



Original Article

COVID-19 Knowledge, Attitude and Practice One Year after: A Study of Adults from Ear-Nose-Throat Departments of Cameroon

Connaissances, attitudes et pratiques liés à la COVID-19 un an après : étude sur les adultes reçus en consultation d'Otorhinolaryngologie au Cameroun

Choffor-Nchinda E^{1,2,3}, Atanga L C⁴, Fokouo Fogha J V^{3,5,6}, Nyada F B^{3,7}, Me-Meke G P⁸

ABSTRACT

Objective. A continuous analysis of knowledge, attitude towards coronavirus disease 2019 (COVID-19) and implementation of protective measures is imperative as the pandemic progresses. We aimed at assessing the knowledge, attitude and practice of COVID-19 and associated preventive measures one year after the onset of the pandemic, specifically patients received at ear-nose-throat (ENT) outpatient departments that receive the bulk of patients presenting with upper respiratory symptoms in Cameroon. **Population and methods.** We conducted a cross-sectional hospital-based survey in three health institutions in Cameroon. A consecutive sampling was done, for two months, recruiting all eligible ENT outpatient attendees aged 21 years and above. **Results.** We enrolled a total of 203 participants. Ninety-eight percent of participants (199) had heard of COVID-19. Definitions given included "viral disease" (104; 51.2%), "pandemic" (24; 11.8%), "airborne disease" (23; 11.3%), "respiratory infectious disease" (11; 5.4%). Cough (93.6%), breathing difficulties (75.4%) and fever (74.4%) were the most listed symptoms. All participants claimed to use at least one preventive measure. Face masks were used at all times only by 11.8%. Among patients who had presented symptoms, most practiced auto medication (28; 93.3%) comprising antibiotics and herbal mixtures. Comparing knowledge of preventive measures with practice, regular hand washing ($p=0.004$) and avoidance of close contact ($p<0.001$) showed significant differences. **Conclusion.** Knowledge on COVID-19 has greatly improved. Use of protective means is suboptimal and could be improved by continuous communication, supply of tools for the public and sanctions for inadequate implementation. The domain of traditional medicine in our setting needs better organisation.

RÉSUMÉ

Objectif. Évaluer les connaissances, attitudes et pratiques de la COVID-19 et des mesures préventives associées un an après le début de la pandémie, chez les patients reçus dans les services ambulatoires d'oto-rhino-laryngologie (ORL) qui des patients présentant des symptômes des voies respiratoires supérieures au Cameroun. **Population et Méthodes.** Nous avons mené une enquête transversale en milieu hospitalier dans trois institutions de santé au Cameroun. Un échantillonnage consécutif a été effectué, pendant deux mois, en recrutant tous les patients éligibles des services externes d'ORL âgés de 21 ans et plus. **Résultats.** Nous avons recruté un total de 203 participants, dont 99% (199 participants) avaient entendu parler de la COVID-19. Les définitions données comprenaient "maladie virale" (104; 51, 2%), "pandémie" (24; 11, 8%), "maladie aéroportée" (23; 11, 3%), "maladie infectieuse respiratoire" (11; 5, 4%). La toux (93, 6%), les difficultés respiratoires (75, 4%) et la fièvre (74, 4%) étaient les symptômes les plus cités. Tous les participants disaient utiliser au moins une mesure préventive. Seuls 11,8 % d'entre eux utilisaient des masques en permanence. Parmi les patients qui avaient présenté des symptômes, la plupart pratiquaient l'automédication (28 ; 93,3%) comprenant des antibiotiques et des mélanges de plantes. En comparant la connaissance des mesures préventives avec la pratique, le lavage régulier des mains ($p=0,004$) et l'évitement des contacts étroits ($p<0,001$) ont montré des différences significatives. **Conclusion.** Les connaissances sur la COVID-19 se sont améliorées. Une communication continue améliorerait l'utilisation des moyens de protection. La médecine traditionnelle dans notre milieu nécessite également une meilleure organisation.

1. Department of Surgery and Specialties, Faculty of Health Sciences, University of Buea, Cameroon
2. ENT Department, Buea Regional Hospital, Buea, Cameroon
3. COCHLEES Research Group
4. Department of Ophthalmology, Otolaryngology and Stomatology, Faculty of Medicine and Biomedical Sciences, University of Yaounde 1, Yaounde, Cameroon
5. Department of Otolaryngology – Head and Neck Surgery, Bertoua Regional Hospital, Bertoua, Cameroon.
6. COVID-19 Treatment Centre, Bertoua Regional Hospital, Bertoua, Cameroon
7. ENT Department, Olembe District Hospital, Yaounde, Cameroon.
8. ENT Department, Limbe Regional Hospital, Limbe, Cameroon

Auteur correspondant :

Emmanuel Choffor-Nchinda, MD

Corresponding author

Emmanuel Choffor-Nchinda

Email: ecnchinda@yahoo.com

Phone: 699193977

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INTRODUCTION

Since the importation of the first case in the African Region in February 2020, the coronavirus disease 2019

(COVID-19) pandemic has spread to 47 countries, with 1,318,254 confirmed cases and 24,464 deaths, as of

November 2020¹. Cameroon recorded 21,793 cases and 426 deaths at the same period². The pandemic has caused unprecedented disruptions. Populations are being severely impacted with measures taken to curb the pandemic, causing hardships and tremendous socio-economic consequences. A strategic response plan for the World Health Organisation (WHO) African region³ has been elaborated to ensure that all countries in this region establish and sustain adequate response capacities and capabilities at national and subnational levels³. A major strategic objective is to strengthen public awareness through an integrated risk communication and community engagement approach on COVID-19 including a psycho-social component³. Prior to this, an analysis of the level of knowledge, attitude towards the disease and implementation of protective measures is imperative.

Clinically, authors have reported that loss of smell and taste is a potential predictor of COVID-19⁴ in addition to other more established symptoms, including high temperature and a new, persistent cough⁵. COVID-19 appears to cause problems in line with many other respiratory viruses including previous coronaviruses thought to account for 10–15% of cases of anosmia^{6,7}. This reveals that upper respiratory symptoms predominate clinical presentations^{8,9}. In Cameroon, patients with such symptoms are generally referred to Ear-Nose-Throat (ENT) specialists. At a time when a second wave of infection is apprehended in many regions of the world, with the emergence of potentially deadlier new viral strains, a re-evaluation of the knowledge, attitude and practice is vital. It could contribute to assess the effectiveness of prior communication strategies employed and evaluate population uptake of measures prescribed to curb the pandemic, notably in this particular group with a potentially higher contamination risk. Our results would provide elements of comparison with similar studies done during the early stages of the pandemic. In addition, ENT specialists who constitute an exposed group would better appreciate the risk to which they are exposed by having a clearer view of the attitude of patients they receive.

This survey-based cross-sectional study aimed at assessing the knowledge, attitude and practice of COVID-19 and associated preventive measures in patients one year after the onset of the pandemic, specifically those received at ENT outpatient departments in tertiary health facilities in Cameroon.

POPULATION AND METHODS

Study design and procedure

We conducted a prospective cross-sectional hospital-based survey in three tertiary health institutions in Cameroon, located in three administrative regions of Cameroon, namely the South-West, Centre and East. These health facilities provide specialised services and generally receive referrals from other lower grade hospitals in the region. A consecutive sampling was done, for a period of two months, recruiting all eligible patients consulting during this period. Participants consisted of consenting ENT outpatient attendees, aged

21 years and above. We included only adults to ease understanding of our survey, presuming that children's attitudes and practices are usually a reflection of their parents' or guardians'. We excluded known COVID-19 patients, patients with whom we encountered difficulties in communication, and patients requiring critical or urgent care. Patients presenting at the respective ENT units were consulted and managed as suitable. At the end of each consultation, according to the degree of urgency of the case, the patient was informed about the study, its objectives, and the need to respond to questions of the survey to attain these objectives. Once an informed consent was obtained, the investigator proceeded to asking the questions in simple terms and in the language best understood by the patient. They were allowed to ask questions for any clarification. Participants' responses were free and unguided, permitting data collection to be as complete and accurate as possible. Answers were recorded on a pre-tested online questionnaire conceived with Google Forms, then combined and synthesised.

Statistics

Answers to the following items obtained from participants comprised variables; socio-demographic data (age, sex, occupation, level of education), data on knowledge of COVID-19 (definition of COVID-19, dangerousness of condition, presenting symptoms, mode of contamination, methods of prevention, recommended procedure if suspicion of infection), data on attitude (perceived efficiency of preventive methods, ease of implementation, recent participation in an event, fear of contracting infection, efficacy of traditional therapy), data on practice (use of preventive methods, procedure in case of suspicion of infection). Data were analysed using STATA® version 13 (Stata Corp 2013). Results were presented as mean for quantitative variables, and percentage for qualitative variables. Comparisons were done using the chi-squared test with statistical significance considered for p-value < 0.05.

Ethical considerations

Informed verbal consent was obtained from patients before including them in the study. Information about participants was kept confidential by replacing names with assigned codes. Ethical clearance to carry out this study was granted by the Institutional Review Board of the Faculty of Health Sciences, University of Buea (ID: 2020/1251-11/UB/SG/IRB/FHS). After administering the questionnaire, patients were edified on the COVID-19 pandemic and advised on appropriate preventive measures, their rationale and benefits. They were further advised on indications and possibilities concerning management of COVID-19 in Cameroon.

RESULTS

Socio-demographic data

We enrolled a total of 203 participants, from a total of 215 potentially eligible. Twelve patients were excluded; five were COVID-19 positive, four did not understand the questions asked, and three needed critical attention. Ages ranged from 21 to 67 years, with an average of 29.9 years. Participants were predominantly females (110; 54.2%). The majority had a tertiary level of education

(131; 64.5%), 25.1% (51) were students as opposed to 74.9% (152) who had varied occupations. Socio-demographic data are summarised on table 1. (Table I).

Table 1: Socio-demographic characteristics of study population

| Characteristic | Groups | Frequency (n), N=203 | Percentage (%) |
|-----------------------------------|--------------------------|----------------------|----------------|
| *Age | 21 – 30 | 136 | 67 |
| | 30 – 40 | 48 | 23.6 |
| | 40 – 50 | 15 | 7.4 |
| | >50 | 4 | 2 |
| Sex | Female | 110 | 54.2 |
| | Male | 93 | 45.8 |
| Occupation | Worker | 120 | 59.1 |
| | Student | 51 | 25.1 |
| | Unemployed/ housewife | 32 | 15.8 |
| | | | |
| Highest level of education | Primary | 20 | 9.9 |
| | Secondary | 52 | 25.6 |
| | University | 131 | 64.5 |

*Category boundaries for age are inclusive of the upper value

COVID-19 knowledge

Ninety-eight percent of participants (199) had heard of COVID-19. Most defined it as a viral disease (104; 51.2%). Others defined it as a pandemic (24; 11.8%), an airborne disease (23; 11.3%), or a respiratory infectious disease (11; 5.4%). A proportion of 95.6% (194) of patients heard about it via media (TV, radio, social media). A fraction of 98.5% of patients (200) were able to state at least one symptom, and all the common symptoms of COVID-19 were Accessed at least once. Cough was the most Accessed symptom, evoked by 190 participants (93.6%), followed by breathing difficulties (153; 75.4%) and fever (151; 74.4%). The most mentioned mode of transmission was close contact with an infected person (199; 98%) and the most stated preventive method was use of a face mask (191; 94%). Participants mostly stated consulting at a hospital (157; 77.3%) as recommended procedure in case of suspicion of infection. Knowledge of COVID-19 symptoms, transmission and prevention are reported on **Table II**. Ninety patients (44.3%) knew the national toll free number for assistance.

Table 2: Knowledge of participants on COVID-19

| Item | Responses* | Frequency (n) | (%) |
|-----------------|------------------------|---------------|------|
| Symptoms | Cough | 190 | 93.6 |
| | Breathing difficulties | 153 | 75.4 |
| | Fever | 151 | 74.4 |
| | Runny nose | 120 | 59.1 |
| | Loss of smell/taste | 78 | 38.4 |
| | Weakness/tiredness | 59 | 29.1 |
| | Headache | 55 | 27.1 |
| | Muscle/joint aches | 46 | 22.7 |
| | Throat pain | 30 | 14.8 |

| | | | |
|--|--|------|------|
| | Chest tightness/pain | 15 | 7.4 |
| | Diarrhoea | 4 | 2 |
| | Ocular irritation/pain | 3 | 1.5 |
| | No idea | 3 | 1.5 |
| Transmission | Close contact with infected person | 199 | 98 |
| | Droplets emitted through coughing/sneezing | 196 | 96.6 |
| | Touching soiled surfaces | 183 | 90.1 |
| | Sharing clothes | 128 | 63.1 |
| | Eating at table with an infected person | 106 | 52.2 |
| | Sexual contact | 25 | 12.3 |
| | Open wounds | 4 | 2 |
| Preventive measures | No idea | 2 | 1 |
| | Face mask use | 191 | 94.1 |
| | Regular hand washing | 169 | 83.3 |
| | Hand sanitizer use | 155 | 76.4 |
| | Avoiding close contact | 115 | 56.7 |
| | Avoiding crowded places | 77 | 37.9 |
| | Staying indoors | 34 | 16.7 |
| Knowledge on recommended approach in case of suspicion of infection | Sneezing/coughing in elbow | 30 | 14.8 |
| | Avoiding face contact with unclean hands | 6 | 3 |
| | Consult at hospital | 157 | 77.3 |
| | Call the toll free number for assistance | 69 | 34 |
| | Stay at home/avoid contact | 65 | 32 |
| | Herbal/traditional medicine use | 50 | 24.6 |
| | Apply preventive measures | 31 | 15.3 |
| Start treatment | 26 | 12.8 | |
| No idea | 9 | 4.4 | |

*Participants could cite more than one response per item

Attitude and practice

Most patients (109; 53.7%) found COVID-19 preventive measures moderately effective, while seven participants (3.5%) found them useless. Ease of implementation of these measures was described as easy by 48.3% (98) of patients and difficult by 51.7% (105) of them. Reasons advanced by those who found it difficult included discomfort (70; 66.7%) and financial limitations (57; 54.3%, table 3)

Table 3: Attitude and practice relating to COVID-19

| Item | Responses* | Frequency (n) | Percentage (%) |
|--|---|---------------|----------------|
| Measures applied | Face mask use | 181 | 89.2 |
| | Regular hand washing | 106 | 52.2 |
| | Use of hand sanitizer | 105 | 51.7 |
| | Avoiding crowded places | 45 | 22.2 |
| | Avoiding close contact | 67 | 33 |
| | Limiting outings | 23 | 11.3 |
| | Sneezing/coughing in elbow/disposable hanky | 5 | 2.5 |
| Reasons given for participants who found it difficult to adequately apply preventive measures | Discomfort | 70 | 66.7 |
| | Financial limitations | 57 | 54.3 |
| | Nature of occupation not permitting | 36 | 34.3 |
| | Unavailability of tools | 10 | 9.5 |
| | Forgetfulness | 7 | 6.7 |
| Actions in case of suspicious symptoms | Auto medication (amoxicillin, chloroquine, azithromycin, other) | 28 | 93.3 |
| | Herbal/ traditional medication use | 14 | 46.7 |
| | Isolation/ stay indoors | 9 | 30 |
| | Call toll free number for guidance | 8 | 26.7 |
| | Get tested | 6 | 20 |

*Participants could cite more than one response per item

The majority of patients (161; 79.3%) attended an event assembling a large crowd within four months prior to the interview. The toll free number had been used by 17 participants (8.4%), among which 10 (58.8%) found the platform easily accessible and helpful. Eighty-four patients (41.4%) declared being moderately scared of the disease, while 33% (67) were very scared and 25.6% (52) not scared. Reasons given for those who were very scared included severity and lethality of COVID-19 (64; 95.5%), insufficient/ ineffective/ unavailable protection (6; 9%), high contagiousness (4; 6%) and practice of high risk activity (4; 6%). All participants claimed to use at least one preventive measure (see details on table 3). Face masks were used at all times by 11.8% (24 patients). While 57.6% (117 patients) of participants revealed that they had never presented suspicious symptoms, 14.8% (30) said they had, and 27.6% (56) were not sure. Among those who had presented symptoms, most practiced auto medication (28; 93.3%, see table 3). Comparing knowledge of preventive measures with practice, regular hand washing and avoidance of close contact showed statistically significant differences (see **Table IV**).

Table 4: Association between knowledge and practice of preventive measures

| Preventive measure | Number of patients who stated the measure (knowledge), % | Number of patients who applied the measure (practice), % | p-value* |
|--------------------------------|--|--|----------|
| Face mask use | 191, 94.1% | 181, 89.2% | 0.5 |
| Regular hand washing | 169, 83.3% | 106, 52.2% | 0.004 |
| Use of alcohol-based sanitizer | 155, 76.4% | 105, 51.7% | 0.8 |

| | | | |
|--------------------------------|------------|-----------|--------|
| Avoiding crowded places | 77, 37.9% | 45, 22.2% | 0.2 |
| Avoiding close contact | 115, 56.7% | 67, 33% | <0.001 |

*p-values were obtained using chi-squared tests from two by two contingency tables

DISCUSSION

Almost all participants (98%) had heard of COVID-19 and had some notions concerning the disease. All definitions given by patients had an element of correctness, though were mostly incomplete. Definitions given pertained to the cause (“viral disease”), the mode of transmission (“airborne disease”), the clinical manifestations/ system affected (“respiratory disease”). Those who did not know the term recognized the disease after it was explained to them. This is a clear improvement compared with earlier stages of the pandemic, as reported by Tendongfor et al¹⁰ in a similar study carried out in April 2020, who found that 11.92% of participants did not know about COVID-19. The efforts of mediatisation carried out by government, non-governmental organisations and international bodies have gone a long way in informing the population, as most patients learned about COVID-19 via media. It is encouraging to realize that 98.5% of patients could state at least one symptom, with cough, breathing difficulties and fever being the most Accessed. This knowledge is consistent with the findings of a systematic review comprising 24,410 patients that reported fever, cough and tiredness as the most prevalent symptoms¹¹. Likewise, modes of transmission were well known by the majority of participants. Only a small proportion erroneously thought it could be transmitted by sexual contact or open wounds. Given that preventive measures result from modes of transmission, it was not surprising that all preventive measures were similarly stated at least once. These measures are advocated by the WHO¹² and

recommended by the Ministry of Public Health in Cameroon. All participants reported using at least one measure, though only few used them consistently. Among these measures, face mask use was the most implemented. It is noteworthy that at the time of the study, mask use was compulsory to have access to most offices and institutions. However, most patients thought these measures only had moderate effectiveness and about half of them found implementation difficult. These factors that could potentially hamper practice, as stated by participants, included discomfort caused by the methods, essentially the mask. Financial limitations linked to acquiring the tools and importantly, the nature of their activity of subsistence also made it impossible to practice some measures. This situation is aggravated by the fact that in Africa, the majority of people live on incomes earned largely daily¹³, making an interruption of work impossible, despite the risks. Only a third of patients declared being scared of the disease, possibly explaining why most still kept attending high risk events. This notion was confirmed by Harper et al¹⁴, using Ahorsu et al¹⁵ Fear of COVID-19 Scale who found that perceiving COVID-19 threat as severe was positively associated with preventive behaviours, suggesting that perceived threat can be a motivational factor to apply prevention¹⁶. This is an evolution from the initial phase of the pandemic where there was significant fear and distress linked to the disease¹⁷. Despite the observation that participants' knowledge on recommended measures to take in case of suspicion of infection was good, those who actually presented suspicious symptoms predominantly practiced auto-medication, consisting of antibiotics, anti-malarials (chloroquine), or traditional/herbal mixtures composed of varied ingredients. The heavy propaganda and controversy around treatment protocols for COVID-19 could explain this tendency. In Cameroon, a protocol based on azithromycin and chloroquine was instituted and recommended by the Ministry of Public Health. This information, including a treatment plan with dosages, rapidly circulated through social media and was consequently available to the public. Also, traditional medicine continues to be popular and alluring to many people for a large scope of health issues, despite relatively higher costs¹⁸ and evidence of inadequate knowledge of some traditional healers of the conditions they treat¹⁹.

Interestingly, there was discordance between knowledge of specific preventive measures and their actual implementation, with patients not always applying them, in spite of being aware. The difference was statistically significant for regular hand washing and avoidance of close contact with others. This could be explained by the unavailability of hand washing points at all places and the nature of their daily activities.

Our results are relevant to clinicians in that despite a marked improvement in knowledge of COVID-19, practice of preventive measures are suboptimal. Clinicians should consistently apply these measures themselves, and continue encouraging patients to do

same. Policy-makers should reinstate sanctions for non-systematic face mask use in public places as was the case during earlier stages. Furthermore, tools like hand washing points and face masks should be made more available. Finally, the traditional medicine sector requires more organisation and codification.

Limitations of our study include its hospital-based design, making the results difficultly generalizable. However, this also permitted us to have an idea of the risk to which health care workers are exposed. In addition, the survey nature of the study implies that the participants' claims pertaining to practice were not verifiable. More community-based research would help to have a clearer picture with generalizable results.

CONCLUSION

Knowledge on COVID-19 has greatly improved since the beginning of the pandemic. Despite good knowledge, use of protective means is suboptimal. The majority of participants were not very scared of the disease, compared to earlier stages, possibly explaining some laxity in application of measures. Other factors potentially hampering effective use of barrier methods could be controlled by continuous communication, supply of tools for the public and sanctions for inadequate implementation. The domain of traditional medicine in our setting needs proper organisation as many patients resort to this alternative.

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Author contributions

EC-N conceived and designed the study. EC-N, LCA, JVFF, FBN, GPM-M conducted data collection. EC-N realised data analysis. LCA, JVFF, FBN, GPM-M interpreted the results and provided critical insights. EC-N drafted the manuscript. All authors reviewed and agreed to the final manuscript.

Conflict of interest:

None.

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