IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 20, Issue 8 Ser.2 (August. 2021), PP 42-49
www.iosrjournals.org

Compliance to COVID-19 Preventive Guidelines during the Pandemic by Residents in Gwagwalada Area Council of Abuja, Nigeria

Chiaha OI.[1] Okechukwu AA.[2] Adewole ND. [3] Ajanaku IT.[2] Jibril AO.[2]
[1]*Dept of Mental Health, University of Abuja Teaching Hospital, Gwagwalada, Abuja.*
[2]*Dept of Paediatrics, University of Abuja Teaching Hospltal, Gwagwalada, Abuja.*
[3]*Dept of Obstretics & Gynaecology, University of Abuja Teaching Hospital, Gwagwalada, Abuja.*
Corresponding Author: Chiaha Ijeoma O
Dept. of Mental Health, University of Abuja Teaching Hospital, Gwagwalada, Abuja.

Abstract
Background: *Non-pharmaceutical interventions comprising of use of facemasks, face shield, diligent hand hygiene/use of alcohol based hand sanitizer, and social distancing has been proven to be effective in curbing corona virus disease-19 in communities.*
Objective: *We assessed the level of compliance to WHO preventive guidelines on COVID-19 with more emphasis on use of face mask among residents in one of the area councils in the Federal Capital Territory, Abuja, Nigeria*
Subjects and Methods: *A cross-sectional face to face community-based survey was conducted among the targeted group in Gwagwalada Area Council of Abuja during the pandemic for the above objective.*
Results:*The results suggest less number of the respondents complying to the guidelines: 6.1% for hand washing; 15.6% for use of face mask; 1.1% for use of face shield; 0.7% for use of alcohol based hand sanitizer,and 1.7% for social distancing. Use of face mask was significantly commoner among urban than rural dwellers (98.1% Vs 1.9%), p=0.000, so also was those with tertiary/post tertiary level of education and those with no education,(81.9% Vs 1.4%), p=0.000. A strong positive relationship was seen between place of residence (urban and rural) with use of face mask,OR: 69.33, CI 25.44-188.9,p=0.000, and OR:10.22, CI 3.06-34.17, p=0.000 for tertiary and post tertiary level of education.*
Conclusion:*There is low compliance of COVID-19 guidelines by residents in this study.This is particularly worrisome among the un-educated and those leaving in rural areas. Such groups need to be targeted for effective control of the spread of the disease.*
Key Words:*Coronavirus disease 2019, compliance, face mask, social distancing, wand washing.*

Date of Submission: 26-07-2021 Date of Acceptance: 11-08-2021

I. Introduction

Use of face mask, intensified hand hygiene, and social distancing are all important components of the non-pharmaceutical measures against corona virus disease-19 (COVID-19). Face mask use with or without face shield has been used to control virus transmission during influenza pandemic in many countries.[1] A study from Germany showed use of face mask to be well tolerated by both adults, and sick children.[2] Other studies showed no significant effect of this interventions on secondary infections, thus signifying its primary effect on the reduction of transmission of influenza infection especially when intensified with early and diligent use of hand hygiene.[3,4]

In many Asian countries like China and Japan, the use of face masks in this pandemic is ubiquitous and is considered as a hygiene etiquette, whereas in many western countries, and Africa its use in the public is less common. Despite proximity of Hong Kong to mainland China,an international transport hub of the country with its millions visitors annually, the infection rate of COVID-19 was generally modest in the place, 1,110. This they attributed to ubiquitous (98.8%) use of face masks in the city public since the SARS epidemic of 2003,their border restrictions, quarantine and isolation of infected cases, and social distancing.[5] Similar patterns were also seen in Taiwan where there was visible decrease in number of new cases of COVID-19 due to combined use of face mask, hand washing and social distancing. [6]

The currently on going global pandemic of coronavirus disease that started in 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[7]The virus has overcome geographical barriers achieving a remarkable proliferation, resulting in different countries using public health

protocols to control the spread of the virus to avoid a collapse of their health systems. These strategies include isolation of cases, hand hygiene, respiratory etiquette, use of homemade facemasks, social distancing, measures such as closing of schools/ universities, banning large events/ mass gatherings, restricting travel/ public transportation, stay at home, and total lockdown except to buy food or medicines or to seek healthcare.[8]This total lock down measures has raised a variety of reactions among the population, causing anguish, and massive fear. In recent times, the lockdown rules are gradually being eased off across cities of the world, with generality of activities returning to normalcy. With the easing of lockdown, the government effort has become less forceful. There is a loosening of prevention measures by the population, a denial of reality and the impossibility of enforcing restrictions. The non-compliance and, to some extent the disinterest of certain human groups in relation to these regulations is alarming. Some earlier studies carried out in Latin America suggest that the population tends to be reluctant to adopt these control measures [9,10]

As of 2020 during the onset of the pandemic, there was no known antiretroviral treatment or vaccine available for this disease. In view of that, the World Health Organization (WHO), the US Centers for Disease Control and Prevention (CDC), and public health officials recommended most importantly the diligent use of the face mask/face shield, maintain at least a 1-metre distance between others, hand washing or use of alcohol based hand sanitizer, avoid closed crowded places as key non-pharmaceutical ways of controlling the spread of the novel coronavirus.[11,12]Given the inherently temporary nature of social buy-in when it comes to the strictest level of stay-at-home orders, measures such as mask (or face-shield) and hand sanitizer mass distribution could be an important part of a responsible and adaptive reopening of the entire sectors of the country. The authors expressed uncertainty on precisely how much the public will widely adopt of use of face masks or face shield, hand washing and social distancing in this environment. But the pattern they will identify will lends confidence to the hypothesis that these non-pharmaceutical measures are important, and independent means to flatten the curve despite situations where close contact is inevitable. The present study wastherefore aimed at assessing the extent the residents in Gwagwalada Area Council (GAC) of Federal Capital Territory (FCT), Abuja, Nigeria adhere to the COVID-19 preventive measureswith a view of knowing their degree of compliance since no such study has been documented either in the country nor in the continent.

.

II. Materials and Methods

A descriptive, cross sectional, community based study, was conducted in the 6 of the 10 wards of GAC of the FCT, Abuja during the period when intra-state lock down was lifted in FCT in August 2020.

Study Design: A cross sectional community based study.

Study Location: The study was carried out at GAC of the FCT, Abuja. The area council is one of the six area councils in the FCT, Abuja. It has 10 wards, four (4) urban, and 6 semi-urban and rural communities with over one million inhabitants, and class population. The inhabitants were farmers, civil servants, traders, business men/women, skilled and unskilled artisans, and home of many institutions such as University of Abuja Teaching Hospital, School of Nursing and Midwifery, University of Abuja, some government and private establishments, branches of the major banks, tertiary and secondary educational institutions, and places of worship mainly in its urban wards.

Study Duration:1st September to 15th of October 2020 (6 weeks)

Sample size: Sample size was based on 50% prevalence of use of face mask since no such study had been conducted in any part of the country. Using the sample size formula of $N=Z^2$ pq ÷ d by Araoye,[19] with desired precision of 4%, 95% confidence level, and non-response rate of 25%, a total of 1,400 questionnaires (230) per ward was administered in the 6 of the 10 wards in the area council.

Subjects & selection method: The subjects were selected from the three urban and three rural wards using simple random selection. All the respondents consented to provide information for the research, and responses treated with confidentiality. The interview/observation was conducted in the major markets, major motor parks, and the worship centers of the six selected wards in the area council.

Inclusion criteria:

1. Willingness to participate in the study.
2. Residing in GAC.
3. 18 years and above.

Exclusion criteria:

1. Unwillingness to participate
2. Less than 18 years
3. Not residing in the area council

Procedure methodology: The Nigerian Center for Disease control (NCDC)[16] directives for users of all motor parks, markets/business centers, and worship centers during COVID-19 were;

(i) Ensuring provision of adequate hand washing facilities including running water, soap or alcohol-based hand sanitizer at the entrance of these facilities. Locally devised wash hand sinks known as "veronica buckets" was popularly used.

(ii) An insistence on washing of hands by passengers, worshippers, and people entering the markets, before boarding vehicles, entering worship centers, market/ business centers. Arrangements to be made to check this on entry.

(iii) Regular washing of their buses/taxis, mopping of floors and cleaning of windows/doors of their worship center or business centers.

(iv) A reduction in the number of occupants per vehicle with 1–4 people on a row of a bus, 3-4 per pew in the worship centers.

(v) Opening of window in the vehicles, worship places, and individual shops in the market places to allow aeration.

Using the directives on physical distancing, use of face masks, the presence of hand washing sink, and alcohol based sanitizers as the criteria, the research assistants and the authors carried out observational survey of people compliance to these COVID-19 rules before the administration of the questionnaire. Observations were tallied under compliant or non-compliant. Compliance to the physical distancing guideline was determined to be a situation where the maximum number of passengers on a row of bus/taxis, worship centers, or market places were in conformance with the NCDC directives, 3 per row in a bus, 2 per row in a taxi, 3 per row in pew in worship centers, and arbitrary not more than 3 per shop in the market or business centers for social distancing. For the hand washing it was based on the presence of veronica or any other improvised hand washing sink with water or alcohol based hand sanitizer, while face mask was whether the respondents was wearing face mask or not.

The questionnaire included the bio-data of the respondents, knowledge on prevention of COVID-19, and knowledge on use of face mask by Zegarra-Valdevia et al[18] with his consent. Knowledge on prevention of COVID-19 consists of 5 major items extracted from Zegarra-Valdevia et al.[18] This include: vigorous hand washing with soap and water, use of alcohol based sanitizer, use of face mask, use of protective eye gear or face shield, and avoidance of crowded places. For the knowledge on use of face mask, there were 26 items with advice on what the authorities can do to improve compliance to COVID-19 guideline. The knowledge on preventive measures in English and translated into the local languages and Pidgin for the respondents where necessary.

Statistical analysis

This was done using statistical package for Social Sciences (SPSS) version 26. Frequency table was calculated, and chi-square used to compare categorical variables, and student T test for non-categorical variables. Un/Bi-variate linear regression was used to examine the association with demographic variables, while logistic regression was used to test the covariates with significant values. P value of <0.05 was considered statistically significant.

Ethical issues

This was obtained from the Ethics Committee of the University of Abuja, Teaching Hospital, Gwagwalada, and permission from the village heads of the wards used for the interview.

III. Results

Table 1: Depicts the socio-demographic characteristics of the study population. Of the 1400 respondents interviewed, only 1348 were analyzed, 52 were excluded for incomplete data. For the subjects, more were between 18-39 years (74.5%), most were males (54.5%), most were married (54.8%), most person (50.2%) had tertiary and post tertiary education, and majority (65.7%) were employed. There was statistical significant difference between all the variables for urban and rural dwellers: age ranges, (x^2=20.529, p=0.000), sex (x^2=10.56, p=0.001), marital status (x^2=41.23, p=0.000), educational status (x^2=198.77, p=0.001), and employment status (x^2=8.77, p=0.003).

Tables

Table 1: Socio-Demographic Characteristics of the Study Population

Variables	Total Population N (%) N=1348	Urban N (%) N = 792	Rural N (%) N=556	Chi-square Statistic	P Value
Age range (years)					
18 – 39	1004 (74.5)	569(71.8)	435 (78.2)	20.529	0.000
40 – 55	278(20.6)	169(21.3)	109 (19.6)		
>55	66(4.9)	54(6.8)	12 (2.2)		
Sex					

Male	734 (54.5)	402(50.8)	332(59.7)	10.561	0.001
Female	614 (45.5)	390(49.2)	224 (40.3)		
Marital Status					
Single	587 (43.6)	399(50.4)	188(33.8)	41.225	0.000
Married	739 (54.8)	378(47.7)	361(64.9)		
Widow/widower	22 (1.6)	5(1.9)	7(1.3)		
Educational Status					
No education/1^0 education	235 (17.4	55(6.9)	174(31.3)	198.766	0.000
2^0 education	437(32.4)	225(28.4)	218(39.2)		
3^0& post 3^0 education	676 (50.2)	512(64.7)	164(29.5)		
Employment Status					
Unemployed	462 (34.3)	285(36.0)	177(31.8)	8.7655	0.003
Employed	886 (65.7)	507(64.0)	379(68.2)		

Fig 1 shows the prevalence of use of face mask among the study population. The pie chart depicts the prevalence of face mask among the respondents to be 15.6%.

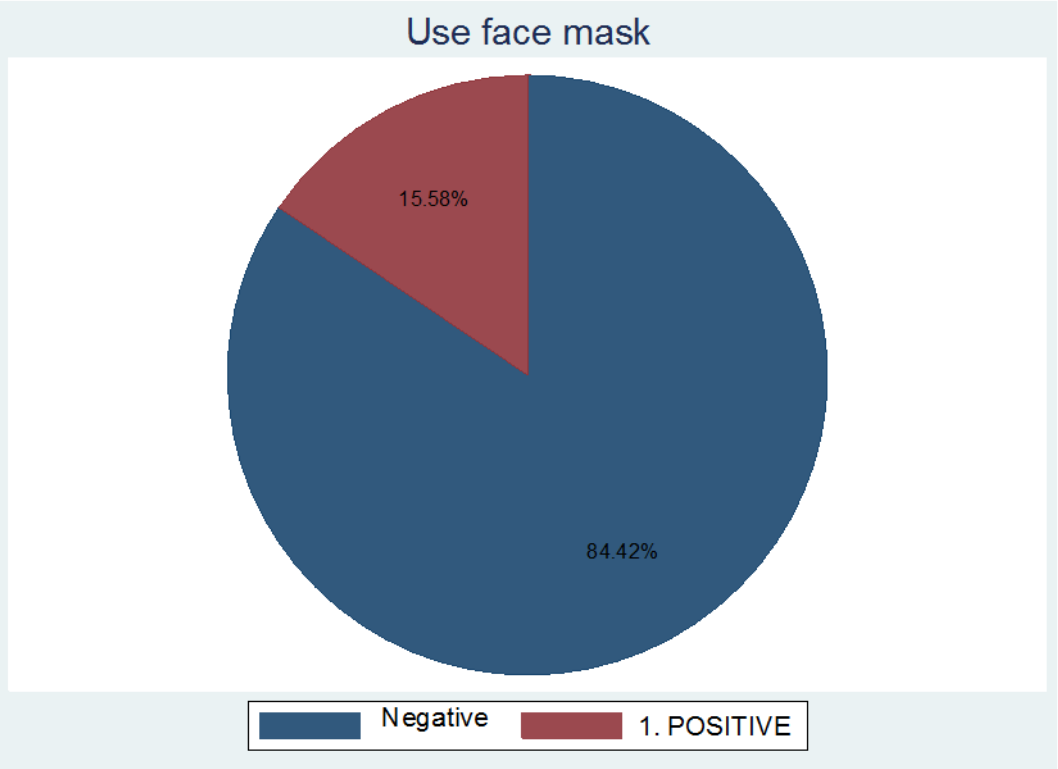

Table 2 Shows the knowledge Vs compliance on 5 major preventive guideline of COVID-19. While majority of the respondents were knowledgeable of the major preventive guideline, only a hand-full were compliant to practice: For vigorous hand washing, 83.8% [for knowledge] Vs 6.1% [for compliant], x^2 =672.9, p=0.00**;** 78.0% Vs 15.6%, x^2 =400.2, p=0.001 for the use of face mask**;** 49.9% Vs 1.1%, x^2=520.3, p=0.001 for the use of face shield**;** 68.6% Vs 0.7%, x^2= for use of alcohol based sanitizers**;** 67.2% Vs 1.7%, x^2=712.6, p=0.001 for social distancing.

Table 2: Knowledge on Prevention of Major COVID-19 Guideline Versus Observed Practice

COVID-19 guidelines	**Knowledge on prevention. N=1348 (%)**	**Observed practice. N=1348(%)**	**X^2**	**P value**
Vigorous hand washing	1130 (83.8)	82(6.1)	672.9	0.001
Use of face mask	1051(78.0)	210(15.6)	400.2	0.001
Use of face shield	672(49.9)	15(1.1)	520.3	0.001
Useof alcohol based hand sanitizer	925(68.6)	9(0.7)	712.6	0.001
Social distancing	905(67.2)	23(1.7)	662.9	0.001

Table 3 Depicts the knowledge about use of face mask by the study population. Only 210(15.6%) of the respondents were observed to be wearing face mask during the interview. Reasons given for not wearing face mask were**;** not breathing well 718(53.3%); forgot theirs at home 256(19.0%); expensive to buy by

165(12.2%), and not having enough time to wash it regularly by 158(11.7%). Majority 901(66.8%) prefer cloth mask, because it is cheaper 310(34.4%), others say they breathe better with it 229(25.4%), and it can be re-washed 254(28.2%). While 904(67.1%) claimed they wash their mask on a daily basis, 30(2.2%) said they don't wash it at all, others 52(3.9%) discard after use. When asked when they prefer wearing their face mask, most 911(67.6%) said when want to leave home, or when in crowded places 138(10.2%). For what authorities should do to aid in the compliance to COVID rules and regulations, majority 550(40.8%) suggested provision of incentives for the populace, use of law enforcement agencies by 459(34.1%), use of vaccine by 149(11.1%), and provision of free face mask for all by 131(9.7%).

Table 3: Knowledge about Use of Face Mask by the Respondents.

Knowledge on Use of Face Mask	**Frequency(%)**
Was respondent wearing face mask at the time of interview?	
Yes	210(15.6)
No	1138(84.4)
If no, why?	
Can't breathe well with it	718(53.3)
Forgot to wear it	256(19.0)
It's expensive	165(12.2)
Difficult to find	51(3.8)
No time to wash regularly	158(11.7)
What type of mask do you prefer?	
Cloth type	901(66.8)
Surgical face mask	239(17.7)
N-95	34(2.5)
No particular type	174(12.9)
Why do you prefer a cloth face mask? (901)	
It's cheaper	310(34.4)
Can breathe better with it	229(25.4)
Readily available	108(12.0)
Can rewash it	254(28.2)
How often do you wash it/ change your mask?	
Everyday	904(67.1)
Twice a week	185(13.7)
Three times a week	85(6.3)
Once a week	77(5.7)
Don't wash at all	30(2.2)
Twice a day	15(1.1)
Use and discard	52(3.9)
When do you wear mask?	
Anytime I leave house	911(67.6)
When I go to the city	229(17.0)
Only in crowded places	138(10.2)
When I remember	35(2.6)
When I am asked to e.g. in the bank, etc.	35(2.6)
What do you think authorities should do to aid compliance to COVID rules and regulations?	
Use law enforcement agencies to enforce COVID-19 guideline	561(41.6)
Provide incentive for people (food and money)	540(40.1)
Provide free face mask	121(9.0)
Provide vaccine	107(7.9)
Provide washing hand utensils at every strategic places	19(1.4)

Table 4 shows study variables associated with use of face mask during the interview.Use of face mask was statistically commoner in urban than rural dwellers (98.1% Vs 1.9%), x^2=271.01, p=0.000; among married than singles (52.4% Vs 44.3%), x^2=6.52, p=0.038; and those with tertiary/post tertiary education and the non-educated (81.9% Vs 1.4%), x^2=106.99 p=0.000. Multi-variate logistic regression analysis showed only place of residence, OR of 69.33, CI 25.44- 188.9, and tertiary/post tertiary level of education, OR of 10.22, CI 3.06-34.17 to be associated with use of face mask.

Table 4: Factors Associated with Use of Face Mask during COVID-19 Pandemic.

Characteristics	**Use of face mask, Yes, N (%) N=210**	**Use of face Mask, No, N (%) N=1,138**	**X^2**	**P Value**	**Multivariate analysis OR (95% CI)**	**P Value**
Sex						
Male	105(50.0)	629(52.3)	1.99	0.159		

Female	105(50.0)	509(44.7)				
Age(years)						
18-39	144(68.6)	860(75.6)	4.67	0.097		
40-55	51(24.3)	232(20.4)				
>55	15(7.1)	46(4.0)				
Place of residence						
Rural	4(1.9)	723(63.5)	271.01	0.000		
Urban	206(98.1)	415(36.5)			69.33(25.44- 188.9)	0.000
Marital status						
Single	93 (44.3)	494(43.4)	6.52	0.038		
Married	110(52.4)	629(55.3)			1.39(0.98-1.97)	0.068
Widows/widowers	7(3.3)	15(1.3)			3.77(0.79-17.83)	0.095
Level of education						
No education	3(1.4)	232(20.4)	106.99	0.000		
2^0 education	35(16.7)	402(35.2)			3.036(0.87-10.58)	0.081
3^0& post 3^0 education	172(81.9)	504(44.3)			10.22(3.06-34.17)	0.000
Employment status						
Unemployed	63(25.0)	399(11.9)	2.22	0.136		
Employed	147(44.4)	739(84.4)				

IV. Discussion

This cross-sectional study was the first to examine compliance to COVID-19 preventive guideline of WHO /NCDC by the residents in one of the area councils in Abuja, Nigeria. There was a statistically significant difference in knowledge on the preventive measures against its compliance by the respondent. While majority of the respondents were knowledgeable on the five major preventive measure for COVID-19, only few were compliant to them: 78.0% Vs 15.6%, x^2=400.2 for use of face mask: 67.2% Vs 1.7%, x^2= 662.9 for social distancing: 83.3% Vs 6.1%, x^2=672.9 for hand washing; 49.9% Vs 1.1%, x^2=520.3 for use of face shield;and 68.6% Vs 0.7%, x^2= 712.6 for use of alcohol based hand sanitizer,their p values were 0.001.One would have expected that being knowledgeable about the preventive guidelines of a disease will improve compliance, this was however not the case in the present study. As the world faces the threat of COVID-19,many leaders have recognized the disease as a genuine threat to national security. The treat is not from external enemies, but rather from the citizens who may refuse to comply with preventive guidelines. These are people who are either oppositional in attitude or having denial of the existence of the pandemic. The former by intentionally violating guidelines will be creating risk for others, while the latter by thinking/believing they will not catch the disease, or denial of its existence thinking it to be political motivated will also be an added risk to the populace. Classifying non-compliance to the guideline as a genuine threat should be a priority of communities/countries. Such people cannot be solely eliminated through education and social pressure alone, but with additional measures such as using of law enforcement/ government authorities with fines as suggested by 41.6% of respondents in this study. Provision of incentivesas suggested by 40.1% of the respondents might also be of helpful.

A common response to the Covid-19 pandemic across the globe was for countries to promote social distancing as one way to reduce interaction between people in a community in other to limit the spread of this respiratory droplet infection. It requires individuals being of at least 2 meters (6 feet) apart from one another,yet the level of compliance from citizens to this measure varied substantially. In the present study, a very low compliance of 1.7% was observed. This was much lower than the 65.0% reported in USA during an on line survey by Masters et al.[23] It was also much lower than 98.0% observed among commuters from a neighboring Ghanaian survey.[21] The strength and level of social fabric of society, and degree of trust in institutions are crucial in the determination of individual behaviour. Social capital has been shown to contribute to public goods, and the internalization of negative externalities created by personal mobility. Higher levels of social capital are therefore crucial for citizens' willingness to voluntary comply with social distancing measures. Poor social capital in our environment, opposition and lassitude of some individuals, denial of the existence of the pandemic by certain group may all have contributed to the very low level of social distancing observed in public places in this study.

The 15.6% compliance to the use of face mask during the face to face observation in this study was comparable to 12.6% from Ghanaian study.[21]It was however lower than 32.7% to 99.7% from online surveys from the low and middle-income countries (LMIC) by the international consortium on adherence to COVID-19 preventive measures.[22]A higher compliance rate of 45.7% was documented in Brazil, and 43.2% from Democratic Republic of Congo.[22] Face mask is now recommended by WHO to prevent COVID-19 transmission by new guidelines published on June 5th 2020.[20] It is an important component of strategies to stop the epidemic and/or exit the lockdowns, particularly in LMIC outside Asia.This new recommendations state that in areas with

ongoing COVID-19 community transmission, governments should encourage the general public to wear masks in specific situations and settings where physical distancing cannot be achieved, as part of a comprehensive approach to suppress COVID-19 transmission.[22] Long before the issuance of these guidelines, many Asian countries were already using face masks and this has contributed to the rapid containment of COVID-19 in these countries. Routine use of masks by the general population is rare outside Asian countries. Most European countries were applying previous WHO recommendations whereby face masks were reserved for COVID-19 patients, care givers or healthcare workers because of fears of shortage among healthcare providers, especially as cloth (fabric) masks were not initially considered useful for COVID-19 prevention in Europe. The low compliance to use of face mask in this study could be part of the oppositional attitude of some people, denial of existence of the pandemic by some, inconveniences of wearing the mask face by 53.3% of the respondents, their forgetfulness by 19.0%, and its cost by 12.2%. Though majority 66.8% in this study prefers cloth mask because its cheap (34.4%), breathing was easier as shown by 25.4%, and re-use or rewashing by 28.2%. These positive attributes of use of cloth mask did not however improve the compliance to its use, and may require additional measures such as using law enforcement agencies as suggested by 41.6% of respondents or provision of free face mask by 9.0%. The current 15.6% compliance with the use of face masks in this study may sugges the existence of a gap in the implementation of this key preventative measure in reducing the spread of COVID-19. With the statistical significant association between wearing of face mask with place of residence, and level of education, people from rural environment and the uneducated persons who contributed substantially to the poor compliance in this study should be targeted for further action.

V. Conclusion:

There is low level of compliance to COVID-19 guidelines in this study. This poor compliance was worse in those residing in rural areas and poorly educated persons. Government to target this group of people for meaningful success.

Acknowledgments:

The authors wish to acknowledge the various ward Heads in the Area Council that participated in the study for allowing the study to be undertaken their area.

Reference

[1]. MacIntyre, CR., Cauchemez, S, Dwyer, DE, et al. Face mask use and control of respiratory virus transmission in households. Emerging infectious diseases, 2009;*15*(2):233–241. https://doi.org/10.3201/eid1502.081167.

[2]. Suess T., Remschmidt C., Schink S. Facemasks and intensified hand hygiene in a German household trial during the 2009/2010 influenza A(H1N1) pandemic: adherence and tolerability in children and adults. Epidemiol Infect, 2011;139(12):1895–1901.

[3]. Suess T., Remschmidt C., Schink S.B., et al. The role of facemasks and hand hygiene in the prevention of influenza transmission in households: results from a cluster randomised trial; Berlin, Germany, 2009-2011. BMC infectious diseases. 2012; 12:26.

[4]. Chiu NC, Chi H, Tai YL, et al. Impact of Wearing Masks, Hand Hygiene, and Social Distancing on Influenza, Enterovirus, and All-Cause Pneumonia During the Coronavirus Pandemic: Retrospective National Epidemiological Surveillance Study. J Med Internet Re 2020;22(8):e21257. DOI: 10.2196/21257 PMID: 32750008

[5]. Cowling BJ, Taslim SA, Tiffany N, et al. Impact assessment of non-pharmaceutical interventions against coronavirus disease 2019 and influenza in Hong Kong: an observational study. The Lancet, 2020; 5 (5): e279–e288. doi:10.1016/S2468-2667(20)30090-6. PMC 7164922. PMID 32311320.

[6]. Yi-Fong SV, Yung-Feng Y, Kuang-Yao Y, et al. Masks and medical care: Two keys to Taiwan's success in preventing COVID-19 spread. Travel Med Infect Dis, 2020: 101780. doi: 10.1016/j.tmaid.2020.101780.

[7]. Petrosillo N, Viceconte G, Ergonul O, Ippolito G, et al. COVID-19, SARS and MERS: are they closely related? Clinical Microbiology and Infection. 2020;

[8]. Wilder-Smith, A., Chiew, C. J, Lee, V. J. Can we contain the COVID-19 outbreak with the same measures as for SARS? Lancet Infect Dis, 2020; 20: e102–07. https://doi.org/10.1016/ S1473-3099(20)30129-8.

[9]. Pescarini JM, Silveira IH, Souza-Filho JA, et al. Covid-19 in Latin America countries: Course of the pandemic and the different responses towards control. August 2020. DOI: 10.21203/rs.3.rs-56504/v1

[10]. Aquino EM, Silveira IH, Pescarini JM, et al. Social distance 760 measures to control the COVID-19 pandemic: potential impacts and challenges in 761 Brazil. Ciênc Saúde Coletiva. 2020;25(1):2423-46.

[11]. WHO.Coronavirus disease (COVID-19) advice for the public.https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public?

[12]. Jennifer L.W.9 Types of Masks and How Effective They Are.https://www.healthgrades.com/right-care/coronavirus/9-types-of-masks-and-how-effective-they-are

[13]. WHO. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks

[14]. CDC. Considerations for Wearing Cloth Face Coverings. U.S. Centers for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover-guidance.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprevent-getting-sick%2Fcloth-face-cover.html.

[15]. Hickern J. How effective is that face mask? J Fam Pract, 2020;69(4):167-168. https://www.mdedge.com/familymedicine/article/221979/coronavirus-updates/how-effective-face-mask

[16]. Guidance_for_Safe_Mass_Gatherings_in_Nigeria_COVID19_Updated https://covid19.ncdc.gov.ng/media/archives/1503_V1__7moCmri.pdf

[17]. IMPLEMENTATION_GUIDELINES_FOR__EASING_LOCKDOWN. https://covid19.ncdc.gov.ng/media/files_-_F1.pdf

[18]. Zegarra–Valdivia, JA, Chino–Vilca BN, Ames–Guerrero R. Knowledge, attitudes and perception in regard to COVID 19 pandemic in Peruvian population. Research Gate April, 2020. DOI: 10.31234/osf.io/kr9ya
[19]. Araoye M.O. Subject selection. In: Araoye MO ed. Research Methodology with statistics for health and social sciences 2nd edition. Ilorin Nigeria. Nathadex; 2004; pg.115-29
[20]. World Health Organization. Advice on the use of masks in the context of COVID-19: interim guidance, 5 June 2020. Geneva; 2020. Available from: https://apps. who.int/iris/handle/10665/332293
[21]. Dzisi EKJ, Dei OA.Adherence to social distancing and wearing of masks within public
[22]. transportation during the COVID 19 pandemic.Transportation Research Interdisciplinary Perspectives, 2020; 7:100191.http://dx.doi.org/10.1016/j.trip.2020.100191.
[23]. Fodjo SJN,Pengpid S, Villela EF, et al.Mass masking as a way to contain COVID-19 and exit lockdown in low- and middle-income countries.Journal of Infection 81 (2020) e1–e5.https://doi.org/10.1016/j.jinf.2020.07.015
[24]. Masters NB, Shih S, Bukoff A, et al.Social distancing in response to the novel coronavirus (COVID-19) in the United States.PLoS ONE, 2020; 15(9): e0239025. https://doi.org/10.1371/journal.pone.0239025.
[25]. Cheng, VC, Wong S, ChuangVW, et al. The role of community-wide wearing of face mask for control of coronavirus disease 2019 (COVID-19) epidemic due to SARS-CoV-2. Journal of Infection, 2020; (1), 107–114.https://doi.org/10.1016/j.jinf.2020.04.024

Chiaha Ijeoma O, et. al. "Compliance to COVID-19 Preventive Guidelines during the Pandemic by Residents in Gwagwalada Area Council of Abuja, Nigeria." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(08), 2021, pp. 42-49.