Mitigating Strategies and its Challenges of COVID-19 Pandemic in Ogun State, Nigeria

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Abstract

Globally, coronavirus disease (COVID-19) is a major public health problem due to its high virulence associated with communities spreading with no definitive treatment and untimely death. Various perceptions have been associated with the COVID-19 pandemic. This study assessed the perception of mitigating strategies and its challenges regarding COVID-19 among residents in Ogun State, Nigeria. A descriptive cross-sectional study design using a multi-stage sampling technique was used to solicit information from 2400 respondents in Ogun State, Nigeria. Data were collected using an interviewer-administered questionnaire from 4th to 15th October 2020. Descriptive statistics were employed for data analysis. Findings of this study revealed that avoidance of social gathering (23.5%), the use of face masks (23.3%), and cleaning of hands with sanitizer (22.7) were the most common mitigation strategies adopted by the respondents in the study area, although full adherence was low. The most strategies to prevent the transmission of COVID-19 were suggested by the respondents. These strategies included regular quarantining affected person(s), practicing basic measures, and going to the hospital with 21.5%, 20.6%, and 19.7% respectively. The results also showed that going to Churches and Mosques, inconvenient time of using face masks and restriction from social gathering and clubbing during COVID-19 pandemic were the most challenges faced in the study area. This study concludes that there should be more provision of medical supplies and palliatives for individuals, health education, the enforcement of preventive measures, and free testing and treatment should receive much recognition.

Keywords: Challenges, COVID-19, mitigating strategies, Nigeria, Ogun State.

Introduction

The "coronavirus disease 2019" (COVID-19) is an emerging infectious illness which broke out during the winter of 2019 [1, 2]. Due to its effects and presentation, it was declared and recognized as a global health emergence by World Health Organization (WHO) on February 11, 2020 [2]. The concept of "Coronaviruses" is described as zoonotic, as they are transmitted between animals and man [3, 4]. These viruses are closely associated with infections such as pneumonia, the common cold and conditions like severe acute respiratory syndrome (SARS) and Middle East Respiratory Syndrome (MERS) [5].

Awareness of this infection is not a recent phenomenon. The first experience of man with diseases and infections which were naturally transmitted between animals and man probably extends back before written history [6]. The descriptions of clinical signs of disease and advice on preventive behaviours have historically been passed from one generation to another, helping to shape many religious and socio-cultural conventions [7]. An alarming response was introduced across the globe due to its high infectiousness and case fatality rate [8]. The identification of the risks and the prevention of infectivity regarding COVID-19 have been stated to depend on human perception [8]. Especially in the submergence of an infectious disease such as COVID-19, different thoughts have shaped individuals' views on the illness.

Though coronaviruses were first identified in 1937 as an infectious bronchitis virus with which birds suffered that could devastate poultry stocks [5]. In the past 70 years, researchers have found camels, cattle, cats, dogs, horses, mice, pigs, rats, and turkeys that were infected with coronaviruses [5]. At the place of COVID-19 emergence in Wuhan China, it was stated that most people who have

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been sickened and killed by the 2019-nCoV virus have been linked to a seafood and animal market [5]. Coronavirus disease spread over 213 countries and produced vast health, economic and social impacts. For example, it was reported that nearly 24 million confirmed cases and close to 820,000 recorded deaths [9, 10].

Publicly available reports from the Africa Centre for Disease Control (ACDC) states that confirmed cases of COVID-19 had risen to 1,203,769 and 28,289 deaths as of 25 August 2020 [11]. As of 25th August 2020, the West African subregion accounted for a significant proportion of cumulative COVID-19 records in Africa. In Nigeria, there are 52,800 confirmed cases of COVID-19 with a total of 1,007 deaths as of 25 August 2020 [4, 9]. In spite of the fact that Nigeria is the most populous country in Africa and 7th in the world, the country (Nigeria) had about 2.7% confirmed cases and 1.8% death of COVID-19 in the region as at the second quarter of 2020. Ogun State holds the third spot on the Nigeria Centre for Disease Control (NCDC) daily COVID-19 updates. Ogun State presents confirmed cases of COVID-19.

As a part of the emergency response activities across all States in Nigeria, health education campaigns have been directed at members of the public [4]. These campaigns have been aimed at knowledge improvement and the correction of certain misconceptions that have been widely circulated among community members [4]. Education on precautionary measures such as wearing of face masks, regular handwashing with soap and water or with alcohol-based hand sanitizers, and social distancing have been done [4, 12]. Mitigation policies and/or strategic measures were put in place to curb the spread of COVID-19 in Nigeria and other parts of the world. Mitigation policy focuses on slowing but not necessarily stopping epidemic spread. Mitigation measures may involve a physical separation between workers, banning large gatherings, isolating the vulnerable, and identifying and quarantining contagious individuals and their recent contacts [13]. Few studies have recently been conducted on COVID-19 pandemic, but little or no studies have been conducted on the challenges facing the mitigating strategies of COVID-19 in Nigeria. This study thus aimed at assessing the perception on the challenges of mitigating strategies regarding COVID-19 in Ogun State, Nigeria.

Materials and Methods

The study area was confined to Ogun State, Nigeria. Ogun State is one of the fastest developing States in the country. It lies in the south-western part of the country between latitudes 6.20N and 7.80N of the equator, and longitudes 3.00E and 5.00 East of the Greenwich Meridian south (Figure. 1). Ogun State occupies an area of 16, 980.55km2 and a population of 3, 751, 140, with a density of 220/km2 [14]. The State is bounded on the west by the Republic of Benin and on the east by Ondo State. To the north is Oyo State, while Lagos State and the Atlantic Ocean are to the south. The geographical location of the State makes it accessible to the economically developed regions in Nigeria. Ogun State is made up of 20 Local Government Areas (Figure. 1).

Data used in this study was collected through the use of survey questionnaire. The questionnaire was targeted the residents of the study who were 15 years and above. The 2020 projected population of the study area which would be estimated as 5, 954, 097 [15] was used to determine the sample size. The determination of the sample size involves disregarding sampling error. Using an online sample size calculator [16] on the 2020 projected population of the study area with 2% margin of error, 95% confidence level, and 50% response distribution, the sample size was 2400. A total of 2400 copies of well-structured questionnaire were administered design using a multi-stage sampling technique from all the 20 Local Government Areas of the State. 2363 copies of questionnaire were retrieved for the analysis using descriptive statistics, while the results were presented in frequencies tables, graphs, and pie charts.
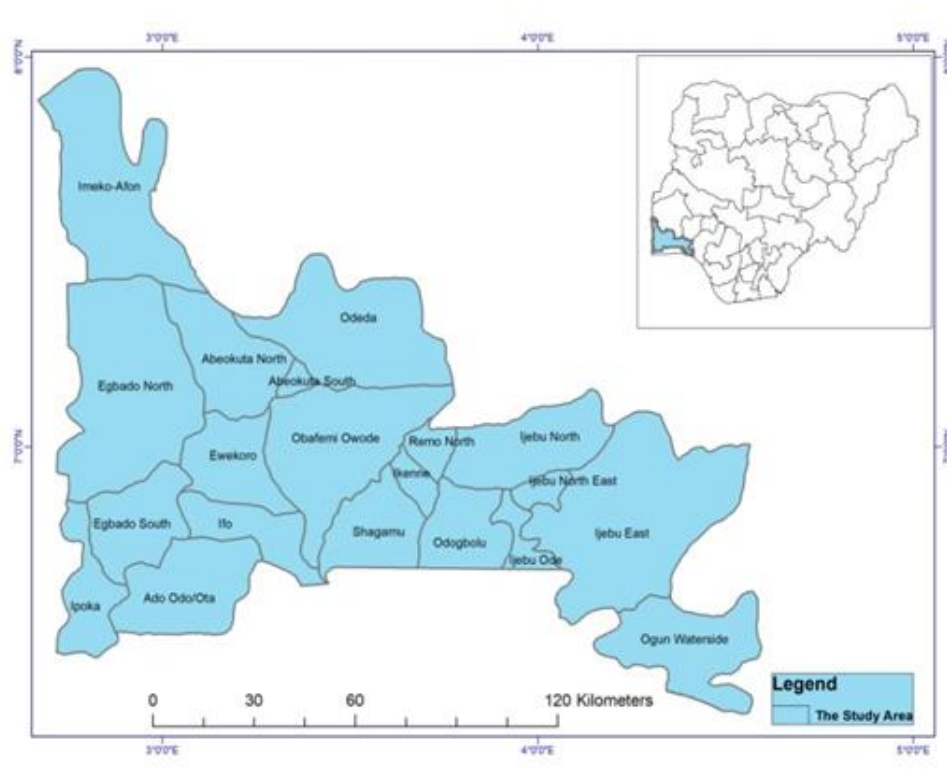
Figure 1. Ogun State, the Study Area

Results

Demographic Characteristics of the Respondents in the Study Area

The demographic characteristics of the respondents in the study area are presented in Table 1 while the local government areas and the profession of the respondents were presented in Figure. 2 and 3. Most of the respondents were Nigerians with 97.3% responses while 53.8% and 46.2% were male and female, respectively. The percentages of the respondents between the ages of 15 -24 and 25 -34 consisted of the larger population in the study area with 30.9% and 27.4% responses. The least age group was 1.3% representing only 30 respondents between the ages of 75 and above in the study area. Majority of the respondents were representing 46.1% and 45.9% were married and single, respectively.

The least percentage of the respondents which represents only 2.5% did not have formal education, while the number of respondents with secondary and university education constituted larger percentages with 30.9% and 20.8% respectively. As Islam and Christianity are the most common religious in the study area, a very small number of the respondents which represents 0.3% belonged to none of the three major religions. A total of 1603 which represents 67.8% worshiped God since they were born. The results also showed that 92.8% of the respondents were Yoruba, 4.4% were Igbo, while Hausa constitutes 50 (2.1%) of ethnic groups. Figure, 2 indicated that teachers and other professions constituted larger percentages of the respondents in the study area. The percentages of respondents from different Local Government Areas in the study area were presented in Figure. 3.

Table 1. Demographic Characteristics of the Respondents

Demographic Characteristics		Frequency	Percent (%)
Nationality	Nigerian	2299	97.3
	Others	64	2.7
Sex	Male	1271	53.8
	Female	1092	46.2
Age Bracket	15-24	648	27.4

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	25-34	729	30.9
	35-44	471	19.9
	45-54	287	12.1
	55-64	156	6.6
	65-74	42	1.8
	75 and above	30	1.3
Marital Status	Single	1084	45.9
	Married	1090	46.1
	Divorced	62	2.6
	Separated	47	2.0
	Widow	38	1.6
	Widower	42	1.8
Level of Education	No Formal Education	60	2.5
	Primary	108	4.6
	Secondary	731	30.9
	Col. of Education	262	11.1
	Polytechnic	317	13.4
	University	492	20.8
	Post Graduate	393	16.6
Religion	Islam	1388	58.7
	Christianity	899	38.0
	Traditional	69	2.9
	Others	7	.3
Years of worshiping God	< 5 years	24	1.0
	5 - 10 years	154	6.5
	11 - 20 years	154	6.5
	> 20 years	428	18.1
	since birth	1603	67.8
Ethnicity	Yoruba	2193	92.8
	Igbo	103	4.4
	Hausa	50	2.1
	Others	17	0.7
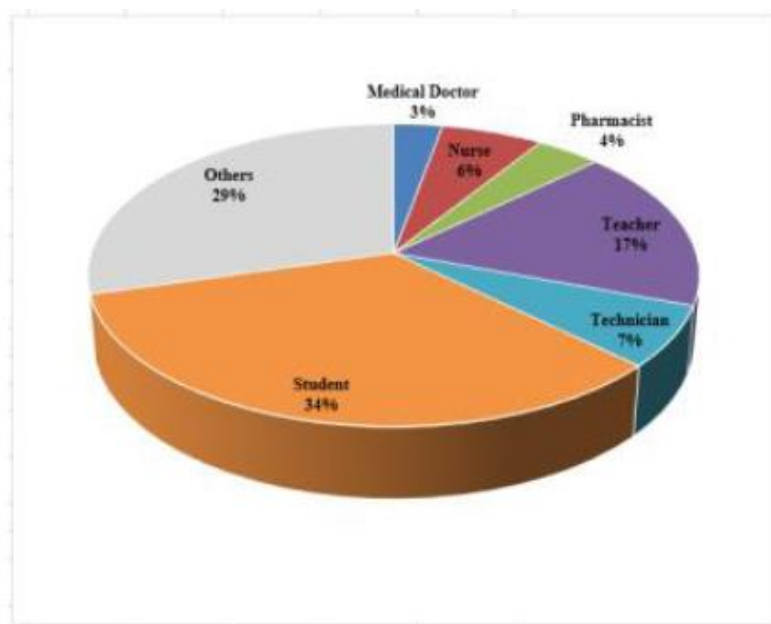
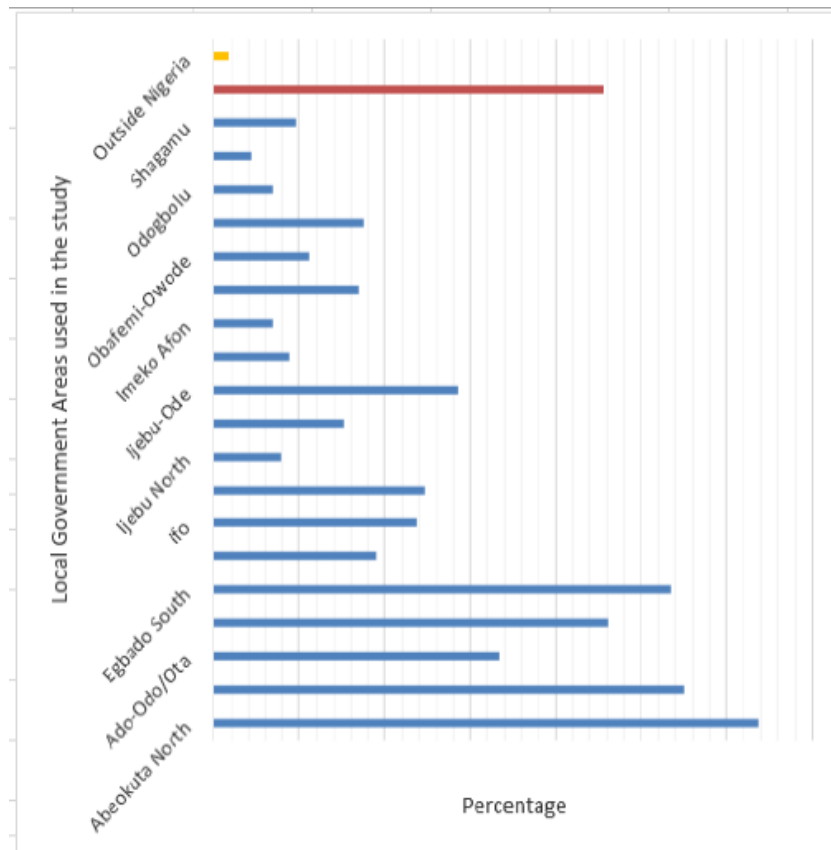**Figure 2.** Profession of Respondents in the Study

Figure 3. Local Government Area

Mitigation Strategies against COVID-19

Table 3 presents the mitigation strategies against COVID-19 in the study area. The most frequently reported practice for prevention of COVID-19 among respondents was the avoidance of social gathering by (23.5%), the use of face masks by 224 (23.3%) and cleaning of hands with sanitizer by 22.7%. Others included: Praying and fasting (18.5%), and washing of hands with soap (9.4%). Only 2.6% did nothing to curb the spread of COVID-19 as shown in Figure.2.

Best Strategies against COVID-19

Table 4 illustrates the results of the best mitigation strategies against COVID-19 in the study area. The results ranked the best strategies from 21.5% to 0.7%. Quarantining affected persons was ranked first, followed by practicing basic measures, and going to the hospital regularly with 21.5%, 20.6%, and 19.7% respectively. Using incantation, juju and magic; taking anointed water from pastors/imams/Alfas; drinking of and bathing with salt water; by taking traditional medicine/herbs were ranked low as the best strategies against COVID-19 in the study area.

Table 2. Mitigation Strategies against COVID-19

		Responses	
		N	**Percent**
Mitigation Strategies against COVID-19[a]	Nothing	238	2.6%
	Washing of hands with soap	856	9.4%
	Cleaning of hands with sanitizer	2071	22.7%
	Using of face mask or shield	2121	23.3%
	Avoiding social gathering	2137	23.5%
	Praying and fasting	1683	18.5%
Total		9106	100.0%

[a.] Dichotomy group tabulated at value 1.

Table 3. Best Strategies against COVID-19

|		**Responses**	
		N	**Percent**
Best Strategies against COVID-19[a]	By taking traditional medicine/herbs	440	5.3%
	By taking anointed water from pastors/imams/Alfas	214	2.6%
	Drinking of and bathing with salt water	460	5.6%
	By using incantation, juju and magic	58	0.7%
	Frequent prayer and fasting	990	12.0%
	Taking of drugs like chloroquine	990	12.0%
	By going to the hospital regularly	1628	19.7%
	Affected persons should be quarantined	1773	21.5%
	By practising basic measures	1697	20.6%
Total		8250	100.0%

[a.] Dichotomy group tabulated at value1.

Constraints to Mitigation Strategies against COVID-19

In Figure. 4, 64% of the respondents preferred going to Churches and/or Mosques to use the face masks while 993 (42%) did not have time to use face mask during COVID-19 (Figure. 5). The majority 1710 (72.4%) of respondents were not convenient with the use of face mask (Figure. 6). A small percentage (16.9%) of the respondents felt good for not attending social gathering, while the majority 1165 (49.3%) of the respondents felt badly for not attending social gathering during COVID-19 (Table 4). The results in Figure. 7 shows that 79.3% of the respondents were not satisfied for not going for clubbing whenever they felt stressed out or bored during COVID-19.
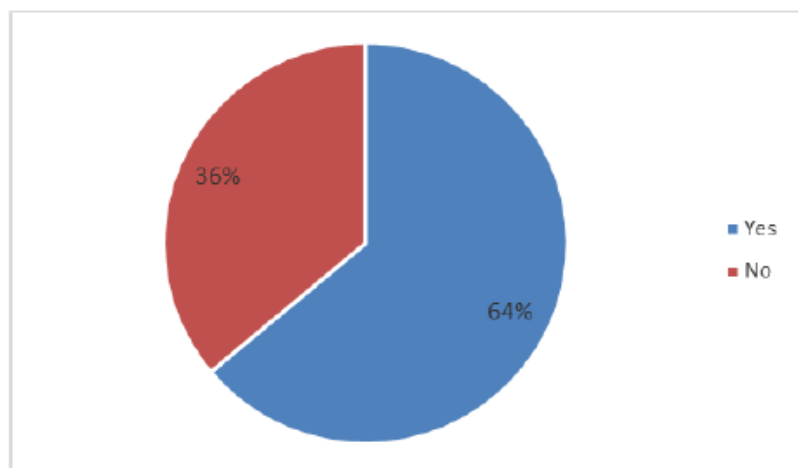
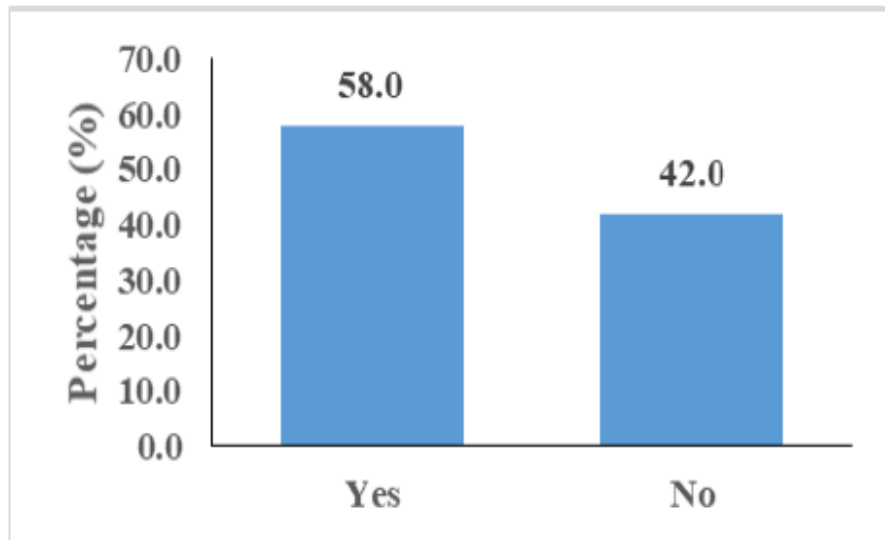**Figure 4**. Preference to go to Churches and Mosque Instead of Using Face Masks

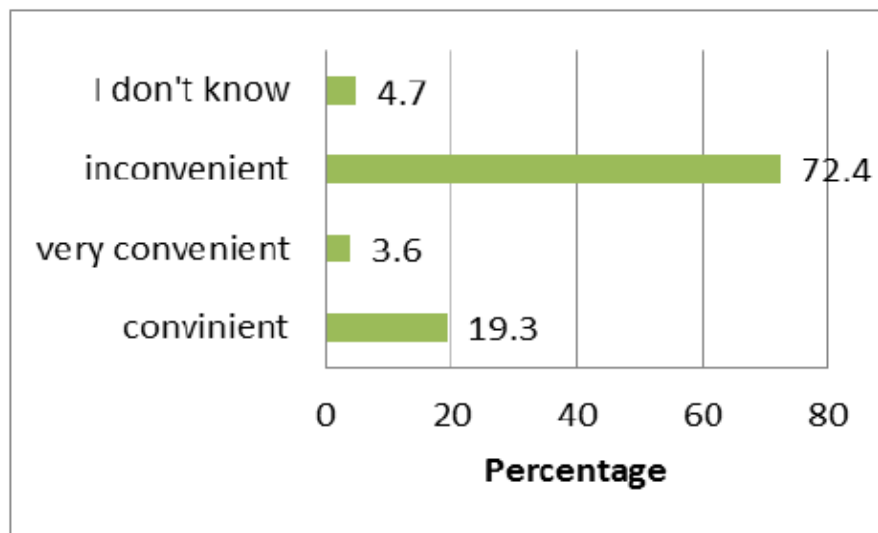**Figure 5.** Having Time to use Face Mask

Figure 6. The use of Face Masks to Daily Activities

Table 4. Social Gathering

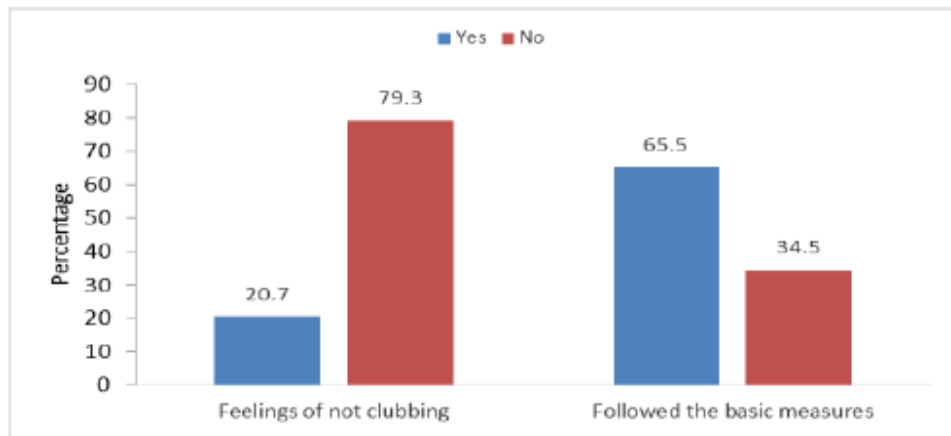| Variables	Yes	No
Good	399	16.9%
Bad	1165	49.3%
Sick	141	6%
Nothing	2363	27.8

Figure 7. Death as an End Result of COVID-19

Discussion

From the present study, Nigerians were largely sampled with the ratio of male and female of 0.54 to 0.46. This is because the study was conducted in Nigeria and the population of male was little more than female in the study area. Being a Gateway State and one of the foremost educated states in Nigeria, the results of this study showed that majority of the people in the study are educated with a very small number of people without formal education. Findings obtained from this study revealed that the perception on the mitigation strategies of COVID-19 were most adopted and practiced. This indicates that the precautionary measures put in place to curb the spread of COVID-19 were practiced as the majority of the respondents were educated. Many of the respondents had the knowledge of COVID-19. This might be the rationale of adopting the basic measures as mitigation strategies of COVID-19 in the study area. Although distrust in government capacity regarding COVID-19 is currently obtained, individuals are willing to take proactive measures following the suspected development of COVID-19 symptoms [17]. An Indian study similarly reported that hospital visitation was frequently opted for as a step to be taken following the development of COVID-19 in individuals in a close relationship [18].

This study found that avoidance of social gathering, the use of face masks and cleaning of hands with sanitizer were more frequently embraced among respondents compared with other COVID-19 mitigation measures, although full adherence was low. A web-based study conducted in Nigeria mostly stated mouth-covering while sneezing, wearing of face masks and avoidance of crowded spaces as self-reported practices among respondents [19]. In a similar study, the use of face masks and practice of social distancing measures were more adopted among respondents compared to other COVID-19 mitigation measures [20]. Findings of this study also revealed that multitudes of perceptions were associated with COVID-19, which include but not limited to an exaggerated illness with intentions for corruption, its highly infectious and deadly nature, and a reason for panic disorders.

Furthermore, the chance of positive mitigation strategies and/or practices regarding COVID-19 was associated with a positive perception of the risk involved [8]. In Nigeria, previous studies also substantiate the pivotal role of positive risk perception on imbibing COVID-19 mitigating strategies and/or protective measures and attitudes [19]. The results obtained in this study are like the knowledge concerning the practice of face masks in Saudi Arabia [1]. Due to deadly nature of COVID-19, it has presented anxiety and/or fear in every individual with similar symptoms of illness [8]. Studies have shown that fear could prompt healthy behaviour among individuals, most especially during epidemics, but such behaviour may not be viable [21, 22, 23].

This study found that quarantining affected person with COVID-19; practicing basic measures such as regularly handwashing, use of face masks and others; and going to the hospital were indicated by the respondents as the best strategies for preventing COVID-19 in the study area. Though, other protective measures

were also adopted by the respondents in the study area such as taking of chloroquine, prayers and fasting, use of salt water for drinking and bathing, and the use of medicinal herbs. Adoption of all these aforementioned strategies was because these individuals perceive themselves as vulnerable to COVID-19 infection. Use of face masks and regular handwashing practices have been identified as the mitigation strategies for breaking the chain of COVID-19 transmission in the study area. An online survey conducted in Nigeria revealed a higher practice of handwashing compared to other COVID-19 preventive measures [19].

A study conducted in Ilaro on preventive practice of Ebola virus disease outbreak revealed regular handwashing and use of sanitizers as the most useful protective measures against EVD [24]. Like this finding, a study conducted in Ibadan on hand hygiene practices post the Ebola virus disease outbreak revealed a high proportion of inadequate self-reported hand hygiene practice [25]. Other studies conducted in Edo State on Lassa fever reported inadequate handwashing practices, while a similar study in Kaduna State, Nigeria, reported good handwashing practices among respondents [26]. Acceptance of the practice of regular handwashing in the management of infectious diseases is the most similar findings in the studies.

There are constraints to mitigation strategies of COVID-19 in the study area. During COVID-19, respondents preferred going to Churches and Mosques to the use of face masks. They also indicated that no time to use the face masks, and they were not convenient to use it. This justifies an assertion that the use of face masks was the most determinant factor to the mitigation strategies for COVID-19. Other challenges included restriction of individuals to attend social gathering and for clubbing.

In general, this study found that COVID-19 poses significant threat to local economy, resulting in low income and resultant hunger.

This is likely due to the increased cost of purchasing goods or a result of the lockdown, which has denied many individuals the opportunity to earn their income. The provision of medical supplies and palliatives should receive highest recommendation among respondents. Further, health education, the enforcement of preventive measures, and free testing and treatment should receive much recognition. Similar suggestions have been made in previous studies [27].

Conclusion

Mitigation strategies and challenges faced during COVID-19 pandemic in Ogun State, Nigeria has been assessed. The acceptance of precautionary actions is precarious to envision headlong spread of COVID-19. Ample and accurate risk insight for COVID-19 is a prerequisite to facilitate the espousal of COVID-19 safety procedures. This study hereby recommends heightened sensitization and health education sessions for all community adherents about COVID-19 in Ogun State, Nigeria, regardless of their sociodemographic characteristics. Further, there should be health campaigns more focusing on practices such as regular handwashing with soap and water and social distancing, which protects against transmission of COVID-19 among community members nonetheless of their sex. In addition, laws should be made on the mandatory use of face masks, and provision of accessible portable sources of water, soaps and sanitizers for regular handwashing and cleaning. Finally, free testing and treatment must receive much recognition, and the government should also install more infrastructures for water supply where dearth of water exists.

Acknowledgements

References

[1] Al-Hanawi, M. K., Angawi, K., Alshareef, N., Qattan, A.M.N., Helmy, H.Z., Abudawood, Y., Alqurashi, M., Kattan, WM., Kadasah, N.A., Chirwa, G.C., and Alsharqi, O., 2020, Knowledge, attitude and practice toward COVID-19 among the public in the Kingdom of Saudi Arabia: A cross-sectional study. *Frontiers in Public Health*, 8, 1–9 DOI 10.3389/fpubh.2020.00217.

[2] WHO 2020a, Coronavirus disease 2019 (COVID-19) situation report-51 Geneva: World Health Organization Accessed: 26 August 2020 https://covid19.who.int/.

[3] Weiner, L.P., 1987, Coronaviruses: A historical perspective. In: *Corona Viruses: Advances in Experimental Medicine and Biology* edited by Michael, M.C.L., and Stephen, A.S. (Plenum Press: New York and London), pp. 1-4.

[4] NCDC, 2020a, COVID-19 Nigeria—Nigeria centre for disease control. Accessed: 11 August 2020. https://covid19.ncdc.gov.ng/.

[5] International Medical Aids-IMA, 2020, Coronavirus: What you need to know. Accessed: 21 April 2020. https://medicalaid.org/.

[6] Reaser, J.K., Clark, E.E. Jr., and Meyers, N.M., 2008, All creatures great and minute: A public policy primer for companion animal zoonoses. *Zoonoses and Public Health,* 55,385-401.

[7] Shakespeare, M., 2002, *Zoonoses.* (London, U.K.: Pharmaceutical Press, Division of the Royal Pharmaceutical Society).

[8] Zhong, B-L, Luo, W., Li, H-M., Zhang, Q-Q., Liu, X-G., Li, W-T., Li, Y., 2020, Knowledge, attitudes and practices towards COVID19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: A quick online cross-sectional survey. *International Journal of Biological Sciences*, 16(10), 1745–1752 DOI 10.7150/ijbs.45221.

[9] WHO, 2020b, Coronavirus disease (COVID-19) situation report-149 Geneva: World Health Organization Accessed: 26 August 2020 https://www.who.int/docs/default-source/coronaviruse/situationreports/20200623-covid-19-sitrep-155.pdf?sfvrsn=ca01ebe_2.

[10] WHO, 2020c, Coronavirus disease (COVID-19) advice for the public: World Health Organization Accessed: 25 June 2020 https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public.

[11] ACDC, 2020, Coronavirus disease 2019 (COVID-19): Africa centre for disease control. Accessed: 25 August 2020. https://africacdc.org/%20covid-19/.

[12] Gbadamosi, B., 2020, War on COVID-19: Oyo threatens to shut markets for flouting precautionary measures—Oyo state. The Pace Setter State. Accessed: 26 June 2020. https://oyostate.gov.ng/war-on-covid-19oyo-threatens-to-shut-markets-for-flouting-precautionary-measures/.

[13] Scherbina, B., 2020, Determining the optimal duration of the COVID-19 suppression policy: A cost-benefit analysis. AEI Economics Working Paper 2020-03. *American Enterprise Institute*,1-28.

[14] National Population Commission, 2006, Federal Republic of Nigeria 2006 Population and Housing Census, Priority Tables, Vol. VII Abuja, Nigeria.

[15] Ogun State Population, 2020, Population of Ogun State. Accessed: 16 April 2020. http://population.city/nigeria/adm/ogun/

[16] Sample Size 2020, Online Sample Size Calculator. Accessed: 15 May 2020. http://www.raosoft.com/samplesize.html.

[17] Chukwuorji, J.C., Iorfa, S.K., 2020, Commentary on the coronavirus pandemic: Nigeria. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1): S188–S190 DOI 10.1037/tra0000786.

[18] Dkhar, S.A., Quansar, R., Saleem, S.M., Khan, S.M., 2020, Knowledge, attitude, and practices related to COVID-19 pandemic among social media users in J&K, India. *Indian Journal of Public Health*, 64(6), 205–210 DOI 10.4103/ijph.IJPH_469_20.

[19] Iorfa, S.K., Ottu, I.F.A., Oguntayo, R., Ayandele, O., Kolawole, S.O., Gandi, G.C., Dangiwa, A.L., Olapegba, P.O., 2020, COVID-19 knowledge, risk perception and precautionary behavior among Nigerians: A moderated mediation approach. *medRxiv* DOI 10.1101/2020.05.20.20104786.

[20] Ilesanmi, O., and Afolabi, A., 2020, Perception and practices during the COVID-19 pandemic in an urban community in Nigeria: A cross-sectional study. *PeerJ,* 8: e10038 DOI 10.7717/peerj.10038.

[21] Witte, K., 1998, Fear as motivator, fear as inhibitor: using the extended parallel process model to explain fear appeal successes and failures. In: *The Handbook of Communication and Emotion: Research, Theory, Applications, and Contexts* edited by Andersen PA, Guerrero L.K., (San Diego: Academic), pp. 423–450.

[22] Nabi, R.L., 1999, A cognitive-functional model for the effects of discrete negative emotions on information processing, attitude change, and recall.

Communication Theory, 9(3), 292–320. DOI 10.1111/j.1468-2885. 1999.tb00172. x.

[23] Ufuwa, I.S., Akpa, C.O., Umeokonkwo, C.D., Umoke, M., Oguanuo, C.S., Olorukooba, A.A., Bamgboye, E., Balogun, M.S., 2020, Knowledge and risk perception towards Lassa fever infection among residents of affected communities in Ebonyi State, Nigeria: Implications for risk communication. *BMC Public Health*, 20(1):1–10 DOI 10.1186/s12889-020-8299-3.

[24] Oni, B.O., 2019, Knowledge, attitude and preventive practice of senior secondary school students on Ebola Virus Disease in Ilaro, Ogun State, Nigeria. *Texila International Journal of Public Health,* 7(4), 163-172.

[25] Martins, S.O., Osiyemi, A.A., 2017, Hand hygiene practices post Ebola virus disease outbreak in a Nigerian teaching hospital. *Annals of Ibadan Postgraduate Medicine, 15,* 16–22.

[26] Tobin, E.A., Asogun, D.A., Isah, E.C., Ugege, O.G., Ebhodaghe, P., 2013, Knowledge and practice of infection control among primary care providers in an endemic suburban community of Edo State: implications for control. *Journal of Medicine and Medical Sciences*, 4,311–318.

[27] Kebede, Y., Yitayih, Y., Birhanu, Z., Mekonen, S., Ambelu, A., 2020, Knowledge, perceptions and preventive practices towards COVID-19 early in the outbreak among Jimma university medical center visitors, Southwest Ethiopia. *PLOS ONE*, 15(5), e0233744 DOI 10.1371/journal.pone.0233744.