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Face-Mask Ownership and Handling Patterns During the First Wave of Covid-19 Pandemic in Ekiti State, Southwest, Nigeria

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ABSTRACT

Background: Wearing of face-masks remains one of the most prominent non-pharmaceutical preventive interventions against transmission of COVID-19 virus and other infectious diseases. In this study, we evaluated facemask ownership and handling patterns during the first wave of the COVID-19 pandemic in Ekiti State, located in southwestern Nigeria.

Methods: We conducted an online cross-sectional survey among residents above age 18, within three Local Government Areas (Ado-Ekiti, Oye-Ekiti, and Ikole-Ekiti) in the State. Five hundred fifty-three respondents consented to the study procedures and completed the close-ended questionnaire shared via social media. Data obtained were entered into Microsoft Excel Software and subsequently analyzed in SPSS 20.0 software for basic descriptive statistics. The association between variables was also examined using chi-square tests and the significant level was set at 95%.

Results: Findings showed an ownership rate of 98.1%. Over half of the respondents, 305(57.5%), wore face-mask regularly 305 (57.5%), while   170(32.1%) occasionally wore masks and 55 (10.4%) rarely wore masks. Furthermore, majority of the respondents 470 (90.2%) wore facemask appropriately to cover both nose and mouth. However, about one-third of the participants 123 (29.5%) wore facemask under their nose, covering only their mouth. Majority of the participants 308 (60.0%) touch their face and mask intermittently, and only 291(56.0%) clean their hands after removing their masks.

Conclusion: This study highlights the need for increased awareness on proper handling of facemasks to curtail transmission of COVID-19 virus, or other airborne infections.

Keywords: Covid – 19, facemasks, ownership, usage, handling, sensitization

1.0 INTRODUCTION

The SARS-COV-2 is a new strain of the coronaviruses and popularly referred to as COVID-19. The disease outbreak emanated from Wuhan, China, in December 2019 and was declared a pandemic on January 30, 2020 [1-4]. There are over 687 million cases and about 7 million deaths due to the pandemic. In Nigeria, the first case was confirmed a month after the pandemic declaration, and currently, there are over 250,000 cases reported and 3000 deaths [2,5-7]. COVID-19 is a beta-coronavirus that can spread to humans through intermediate hosts such as bats [8]. Available evidence has shown that the virus spreads from human to human, majorly through body contacts and respiratory droplets [9, 10]. Contact with contaminated surfaces, hands, and touching of the faces-eye-nose-mouth are predominant ways to get exposure to the infected droplets [11].

The Nigerian Government established the Nigerian Centre for Disease Control (NCDC) to oversee the control of COVID-19 transmission. The agency follows the overall mandate of WHO to curb transmission and mitigate the impact of the pandemic on health, economy, and social life [1]. Facemasks remain one of the most potent non-pharmaceutical interventions recommended to curb pre-symptomatic and asymptomatic community transmission of SARSCOV-2 [1, 12, 13]. The NCDC has highlighted that wearing face masks may only prevent the transmission of SARSCOV-2 if worn and disposed of appropriately and if mask-wearing is combined with other preventive measures such as hand hygiene and social distancing [2].

In Nigeria, there are myriad of face-masks and handling patterns that are yet unreported in published studies. It is not uncommon that face masks are worn to cover only the mouth, pulled down the jaw when talking, and pulled over to cover the nose after talking. Furthermore, there are concerns regarding the efficacy of prominent fabric facemasks and the test-before-purchase practice among fabric facemasks users. Additional hygiene concerns also exist among user who disposes used facemask inappropriately and those who wear facemasks for prolonged periods without replacement [14-16]. This study therefore evaluated facemask ownership and handling patterns during the first wave of the COVID-19 pandemic in one of the southwestern states in Nigeria to highlight the need for increased awareness on proper handling of facemasks to curtail transmission of COVID-19 virus or other airborne infections.

2.0 METHODOLOGY

2.1 Ethics Statement and Considerations

This study received ethical approval from Federal University Oye-Ekiti Ethical Review Board. Consent was sought from study participants prior to data collection. Collection of participants' names was avoided to ensure anonymity, and participation was voluntary.

2.2 Study Area

This study employed a cross-sectional design to evaluate the ownership and handling patterns of facemasks among residents above age 18 across three Local Government Areas (Ado-Ekiti, Oye-Ekiti, and Ikole-Ekiti) in the state. These areas were conveniently chosen given the existing collaboration of the University with the population in these local government areas.

2.3 Study Design

This research employed a deductive approach based on the hypothesis of a perceived gap in facemask ownership and handling patterns. The research, therefore, utilized structured and standardized close-ended questionnaires with options that can be quantified and analyzed to identify patterns or relationships. This research employed a survey strategy and cross-sectional sampling. An electronic questionnaire was developed, pilot-tested, and administered online. A minimum of 200 residents were targeted for recruitment across three selected local government areas (Ado-Ekiti, Oye-Ekiti, and Ikole-Ekiti). The inclusion criteria are members of the general public above age 18 who reside in any of the study LGAs. However, exclusion criteria are participants who are non-residents and are less than 18 years of age.

2.4 Data Collection

Data was collected over one month across WhatsApp social media platforms, considering the limitations of social-distancing that prevented physical interviews. The questionnaire was created following a detailed search to identify relevant study indicators Questionnaire was designed in the English language, reviewed, and pilot tested. The survey questionnaire consisted of an interface page for seeking participants' consent and three main sections with a total number of 29 questions which included questions on ownership and usage of facemasks practices regarding usage of facemasks, and their opinion on how adequately facemask can protect against COVID-19

2.5 Data Management and Analysis

Data collected from the online survey were imported and analyzed in SPSS 20.0 software. Descriptive statistics such as frequency and percentages were computed and compared across the different LGAs. Furthermore, a chi-square analysis was performed to evaluate the association between the variables across the LGAs and the significant level was set at 95%.

3.0 RESULTS

3.1 Demographic Characteristics of Study Participants

Table 1 shows the demographic characteristic of study participants. A total of 552 respondents participated in this study across the three study LGAs; Ikole (n=166), Ado (n=218), and Oye (n=168). About 54% were females and majority 91% were within the age-category 18-45 years. By occupation, about one-third oof the participants were students (38.3%), followed by respondents who were unemployed (19%), and those who are civil servants (11%). Furthermore, most participants were never married (69.2%), and only 28.1% were married. Christianity (83) is the most prominent religion, followed by Islam (15%). Also, most participants had completed tertiary education (52%), and secondary education (44%).

3.2 Respondents' Ownership and Usage of Facemask

Table 2, represents the ownership of facemask among respondents; A total of 552 were interviewed across the three local government areas, and majority 530 (98.1%) owned facemask. There were significant association between ownership of masks across the study locations (p=0.004). However, regarding the type of masks, majority owned fabric facemasks 291(55.0%), while 228 (43.1%) owned medical facemasks, and 10(1.9%) owned the N95 mask. Facemasks purchased in pharmaceutical stores were significantly associated with the study locations (p<0.001). In the bid to confirm suitability while purchasing facemasks, about 43% of the participants tested them by wearing them at the point of purchase before buying them. The practice of testing facemasks by wearing them before buying was also significantly associated with the study locations (p =0.006)

3.3 Usage of Facemask Among Study Participants

Table 2 represents the usage of facemasks among study participants, 305(57.5%) wore facemask regularly, 170 (32.1%) occasionally wore masks and 55(10.4%) rarely wore masks. Also, 131(24.9%) claimed it is very convenient, while 58(11.0%) claimed is very inconvenient. 84 (38.5%) respondents use medical masks once before disposing them, 49 (22.5%) use same type of facemask twice before they dispose of them, and 30(13.8%) use theirs four times before disposal. Only 16(5.5%) of the participants have never washed their fabric masks, and the majority of those who washed their facemasks 130 (48.0%) do so daily. The frequency of usage, convenience, frequency of disposal after use, and frequency of washing fabric face mask were significantly associated with the study locations (p <0.05). Figure 1 shows participants' opinions about how facemasks can adequately protect against COVID-19. The majority of the participants from Ikole (54.1%) and Oye (44.1%) affirmed that facemasks could adequately protect against COVID, compared to those from Ado (26.9%).

3.4 Behaviors and Practices Regarding the use of Facemasks Among Study Participants

As represented in Table 3, most respondents, 470 (90.2%), wear facemasks to cover both the nose and mouth. However, about one-third of the participants also wear a mask under the nose to cover only their mouth. Furthermore, about 38% and 21% of the respondents wear facemasks hanging on their chin and neck, respectively. There were significant associations between masking behaviors across the LGAs, for those who wore masks appropriately (p<0.001), and those who wore masks to cover only the mouth (p=0.003)

3.5 Physical Conditions of Facemasks

Table 4 shows the physical conditions of the facemask used by respondents. Only 86(20.3%) of the participant affirmed that their facemask is damaged, and 109 (16.3%) affirmed that their mask was loose. The majority of the participants, 313 (63.9%) complained about difficulty breathing through the mask, and only 95(22.8%) and 133(32.8%) reported their mask was dirty from previous use, and wet at times when worn, respectively. There were significant associations between the physical conditions of masks across the LGAs (p <0.05), except for difficulty in breathing through the mask.

3.6 Personal Hygiene Practices Regarding the use of Facemasks

Table 5 shows participant's personal hygiene practices regarding the use of face masks. About 67% of the participants affirmed that they wash their hands before touching their facemask. However, only 219 (56.0%) clean

Table 1. Demographic Characteristic of Study Participants

	Study locations				
	Ikole-Ekiti (N=166)	Ado-Ekiti (N=218)	Oye-Ekiti (N=168)	Total (N=552)	p-value
Gender					
Male	87(52.4)	95(43.6)	72(43.6)	254(46.3)	0.164
Female	79(47.6)	123(56.4)	93(56.4)	295(53.7)	
Total	166(100)	218(100)	165(100)	549(100)	
Age group					
18- 25 years	131(84.5)	100(50.3)	62(46.3)	293(60.0)	0.000
26-45 years	14(9.0)	81(40.7)	57(42.5)	152(31.1)	
46-65 years	8(5.2)	15(7.5)	14(10.4)	37(7.6)	
>65 years	2(1.3)	3(1.5)	1(0.7)	6(1.2)	
Total	155(100)	199(100)	134(100)	488(100)	
Marital Status					
Never married	144(87.3)	131(60.4)	102(62.6)	377(69.2)	0.000
Married	20(12.1)	77(35.5)	56(34.4)	153(28.1)	
Separated	1(0.6)	1(0.5)	4(2.5)	6(1.1)	
Divorced	0(0)	3(1.4)	0(0)	3(0.6)	
Widowed	0(0)	5(2.3)	1(0.6)	6(1.1)	
Total	165(100)	217(100)	163(100)	545(100)	
Religion					
No religion	0(0)	4(1.9)	0(0)	4(0.7)	0.000
Christianity	120(73.2)	178(82.8)	150(92.0)	448(82.7)	
Islam	43(26.2)	26(12.1)	11(6.7)	80(14.8)	
Traditional	1(0.6)	6(2.8)	2(1.2)	9(1.7)	
Undisclosed	0(0)	1(0.5)	0(0)	1(0.2)	
Total	164(100)	215(100)	163(100)	542(100)	
Education					
No formal education	0(0)	9(4.7)	4(2.5)	13(2.5)	0.000
Primary	1(0.6)	5(2.6)	4(2.5)	10(1.9)	
Secondary	131(80.4)	41(21.5)	52(32.5)	224(43.6)	
Tertiary	31(19.0)	135(70.7)	99(61.9)	265(51.6)	
Undisclosed	0(0)	1(0.5)	1(0.6)	2(0.4)	
Total	163(100)	191(100)	160(100)	514(100)	
Employment status					
Unemployed	15(9.6)	41(19.7)	41(26.8)	97(18.8)	0.000
Housewife	0(0)	7(3.4)	1(0.7)	8(1.5)	
Farming	15(9.6)	6(2.9)	6(3.9)	27(5.2)	
Trading	0(0)	18(8.7)	17(11.1)	35(6.8)	
Artisan	2(1.3)	28(13.5)	15(9.8)	45(8.7)	
Civil servant (Public)	15(9.6)	24(11.5)	19(12.4)	58(11.2)	
Student	104(66.7)	47(22.6)	47(30.7)	198(38.3)	
Civil servant (Private)	5(3.2)	31(14.9)	5(3.3)	41(7.9)	
undisclosed	0(0)	6(2.9)	2(1.3)	8(1.5)	
Total	156(100)	208(100)	153(100)	517(100)	

Table 2. Usage of facemask among study participants

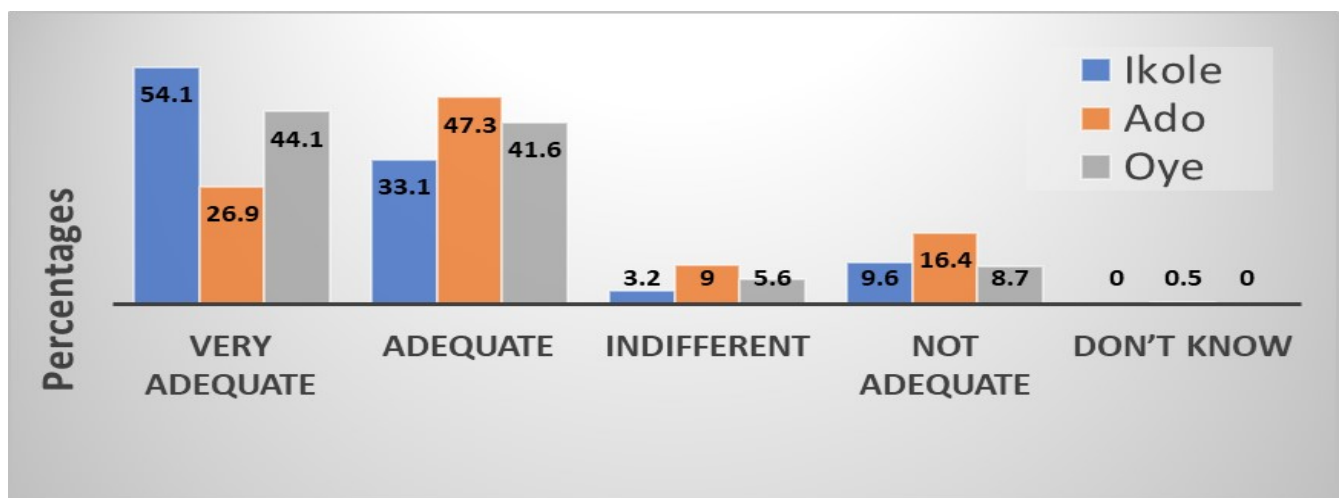|	Ikole-Ekiti (N=166)	Ado-Ekiti (N=218)	Oye-Ekiti (N=168)	Total (N=552)	χ^2	p-value
Do you have a face mask						
Yes	163 (99.4)	204 (95.8)	163 (100)	530 (98.1)	11.335	0.004**
No	1(0.6)	9 (4.2)	0 (0)	10 (1.9)		
Total	164 (100)	213 (100)	163 (100)	540 (100)		
What type of facemask do you have						
Medical Mask	64 (39.8)	93 (45.4)	71 (43.6)	228 (43.1)	2.007	0.734
N-95 Mask	3 (1.9)	5 (2.4)	2 (1.2)	10 (1.9)		
Fabric or Cloth Mask	94 (58.4)	107 (52.2)	90 (55.2)	291 (55.0)		
Total	161 (100)	205 (100)	163 (30.8)	529 (100)		
Where did you purchase your mask						
Hawkers	25 (15.3)	55 (27.9)	36 (22.8)	116 (22.4)	36.233	<0.001**
Shops	44 (27.0)	39 (19.8)	45 (28.5)	128 (24.7)		
Pharmacy	57 (35.0)	86 (43.7)	70 (44.3)	213 (41.1)		
Can't remember	37 (22.7)	17 (8.6)	7 (4.4)	61 (11.8)		
Total	163 (100)	197 (100)	158 (100)	518 (100)		
What informed your choice of face mask						
Color	32 (32.0)	59 (38.8)	39 (28.7)	130(33.5)	4.112	0.195
Design	45 (45.0)	62(40.8)	59(43.4)	166(42.8)		
Price	21 (21.0)	23 (15.1)	36 (26.5)	80 (20.6)		
Color and price	1(1.0)	0(0)	0(0)	1(0.3)		
Color and design	1 (1.0)	5 (3.3)	1(0.7)	7(1.8)		
Design and price	0(0)	1(0.7)	0(0)	1(0.3)		
Color, design and price	0(0)	2(1.3)	1(0.7)	3(0.8)		
Total	100(100)	152 (100)	136 (100)	388 (100)		
How did you confirm the suitability of your mask						
Wore it	75(49.0)	62(34.1)	78 (49.7)	215 (43.7)	14.513	0.006*
Checked the color	55(35.9)	73 (40.1)	57 (36.3)	185 (37.6)		
Can't remember	23(15.0)	47 (25.8)	22(14.0)	92 (18.7)		
Total	153(100)	182 (100)	157 (100)	492 (100)		

Figure 1. Participants' Opinion About how Facemask can Adequately Protect Against COVID COVID-19

Table 3. Masking Behaviors Among Study Participants

	Ikole-Ekiti (N=166)	Ado-Ekiti (N=218)	Oye-Ekiti (N=168)	Total (N=552)	χ^2	p-value
	n(%)	n(%)	n(%)	n(%)		
Worn to cover both the nose and mouth						
Yes	149 (93.1)	164 (83.2)	157 (83.2)	470 (90.2)	18.013	<0.001**
No	11(6.9)	33 (16.80	7 (4.3)	51 (9.8)		
Total	160 (100)	197 (100)	164 (100)	521 (100)		
Worn under the nose covering only the mouth						
Yes	26 (19.4)	58 (37.9)	39 (30.0)	123 (29.5)	11.787	0.003**
No	108(80.6)	95 (62.1)	91 (70.0)	294 (70.5)		
Total	134 (100)	153 (100)	130 (100)	417 (100)		
Worn hanging on the chin						
Yes	42 (31.3)	66 (42.3)	52 (39.7)	160 (38.0)	3.908	0.142
No	92 (68.7)	90 (57.7)	79 (60.3)	261 (62.0)		
Total	134 (100)	156 (100)	131 (100)	421 (100)		
Worn hanging on the neck						
Yes	28 (20.6)	30 (20.1)	27 (21.3)	85 (20.6)	0.053	0.974
No	108 (79.4)	119 (79.9)	100 (78.7)	327 (79.4)		
Total	136 (100)	149 (100)	127 (100)	412 (100)		

Table 4. Physical Conditions of Facemask Used by Study Participants

	Ikole-Ekiti (N=166)	Ado-Ekiti (N=218)	Oye-Ekiti (N=168)	Total (N=552)	χ^2	p-value
Mask looks damaged						
Yes	22(15.8)	20 (13.5)	44 (32.1)	86 (20.3)	17.767	<0.001*
No	117(84.2)	128 (86.5)	93 (67.9)	338 (79.7)		
Total	139 (100)	148 (100)	137 (100)	424 (100)		
Mask is loose						
Yes	31 (22.6)	31 (20.9)	47 (36.2)	109 (26.3)	9.662	0.008*
No	106 (77.4)	117 (79.1)	83 (63.8)	306 (73.7)		
Total	137 (100)	148 (100)	130 (100)	415 (100)		
Difficult to breathe through mask						
Yes	102 (65.0)	112 (62.2)	99 (64.7)	313 (63.9)	0.340	0.844
No	55 (35.0)	68 (37.8)	54 (35.3)	177 (36.1)		
Total	157 (100)	180 (100)	153 (100)	490 (100)		
Mask is dirty from previous use						
Yes	18 (13.0)	34 (22.7)	43 (33.3)	95 (22.8)	15.605	<0.001**
No	120 (87.0)	116 (77.3)	86 (66.7)	322 (77.2)		
Total	138 (100)	150 (100)	129 (100)	417 (100)		
Mask is wet at times when worn						
Yes	40 (29.0)	32 (22.7)	61 (48.4)	133 (32.8)	21.364	<0.001**
No	98 (71.0)	109 (77.3)	65 (51.6)	272 (67.2)		
Total	138 (100)	141 (100)	126 (100)	405 (100)		

Table 5. Personal Hygiene Practices Regarding the use of Facemasks Among the Study Participants

	Ikole-Ekiti (N=166)	Ado-Ekiti (N=218)	Oye-Ekiti (N=168)	Total (N=552)	χ^2	p-value
Do you clean your hands before touching your mask						
Yes	114 (70.4)	114 (55.1)	129 (78.2)	357 (66.9)	23.425	<0.001*
No	48 (29.6)	93 (44.9)	36 (21.8)	177 (33.1)		
Total	162 (100)	207 (100)	165 (100)	534 (100)		
Do you adjust the mask to avoid leaving gaps on the sides						
Yes	108 (68.4)	131 (66.8)	122 (76.7)	361 (70.4)	6.880	0.142
No	50 (31.6)	65 (33.2)	37 (23.3)	152 (29.6)		
Total	158 (100)	196 (100)	159 (100)	513 (100)		
Do you touch your face and mask						
Yes	90 (57.0)	122 (62.9)	96 (59.6)	308 (60.0)	1.291	0.525
No	68 (43.0)	72 (37.1)	65 (40.4)	205 (40.0)		
Total	158 (100)	194 (100)	161 (100)	513 (100)		
Do you remove it by straps behind the ears or head						
Yes	117 (74.5)	152 (77.9)	116 (74.4)	385 (75.8)	0.807	0.668
No	40 (25.5)	43 (22.1)	40 (25.6)	123 (24.2)		
Total	157 (100)	195 (100)	156 (100)	508 (100)		
Do you clean your hands after removing your mask						
Yes	96 (60.4)	86 (43.0)	109 (67.7)	291 (56.0)	23.897	<0.001**
No	63 (39.6)	114 (57.0)	52 (32.3)	229 (44.0)		
Total	159 (100)	200 (100)	161 (100)	520 (100)		
Do you keep at least 1m from other while using your mask						
Yes	117 (75.5)	131 (65.2)	141 (88.1)	389 (75.4)	25.291	<0.001**
No	38 (24.5)	70 (34.8)	19 (11.9)	127 (24.6)		
Total	155 (100)	201 (100)	160 (100)	516 (100)		
Do you share your face mask with others						
Yes	5 (3.1)	17 (8.5)	10 (6.2)	32 (6.1)	4.621	0.099
No	158 (96.9)	183 (91.5)	150 (93.8)	491 (93.9)		
Total	163 (100)	200 (100)	160 (100)	523 (100)		
Who do you share your face mask with						
Spouse	0 (0)	4 (26.7)	2 (20.0)	6 (20.0)	6.908	0.193
Children	1 (20.0)	4 (26.7)	3 (30.0)	8 (26.7)		
Parents	1 (20.0)	6 (40.0)	3 (30.0)	10 (33.3)		
Siblings	3 (60.0)	0 (0)	2 (20.0)	5 (16.7)		
Spouse and children	0 (0)	1 (6.7)	0 (0)	1 (3.3)		
Total	5 (100)	15 (100)	10 (100)	30 (100)		

their hands after removing the facemasks. This practice was significantly associated across the study LGAs (p<0.001). Over half, 308 (60%) participants, reported touching their face and mask while in use. Most participants reported keeping at least 1m distance while using a face mask, and 491 (93.9%) of them also reported not sharing their facemask with others. However, among those that share 31(6.1%), the most common person shared with were parents 10(33.3%) and children 8 (26.7%).

4.0 DISCUSSION

COVID-19 can be spread by patients with mild or no symptoms at the pre-symptomatic and early stages of infection. Hence, using face masks may help reduce the spread of infection in the community by minimizing the excretion of respiratory droplets from infected persons [17-20]. Our study aims to understand the ownership rate and handling behaviors of facemasks during the first wave of the pandemic, to support ongoing discourse around behavioral modification in preparation for future airborne outbreaks. To the best of our knowledge, this is the first study to explore facemask ownership, usage, and handling behaviors in the context of the COVID-19 pandemic in Ekiti State, Nigeria. Although, we employed an online survey due to the restrictions and safety regarding physical interaction during the pandemic. However, our respondents included residents above age 18 to 65 years, with almost equal representation of both male and female gender, mostly unmarried and with higher educational attainment levels. The demographics of our participants are similar to those from other online surveys on the same subject matter [21].

Our results showed that most of our respondents owned and used facemasks, and only about 60% use the facemask regularly. This is similar to the findings from several published studies from China, Saudi Arabia, Jordan, Iraq, and Nigeria [18, 21-24]. This high ownership could be attributed to the campaigns and strict enforcement by the COVID-19 task force team in Ekiti State, where those without facemasks stand the risk of trial in a court of justice. Although our study did not probe factors associated with ownership of facemasks, however, the high ownership could also be partly related to improved knowledge about the virus, as a considerable proportion of the respondents (74% in Ado, 86% in Oye and 87% in Ikole) affirmed that facemask could adequately protect against COVID-19. However, it is essential to note that

the lowest ownership rate and perception of protection of facemasks against the virus were reported in Ado, the only urban LGA in the state. Nevertheless, our findings are consistent with findings from Malaysia [25], where roughly 77% of the participants believed that a face mask could protect against COVID-19. Also, our results are similar to those in Hong Kong during the influenza H1N1 epidemic, where 88.5% of participants believed wearing a face mask is a good way to protect against Influenza-like illness [26].

Despite the high ownership rates of facemasks, there were significant concerns regarding handling behaviors. Two types of masks were common across the study location: medical and fabric masks. Medical masks were expensive and in limited supply during the first wave of the pandemic [27], which favored the local production of fabric masks [28]. As reported in this study, fabric mask was predominant and, unsurprisingly, were mostly preferred because it is relatively cheap and reusable after washing compared to medical masks, which are expected to be disposed of after a single usage time. However, some of the participants in this study reported using medical masks up to four times, which issues a call for concern. Furthermore, one advantage of the medical mask over the fabric mask is its suitability, as it is made of an elastic fiber rope that can be adjusted to fit the face of the user. However, this critical feature is lacking in the design of fabric masks. Hence producers make different sizes for purchase, expecting prospective buyers to test the mask's suitability by wearing before purchasing. Over 40% of respondents who use the fabric mask in our study prefer to confirm the suitability of face masks by wearing them, hence exposing themselves to infection if other infected buyers have pretested such, or more so pre-disposing future buyers to risk of infection [29]. Therefore, it is important to invest in awareness campaigns to dissuade this practice among fabric facemask users.

On the other hand, about one-third of the participants wear a mask under the nose to cover only their mouth, and a considerable proportion also wear facemasks hanging on their chin and neck. This practice is not uncommon and has been reported elsewhere [28]. A major reason for this practice could be difficulty breathing through fabric mask, which was reported by 64% of the participants and are primarily associated with fabric mask users. Hence, it is imperative to consider designs that regulate the textures of fabric masks to ensure effectiveness in curbing virus spread, as well as suitability and conveniency [30]. Considering that about one-third of the

participants do not wash third hand before touching their masks, and also a larger proportion do not clean their hand after using their mask raises concern about the adequacy of knowledge regarding transmission of the virus. This practice is also not uncommon and has been reported in previous studies [31], however, it is worsened by the fact that about 6% of the participants share their facemasks mostly parents and their children. In light of these findings, it is therefore essential that awareness campaigns consider including educational messages that promote knowledge about personal hygienic measures when using facemasks.

This study highlights the need for increased awareness of the proper handling of facemasks to curtail transmission of the COVID-19 virus or other airborne infections. Our findings particularly emphasize the need for an awareness campaign to dissuade test-before-buying practices among fabric facemask users. This can be supported with regulatory designs that ensure textures and sizes ensure suitability, conveniency and effectiveness in curbing virus spread. In addition, awareness campaigns targeted at promoting personal hygiene while using facemasks are also recommended.

Conflicts of Interest

The authors declare that there is no conflict of interests.

Authors' Contributions

HIO conceived and designed the study, contributed to data collection and manuscript writing. **CII** contributed to data collection and wrote the first draft of the manuscript. **HOM** contributed to data analysis tools, analysis of data and manuscript writing. **IMO, OGS, SIO, MOO, AON** contributed to data collection and writing of the manuscript. All authors approved the final copy of the manuscript.

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