27.7)	13 (20.3)	57 (26.1)	12 (20.0)	82 (24)	
Herbal Medicine	2 (6.5)	5 (13.5)	16 (9.6)	23 (9.8)	5 (7.8)	24 (11)	5 (8.3)	34 (9.9)	
Tea/lemon drinks	4 (12.9)	7 (18.9)	25 (15.0)	36 (15.3)	10 (15.6)	33 (15.1)	9 (15.0)	52 (15.2)	
Spiritual therapy	0 (0.0)	3 (8.1)	11 (6.6)	14 (6.0)	1 (1.6)	6 (2.8)	5 (8.3)	12 (3.5)	
Other	0 (0.0)	1 (2.7)	4 (2.4)	5 (2.1)	1 (1.6)	1 (0.5)	1 (1.7)	3 (0.9)	

Data represent n (%)
‡‡ Indicates multiple select questions
*Only Correct response(s) were compared
†*p*-value represents comparison of developed countries and developing countries totals

of Germany, UK and USA were worried for various reasons. Evidence from other surveys showed that people are also worried about their mental health and depression, the economy and food security [31,32]. Regarding a higher percentage of respondents from developing countries being worried about lack of adequate medical facilities/equipment, it is known that most developing economies do not have proper infrastructure including those of healthcare [33]. We were not sure of the reasons why those that were not essential workers in developing countries were not staying at home practicing social distancing, particularly given that most of them were not essential workers. This is also surprising given that most of them had signified that they were worried about contracting the virus. This signified that there might be a lack of compliance on the part of the citizens with directives by most governments based on recommendations by scientists to social distance and use facemasks when necessary Table 3.

Perception towards COVID-19

When asked about their perception of COVID-19 as a public health problem, all respondents were aware of the virus. Both groups of respondents considered the disease to be a serious public health problem and there was no significant difference in this views (p=.237). The mean rating for developed countries was 9.0 (*sd*= 1.7), coincidentally, this was same as the findings by [34] in their survey among adults with chronic conditions at the onset of the U.S. COVID-19 Outbreak.

In terms of the proportion expected to contract the virus, there were significant differences in opinions based on development status of countries (p<.001). While the top choice (27.7%) for respondents from developed countries was "50% and above", the top choice for developing countries was "0% - 9%" (22.5%). Together, 78.3% from developed countries thought 20% or more of

Table 3: Attitude towards COVID-19.

	Developed Countries				Developing Countries				*p*-value†
	Australia	United Kingdom	USA	Total	India	Nigeria	South Africa	Total	
A1. How worried are you about contracting COVID-19?									
Very Worried	4 (12.9)	16 (43.2)	49 (29.3)	69 (29.4)	19 (29.7)	79 (36.2)	30 (50.0)	128 (37.4)	0.054
A little worried	11 (35.5)	6 (16.2)	43 (25.7)	60 (25.5)	16 (25.0)	57 (26.1)	9 (15.0)	82 (24.0)	
Somewhat worried	13 (41.9)	6 (16.2)	58 (34.7)	77 (32.8)	24 (37.5)	47 (21.6)	10 (16.7)	81 (23.7)	
Not at all worried (Skip to question A3)	3 (9.7)	9 (24.3)	17 (10.2)	29 (12.3)	5 (7.8)	35 (16.1)	11 (18.3)	51 (14.9)	
A2. What is the cause of your worry? ‡‡									
Fear of isolation/quarantine	12 (38.7)	4 (10.8)	33 (19.8)	49 (20.9)	21 (32.8)	39 (17.9)	12 (20.0)	72 (21.1)	1
Fear of death	17 (54.8)	15 (40.5)	63 (37.7)	95 (40.4)	20 (31.3)	55 (25.2)	22 (36.7)	97 (28.4)	0.003
Stigmatization	8 (25.8)	2 (5.4)	10 (6.0)	20 (8.5)	3 (4.7)	39 (17.9)	6 (10.0)	48 (14.0)	0.059
Lack of adequate medical facilities/equipment	11 (35.5)	15 (40.5)	82 (49.1)	108 (46.0)	27 (42.2)	140 (64.2)	31 (51.7)	198 (57.9)	0.006
Lack of adequate medical personnel	8 (25.8)	12 (32.4)	60 (35.9)	80 (34.0)	15 (23.4)	85 (39.0)	24 (40.0)	124 (36.3)	0.647
Lack of cure	22 (71.0)	20 (54.1)	107 (64.1)	149 (63.4)	29 (45.3)	114 (52.3)	35 (58.3)	178 (52.0)	0.009
Other	3 (9.7)	1 (2.7)	17 (10.2)	21 (8.9)	3 (4.7)	6 (2.8)	2 (3.3)	11 (3.2)	0.006
A3. By how much has COVID-19 caused you to change your daily routine?									
A lot	22 (71.0)	27 (73.0)	122 (73.1)	171 (72.8)	38 (59.4)	169 (77.5)	46 (76.7)	253 (74)	0.919
Somewhat	5 (16.1)	7 (18.9)	32 (19.2)	44 (18.7)	19 (29.7)	28 (12.8)	10 (16.7)	57 (16.7)	
A little	3 (9.7)	2 (5.4)	11 (6.6)	16 (6.8)	5 (7.8)	17 (7.8)	3 (5.0)	25 (7.3)	
Not at all	1 (3.2)	1 (2.7)	2 (1.2)	4 (1.7)	2 (3.1)	4 (1.8)	1 (1.7)	7 (2.0)	
A4. How often do you wear a mask when leaving your home?									
Always	7 (22.6)	11 (29.7)	110 (65.9)	128 (54.5)	53 (82.8)	48 (22)	20 (33.3)	121 (35.4)	<.001
Occasionally	7 (22.6)	8 (21.6)	41 (24.6)	56 (23.8)	9 (14.1)	66 (30.3)	18 (30.0)	93 (27.2)	
Rarely	5 (16.1)	8 (21.6)	7 (4.2)	20 (8.5)	1 (1.6)	41 (18.8)	11 (18.3)	53 (15.5)	
Never	12 (38.7)	10 (27.0)	9 (5.4)	31 (13.2)	1 (1.6)	63 (28.9)	11 (18.3)	75 (21.9)	
A5. Have you been staying at home and practicing social distancing?									
Yes (Skip to question A6)	28 (90.3)	34 (91.9)	160 (95.8)	222 (94.5)	62 (96.9)	204 (93.6)	58 (96.7)	324 (94.7)	1
No	3 (9.7)	3 (8.1)	7 (4.2)	13 (5.5)	2 (3.1)	14 (6.4)	2 (3.3)	18 (5.3)	
A6. Since you have not been staying at home practicing social distancing, are you an essential worker e.g. healthcare professional, grocery store worker, law enforcement/security personnel, etc.?									
(This is a follow-up to "yes" on question A5)									
Yes	3 (9.7)	3 (8.1)	6 (3.6)	12 (92.3)	0 (0.0)	7 (3.2)	1 (1.7)	8 (44.4)	0.018
No	0 (0.0)	0 (0.0)	1 (0.6)	1 (7.7)	2 (3.1)	7 (3.2)	1 (1.7)	10 (55.6)	

Data represent n (%)
‡‡ Indicates multiple select questions
†*p*-value represents comparison of developed countries and developing countries totals

the population would contract the disease compared to 59.5% that thought so from developing countries.

Regarding the proportion of those that contract the virus that will show no or only mild symptoms, there was a great disparity in the respondents' responses based on development status (p<.001). Similar to the pattern observed for those expected to contract the disease, 71.9% from developed countries thought 20% or more of those that contract the disease will show no or mild symptoms compared to 48.3% that thought so from developing countries. By itself, about 3 in 10 (29.4%) respondents from developed countries believed more than half of those that contract will show no or only mild symptoms while 1 in 4 of respondents from developing countries respondent believed "10% - 19%" will fall in this category. Majority of both group of respondents expected less than 1 in 10 of those that contract the virus to die as a result.

While majority from both groups concur that their national governments were managing the virus outbreak properly, there was a significant association between this perception and development status (p=.001). Developed countries had 53.2% that either agreed or strongly agreed with this assertion compared to 68.2% for developing countries.

Detailed results are provided in Table 4.

The fact that everyone was aware of the virus and saw it as serious public health showed a good level of awareness, particularly given that the WHO had earlier declared the virus outbreak as a pandemic. The disparity seen in the proportions expected to contract the virus was probably due to the higher rates of infection experienced by some developed countries early during the outbreak. The developing countries did not experience such high number of infections as at the time of the survey. While true rates of infections, those with symptoms and death in the different settings are not known, certain researches have tried to estimate prevalence. The conclusion has been that infection rates are relatively low compared to similar diseases [35]. The Centers for Disease Control and Prevention (CDC, 2020) estimates shows that about 40% of those infected with COVID-19 are asymptomatic and according to data tracked by the WHO, 663 732 deaths were recorded from the 17 109 601 confirmed cases worldwide as at July 31, 2020 representing a 3.88% death rate [36].

We found that the respondent from both categories agree that their national governments were managing the virus outbreak properly. Measures that have been implemented in the countries that we survey include total or partial lockdowns and sensitization about hand washing and the wearing of facemask. However, in contradiction of our result with Nigeria being one of the countries in our study, Reuben et al. [37] found that majority (52.1%) of the respondents in their study perceived that the Nigerian government is not doing enough to curtail COVID-19 in the country.

Table 4: Perception towards COVID-19.

	Developed Countries				Developing Countries				*p*-value†
	Australia	United Kingdom	USA	Total	India	Nigeria	South Africa	Total	
P1. On a scale of 1 to 10, how serious of a public health problem do you think COVID-19 is? (1 being no threat at all, 10 being a very serious public health problem).									
Mean (SD)	9.1 (1.8)	9.3 (1.3)	8.9 (1.8)	9.0 (1.7)	8.7 (1.8)	8.8 (2.0)	9.0 (2.0)	8.8 (2.0)	0.237
P2. What percentage of the population do you think will contract COVID-19?									
0% - 9%	3 (9.7)	2 (5.4)	20 (12)	25 (10.6)	13 (20.3)	54 (24.8)	10 (16.7)	77 (22.5)	<.001
10% - 19%	3 (9.7)	9 (24.3)	14 (8.4)	26 (11.1)	9 (14.1)	43 (19.7)	8 (13.3)	60 (17.5)	
20% - 29%	6 (19.4)	7 (18.9)	30 (18.0)	43 (18.3)	15 (23.4)	40 (18.3)	10 (16.7)	65 (19.0)	
30% - 39%	7 (22.6)	5 (13.5)	31 (18.6)	43 (18.3)	7 (10.9)	33 (15.1)	11 (18.3)	51 (14.9)	
40% - 49%	4 (12.9)	4 (10.8)	25 (15.0)	33 (14.0)	7 (10.9)	23 (10.6)	8 (13.3)	38 (11.1)	
50% and above	8 (25.8)	10 (27.0)	47 (28.1)	65 (27.7)	13 (20.3)	25 (11.5)	13 (21.7)	51 (14.9)	
P3. What percentage of the people who contract COVID-19 do you think will show no or only mild symptoms?									
0% - 9%	2 (6.5)	7 (18.9)	15 (9)	24 (10.2)	14 (21.9)	63 (28.9)	14 (23.3)	91 (26.6)	<.001
10% - 19%	8 (25.8)	9 (24.3)	25 (15.0)	42 (17.9)	13 (20.3)	55 (25.2)	18 (30.0)	86 (25.1)	
20% - 29%	3 (9.7)	4 (10.8)	34 (20.4)	41 (17.4)	12 (18.8)	34 (15.6)	7 (11.7)	53 (15.5)	
30% - 39%	3 (9.7)	3 (8.1)	23 (13.8)	29 (12.3)	8 (12.5)	23 (10.6)	7 (11.7)	38 (11.1)	
40% - 49%	2 (6.5)	4 (10.8)	24 (14.4)	30 (12.8)	3 (4.7)	19 (8.7)	10 (16.7)	32 (9.4)	
50% and above	13 (41.9)	10 (27.0)	46 (27.5)	69 (29.4)	14 (21.9)	24 (11.0)	4 (6.7)	42 (12.3)	
P4. What percentage of the people who contract COVID-19 do you think will die as a result?									
0% - 9%	20 (64.5)	21 (56.8)	79 (47.3)	120 (51.1)	35 (54.7)	125 (57.3)	21 (35)	181 (52.9)	0.848
10% - 19%	3 (9.7)	9 (24.3)	39 (23.4)	51 (21.7)	12 (18.8)	48 (22.0)	18 (30.0)	78 (22.8)	
20% - 29%	5 (16.1)	2 (5.4)	24 (14.4)	31 (13.2)	7 (10.9)	23 (10.6)	10 (16.7)	40 (11.7)	
30% - 39%	0 (0.0)	2 (5.4)	13 (7.8)	15 (6.4)	9 (14.1)	7 (3.2)	2 (3.3)	18 (5.3)	
40% - 49%	1 (3.2)	1 (2.7)	6 (3.6)	8 (3.4)	0 (0.0)	5 (2.3)	2 (3.3)	7 (2.0)	
50% and above	2 (6.5)	2 (5.4)	6 (3.6)	10 (4.3)	1 (1.6)	10 (4.6)	7 (11.7)	18 (5.3)	
P5. The federal/central/national government is doing enough to manage the outbreak.									
Strongly agree	12 (38.7)	5 (13.5)	18 (10.8)	35 (14.9)	28 (43.8)	22 (10.1)	19 (31.7)	69 (20.2)	0.001
Agree	17 (54.8)	20 (54.1)	53 (31.7)	90 (38.3)	24 (37.5)	105 (48.2)	35 (58.3)	164 (48.0)	
Disagree	0 (0.0)	8 (21.6)	61 (36.5)	69 (29.4)	9 (14.1)	65 (29.8)	5 (8.3)	79 (23.1)	
Strongly disagree	2 (6.5)	4 (10.8)	35 (21)	41 (17.4)	3 (4.7)	26 (11.9)	1 (1.7)	30 (8.8)	

Data represent n (%) except for P1 which shows mean (sd)
†*p*-value represents comparison of developed countries and developing countries totals

Effect of COVID-19 on Livelihoods

Table 5 presents the results relating to the effects of COVID-19 on the livelihoods of the respondents. The employment status of respondents prior to the outbreak of the virus was associated with development status (p<.001), with developed economies having a strong base of private sector employees. Private employment was the top job category for respondents from developed countries, whereas, the respondents from developing countries were more likely to be government employees. Only minimal proportion (13.2% for developed, 7.0 for developing) of the respondents lost their jobs as a result of the outbreak. Majority of the respondents from both groups had their sources of livelihood affected. While most respondents from developed countries considered governments' financial and material supports adequate, majority from developing countries differed. It is known that the private sector is the bedrock of developed economies [38]; thus, it was unsurprising that our results suggest that developed economies have a more vibrant private sector before COVID-19 outbreak with a greater proportion working in the private sector in developed countries (41.7%) versus developing countries (23.4%).

In general, the COVID-19 pandemic has particularly had a devastating effect on the world's economy. Some essential supplies are in short supply as some companies have closed, schools have shut down and economies of several countries have gone into downward spiral. Virtually all sectors of the economy from agriculture to petroleum & oil, manufacturing, finance, sports and healthcare among others have been affected [39]. This has led to a record number of job losses in many countries across the globe. A majority of the respondents indicated that they did not lose their jobs due to COVID-19, but we noted a higher proportion lost their jobs from developed than developing after COVID-19 Outbreak.

Most of the respondents in the study seemed to have experienced some form of economic impact as a result of the outbreak, with 77.5% from developed countries and 86.6% from developing countries. The economic effect experienced by these respondents significantly depends on the development status of countries (p= .011). The fact that most have experience some economic impact without losing their jobs hints at workers being furloughed or temporarily working from home.

Respondents from developed countries are significantly more likely to report that their governments were doing enough to provide financial and materials support to their citizens than their counterparts form developing countries (p<.001). The financial and materials support help citizens cope with the economic challenges faced during the epidemic especially in light of the lockdown in most countries. Several countries provided stimulus checks to their citizens and others provided food and supplies to their citizens. Our findings showed that 55.7% of respondents from developed countries either strongly agreed or agreed that their government was doing enough to provide financial and material support to the citizens. This is in line with other findings in which respondents from developed countries believe that their governments have done well dealing with the virus outbreak [40]. Only about 33.6% of respondents from developing countries were favorable to the idea. This is particularly not surprising; it is not uncommon for citizens of developing economies to distrust their governments [41,42]. Adequate trust in government could help citizens to comply with directives from governments, thereby reducing the cost of enforcement. It could also help bring crisis such as the COVID-19 outbreak under control Table 5.

Limitations of the study

A limitation of this study was the fact that the sample sizes were small and uneven among countries. Some countries particularly have smaller sample size compared to others. Small sample size can be of particular concern in that the sample may not be truly representative of the populations from which they were drawn. While the effect of the unevenness in the sample sizes could

Table 5: Effect of COVID-19 on Livelihoods.

	Developed Countries				Developing Countries				*p*-value†
	Australia	United Kingdom	USA	Total	India	Nigeria	South Africa	Total	
L1. What was your employment status before COVID-19 outbreak?									
Civil servant/Government employee	2 (6.5)	9 (24.3)	27 (16.2)	38 (16.2)	10 (15.6)	68 (31.2)	16 (26.7)	94 (27.5)	<.001
Full time student with no employment	5 (16.1)	6 (16.2)	36 (21.6)	47 (20.0)	14 (21.9)	43 (19.7)	20 (33.3)	77 (22.5)	
Private firm employee	15 (48.4)	11 (29.7)	72 (43.1)	98 (41.7)	20 (31.3)	48 (22.0)	12 (20.0)	80 (23.4)	
Self-employed	5 (16.1)	9 (24.3)	16 (9.6)	30 (12.8)	18 (28.1)	34 (15.6)	9 (15.0)	61 (17.8)	
Unemployed	4 (12.9)	2 (5.4)	16 (9.6)	22 (9.4)	2 (3.1)	25 (11.5)	3 (5.0)	30 (8.8)	
L2. Have you lost your job due to the COVID-19 outbreak?									
Yes	9 (29.0)	1 (2.7)	21 (12.6)	31 (13.2)	5 (7.8)	16 (7.3)	3 (5.0)	24 (7.0)	0.159
No	12 (38.7)	28 (75.7)	94 (56.3)	134 (57.0)	39 (60.9)	129 (59.2)	35 (58.3)	203 (59.4)	
Not sure	1 (3.2)	3 (8.1)	3 (1.8)	7 (3.0)	4 (6.3)	6 (2.8)	1 (1.7)	11 (3.2)	
Not applicable, full time student	4 (12.9)	3 (8.1)	33 (19.8)	40 (17.0)	13 (20.3)	40 (18.3)	17 (28.3)	70 (20.5)	
Not applicable, unemployed before outbreak	5 (16.1)	2 (5.4)	16 (9.6)	23 (9.8)	3 (4.7)	27 (12.4)	4 (6.7)	34 (9.9)	
L3. By how much has the COVID-19 outbreak affected your source(s) of livelihood?									
Very much	13 (41.9)	10 (27.0)	46 (27.5)	69 (29.4)	19 (29.7)	87 (39.9)	25 (41.7)	131 (38.3)	0.011
Somewhat	8 (25.8)	10 (27.0)	53 (31.7)	71 (30.2)	21 (32.8)	58 (26.6)	14 (23.3)	93 (27.2)	
A little	6 (19.4)	5 (13.5)	31 (18.6)	42 (17.9)	11 (17.2)	49 (22.5)	12 (20.0)	72 (21.1)	
Not at all	4 (12.9)	12 (32.4)	37 (22.2)	53 (22.6)	13 (20.3)	24 (11.0)	9 (15.0)	46 (13.5)	
L4. The government is doing enough to provide financial/material support to her citizens during this epidemic period?									
Strongly agree	8 (25.8)	4 (10.8)	13 (7.8)	25 (10.6)	10 (15.6)	3 (1.4)	8 (13.3)	21 (6.1)	<.001
Agree	18 (58.1)	19 (51.4)	69 (41.3)	106 (45.1)	26 (40.6)	34 (15.6)	34 (56.7)	94 (27.5)	
Disagree	2 (6.5)	10 (27.0)	68 (40.7)	80 (34.0)	24 (37.5)	96 (44.0)	15 (25.0)	135 (39.5)	
Strongly disagree	3 (9.7)	4 (10.8)	17 (10.2)	24 (10.2)	4 (6.3)	85 (39.0)	3 (5.0)	92 (26.9)	

Data represent n (%)
†*p*-value represents comparison of developed countries and developing countries totals

have been reduced with the concept of data weighting, we decided against this because some of the weights would have been outside the recommended range of 0.5 and 2.0. Combining the data by development status, however, helped to minimize the effect of unevenness to some extent.

Lastly, the survey link was distributed through social media and email, this meant that responses are limited to individuals who have these resources and thus automatically excludes those who do not.

Conclusions

While all of the respondents were aware of COVID-19 outbreak and majority consider it a serious public health concern, it was evident that some individuals did not take the threat posed by the outbreak seriously and were not following recommendations by government and health experts to always wear facemasks in certain settings and to practice social distancing.

Gaps were identified in the knowledge of the respondents particularly in terms of the symptoms, mode of transmission and recommended methods of management of individuals infected with the disease. Health education programs can help improve people's perception and attitude toward the disease. The government and experts are encouraged to sensitize their communities about these issues and take appropriate steps to curtail misinformation.

Finally, we encourage the government to provide financial and material needs to their citizens particularly in the developing countries where respondents significantly disagree or strongly disagree with the level of assistance that they have received.

Acknowledgements

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Compliance with Ethical Standards

Informed Consent

Participation in this survey was anonymous and respondents voluntarily participated in the study.

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