

East African Medical Journal Vol. 98 No. 8 August 2021

COMMUNITY PERCEPTION AND PREVENTIVE HEALTH BEHAVIOURS TOWARDS COVID-19 IN AN URBAN AREA IN NORTH-EAST NIGERIA

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ABSTRACT

Background: To contain and mitigate the spread of COVID-19 in a community will depend largely on the people's good perception and practice of laid down preventive measures. The objective of this study was to assess the perception and practice of preventive measures against COVID-19 among residents of Gembu community in Taraba State, North-east Nigeria.

Methods: The study was descriptive cross-sectional. Data were collected using an interviewer-administered questionnaire. Participants were selected by a 2-stage sampling technique. Excel spread sheet and Epi info 7.2.1.0 were used for data entry and analysis. Bivariable analysis was done to evaluate the practice of preventive measures.

Results: Four hundred and twenty-seven (427) respondents participated in the study. The median age was 36 (25-50) years. Places of worship were the highest source of information about COVID-19 (53.9%). Majority of the respondents (86.4%) perceived that COVID-19 was a serious disease, less than one-half (46.3%) believed that wearing nose masks can prevent against COVID-19 infection. Overall practice of known preventive measures was above average (58.8%). There was statistically significant association between perceived severity of disease ($p<0.001$), educational level ($p=0.001$), type of occupation ($p=0.002$) and good practice of preventive measures.

Conclusion: Perception and practice of COVID-19 preventive measures were above average in the community. More sensitization of the populace through all available media sources is advocated. Provision of palliatives to people whose source of livelihood is worst affected by the pandemic should also be considered by all stakeholders.

INTRODUCTION

COVID-19 is an emerging infectious disease caused by a novel type of coronavirus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). It is a member of the coronavirus family, along with Middle East Respiratory Syndrome Coronavirus (MERS-nCoV) and SARS-nCoV. The first case of the COVID-19 outbreak was reported in Wuhan, China on 31st December 2019 and the first case outside of China was reported in Thailand on 13th January 2020.¹ In less than a month of its emergence, the disease had spread to over 20 countries, prompting the World Health Organization to declare the COVID-19 outbreak as a Public Health Emergency of International Concern (PHEIC) on 30th January 2020.² On 11th March 2020, the disease was further declared a pandemic. By this time, the outbreak had spread to about 213 countries/territories worldwide with 5,822,664 confirmed cases, 2,522,999 recovered cases and 358,136 deaths as at 14:20 GMT 28th May 2020.³ Nigeria recorded her first case of COVID-19 on 27th February 2020.

As in almost every other country of the world, the disease has spread rapidly across all the geopolitical zones and States in Nigeria. Taraba State, North-east Nigeria had reported the first six (6) confirmed cases by the 26th April 2020. This figure had slowly increased in the State to 18 confirmed cases, 10 discharges and no record of death as at 26th May 2020. Across Nigeria, the figures have been on a daily rise to over 54,743 confirmed cases, 42,816 discharges and 1051 deaths as at 4th September 2020.⁴ Older people and those with co-morbidities due to weak immune system have been noted to be more susceptible to worse COVID-19 clinical outcomes.⁵ Other factors that make individuals more vulnerable to the disease include reduced ability to access and understand health information, make well-informed decisions, and take the right health-

promoting actions which is called "health literacy".⁶

As the Federal Government of Nigeria (FGN) and other governments of the world struggle with the rising numbers of COVID-19 cases, several measures have been put in place in a bid to contain and mitigate the continued spread of the disease in the country. Some of these include restriction of interstate movements, closure of schools, markets, and business places, ban on religious and social gatherings as well as total lockdown in most states of the federation either by the Federal Government or respective State governments. Other major preventive measures advised by the Nigeria Centre for Disease Control (NCDC) include social distancing, use of nose masks, good hygiene, proper hand washing and use of alcohol-based hand sanitizers, sneezing into elbows and campaigns in electronic, print, and social media in both cities as well as rural communities across the country. The success or otherwise of this campaign however depends largely on people's knowledge, perception, and practice of the laid down protocols of limiting the spread of the disease.⁷

Despite extensive campaigns in local, electronic, print, and social media by government and Non-Government Organizations (NGOs) in all cities as well as rural communities across the country to create awareness about the control and prevention measures against the disease, media reports have highlighted that some of these guidelines are not being adhered to by residents in the country. Gembu, a border community in Taraba State located in the Northeastern part of Nigeria engages in trading and other business activities with high human and vehicular movements with neighboring Cameroon Republic where confirmed cases of COVID-19 have also been reported. These activities pose increased threats to the people of the area and Taraba State at large and can lead to widespread

community transmission especially where their level of awareness, perception and preventive measures against the disease is low. The aim of the study therefore was to assess the perception and practice of preventive measures against COVID-19 among residents of Gembu community in Taraba State, Nigeria.

METHODS

Study area, Study design and population: This was a descriptive cross-sectional study among adult residents in Gembu town, Taraba State, North-East Nigeria. Gembu is a town on the Mambilla Plateau, Taraba State, close to the border separating Nigeria and Cameroon.⁸

Sample size determination and sampling: The minimum sample size was determined using the Cochran formula.⁹

$$n = z^2pq/d^2$$

Where n is the desired sample size,

z is the standard deviate at 95% confidence interval which is taken as 1.96,

p is the prevalence of one of characteristics/objectives under study from a previous study which was 87.9%, being the proportion of people with good practice of COVID-19 prevention measures from a Sudanese study¹⁰

q is $1 - p$,

while d is the acceptable margin of error or degree of precision = 0.05.

The calculated minimum sample size = 200.

A 2-stage sampling method was used. The town is divided into about 20 residential quarters. In the first stage, 5 quarters were selected by simple random sampling. In the second stage, 450 houses were selected (90 in each quarters) by convenience sampling and eligible participants in each house were interviewed consecutively until the desired sample size was reached.

Data collection and management: A structured questionnaire adapted from previous

studies^{12, 13, 14} was prepared in the form of an online form using kobo toolbox but 5 trained research assistants with tertiary level education and computer literacy skills were used to collect data through personal interviews. The survey instrument included questions regarding awareness of COVID-19 preventive measures, perception of the effectiveness of laid down preventive measures and health behaviours during COVID-19. Data collected were recorded using the Microsoft Excel. EPI info software version 7.2.1 was used for data analyses. Categorical variables were described as frequencies and percentages while continuous variable (age) was presented as median (interquartile range) since it was not normally distributed from the tests of normality check. Pearson's Chi square was used in determining association between categorical variables. The significance level was set at $p < 0.05$.

Each respondent's level of practice was determined with a scoring system developed by the researchers. Seven (7) questions on practice of preventive measures against COVID-19 were scored. Practice measures done "always" attracted 2 points, "occasional" 1 point and "never" 0 point. The highest possible score was 14; those who scored 0-7 points were classified as having poor practice while those who scored 8-14 were classified as having good practice

Limitations: It was not possible to collect data using strictly online channels such as SMS/WhatsApp and social media due to limited community access to technological tools such as smart phones and internet services at home as well as low literacy level.

Ethics: Ethical approval was obtained from the Taraba State Ministry of Health Jalingo. Permission was granted from the Chairman COVID-19 Task Force in Sardauna LGA for the study. Informed consent was obtained from the respondents before administration of the questionnaire. Participation was voluntary. The data collectors maintained

reasonable physical distance with the respondents in addition to putting on nose-mask and regular use of a portable alcohol-based hand rub or hand washing with soap and water. The period of interview was made short (average of 8 minutes) to reduce duration of contact. The potential risk was minimal. There was no suspected or confirmed case of COVID-19 in the entire LGA during period of the survey. Data collectors were observed for 14 days after completion of the survey.

RESULTS

Four hundred and twenty-seven (427) questionnaires were analyzed. The median age of the respondents was 36 (25-50) years. Highest proportion of the respondents (47.8%) was in the age group 25-44years, while the elderly (≥ 65 years) constituted less than one-tenth (9.1%). Above one-half were married (54.1%) and majority (77.3%) had at least secondary education [Table 1].

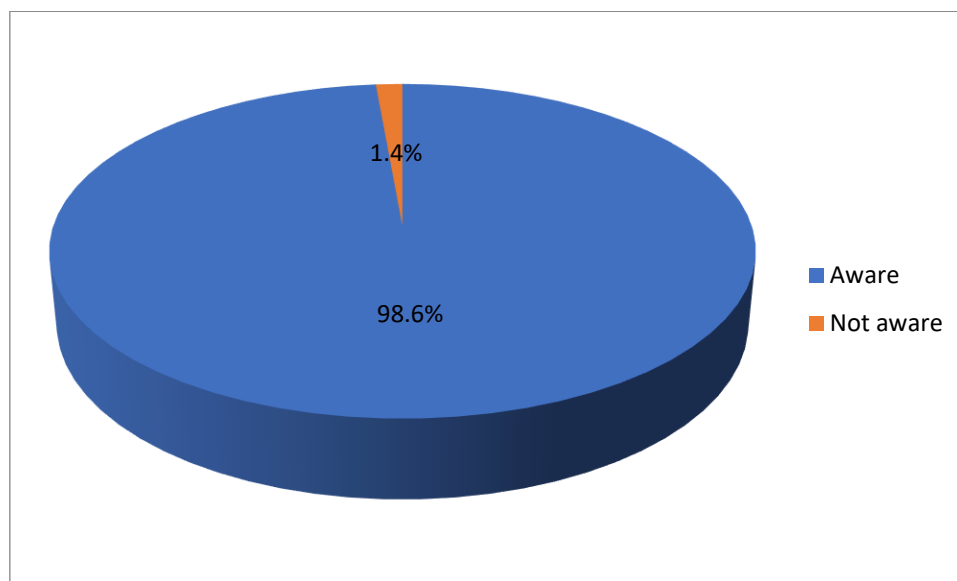


Figure 1: Awareness of COVID-19

Table 1
Socio-demographic Characteristics of Respondents

| Variables | Frequency (n =427) | Percent (%) |
|----------------------------|-----------------------|----------------|
| Age Group (years) | | |
| < 25 | 81 | 19.0 |
| 25-44 | 204 | 47.8 |
| 45-64 | 103 | 24.1 |
| ≥ 65 | 39 | 9.1 |
| Median, IQR | 36 (25-50) | |
| Gender | | |
| Male | 233 | 54.6 |
| Female | 194 | 45.4 |
| Marital Status | | |
| Single | 133 | 31.2 |
| Married | 231 | 54.1 |
| Separated/Divorced | 22 | 5.1 |
| Widowed | 41 | 9.6 |
| Highest Level of Education | | |
| No formal | 67 | 15.7 |
| Primary | 30 | 7.0 |
| Secondary | 171 | 40.1 |
| Tertiary | 159 | 37.2 |
| Occupation | | |
| Trading | 92 | 21.6 |
| Civil service | 82 | 19.2 |
| Farming | 77 | 18.0 |
| Artisan | 40 | 9.4 |
| Others | 21 | 4.9 |
| Unemployed | 115 | 26.9 |
| Religion | | |
| Christianity | 264 | 61.8 |
| Islam | 151 | 35.4 |
| Others | 12 | 2.8 |
| Ethnicity | | |
| Mambilla | 141 | 33.0 |
| Kaka | 128 | 30.0 |
| Kambu | 50 | 11.7 |
| Fulani | 48 | 11.2 |
| Panso | 38 | 8.9 |
| Others | 22 | 5.2 |

The commonest source of information about COVID-19 was from places of worship-churches/mosques in over one-half (53.9%) of respondents in the community. The

electronic media such as radio and television were sources to less than half of the population (45.9%) and (46.1%) respectively [Figure 2]

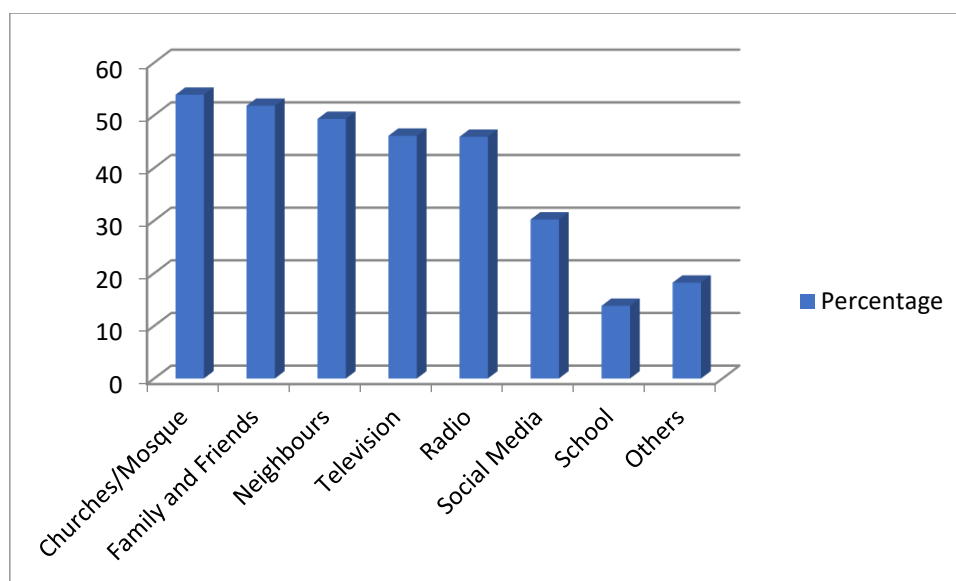


Figure 2: Sources of information about COVID-19

Majority of the respondents (86.4%) said they think COVID-19 is a serious disease. Less than one-half (46.3%) believed in the effectiveness of face masks to prevent COVID-19 while one-quarter (25.1%) were

not sure if it does or not. About 60% of respondents thought that avoiding crowded gatherings could prevent infection with COVID-19 whereas above one-tenth (14.5%) did not think so [Table 2].

Table 2

Respondents Perception about COVID-19 Preventive Measures

| Variables | Yes | Not sure | No |
|---|------------|------------|------------|
| I think COVID-19 is a serious disease | 362 (86.4) | 31 (7.4) | 26 (6.2) |
| I think wearing nose masks can prevent COVID-19 | 194 (46.3) | 105 (25.1) | 120 (28.6) |
| I think washing hands regularly can prevent COVID-19 | 272 (65.2) | 85 (20.4) | 60 (14.4) |
| I think physical distance can prevent COVID-19 | 306 (73.0) | 78 (18.6) | 35 (8.4) |
| I think avoiding public gatherings can prevent COVID-19 | 248(59.2) | 110(26.3) | 61(14.5) |

Less than half of respondents (43.3) were engaged in frequent hand washing with soap and water and also wore face masks when

leaving home in order to protect themselves from COVID-19, (47.9%) stopped shaking hands while greeting [Table 3].

Table 3*Practice of Preventive Measures against COVID-19*

| Variables | Frequency (%) | | |
|--|---------------|------------------|-----------|
| | Always (%) | Occasionally (%) | Never (%) |
| Frequent washing of hands with soap and water | 180(43.3) | 155 (37.3) | 81 (19.5) |
| Stopped shaking hands while giving greetings | 200(47.9) | 147(35.2) | 71(16.9) |
| Avoid going to crowded places | 123(29.3) | 157 (37.5) | 139(33.2) |
| Wears a nose mask when leaving home | 180(43.3) | 155 (37.3) | 81 (19.5) |
| Maintains physical distance | 122(29.3) | 192(46.2) | 102(24.5) |
| Avoid touching eye, nose, mouth before washing hands | 135(32.5) | 181(43.5) | 100(24.0) |
| Use of cover/elbow for coughing/sneezing | 201(48.9) | 143(34.8) | 67(16.3) |
| Overall practice | | | |
| Good | 248(58.8) | | |
| Poor | 174(41.2) | | |

There was a statistically significant association between perceived severity of COVID-19 and practice of preventive measures. Majority of respondents who believed COVID-19 was a serious disease had good practice of the preventive measures

($p < 0.001$). Education was also significantly associated with practice of COVID-19 preventive measures. A higher proportion of respondents who were educated to tertiary level were compliant with laid down preventive measures ($p = 0.001$) [Table 4].

Table 4*Association between socio-demographics and practice of preventive measures*

| Variables | Good | Poor | χ^2 (p value) |
|----------------------------|------------|-----------|--------------------|
| Age Group (years) | | | |
| <25 | 60 (74.1) | 21 (25.9) | 0.55(0.909) |
| 25-44 | 155 (76.0) | 49 (24.0) | |
| 45-64 | 75 (72.8) | 28 (27.2) | |
| ≥ 65 | 28 (71.8) | 11 (28.2) | |
| Gender | | | |
| Male | 173 (74.2) | 60 (25.8) | 0.91 (0.455) |
| Female | 145 (74.7) | 49 (25.3) | |
| Marital Status | | | |
| Single | 101 (75.9) | 32 (24.1) | 6.23 (0.101) |
| Married | 177 (76.6) | 54 (23.4) | |
| Separated/Divorced | 16 (72.7) | 6 (27.3) | |
| Widowed | 24 (58.5) | 17 (41.5) | |
| Highest Level of Education | | | |
| No formal | 44 (65.7) | 23 (34.3) | 16.35 (0.001)* |
| Primary | 17 (56.7) | 13 (43.3) | |
| Secondary | 123 (71.9) | 48 (28.1) | |
| Tertiary | 134 (84.3) | 25 (15.7) | |
| Occupation | | | |
| Trading | 68 (73.9) | 24 (26.1) | 10.12 (0.002)* |
| Civil service | 72 (87.8) | 10 (12.2) | |
| Farming | 49 (63.6) | 28 (36.4) | |

| | | | |
|--------------------|------------|-----------|-----------------|
| Artisan | 28 (70.0) | 12 (30.0) | |
| Others | 11 (52.4) | 10 (47.6) | |
| Unemployed | 90 (78.3) | 25 (21.7) | |
| Perceived severity | | | |
| Yes | 291 (80.4) | 71 (19.6) | 30.02 (<0.001)* |
| Not sure | 16 (51.6) | 15 (48.4) | |
| No | 11 (42.3) | 15 (57.7) | |

*Statistically significant *P* value

DISCUSSION

The changes in human behavior that occur in response to the outbreak of a disease can affect the progression of the disease. If people are aware of the disease within their community, they tend to take measures to reduce their susceptibility to the disease.¹⁴ Beyond the rate of transmission, the awareness of the disease can also slow down its spread but cannot stop it from reaching epidemic proportions in the population.¹⁰ The perception and practice of COVID-19 preventive measures can also improve the level of awareness of the disease thereby bringing the burden down significantly. When these factors work together, they result in a reduction in the rate of transmission of the disease as seen during the SARS outbreak of 2003 in Hong Kong.¹³ In our study the level of awareness about COVID-19 was 98.6% which is similar to 97.6% reported from Uganda.¹² A study in North-central Nigeria reported a slightly higher level of 99.5% awareness of COVID-19.¹⁵ However, 90.4% of the participants in that study were educated up to bachelor degree level in contrast to only 37.2% in ours who had any tertiary level education. Similarly, the social media constituted the major source of information for over half (55.7%) of respondents in the North-central study as against 30.2% in our present study.¹⁵ Generally, high level of awareness is not unexpected for epidemic prone diseases with high infectivity and mortality rate like Ebola, SARS and COVID-19 especially when they have reached a pandemic status.

Less than half (43%) and (47.9%) of the respondents practiced frequent hand washing and stopped shaking hands while greeting people respectively. This contrasts with a study done among residents of Ethiopia where 84.5% and 79.2% practiced hand washing and avoided hand shaking with people in public places respectively.¹² In the same vein, among university students in Bangladesh, about 60% of the respondents avoided going to crowded places which is similar to Ethiopia.^{7,16} However, in this study only about one-third (30%) of the respondents avoided going to crowded places. Also, only 43.3% of them wore nose masks when leaving home in order to protect themselves from COVID-19. On the contrary, in China, only 2% of the respondents did not wear face mask when leaving their home while about 40% of the respondents in the study in Bangladesh stated that they did not use face mask when they are leaving their homes due to the scarcity and high cost of nose masks.^{7,11} The level of practice of prevention was also noted to be high among Indians.¹⁷ The poor practice of most preventive measures observed in this study in comparison with other places may be as a result of the zero case recorded in the town which could make some people doubt or deny its existence and or severity. Just like in Bangladesh, access and affordability of some measures like face masks and hand sanitizers are also possible strong reasons for poor practice as the cost of these commodities in the wake of COVID-19 suddenly skyrocketed above the reach of the common man.

The study established a statistically significant association between perceived severity of COVID-19 and practice of preventive measures. Respondents who believed COVID-19 was a serious disease had good practice of the preventive measures. Among the study participants, 86.4% of them believed COVID-19 is a serious disease and only 6% denied the seriousness of the disease. This is similar to the findings in a study in Hong Kong which reported high perceived severity (97%) and susceptibility (89%) but at variance with findings of a study in Sudan which reported severity and susceptibility at 40% and 45% respectively.^{10,14} Some psychological theories provide explanations about this observable facts in health behavior research. According to the framework of the Health Belief Model (HBM) in the context of COVID-19, a person would be more likely to comply with recommended preventive behaviors if he/she perceives that they are susceptible to the infection (perceived susceptibility) and that the infection could have serious impact (perceived severity) on his health.^{12,18}

The nature of occupation showed significant association with good practice of preventive measures against COVID-19. The highest proportion of respondents with good practice was from the civil service sector. These respondents are likely to be more educated and hence understand the disease and preventive messages. They were also naturally predisposed to carrying out measures such as stay at home campaigns since government establishments/offices were shut down from business at the peak of the pandemic. Salaries of government employees were however being paid even in the period of lock down and so they could also easily practice measures that involved some financial cost to carry out. On the contrary, peasant farmers as well those whose means of livelihood depended on daily labour could more likely defile laid down measures to go out and seek a living in

the face of no palliatives provided by government. This finding is consistent with that from Northwest Ethiopia where government employees had high proportion of good practice compared to farmers with least practice.¹⁹

In our study, there was also a statistically significant association between education and practice of preventive measures. A higher proportion of respondents who had tertiary level of education had good practice of laid down preventive measures. This is also supported by a study in the Islamic Republic of Iran where lower education was associated with poor practice.²⁰ Since educational attainment and occupation are considered proxy measures of socioeconomic status, it may be apt to say that poor socioeconomic status is an incentive against effective preventive measures against COVID-19 in some communities.

In changing the perception of the people in this community on COVID-19 and ensuring practice of preventive measures, there is need to strengthen belief about the disease, effectiveness of control measures and to sustain interventions towards changing health behavior which yields the most effective results.^{10,18} This would include health education and promotion through various media, and enforcement of the guidelines of government on the control of the spread of the disease. Provision of palliatives to at risk populations such as those whose occupations have been worst hit by containment measures like lockdown and crowd control limits.

CONCLUSION

We found that perceived severity, educational level and occupation had significant association with good practice of preventive measures. Overall perception about the disease and effectiveness of preventive measures was good but regular practice of different preventive measures was

generally below average in the community. There is therefore need to sustain sensitization on the benefits of these practice measures or else they become the source of the spread of the coronavirus disease within the community.

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