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Original Research

Sociodemographic Variables Predicting Communities COVID-19 Knowledge: Evidence from Ikolomani Subcounty Kenya

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ABSTRACT:
By mid-May 2021, there were over 200 thousand cases of (SARS-CoV-2) or COVID-19 across Kenya with new confirmed cases continuing to rise following the re-opening of the country. The novel coronavirus has not only brought along disruptions to daily socio-economic activities, but sickness and deaths due to its high contagion. With no widely acceptable pharmaceutical cure, the best form of prevention may be precautionary measures which will guide against infections and curb the spread of the disease.Prior studies have focused mainly on clinical risk factors associated with serious illness and mortality of COVID-19. Less analysis has been conducted on the sociodemographic, and environmental variables associated with initial infection of COVID-19.The main objective of the study was to determine levels of communities knowledge on Covid 19. Cross sectional study design was used. Systematicss sampling technique was used to choose study participants from the communuty. The study participants were 106.. A pretest was carried out in Lurambi Subcounty. Data was collected using structured questionnaires. Quantitative data was analyzed using statistical Package for Social Science (SPSS) software version 22.0.With one-unit increase in socio demographic, the knowledge about covid scoredecreases by 0.007.Knowledge level about covid 19 was influenced by age, education level and income level. Members of the community had confidence in health care givers and church leaders.

Key words: Knowledge, Communities, Covid 19, Ikolomani

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INTRODUCTION

The novel coronavirus also referred to as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) causes a severe respiratory disease known as coronavirus disease (COVID-19) (Abdelhafiz et al, 2020, Shrikrushna et al 2020). COVID-19 was first reported by the World Health Organization (WHO) on the 31st December 2019 and announced as a global pandemic on 11th March 2020 (WHO,2020).A novel coronavirus strain was identified by Chinese investigators as the pathogenic agent causing numerous cases of viral pneumonia in Wuhan City of China on January 8, 2020. The World Health Organization (WHO) later named this virus as the severe acute respiratory syndrome coronavirus (SARS-CoV-2, previously provisionally named 2019 novel coronavirus or 2019-nCoV), while the disease was designated as the coronavirus disease 2019 (COVID-19). The major symptoms of COVID-19 lnclude fever, dry cough, fatigue, myalgia and shortness of breath. (Chan, 2020) Increasing global travel and trade resulted in the dissemination of the virus on a global scale, leading to an emergency declaration of the disease as a global health emergency by the WHO. By the end of November 2020, it had spread to almost all countries and territories in the world, with approximately 64 million cases and over 1.48 million deaths reported worldwide.

There is an overwhelmingly poorly understood and complex pattern of COVID-19 epidemiological trajectories that has been documented but is not always generalizable. Past experiences with respiratory coronavirus infections such as the severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) have shown that they can have a severe impact on human health. Interestingly, evidence from the previous coronavirus outbreaks contributed to the relatively early response to the pandemic, including risk communication, coordinated resource mobilization, appropriate adherence and best practice interventions implementation. Once the genomic sequence of SARS-CoV-2 was identified, diagnostic tests for viral detection were developed and widely deployed. While there are no proven vaccines or curative treatments yet, hundreds of potential drugs and vaccines are being investigated.

While the scientific and medical research community focus on developing COVID-19 treatments and vaccines, government and global community efforts have been devoted to early detection, prevention, and containment of further spread of the virus as much as possible. In this regard, the importance of global and local community engagement and risk communication has never been demonstrated more vividly than during the current COVID-19 crisis. As the WHO has noted, one of the major lessons learnt from the major public health events of the 21st century is that "risk communication and community engagement (RCCE) is integral to the success of responses to health emergencies. However, it is clear that most governments were caught off guard in the face of the current pandemic in terms of their RCCE strategies and protocols. Meanwhile, issues such as the credibility of science, political interference in public health decisions, the very authority of the government, and population behaviors are threatening lockdown and preventive public health measures against COVID-19 transmission dynamics. Populations with poor adherence and mistrust, public fear, and misinformation tend to undermine the pandemic preventive and emergency response effectiveness of the governments, thus increasing health and socioeconomic burden.

As with other infectious diseases, predictors of COVID-19 infection may include employment status, education level, income, and housing conditions [Butler and Wong, 2016], which could influence the ability to seek care, adhere to treatment, and practice physical distancing measures. Thus, effective strategies for predicting risk factors for community transmission should include both clinical and social factors [Khalatbari et al, 2020]. The latter factors in particular remain understudied, especially among communities of lower socioeconomic status (Khalatbari et al, 2020).Adherence is likely to be influenced by the public's knowledge and attitudes toward COVID-19. By assessing the community's knowledge about the coronavirus, insights into their perception and practices can be gained, thereby helping to identify factors that influence them in adopting healthy practices and behavior change (Podder 2019) A study of this nature in the COVID-19 era is important because not only is a widely acceptable pharmaceutical cure currently unavailable, but amidst the high levels of social awareness of the pandemic coupled with its sudden and virulent nature, a lot of conspiracy theories have sprung up (Ahmed et al., 2020; Georgiou et al., 2020) leading to a possible decrease in willingness to engage in precautionary behaviors (Allington et al., 2020; Van Bavel et al., 2020). Perceptions about the nature and causes of the pandemic are also largely unfounded around evidence (Chukwuorji and Iorfa, 2020) and may influence engagement in precautionary behaviors among the people as well. Therefore, since issues related to precautionary health behavior in populations have been linked to individuals' belief systems as well as their perceived fear or risks of contracting a disease, this study, borrowing from the health belief model (HBM) may offer explanations to the failure of the Kenyan people in adopting disease prevention strategies and screening tests for early detection and curbing the spread of the disease. Findings from this study may be used to guide health promotion and disease prevention programs in times of the COVID-19 or other pandemics and epidemics that may arise in the future.

LITERATURE REVIEW

The outbreak of the novel Coronavirus disease (COVID-19) pandemic has led to disruptions to health, economics, politics and social order all across the world. The COVID-19 is a ravaging and infectious viral disease caused by a novel strain of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Due to the rapidly increasing and contagious nature of the disease and its overwhelming influence on critical care and frontline healthcare staff as well as the possibility of transmission by asymptomatic carriers, governments around the world closed their borders, announced total or partial lockdowns, movement restrictions, social distancing, and wearing of facemasks (Biscayart et al., 2020; Zaka et al., 2020; Zhao et al., 2020) as precautionary measures to curb the spread of the virus. However, as of August 10, 2020, the total number of infected persons worldwide had risen to 19,718,030 cases with 728,013 deaths.

While the most developed regions of the world have battled with the virus, recording thousands of infections and deaths, it is unknown how Nigeria with a fragile and less sophisticated healthcare system will be able to confront the disease and stop it from spreading among its densely populated and already vulnerable populations. With no proven and acceptable pharmaceutical cure, the best way to curb

the virus and prevent it from spreading, may therefore be the adoption of precautionary behaviors (Güner et al., 2020; Wilder-Smith and Freedman, 2020; World Health Organization WHO, 2020b). Precautionary behavior such as quarantine of infected persons, social distancing (e.g., self-isolation, school, workplace and market closures, cancelation of large public gatherings, etc.) and hygienic practices (e.g., frequent handwashing with soap, using a face masks, use of hand sanitizers, etc.) have been identified as infection control measures which help curtail the spread of infections (Leppin and Aro, 2009). In extreme cases, community-wide containments are also adopted (Sjödin et al., 2020).

Good personal hygiene and sanitization measures are critical for COVID-19 control. Kenya launched nation-wide media campaigns to educate the citizens on the proper handwashing techniques and use of face masks immediately after the first COVID-19 case was detected in March 2020. These campaigns recommend use of soap and running water, 70% alcohol-based sanitizer or 0.1% sodium hypochlorite to wash hands and clean surfaces. Local artisans in the informal business sector were given financial support to assemble handwashing stations and sanitization equipment using available raw materials and re-cycled parts that could be rapidly distributed for use across the country. Fumigation of infection hotspots, for example markets, public transport, and hospitals, was performed routinely. Handwashing was also mandatory prior to entry of any public premises and before boarding public transportation. In Kenya, personal protective equipment (PPE) was primarily imported prior to the COVID-19 pandemic. However, their necessity and shortfall during the pandemic provided an opportunity of capacity and technological leapfrogging, and PPEs are now manufactured locally, and also exported to the wider East African Region. The ministry of health and healthcare stakeholders developed new protocols and policies on handling of deceased remains and conducting funerals. For example, funerals were restricted to a maximum of 15 attendees practicing physical distancing (Yaacoub et al 2020). Civil society organisations and the government joined efforts to restrict widespread COVID-19 disease by providing personal protective equipment such as face masks, gloves, sanitisers, medical supplies, soap, as well as water and food rations to affected informal settlements across Kenya (Irura and Bett, 2020). Community social workers were also deployed to raise awareness to the public and educate them on physical distancing and handwashing, COVID-19 prevention control measures, and psychosocial support to affected communities (Irura and Bett, 2020).

METHODOLOGY

PARTICIPANTS AND PROCEDURE

The cross-sectional study was conducted in Ikolomani sub-county using self-administered questionnaires between 20 May and 30 July 2021. The general population of study covered participants aged 15 years and above in the 4 divisions of Ikolomani. Strict adherence to the ethical provisions on confidentiality and autonomy was also observed. Informed consent was obtained from participants using an embedded form. Participants were informed of the confidentiality of the study and also informed they could withdraw from the study at any point if they so desired.

MEASURES

The questionnaire assessed participants' demographic characteristics (gender, age, marital status, ethnicity, educational qualification, religion, location, and perceived financial situation), and consisted of a battery of measures of COVID-19 knowledge, risk perceptions, and precautionary behavior.

COVID-19 KNOWLEDGE

COVID-19 knowledge was assessed using a 5-item Likert-type scale adapted from the Ebola knowledge scale (Rolison and Hanoch, 2015). Respondents' knowledge of COVID-19 was arrived at by summing correct responses across item 1, source of COVID-19, item 2, transmission of COVID-19, and item 3, prevention of COVID-19, item 4, symptoms of COVID-19 and item 5, awareness of COVID-19 fatality, generating a maximum possible score of five.

DATA ANALYSIS

The data were analyzed using SPSS version 25.0 software. Descriptive statistics, using frequencies, percentages, means, and standard deviations, were conducted for socio-demographic variables. To compute COVID-19 knowledge, the mean score and standard deviation for the sample population were calculated and scores above the norm were indicative of high knowledge of COVID-19, while scores below the norm indicated low knowledge of COVID-19. Pearson's correlation was used to establish the relationship between the socio-demographic demographics and major variables of interest. Our choice of these statistics was influenced by the consideration that a moderated mediation would test the influence of a fourth variable (gender) on the mediated relationship between COVID-19 knowledge.

RESULTS

From Table 1, the results shows that majority of the respondents 97(91.51) are not health proffessional. The results further shows that 63(59.44) of the residents live with one spouse and children. On the education level, the results shows that 44(41.51) of the residents have primary level of education. The

anlysis of the results futher shows that 34(32.08) of the respondents are self-employed in business while on the other hand, the results shows that 45(42.45) of the respondents spouse are employed. From the results also, majority of the respondents 93(87.74) live in rural areas together in one house 46(43.10) with family members between 10-15 and they live in single homestead 74(69.81).

Table 1: Socio-demographic of the respondents

Variable	No. (%)
Health proffesion	
Yes	9(8.49)
No	97(91.51)
Living status	
Living with one spouse and children	63(59.44)
Living with more than one spouse and children	15(14.15)
Single parent with children	8(7.55)
Living alone in rented space	4(3.77)
Living alone in own house	6(5.66)
Other	10(9.43)
Education level	
College/university	12(11.32)
Vocational/technical institution	9(8.49)
Secondary school	23(21.70)
Primary school	44(41.51)
Illiterate	13(12.26)
Other	5(4.72)
Employment status	
School	15(14.15)
Employed	43(40.57)
Self-employed with business	34(32.08)
Employed as casual labourer	9(8.49)
Self-employed –farming large scale	1(0.94)
Self-employed – farming small scale	4(3.77)
Employment status of spouse	
School	21(19.81)
Employed	45(42.45)
Self-employed with business	25(23.58)
Employed as casual labourer	10(9.43)
Self-employed –farming large scale	2(1.89)
Self-employed – farming small scale	3(2.83)
Residential location	
Rural	93(87.74)
Semi-urban	10(9.43)
Urban	3(2.83)
Number of family members living together in one house	
0-5	41(38.68)
5-10	19(17.92)
10-15	46(43.10)
Residential structure	
Single homestead	74(69.81)
Congregated compound	29(27.36)
Other	3(2.830

In Table 2, is the response from 5-scale Likert on knowledge about covid 19 challenges. When asked about the confidence they have on the family doctors in handling Covid-19 challenges, 15(75.7%) of the respondents between ages 40-49years had a lot of confidence in family doctor. On the other hand, when asked about confidence in the employer in handling Covid-19 challenges, 6(40%) of the respondents between ages 50 -59 had little confidence in their employer. The Likert scale also shows that 23(85.5%) 0f the respondents between the ages 40-49 years had confidence on hospitals in handling Covid-19 challenges while 18(69.2%) between the ages 40-49years had a lot of confidence on the Ministry of

health in handling Covid-19 challenges. When asked about the confidence they have in school for handling covid-19 challenges, 8(40%) of the respondents between ages 60 and above years had a lot of confidence in school. The Likert results also shows that 8(40%) of the respondents between ages 30-39 had little confidence on politicians in handling Covid-19 challenges. On the other hand, 13(52%) of the respondents between ages 18-29 years had confidence on police in handling Covid-19 challenges, 18(69.2%) of the respondents between 40-49years had confidence in church handling the covid-19 challenges while 16(61.5%) of the respondents between 40-49 years had a lot of confidence in friends in handling covid-19 challenges.

Table 2: Knowledge about covid-19

	Age of the respondents	None	Little	Moderate	A Lot
How much confidence do you have on your family doctors in handling Covid-19 challenges?	18-29	3(12.0)	7(28.0)	6(24.0)	9(36.0)
	30-39	2(10.0)	3(15.0)	6(30.0)	9(45.0)
	40-49	3(11.5)	4(15.4)	4(15.4)	15(57.7)
	50-59	1(6.7)	4(26.7)	5(33.3)	5(33.3)
	60 and above	3(15.0)	1(5.0)	5(25.0)	11(55.0)
confidence do you have on your employer in handling Covid-19 challenges	18-29	3(12.0)	8(32.0)	7(28.0)	7(28.0)
	30-39	7(35.0)	8(25.0)	6(30.0)	2(10.0)
	40-49	4(15.4)	6(23.1)	9(34.6)	7(26.9)
	50-59	1(6.7)	6(40.0)	5(33.3)	3(20.0)
	60 and above	4(20.0)	5(25.0)	4(20.0)	7(35.0)
How much confidence do you have on hospitals in handling Covid-19 challenges?	18-29	3(12.0)	4(16.0)	5(20.0)	13(52.0)
	30-39	1(5.0)	5(25.0)	3(15.0)	11(55.0)
	40-49	1(3.8)	5(3.8)	1(3.8)	23(88.5)
	50-59	0(0.0)	3(20.0)	2(13.3)	10(66.7)
	60 and above	2(10.0)	4(20.0)	5(25.0)	9(45.0)
How much confidence do you have on Ministry of health in handling Covid-19 challenges?	18-29	0(0.0)	5(20.0)	6(24.0)	14(56.0)
	30-39	0(0.0)	2(10.0)	5(25.0)	13(65.0)
	40-49	2(7.7)	0(0.0)	6(23.1)	18(69.2)
	50-59	0(0.0)	5(33.3)	4(26.7)	6(40.0)
	60 and above	1(5.0)	2(10.0)	4(20.0)	13(65.0)
How much confidence do you have on schools in handling Covid-19 challenges?	18-29	3(12.0)	6(24.0)	7(28.0)	9(36.0)
	30-39	1(5.0)	6(30.0)	8(40.0)	5(25.0)
	40-49	2(7.7)	7(26.9)	6(23.1)	11(42.3)
	50-59	1(6.7)	6(40.0)	2(13.3)	6(40.0)
	60 and above	2(10.0)	2(10.0)	8(40.0)	8(40.0)
How much confidence do you have on politicians in handling Covid-19 challenges?	18-29	3(12.0)	9(36.0)	3(12.0)	10(40.0)
	30-39	3(15.0)	8(40.0)	5(25.0)	4(20.0)
	40-49	4(15.4)	4(15.4)	7(26.9)	11(42.3)
	50-59	5(33.3)	3(20.0)	2(13.3)	5(33.3)
	60 and above	2(10.0)	4(20.0)	4(20.0)	10(50.0)
How much confidence do you have on police in handling Covid-19 challenges?	18-29	5(20.0)	5(20.0)	2(8.0)	13(52.0)
	30-39	1(5.0)	4(20.0)	7(35.0)	8(40.0)
	40-49	1(3.8)	5(19.2)	7(26.9)	13(50.0)
	50-59	0(0.0)	5(33.3)	4(26.7)	6(40.0)
	60 and above	3(15.0)	4(20.0)	5(25.0)	8(40.0)
How much confidence do you have on your church in handling Covid-19 challenges?	18-29	0(0.0)	5(20.0)	3(12.0)	17(68.0)
	30-39	2(10.0)	6(30.0)	4(20.0)	8(40.0)
	40-49	1(3.8)	3(11.5)	4(15.4)	18(69.2)
	50-59	1(6.7)	4(26.7)	3(20.0)	7(46.7)
	60 and above	1(5.0)	2(10.0)	8(40.0)	9(45.0)
How much confidence do you have on your friends in handling Covid-19 challenges?	18-29	4(16.0)	2(8.0)	9(36.0)	10(40.0)
	30-39	2(10.0)	6(30.0)	6(30.0)	6(30.0)
	40-49	3(11.5)	4(15.4)	3(11.5)	16(61.5)
	50-59	2(13.3)	5(33.3)	3(20.0)	5(33.3)
	60 and above	3(15.0)	2(10.0)	9(45.0)	6(30.0)

In Table 3, the p value is .003 and the null hypothesesthat the population correlation coefficient has value zero. Since p < .05, we reject the null hypothesis and conclude that socio-demographic factors is related to knowledge.

Table 3: Correlations		
Variable		**Knowledge About Covid-19**
Socio-demographic factors	Pearson Correlation	.976
	Sig. (2-tailed)	.003
	N	106

Correlation is significant at the 0.05 level (2-tailed).

In Table 4, 5, and 6, linear regression was fitted to explain Sociodemographic Variables Predicting Communities COVID-19 Knowledge : Evidence from Ikolomani Subcounty Kenya. All of the assumptions were met except the autocorrelation assumption between residuals. The overall model explains 73.0% variation of knowledge about covid, and it is significantly useful in explaining knowledge of covid$F(1, 104) = 0.112$, $p < .05$. With one-unit increase in socio demographic, the knowledge about covid scoredecreases by -0.007, which was not found to be a significant change, $t(104) = -0.334$, $p < .05$.

Table 4: Model Summary					
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Durbin-Watson**
1	.73[a]	.001	-.009	1.430	1.827
a. Predictors: (Constant), knowledge about covid					
b. Dependent Variable: Age of the Respondent					

Table 5: ANOVA[a]						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	.228	1	.228	.112	.739[b]
	Residual	212.649	104	2.045		
	Total	212.877	105			
a. Dependent Variable: Age of the Respondent						
b. Predictors: (Constant), knowledge about covid						

Table 6: Regression Coefficients								
		Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
Model		**B**	**Std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
1	(Constant)	3.151	.886		3.558	.001		
	knowledge about covid	-.007	.022	-.033	-.334	.739	1.000	1.000
a. Dependent Variable: Age of the Respondent								

DISCUSSION

The community has moderate Knowledeable about Covid 19.This finding is consistent with other studies that have shown satisfactory levels of knowledge, across the Saudi population, for epidemics, such as MERS (Aldowyan, 2017).

Education and age are related with knowledge, this is similar to the findings by Beier where by education, age, and income had relevance to knowledge (Beier; 2003)

Many people had the confidence to handle the disease This finding is consistent with a recent study conducted in China, where the majority of participants were convinced that the disease is curable and that their country will combat the disease. (Zhong, 2020).

CONCLUSION

Knowledge level about covid 19 was influenced by age, education level and income level. Members of the community had confidence in health care givers and religious leaders.

RECOMMENDATIONS

More emphasis should be placed on less educated, the aged and lower income members of the community. They can be reached by information in their local language via radio stations which broadcast using their native language and posters written in vernacular. Health care givers and religious leaders are instrumental change agents in the community;therefore, they should be empowered to educate the community about Covid 19 and prevention measures.

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