



Obstacles to the Respect of Preventive Measures against Covid-19: The Case of the Mifi Health District, West-Cameroon Region

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Abstract: In December 2019, the coronavirus outbreak was declared in the Wuhan Province of the Republic of China. Over time, it gradually spread to Asia, Europe and Africa, resulting in the death or quarantine of several people. Few weeks after, the World Health Organisation announced that the situation has moved from an epidemic to a pandemic, with over 170,000 cases in 146 countries, and about 6,500 deaths (NBC, 2020). In Cameroon, from the very first hours of the pandemic, the Government implemented a prevention and response plan aimed at stopping the spread of the pandemic. In that sense, the Government tried to implement different public health measures to prevent and control the further spread of the disease. Research studies emerges all over the world regarding the COVID-19 pandemic in different aspects. However, few studies have questioned challenges face by the populations and their adherence to the prescribed measures. Such knowledge is essential for government policy concerning the current outbreak as well as future pandemics. That is why the objective of the current research work was to identify obstacles to the respect of preventive measures against Covid-19 at the Mifi Health District in West-Cameroon Region. To attain this objective a qualitative design was used. The phenomenological method permitted to interview different groups of participants, 30 in total, according to the saturation principle. Data were collected from August to September 2022. The analysis was done using the content analysis technique. The study found that there three main obstacles to the respect of preventive measures against Covid-19 in the MIFI Health District in West-Cameroon Region: scientific, social and cultural obstacles.

Keywords: Obstacle, Preventive measures, Covid-19, Health District.

Introduction

Coronavirus disease-2019 (COVID-19) is a highly contagious acute respiratory disease. The causative agent is a novel coronavirus (2019-nCoV). It was first evident in November 2019 in Wuhan City, Hubei province, China (WHO, 2020). In the beginning of 2020, the coronavirus pandemic has infected an enormous amount of people worldwide (Roland et al., 2020). Countries closed their borders, announced lockdowns and people were asked to follow protective measures against the new coronavirus such as face mask, physical distancing regular hand washing. Health systems were often not properly prepared to handle the influx of cases and arguably, the public information system was not prepared either.

The dramatic and rapid multidimensional (sanitary, social, economic, environment and political) impacts of COVID-19 worldwide have led several public health experts to rate it as the worst public health emergency since the Spanish flu in 1918 (Wadoum et al., 2020). Scientific and regulating organisations (including WHO) predicted a devastating COVID-19 wave in sub-Saharan Africa if the magnitude was to be similar (El-Sadr et al., 2020). Unexpectedly, the pandemic in Africa occurred several weeks behind Europe and Asia and has a slower transmission (Cabore et al., 2020).

Sub-Saharan African countries have therefore had more time to shape their containment and mitigation strategies under the guidance of the Africa Centre for Disease Controls and assistance of the WHO (Osseni et al., 2020).

In Cameroon, the first case of COVID-19 was identified on 6 March 2020, when a French national returning from Europe tested positive for the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) (Van et al., 2020). Thereafter, a COVID-19 task force was formed, and international borders were closed for incoming passengers by 18 March 2020 (Thomford et al., 2020). Under the leadership of the Prime Minister, several preventive measures were instituted nationally to contain the local COVID-19 outbreak (République du Cameroun, 2020). These included: closure of all schools and training institutions, forbiddance of any gathering of more than fifty persons, closure of entertainment spots by 6 pm daily, strong discouragement of urban and inter-urban travel, consumer flow to be regulated in markets and shopping centres, postponement of sports competitions, and observance of hygiene measures such as regular hand washing with soap, avoiding close contacts with other persons, covering one's mouth when coughing/sneezing, and other measures as prescribed by the World Health Organization (WHO) (République du Cameroun, 2020). As the epidemic continued gaining ground, the national COVID-19 response equally ramped up with the institution of additional measures, including mandatory face mask use in public places, effective from 13 April 2020 (Crtv, 2020). In addition, contact tracing strategies were intensified and testing capacity also increased to over 1000 tests per day in May 2020 (WHO, 2020). Furthermore, a toll-free phone line (1510) was dedicated to the COVID-19 response team, through which the population could obtain support or forward any COVID-19 related information (Crtv, 2020). Despite all these coordinated actions by the government, the number of confirmed COVID-19 cases increased, with a peak number of new cases per day reaching 1445 on 6 July 2020 (WHO, 2021).

The first COVID-19 case recorded in the West Region was admitted at the Bafoussam Regional Hospital on March 18, 2020 and took local health authorities by surprise (Cameroon web, 2020). This resulted in a catch-up response rather than the expected anticipative response (Mbopi-Keou et al., 2020). This is further illustrated by the quarantine imposed to the whole staff of a primary health care facility in Bafoussam (alongside its temporary closure) following a six-day hospitalization of COVID-19 symptomatic patient in an ordinary ward (Tsuala Fouogue et al., 2020).

Given the progression to community transmission, many governments enacted lockdowns, stay-at-home orders, travel bans, curfews, and closing of workplaces, schools, and other community gathering spaces such as gyms and entertainment venues (Asemahgn, 2020). Such unsharpened measures were deployed by governments during times of persistent community transmission and high surges in cases (Zhong, 2020). However, because of inconsistent messaging about the purpose of lockdowns and the uncertain duration of the pandemic and response, many people believed COVID-19 was no longer a threat when lockdowns were lifted (Alahdal et al., 2020).

The World Health Organisation (WHO, 2020) declared the outbreak to be a Public Health Emergency of International Concern on 30 January 2020, named it as a pandemic on 11 March 2020 (NBC, 2020). As of 27th April 2020, more than 2.99 million cases of COVID-19 have been reported in 185 countries and territories, resulting in more than 207,000 deaths (CDC, 2020).

Most people infected with the virus experienced mild to moderate respiratory illness and recovered without requiring special treatment (WHO, 2021). However, some became seriously ill and required medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer were more likely to develop serious illness (Brown et al., 2020). Anyone can get sick with COVID-19 and become seriously ill or die at any age (Kollias et al., 2020). This pandemic highlights an important truth: In today's world, we are all connected, and thus we must all protect one another (Colebunders, 2020).

From the situation described above and from the researchers' observation, very few people in the MIFI Health District use face masks, accept vaccination or even care about the preventive measures against Covid-19. When one puts on his or her face mask and go to a public place like a market, people would shout on him or her. Again, the majority of people in the MIFI Health District live

with elderly people suffering from diseases such as, high blood pressure, diabetes, lung infections, kidney disease etc. Also, from the researchers' experience the percentage of elderly people that died from COVID 19 in the MIFI Health District was very high. This is surely because, when people do not observe barriers measures against Covid-19, they easily contact the Coronavirus and once in their houses they transmit to elderly. Since their immune systems are already weak due to pathologies they live with, and they easily die of COVID-19. In that sense, the Mifi Health District (MHD) has recorded since the start of the coronavirus pandemic more than 2986 cases of Covid-19, and more than 150 deaths. The prevalence rate for the Cameroon west Region during the 3rd wave was up to 44% but with only 2% of them on intensive care situations such as oxygen. Today, only about 9.75% of the population is completely vaccinated.

Despite the situation described above, and despite the prescriptive measures edited by the government people living at the MHD seems to remain unconscious and they do not care about those preventive measures against the Covid-19 pandemic. That is why the tried to find out the obstacles to the respect of preventive measures against Covid-19 at the MHD, West-Cameroon Region? Past research shows that conspiracy theories increase substantially during a pandemic especially in times of crises.

Methodology

The research was conducted in the MIFI Health District in the West Region of Cameroon. It covers an area of 402 km² and respects the geographical contours of the MIFI department. Data were collected for one month (from August 20th to September 20th). A qualitative phenomenological study approach was carried out to identify obstacles to the respect of preventive measures against COVID-19. Group discussion using a semi structured interview guide was used for data collection. The 30 participants sampled according to the principle of saturation were found amongst zonal health manager, district health manager, head nurses of health centres, health professionals, health development armies, health extension workers, youth representative, religious leader, community leader, and police leaders. Data were analysed using the content analysis technique. The first phase of the analysis was the line-by-line coding; key phrases of the transcripts, in participants' own words, were identified and underlined. The underlined codes were rephrased into a shorter code phrase in the second phase of the analysis. Subsequently, phrases with similar meanings were brought to the most useful unit of content analysis. The final stage of analysis permitted to generate categories through further abstraction and grouping of subcategory themes. Also, a research clearance was obtained from the Institutional Ethical Committee. Authorisation letters were, as well, obtained from the Administration of the Adventist University and from that of the Mifi health District before any data collection. Before the fieldwork, necessary communications about the overall purpose of the study were made with the health district Chief, community level and administrative bodies. Written informed consent were obtained from each participant after explaining the objective and purpose of the study to each of them. To maintain confidentiality, no personal identifiers was used on data collection forms and the recorded data were not accessed by a person who was not part of the research team.

Results and Discussion

Participants general knowledge on Covid-19

The group discussion with health workers revealed that they have some good ideas on what corona virus is: signs and symptoms, treatment, and prevention. To the question "*What cross your mind when you hear of corona virus?*" majority of the groups had similar responses: "*We think of a disease that is transmitted through respiration*". In fact, this answer is not completely wrong but just that the precision was not given. This is because a person can be infected when aerosols or droplets containing the virus are inhaled or come directly into contact with the eyes, nose, or mouth (WHO, 2020). People may also become infected by touching surfaces that have been contaminated by the virus when touching their eyes, nose or mouth without washing their hands (Thompson et al., 2021). A recent review of the survival of human coronaviruses on surfaces found large variability, ranging from 2 hours to 9 days and the survival time depends on a number of factors, including the type of

surface, temperature, relative humidity and specific strain of the virus (Murphy et al., 2021). People are at greatest risk of transmitting the disease while they are experiencing symptoms with an incubation period of 2 to 14 days (Guan et al., 2020). This is because people appear most contagious at the time their symptom severity is highest (Hellewell et al., 2020). And, it is possible to contract the live virus from touching a contaminated surface or object and then transferring the virus to the mouth, nose, and so on, but the risk for this seems low (CDC, 2020).

It can be inferred that the health worker who participated to this study think the transmission of the Covid-19 is mainly through respiration. Does this mean that since de pandemic came all of the sudden and those health personnel didn't have time to be trained on how the transmission of Covid-19 really works. or the training they received was just on the wearing of face masks and the participants deduced that it's "*a disease that is contacted through respiration*". But wearing masks is not enough to control the disease transmission because even surfaces does keep the virus for a while.

To the question "*what are some of the signs and symptoms of Covid-19*"? Health personnel responded clearly in these terms: "*difficulty in breathing, cough, running nose, dizziness, asthenia*". This answer goes in line with the Centre of Disease Control position when they maintain that People with COVID-19 have had a wide range of symptoms ... like fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, diarrhoea (CDC, 2022). Older adults and people who have underlying medical conditions like heart or lung disease or diabetes are at higher risk for getting very sick from Covid-19. For this reason, participants also acknowledge that "*those mostly affected are the elderly*". They listed the following preventive methods: *Use of facemask, vaccination, washing of hands*. As concerns the treatment they indicated elements like "*Zinc injection, vitamin C, Beta-methazone, and Azithromycin*". As well, they mentioned the precision that "*moderate and severe cases require hospitalisation as well as intensive therapy which includes non-invasive as well as invasive ventilation, along with antipyretics, antivirals, antibiotics, anti-coagulants and steroids. Complicated cases may require treatment by immunomodulatory drugs and plasma exchange therapy*". This shows that health personnel know how to handle cases of COVID-19 in the hospital.

From these findings it can be concluded that, health personnel that participated to the study have good knowledge on Covid-19, its transmission, signs and symptoms, its prevention, and treatment. But it can be asked "Despite the good knowledge the participants possess on Covid-19, why are they still not respecting preventive measures against Covid-19?"

The interview with community participants yielded almost the same information like with the health personnel. To the question "*what crosses your mind when you hear about corona virus*?" The summarised response from most of the groups says, "*When I heard about the word corona virus, I think of a new disease that just came and it is paralysing the whole world*". This is in line with the declaration by the WHO: "The whole world is facing an unprecedented health crisis due to the Covid-19 pandemic" (WHO, 2020). Furthermore, Maude et al. (2021) also confirmed the same idea of destabilisation of the whole world. They claimed that "Getting together with friends and family is an important part of life. The Covid-19 pandemic has impacted our ability to safely gather with others. Many people have been forced to cancel or reschedule meaningful events, such as weddings, parties and family gatherings (National Broadcasting Company (NBC), 2021). This means that people living at the MHD perfectly know what Covid19 is and how it affects the entire world.

Scientific factors preventing people living at the MHD to respect preventive measures against Covid-19

Participants declared "*So many people in Africa recover from the disease suggesting that the condition is not so severe. And so, there is scientific over reporting*". Therefore, participants do not respect the preventive measures because they feel the severity is less and because there is very limited dead rate in Africa. They also feel there was false increase rate of cases. For these reasons, they do not see the need of respecting preventive measures. In Cameroon, 108 026 cases were confirmed, with only 1841 deaths, and 105 735 people who have recovered (97, 9%). But Cameroon

Ministry of Health (2020) pointed out that the hospitalisation for Covid-19 increased with the rate of occupation of beds in hospitals increasing from 0.5% to 5% bed occupancy. This might be due to the non-respect of preventives measures issued by the government.

Additionally, to the participants, the disease can affect everyone, but the severity is based on the individual's condition, such as age, immunity, other pathologies, and the severity is less for Africans compared to the white people. The young people amongst the participants think it is a disease that affects or kill only older or people living with underline health problems. This also prevent them to respect the preventive measures. This goes in line with the point of view of Brown et al (2020) who maintained that most people infected with the virus experience mild to moderate respiratory illness and recover without requiring special treatment, some become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Participants did not mention that Covid-19 attacks and affects everyone no matter the age range as maintained by Kollias et al (2020) when they found that anyone can get sick with COVID-19 and become seriously ill or die at any age. This means either we are young or old we must protect ourselves in order to protect others.

Social factors favouring the non-respect of barriers measures against Covid19

For many participants the Covid-19 pandemic is “*a political something, especially as countries were being given money for the treatment*”. And for that reason, there is not respect for preventive measures edited by the government. This is surely due to the coincidence during which it is when developed countries started supporting less developed ones on the management of the COVID19 pandemic that Cameroon recorded his first case of Covid19.

Another reason was pointed out by this participant who maintained that “*working with the patients every minute as nurses makes it difficult to respect some of the preventive measures like social distancing*”. Health personnel also complained that they do not also have enough protective equipment such as mask and they do not have money to buy. They also mentioned that, they can fight against Covid-19 naturally by using methods such as drinking hot tea. This was indicated by group of participants in these terms: “*We can also protect ourselves in a natural way such as taking hot water or tea*”.

Cultural factors making people not to respect barrier measures against Covid19

According to the respondents, their culture do not permit them to respect some of the preventive measures such as the social distancing. One group said, “*We as Muslims, we eat together and so it is difficult for us to respect the one-meter distance*”. For the Muslims, it is not kind to keep one-meter distance from other people. They eat together according to their culture. So, they cannot keep one-meter distance from one another.

Another group of participants reported that “*traditional medicine makes Africans to recover from the disease and so we use traditional medicine against covid-19*”. This goes in line with the findings of Liu (2020) when He maintained that the indigenous populations of the West Region are conservators of tradition and have high respect of traditional values; they also have a trans-generational cultural life and believes. To the author, disease infection in the area is most often handled traditionally, except in special cases which require modern treatment methods. Malaria fever, typhoid fever, injuries and fractures and a host of other infections/diseases are often treated traditionally. Since the first cases of Covid-19 were announced in Cameroon, the population of the West Region engaged in a multiple defensive strategy to counterattack the pandemic. It is believed in the area that all existing treatment of malaria can help prevent people from the corona virus. So, the populations do constantly consume artemisia, chloroquine and a combination of herbs and truck of trees (Lu, 2020). He noted from field observations that more than 80% of the local populations prefer traditional method of treatment to modern treatment in the area.

The pandemic has inspired the local populations to implement what they consider as preventive method against the virus. Since the populations in the Region prefer traditional treatment method to

modern treatment, they consume more of natural herbs and locally made drugs. Some individuals have resorted to drinking of warm water mixed with lime and fever grass (Cymbopogon or lemongrass) every morning and evening to protect themselves from the virus. Very few of them acknowledge the use of chloroquine 200 mg, Artemisia 40g, Azithromycin 500mg, Paracetamol 500 mg as products that combat against the symptoms of the virus. Therefore, they prefer traditional treatment than conventional treatment for covid-19. As well, they believe that if you are a dirty person, you can easily contract the disease. For instance, some of the participants maintained that *“It’s a disease of shame, it means you are dirty”*.

Other participants mentioned financial reasons like *“We do not also have money to buy face mask”*. Also, they said they do not respect preventive measures because they see many people recovering from it, and so to them, it is not a treat. To the young participants *“the virus attacks mostly older people”*. So, since they are still young, they don’t care about it. Traders too pointed out that *“we cannot maintain one meter far from somebody as we sell in the market”*. In fact, in this area, keeping distance from somebody create a feeling of rejection. And so, it is difficult for them to maintain one-meter distance from other people.

Conclusion

The objective of this article was to find out the obstacles to the respect of preventive measures against Covid-19 at the Mifi Health District in the West-Cameroon Region. This objective was formulated from the epidemical background and the contextual background that showed that Covid-19 pandemic has affected worldwide more than 455 million people and has killed more than 6 million people. Cameroon has recorded about 120,000 confirmed cases and close to 2,000 deaths. The Mifi Health District has recorded more than 2986 cases of Covid-19, and more than 150 deaths. Considering the advancement of community spread, Cameroon Government enacted lockdowns, stay-at-home orders, travel bans, restrictions, and closing of workplaces, schools, and other community gathering spaces such as gyms and entertainment venues. The government even edited preventives measures against Covid-19 like wearing of Face Mask, Social Distancing, Regular Hand Washing. But, from the researchers’ observation, very few people in the Mifi Health District care about those measures. By doing so, they easily contact the Coronavirus and transmit to elderly whose immune systems are already weak due to underlying pathologies. That is why this research was carried out at the Mifi Health District in the West Region of Cameroon. A qualitative phenomenological design was used with a group discussion on a semi structured interview guide. The 30 participants sampled were grouped according to some belonging characteristics: health personnel, youth, religious leader, community leader, and police leaders. The content analysis technique was used to analyse data. Also, a research clearance and authorisation letters were obtained from the Administrations of the Adventist University and from that of the Mifi Health District. As well, a written informed consent was obtained from each participant. No personal identifiers were used on data collection forms. The results found that people living at the Mifi Health District perfectly know what Covid19 is and how it affects the entire world. But there are some scientific factors, social factors and cultural factors that prevent them to respect preventive measures against Covid-19. For that reasons the researchers suggest to the government and relevant stakeholders to make the necessary logistic available to protect the frontline professionals; to the stakeholders of the Mifi community to organise intensive sensibilisation at the Mifi health District on Covid19 as a whole; to the Chief of the Mifi Health District, Heads of health institutions to plan training sessions on COVID-19 for Health personnel.

References

1. Alahdal, H., Basingab, F., Alotaibi, R. (2020). An analytical study on the awareness, attitude and practice during the COVID-19 pandemic in Riyadh, Saudi Arabia. *J Infect Public Health*. 13(10):1446-1452. doi: 10.1016/j.jiph.2020.06.015
2. Asemahagn, MA. (2020). Factors determining the knowledge and prevention practice of healthcare workers towards COVID-19 in Amhara region, Ethiopia: a cross-sectional survey. *Trop Med Health*. 48(1), 1-11.

3. Brown, E., Gray, R., Monaco, S L., O'Donoghue, B., Nelson, B., Thompson, A., Francey, S., McGorry, P. (2020). *The potential impact of COVID-19 on psychosis: A rapid review of contemporary epidemic and pandemic research*. doi: 10.1016/j.schres.2020.05.005.
4. Cabore, J W., Karamagi, H C., Kipruto, H., Asamani, J A., Droti, B., Aminata Binetou Wahebine Seydi, A B W., Titi-Ofei, R., Impouma, B., Yao, M., Yoti, Z., Zawaira, F., Tumusiime, P., Talisuna, A., Kasolo, FC., Moeti, M R. (2020). The potential effects of widespread community transmission of SARSCoV-2 infection in the World Health Organization African Region: a predictive model. *BMJ Global Health*. 5(5): e002647.
5. CamerounWeb. (March 18, 2020). *Coronavirus: Bafoussam enregistre son premier cas confirmé*. Accessed July 26, 2020.
6. Centers for Disease Control for Prevention and Control (CDC). (2020). *Information for Clinicians on Investigational Therapeutics for Patients with COVID-19*. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/therapeutic-options.html/>. Accessed April 27, 2020.
7. Colebunders, R., SieweFodjo, J.N., Vanham, G. and Van den Bergh, R. (2020) A Call for Strengthened Evidence on Targeted, Non-Pharmaceutical Interventions against COVID-19 for the Protection of Vulnerable Individuals in Sub-Saharan Africa. *International Journal of Infectious Diseases*, 99, 482-484. doi: <https://doi.org/10.1016/j.ijid.2020.08.060>
8. Coroiu, A., Moran, C., Campbell, T., et al. Barriers and facilitators of adherence to social distancing recommendations during COVID-19 among a large international sample of adults. (2020). *PLoS One*.15(10): e0239795. <https://doi.org/10.1371/journal.pone.0239795>
9. Crtv (2020). *COVID-19: Cameroon's Authorities Order Compulsory Face Masking*. <https://www.crtv.cm/2020/04/covid-19-camerouns-authorities-orders-compulsory-face-masking/>
10. El-Sadr, WM., & Justman J. (2020). Africa in the Path of COVID-19. *New England Journal of Medicine*. 383(3): e11
11. Guan, W., Ni, Z., Yu Hu, Liang, W., Ou, C., He, J., Liu, L., Shan, H., Lei, C., Hui, D.S.C., Du, B., Li, L., Zeng, G., Yuen, K.-Y., Chen, R., Tang, C., Wang, T., Chen, P., Xiang, J., ...Zhong, N. (2020). Clinical Characteristics of Coronavirus Disease 2019 in China. *The New England Journal of Medicine*. 382(18), 1708-1720
12. Murphy, A., Linzy M. Pinkerton, L M., Ellie Bruckner, E., & Heather J. Risser, H J. (2021). Impact of the Novel Coronavirus Disease 2019 on Therapy Service Delivery for Children with Disabilities. *The Journal of Paediatrics*. 231, 168-77.
13. Maude, R., Jongdeepaisal, M., Skuntaniyom, S., Muntajit, Th., Blacksell, S D., Khuenpetch, W., Pan-Ngum, W., Taleangkaphan, K., Malathum, K., & Maude, R J. (2021). Improving knowledge, attitudes and practice to prevent COVID-19 transmission in healthcare workers and the public in Thailand. *BMC Public Health*. 21(749). doi: <https://doi.org/10.1186/s12889-021-10768-y>
14. Hellewell, J., Abbott, S., Gimma, A., Bosse, N I., Jarvis, C I., Russell, T W., James D Munday, J D., Kucharski, A J., & Edmunds W J. (2020). Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts. *Centre for the Mathematical Modelling of Infectious Diseases COVID-19 Working Group*. 8(4)488-496. doi: [https://doi.org/10.1016/S2214-109X\(20\)30074-7](https://doi.org/10.1016/S2214-109X(20)30074-7)
15. Kollias, A., Konstantinos, G., Dimakakos, K E., Poulakou, G., Stergiou, G S. & Syrigos, K. (2020). *Thromboembolic risk and anticoagulant therapy in COVID-19 patients: emerging evidence and call for action*. Third Department of Medicine, National and Kapodistrian University of Athens, School of Medicine, Sotiria Hospital, Athens, Greece.
16. Thomford, N.E.; Yahaya, E.S.; Ekor, M.; Awortwe, C. (2020). Turning Up the Volume for Precision Herbal Medicine in Africa in an Era of COVID-19 and Planetary Biodiversity Loss. *OMICS A J. Integr. Biol*. 24, 682–684.

17. Thompson, J., Spencer, G., & Curtis, P. (2021) Children's perspectives and experiences of the COVID-19 pandemic and UK public health measures. *Health Expect.* 24, 2057-2064. <https://doi.org/10.1111/hex.133502064>
18. Lauren T. Roland, L T., Jose G. Gurrola, J G., Loftus, P A., Cheung, S W., Chang, J L. (2020). Smell and taste symptom-based predictive model for COVID-19 diagnosis. *International Forum of Allergy and Rhinology.* 10(7), 832-838. <https://doi.org/10.1002/alr.22602>
19. Liu, Q., Luo, D., Haase, J E., Guo, Q., Wang, X Q., Liu, S. et al. (2020). The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *Lancet Glob Health.* 8: e790-98.
20. Mbopi-Keou, F X., Pondi, J E., & Sosso, M A. (2020). COVID-19 in Cameroon: a crucial equation to Resolve. *Lancet Infect Dis.* S1473-3099(20)30373-X.
21. Ministry of Health - Cameroon. (2020). *Lette Circulaire Relative Au Contrôle De La Prescription Des Médicaments Utilisables Dans Le Traitement De L'infection Due Au Nouveau Coronavirus (COVID-19)*. Lettre Circulaire N°D36-31 LC/MINSANTE/SG/DPML du 23 Mars 2020.
22. National Health Commission of People's Republic of China. Guidelines for public protection against novel coronavirus infection; 2020. Available from: <http://www.nhc.gov.cn/jkj/s7915/202001/bc661e49b5bc487dba182f5c49ac445b.shtml>. Accessed April 27, 2020.
23. Ossen, I A. (2020). COVID-19 pandemic in sub-Saharan Africa: preparedness, response, and hidden potentials. *Tropical Medicine and Health.* 17:48-48.
24. République du Cameroun Services du Premier Ministre. (2020). *Press Release by the Prime Minister Head of Cameroonian Government*. Accessed August 5, 2020.
25. Tsuala Fouogue, J. et al. (2020). Poor knowledge of COVID-19 and unfavourable perception of the response to the pandemic by healthcare workers at the Bafoussam Regional Hospital (West Region-Cameroon). *Pan African Medical Journal.* 37(1):19. doi: 10.11604/pamj.suppl.2020.37.1.25688
26. Van Damme, W., Dahake, R., Delamou, A., Ingelbeen, B., Wouters, E., Vanham, G., Van de Pas, R., Dossou, JP., Por, Ir., Abimbola, S., Van der Borgh, S., Narayanan, D., Bloom, G., Van Engelgem, I., Ali Ag Ahmed, M., Kiendrébéogo, JA., Verdonck, K., De Brouwere, V., Bello, K., ... Assefa, Y. (2020). The COVID-19 pandemic: diverse contexts; different epidemics-how and why? *BMJ Global Health.* 5, 1-16: e003098. doi:10.1136/bmjgh-2020-003098
27. Wadoum REG, Clarke, A. (2020). How prepared is Africa to face COVID-19? *The Pan African Medical Journal.* 35(2), 1. doi: 10.11604/pamj.suppl.2020.35.2.22665.
28. World Health Organization. (2020). Global Health workforce alliance. Country response: Cameroon. Accessed July 26 2020.
29. World Health Organization. (2020). WHO Global Health Workforce Statistics. December 2018 update. Accessed July 26 2020.
30. World Health Organization. (2021) *Considerations for implementing and adjusting public health and social measures in the context of COVID-19: interim guidance*. World Health Organization. <https://apps.who.int/iris/handle/10665/341811>.
31. Zhong, BL., Luo, W., Li, HM., Zhang, QQ., Liu, XG., Li, WT., Li, Y. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *International Journal Biological Science.* 6(10), 1745-1752. doi: 10.7150/ijbs.45221.