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Assessing Knowledge, Attitude and Practices (KAP) towards COVID19: A Cross-Sectional Study in Kenya

Waiguru Muriuki [α], Brian Muriithi [σ], Kamande Duncan [ρ], Austin Muriuki [ω] & Grace Kihika [¥]

Abstract- Covid-19 is a severe acute respiratory disease that has rapidly spread across the world originated China in December 2019. The main symptoms of a person infected with corona virus are fever, dry cough, shortness of breath, fatigue, dyspnea and myalgia. One of the main tool employed to control the pandemic is providing the community with correct information about the disease. High knowledge, right attitude towards Covid-19 and are adhering to suggested practices is the most effective approach to control community transmission. It is against this background that this study sought to assess Covid-19 knowledge, attitude and practices (KAP) among Kenyans. An online cross- section survey was used to collect data between July 26-31, 2020. From the findings, 9.1 % of the respondents indicated that their relatives, friends or themselves had contracted Covid-19. There is high knowledge of Covid-19 in Kenya, with 83.97 % (82.4,85.54) aware of its symptoms and preventative measures. With regard to containment of the disease, 55 % are optimistic than measures instituted by Kenyan government will eventually control its spread. Daily MoH briefing (56%) and mainstream media (55%) are the main and trusted sources of information about Covid-19. Despite, most persons indicating they wore mask and washed hands while in crowded place, 60% indicated other people were not observing the measures. Gender, age group, education level and occupation influence the Covid-19 knowledge level.

I. Background

The covid-19 (coronavirus disease) is a severe acute respiratory Syndrome Coronavirus 2 (SARS-CoV-2), which originated from Wuhan city, China in December 2019 (Wu et al., 2020). Rapid transmission is mainly through close contact with an infected person (Zhou et al., 2020). However, details about the disease are continuously evolving and, as such, infections may be occurring through other routes. The main symptoms of a person infected with corona virus are fever, dry cough, shortness of breath, fatigue, dyspnea and myalgia. (Bajema et al., 2020; Huang et al., 2020; Zhou et al., 2020) Since the outbreak in China, the disease has spread widely and speedily to other parts of the world. It has spread to over 200 countries and was declared a global pandemic by World Health Organization (WHO) on March 11, 2020 (Cucinotta & Vanelli, 2020). By the end of July 2020, there were more than 17 million positive cases recorded, with at least 670, 000 deaths globally.

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In Kenya, the Ministry of Health (MoH) confirmed the first corona virus case on March 12, 2020. In the same month, President Uhuru Kenyatta directed the implementation of preventative measures to reduce human-to-human transmission. These measures included restriction of international travels from and to countries with corona virus cases, closure of learning institutions, working from home except for essential services personnel, insistence on cashless transactions, and prohibition of congressional meetings, among others.

In the beginning of May 2020, WHO detected high and large-scale community transmission in many African countries. WHO advised respective governments to institute measures to curb human-to human transmissions. Due to community transmission, global and local experts projected over 2 million deaths from the pandemic in Sub-Saharan countries in the worst-case scenario of unmitigated spread of the virus (Austrian et al., 2020). This necessitated the Kenyan government to institute movement restrictions -cessation of movement- in areas which the MoH considered to be infection hotspots (Nairobi, Mombasa and Kilifi). In addition, nationwide curfew from 7.00 p.m to 5.00 a.m countrywide was declared to limit human movements and interactions.

Despite the containment measures put in place, the number of Covid-19 cases and deaths have steadily increased with over 19, 000 positive cases and 300 deaths by the end of July 2020. Earlier, on July 6, President Uhuru Kenyatta lifted the cessation of movement in the said Covid-19 hotspots. As a result, the Ministry of Health initiated a campaign to promote personal and public health behavior, such as regular hand washing and observing social distance in crowded places. Despite many achievements from this approach, the challenge of misinformation, mainly in form of promotion of unscrupulous Covid-19 treatments and ineffective preventative methods on social media (Facebook, WhatsApp, Instagram, Twitter among others), have presented a serious hurdle to the fight against the spread of the virus (Limaye et al., 2020; Pennycook et al., 2020; Person et al., 2004; Wang et al., 2020).

The knowledge, attitude and practices (KAP) towards Covid-19 disease largely determine the

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preparedness of Kenya to concede behavioral change advocated by Ministry of Health. KAP studies provides the foundation for interventions required to correct misinformation and misconceptions about Covid-19. Therefore, evaluating the knowledge, attitude and practices about the disease among Kenyans would be a better basis for providing insights to improve awareness and help in the development of preventative strategies and programs. The lessons from SARS outbreak is that knowledge and attitude towards an outbreak determines the level of panic and emotion, which can consequently affect and complicate containment strategies (Limaye et al., 2020; Person et al., 2004; Wang et al., 2020). This study will provide a community's status with regard to Covid-19 knowledge, attitude and practices among Kenyans. In addition, the findings of this study will help the government to develop strategies to improve public and personal hygiene in the community.

II. Methods

a) Study Design

A quantitative approach was employed to achieve the objective of the study. A survey was used as a means of collecting data due to its many advantages including high accessibility to a large population (van Griethuijsen et al., 2015). A cross-sectional study using data collected through an online self-reported questionnaire seemed appropriate to collect data in the current context of restricted movements. To assess the level and association with social factors of Covid-19 knowledge, attitude and practices among Kenyans, descriptive statistics (percentages and means) and multivariate regression were employed.

b) Data collection

The cross-sectional survey was undertaken between July 26-31, 2020. Since it is not feasible to undertake nationwide sampling during this period, the research opted to use an online survey using Google Form, where only persons above the age of 18 years were eligible to participate. The numerous shortcomings encountered with internet-mediated survey were high non-response rate and inaccessibility by a section of the targeted population (Mirabeau et al., 2013). (Dusek et al., 2015; Mirabeau et al., 2013) propose different strategies to downplay the weakness of online survey, which include direct contact, referrals, and affiliation. In light of these challenges, researchers employed many approaches to reach many respondents across the country within the one-week data collection period. For this study, community leaders, social media influencers and mobilizers were involved in broadcasting and sharing of the survey on their social media platforms (Facebook and WhatsApp). Facebook and WhatsApp were mainly used to share the survey since they are the most popular social media platforms in Kenya (Irungu et al., 2015). Clicking the link to the survey was deemed as a consent to participate. From the process, 353 respondents clicked the link and submitted the survey. The data was then analyzed to address the objectives of the study.

c) Knowledge, attitude and practices Indicators

The survey tool consisted two parts: demographic characteristics and KAP related questions. The general characteristic of the respondents included gender, age group, education level, marital status, occupation and place of residence (either urban or rural).

The questionnaire used in this study was adopted from the tool that was previously tested and used in China (Zhong et al., 2020). However, the tool was reviewed to align to Kenyan context. There were 10 questions to test respondent's knowledge on Covid-19: K1-K9. The knowledge score was then divided by 9, as it ranges between 0 and 1. The aims of the study were to understand Covid-19 attitude among Kenyans, their confidence on instituted measures to control the spread of the virus, and whether they believe the disease will eventually be controlled (K10-11). With regard to practices, it was essential to understand whether one had visited crowded places and whether they were observing the preventive measures (K12-13). (See Table 1 below).

Table 1: Knowledge, attitude and practices Indicators

	Question	Option
K1	Wearing mask when in public	(No), (Yes), (I don't know)
K2	Regular handwashing	(No), (Yes), (I don't know)
K3	Maintaining social distance in public spaces	(No), (Yes), (I don't know)
K4	Staying indoors and avoiding crowding places	(No), (Yes), (I don't know)
K5	Not a MUST for children to take measures to prevent contacting Covid-19?	(No), (Yes), (I don't know)
K6	Isolation of infected persons is effective way of reducing the spread of the dis	(No), (Yes), (I don't know)
K7	All COVID-19 positive person(s) show symptoms	(No), (Yes), (I don't know)
K8	There is currently not cure but early symptomatic and supportive treatment can h	(No), (Yes), (I don't know)

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K9	The main symptoms of COVID-19 are fatigue, fever and a dry cough	(No), (Yes), (I don't know)
K10	Do you agree that COVID 19 will be eventually be controlled?	(No), (Yes), (Maybe)
K11	Do you believe the measures instituted by Kenyan government will control the spread of the virus?	(No), (Yes), (Maybe)
K12	In the recent days, have you gone to any crowded places?	(No), (Yes), (Maybe)
K13	If "YES", indicate whether you observed the set preventive measures	(No), (Yes)

d) Limitation of the study

Sampling was done through convenience sampling through a network of researchers who were encouraged to share the survey on social media platforms (Facebook and WhatsApp). Therefore, there may be a bias since those who are not on such social media platforms were not able to participate in the study. In addition, with regard to age distribution in Kenya, the sample of the study had an over-representation of persons below the age of 35 years. The under-representation of a section of the target population may have derailed the generalization of the findings (Mortel, 2008; Sandelowski, 1995). As such, a more systematic and inclusive sampling approach should be employed to improve the level of representation and generalizability of Covid-19 knowledge, attitude and practices in Kenya.

Another limitation of this study was the likelihood that respondents were likely to give desirable response. Since it is a self-reported survey, respondent were likely to give answers about attitude and practices based on what they perceived was expected of them (Mortel, 2008; Nazer et al., 2017).

III. Results and Discussion

A total of 353 participants completed the survey. Majority of the respondents were below 35 years of age (91.5%), 232 (65.7%) were males, 293 (83.0%) had a bachelor degree and above, 64 (18.1%) respondents indicated to be unemployed, and 217 (61.5%) said they live in urban settings (See Table 2 below).

Table 2: Demographic characteristics of Survey Respondents and knowledge score (with confidence interval)

General characteristics		N=353	Knowledge score of Covid-19 against demographic characteristics
Gender of the respondent	Female	121 (34.3%)	0.8397 [0.8091,0.8702]
	Male	232 (65.7%)	0.8397 [0.8216,0.8577]
Age group	35> years	30 (8.5%)	0.8567 [0.7862,0.9272]
	<35 years	323 (91.5%)	0.8381 [0.8220,0.8541]
Education Level	Primary/Secondary School	60 (17.0%)	0.7683 [0.7166,0.8201]
	University	293 (83.0%)	0.8543 [0.8389,0.8696]
Marital Status	Married	93 (26.3%)	0.857 [0.8205,0.8935]
	Not married	260 (73.7%)	0.8335 [0.8164,0.8505]
Respondents' Occupation	Employed	102 (28.9%)	0.8716 [0.8424,0.9007]
	Self-Employed	37 (10.5%)	0.8541 [0.8085,0.8996]
	Student	150 (42.5%)	0.8227 [0.8013,0.8441]
	Unemployed	64 (18.1%)	0.8203 [0.7730,0.8677]
Place of residence (Rural or Urban)	Rural	136 (38.5%)	0.8279 [0.7996,0.8563]
	Urban	217 (61.5%)	0.8470 [0.8284,0.8656]

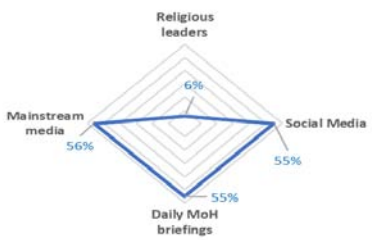

Figure 1: Source of Covid-10 Information

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a) Community's source of Covid-19 Information

While the threat of Covid-19 has triggered a serious global health concern, of greater danger is the fear surrounding the disease that is fueled by widespread of health misinformation. According to (Wang et al., 2020; World Health Organization, 2020), distinguishing facts from outright health misinformation during an outbreak is a daunting task especially in the current era of social media. In the current situation of Covid-19 outbreak, 56% of Kenyans indicated to receive information on Covid-19 from mainstream media (Radio, newspapers, and Television), 55 % from daily MoH's briefing, while 55% source information from social media platforms (Facebook, Instagram, Twitters etc) (See Figure 1 above).

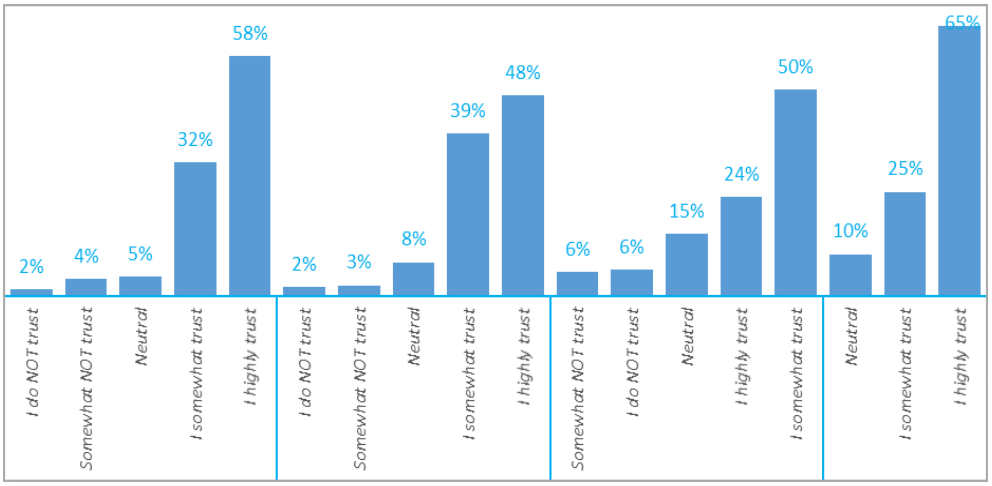

Figure 2: Level of Trust on source of Covid-19 information

The level of trust of information from available sources were varying. Among the popular sources of information, daily briefing by the Ministry of Health was the most trusted source of Covid-19 information with 90% highly or somewhat trusting the information given on this forum. For those who get updates about the pandemic from mainstream media 87% highly or somewhat trust the conveyed information. However, despite 55% of the respondents sourcing their information from social media platforms, only half of those (50%) highly trust the information (See Figure 2 above). Knowledge and perception of Covid-19.

Overall, the average knowledge score of Covid-19 symptoms and practices is 0.8397 [0.8239,0.8554], indicating high knowledge about Covid-19 pandemic. However, the average knowledge level changes with sociodemographic characteristics of the respondents.

Distribution, by proportion, of respondents for each knowledge indicator is shown in Table 4 below. Overall, 93% of the respondent indicated that they know the main symptoms of Covid-19, while 4% were not sure. With regard to whether the measures instituted by the Kenyan government will eventually control the spread of the virus 55% are optimistic it will be controlled, 27.2% are not sure while the rest (17. 8 %) do not believe the disease will be controlled (See Figure 3 above).

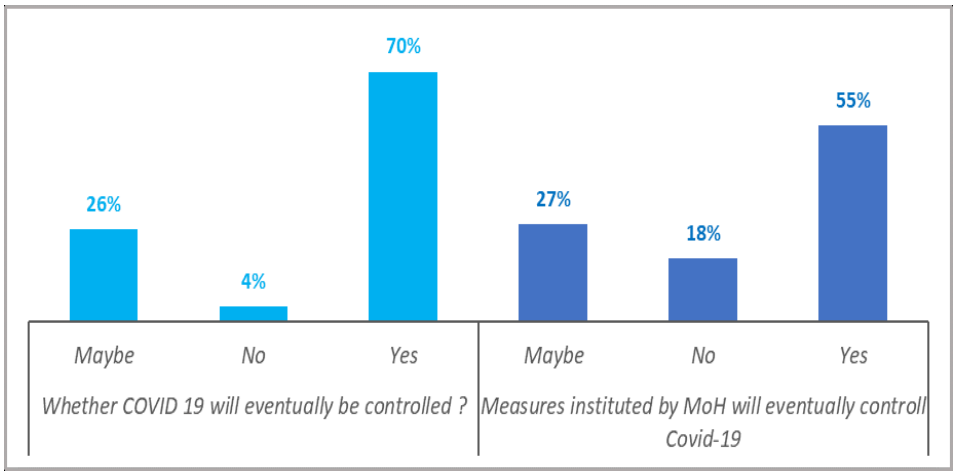

Figure 3: Attitudes towards Preventive Measure

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Table 3: Covid-19 knowledge indicators

The main symptoms of COVID-19 are fatigue, fever and a dry cough.	6%	85%	9%
	No	Yes	I don't know
Wearing mask when in public	2%	96%	3%
Regular handwashing	1%	96%	3%
Maintaining social distance in public spaces	3%	96%	2%
Staying indoors and avoiding crowding places	7%	89%	4%
Not a MUST for children to take measures to prevent contacting Covid-19?	87%	6%	7%
Isolation of infected persons is effective way of reducing the spread of the disease	4%	93%	3%
All COVID-19 positive person(s) show symptoms	75%	12%	13%
There is currently not cure but early symptomatic and supportive treatment can help patient(s) recover	6%	85%	9%

Multiple linear regression model (Table 4 below) showed that female gender (vs male, coef. =00601, P=0,014), age group 34+ years (vs <35 years, coef. =0.3998, P=0.000), level of education of primary/secondary (vs). University, coef.=0.2685,P=0.000) and employed occupation status (vs not employed, coef. = 0 .2044, P=0.000) were significantly associated with the level of knowledge score.

Table 4: Results of multiple linear regression analysis on sociodemographic factors associated with knowledge on Covid-19

Respondent characteristics	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Gender (Female vs Male)	0.0601	0.0243	2.47	0.014	0.0123	0.1079
Age group (35+ vs <35 years)	0.3998	0.0373	10.71	0.000	0.3264	0.4733
Education Level (Primary/Secondary vs University)	0.2685	0.0283	9.5	0.000	0.2129	0.3241
Marital status (Married vs Not Married)	0.0146	0.0298	0.49	0.624	-0.044	0.0733
Occupation (Unemployed vs Employed)	0.2044	0.0275	7.43	0.000	0.1503	0.2585

b) Practices towards Covid-19

Of the all the respondents, half of the respondents (50%) indicated to have visited a crowded place in the recent past. In crowded places, 91 % indicated to have worn masks, 67 % maintained the proposed social distance and 83 % applied sanitizers regularly. However, 60 % of the respondents indicated that other persons were not observing the measures. Evidently, the failure of the majority of Kenyans to adhere to the recommended Covid-19 preventive measures may explain the high community-to-community transmission experienced in Kenya.

IV. Conclusion

It is not in doubt that that knowledge, attitude and practices among Kenyans is the main determinant of how the pandemic will affect the community. This study sought to assess the knowledge, attitudes and practices of Kenyans towards Covid-19. To achieve the objectives of the study an online cross-sectional survey was applied. In Kenya, where the population is predominantly youthful and educated, the level of knowledge about the Covid-19 symptoms and preventive measures was evidently high. From the study, it is evident that most respondents are knowledgeable about Covid-19 (83.97 %). Daily briefing by the Ministry of Health (MoH) and mainstream media were posited as the main sources of information about the pandemic in Kenya. About observing the proposed measures in crowded places, despite majority indicating they observed the measures, there was a significant proportion (60%) of respondents reporting that other persons were not observing the same. Only half of the respondents believed that the pandemic will eventually be control through the measures instituted by the Kenyan government. Sociodemographic characteristics, including gender, the level of education and occupation, were shown to influence the level of Covid-19 knowledge.

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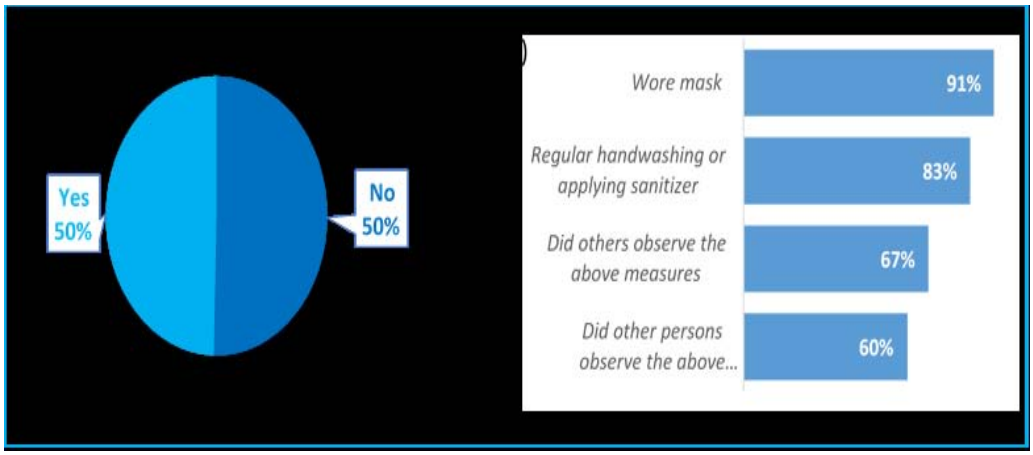

Figure 4: Practies towoeds Covid-19

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