



Knowledge Status and Potential Impact of Socio-Economic Factors on the Spreading of COVID-19 in West African Countries

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Articles Information	Abstract
<p>Received: 18, 04, 2020 Accepted: 24, 04, 2020 Published: 26, 04, 2020</p> <p>Keywords: West Africa COVID-19 Pandemic Knowledge Socio-economic factors</p>	<p>Background: The COVID-19 epidemic that has been going on since December 2019 and caused by the SARS-CoV-2 coronavirus has spread rapidly around the world and has been classified as a pandemic. The health systems of African countries, especially those of West Africa, are still primitive and there is growing concern about the care of infected people. The present study to assess the knowledge and socio-economic impacts related to the spread of COVID-19 in West Africa.</p> <p>Methods: This study was carried out in March 2020, through a descriptive observation and the collection of information by means of an online survey sheet throughout West African Countries. Total confidentiality was assured to the responders who participated at this study and data collected were coded and analyzed by using Microsoft Excel 2019.</p> <p>Results: A total of 1158 answers were collected. The results showed that, the most representative countries were Benin (38.5%), Ivory Coast (25.2%), Togo (12.8%), and Nigeria (10.9%). Concerning the status of people's knowledge of COVID-19, all respondents claim to be aware of this disease. The study carried out the importance of hands washing as a way to limit the virus spreading in west African population. Certain gestures which were ingrained in habits such as traveling with public transport have suffered a regression.</p> <p>Conclusion: Non-compliance with hygiene and sanitary measures may lead to the spread of the virus in West Africa and these countries may then be surprised by this pandemic.</p>

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1. Introduction

Since February 2020 the impact of COVID-19 has gone exponentially with an effect on all sectors of human life [1]. African countries have been part of the countries recently always but always with heavy losses in human life, due to interregional and intercontinental human migration [2]. Coronaviruses (CoV) belong to the family of Coronaviridae. Their recombination rates are very high and are due to constantly changing transcription errors and RNA-dependent RNA polymerase jumps (RdRP). Cause of their high mutation rate, coronaviruses are zoonotic pathogens present in humans and a variety of animals with a wide range of clinical features from

asymptomatic to intensive unit care hospitalization [3, 4]. On January 30, 2020, WHO declared the current novel coronavirus disease 2019 (COVID-19) epidemic a Public Health Emergency of International Concern [1].

It assessed the risk of importation of cases of COVID-19 to Africa from affected provinces in China, and contextualized this risk with each country's vulnerability to epidemic emergencies and capacity to respond. Importation risk was determined by the volume of air traffic connections from areas where the virus currently circulates in china and around [5, 6]. On March 2020, ten of sixteen West African countries have reported cases of COVID-19 [2], after detection of infected

individuals who have started showing symptoms. Based on current epidemiological investigation, the incubation period is 1 to 14 days, mostly 3-7 days and the virus is transmissible in the latency period [7]. Although it was affected very late by this pandemic, the precarious health systems, modes of public transport [8] as well as the lifestyle of African populations and especially those of West Africa, this disease could do well more damage than in European countries where conditions are better. The very high rate of illiteracy in West African countries makes difficult the passage of important information's on this disease. The objective of this study is therefore to assess the state of knowledge of populations on COVID-19 and the potential impact of socio-economic factors on the spread of the virus in West African countries.

2. Material and Methods

This study was carried out in March 2020, through a descriptive observation. Data collection was done with an online survey sheet throughout West African countries. Simple questions on the knowledge of the disease, the mode of transmission, personal methods of prevention as well as the new habits which make it possible to limit the transmission of the virus were included in the questionnaire. The questionnaire was addressed to peoples living in West African countries and interested in the coronavirus pandemic. A basic laboratory experiment was also carried out to demonstrate the best hand washing technique to effectively rid the hands of pathogens. As the study did not involve biological data, ethical approval was not necessary. Total confidentiality was assured to the responders who participated at this study and data collected were coded and analyzed by using Microsoft Excel 2019 at the Research Unit in Applied Microbiology and Pharmacology of natural substances of the University of Abomey-Calavi/Benin.

3. Results and Discussion

Knowledge status about COVID-19 in West African countries:

Responses came from all West African countries. A total of 1158 answers were collected by the survey sheets throughout West African countries. The Figure 1 shows some of the countries that participated in the survey. The most representative countries were Benin (38.5%), Ivory Coast (25.2%), Togo (12.8%) and Nigeria (10.9%). The most represented age group in the survey was that of 20 to 30 years old with a majority of

women. Among the surveyed peoples, 377 are students (32.55%), and 310 are working in the Trades field (26.77%). It emerges that actors in almost all sectors of activity in West Africa feel concerned by the COVID-19 pandemic.

Concerning the people's knowledge of COVID-19, all respondents claim to be aware of this disease. The most known symptoms of this disease are dry cough, sore throat, difficulty breathing and others symptoms such as fever and muscle pains. All respondents said that the prevention of this disease could be done by washing hands with soap or with hot water and rubbing hands with a hydro-alcoholic gel. However, there are also other means of prevention that are not unanimously cited, such as keeping a minimum safety distance and wearing a nose mask. The advent of the pandemic caused an increase in the price of hydro alcoholic gels but nevertheless, 21% of respondents claim to have them permanently. The Figure 2 shows the increase in the use of hydroalcoholic gels.

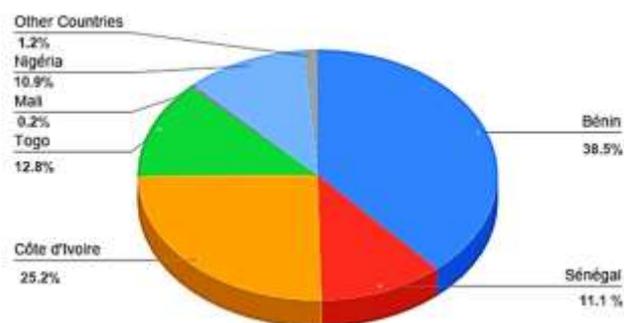


Figure 1. Repartition by country of Surveyed Peoples

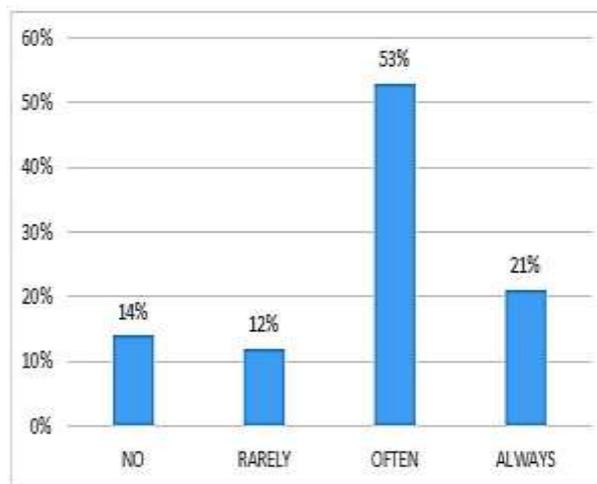


Figure 2. Hydro-alcohol gels possession since the COVID-19 outbreak in West African countries.

The occurrence of the pandemic also increased the rules of minor hygiene such as hand washing or hydroalcoholic friction. The Figure 3 shows the Frequency of hands washing and or hands rubbing with hydro-alcoholic gels per day. This figure shows an awareness of the implication of the hands in the transmission of diseases by West African populations. Hand washing and / or friction have become common practice due to fear of contracting the virus. Observance of hand hygiene has therefore become a practice that is gradually becoming part of the habits in West Africa.

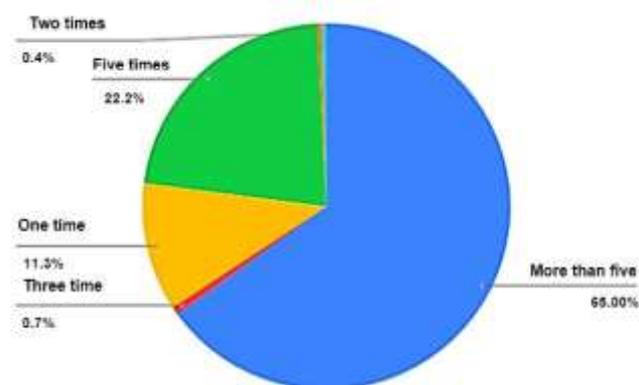


Figure 3. Frequency of hands washing and or hands friction with hydro-alcoholic gels per day.

Experimentation on the best hand washing technique:

According to some participants, warm water has the ability to better rid the hands of germs. This simple experiment was carried out in order to check the effectiveness of boiled and warm water in the appropriate washing of hands. The Figure 4 shows the experimental results after various hand washing techniques. In this figure it can be noticed that hand washing with warm water is very ineffective for effective hand washing. Only washing hands with soap and water has shown encouraging results, and here again the operation must be carried out correctly.

Impact of West African common transports:

In West African countries, public transport systems such as metro lines and buses are poorly or not well developed. In order to vacate to their different occupations, the average population therefore refers to the use of other means of transport that are more available and more easily accessible. "Tokpa-tokpa" in Benin, "Gbaka" in Cote d'Ivoire, whatever the denominations given to them in the various West African regions, these

mini-buses, which are highly appreciated by the populations and therefore widely used for daily transports, could be one of the most important factors in the spread of the COVID-19 pandemic. The answers collected from the survey sheets showed that before the COVID-19 outbreak, 31% of respondents used common transports all days; 15% used them often and 29 % of peoples used them rarely. Since the COVID-19 outbreak, the rate of users are now of 1.4% for the all days users. But they are always used often by people with a rate of 25%. The Figure 5 shows the representation of buses transport in most West African countries. These minibuses are very often dealing with overloads but usually this is not a problem for the users because of the much reduced cost. It then becomes impossible to avoid physical contact in these minibuses where passengers are seated close together to share seats. Add to this the confined air shared by all the passengers and the spread of the coronavirus would then be very fast and easy. Alarmingly, the users of these mini-buses, on average, use them at least twice a day, if they had to use them to go about their business and when they return home. An infected individual who has not yet developed symptoms would therefore very easily contaminate several other passengers on these minibuses, who in turn would pass it on to other passengers on other minibuses.

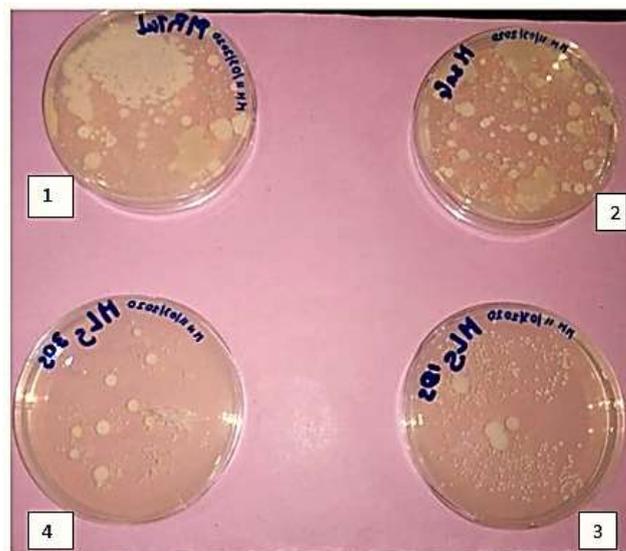


Figure 4. Effectiveness of different hand washing techniques. (1) Unwashed hand (2) Hand washing with warm water (3) Hand washing with soap for 10 s (4) Hand washing with soap for 30 s.

Discussion:

The present study was carried out to assess the state of knowledge of populations on COVID-19 and the potential impact of socio-economic factors on the spread of the virus in West African countries. From this study, it emerges that the populations of the West African countries are mostly informed of the COVID-19 pandemic. However, not all sections of society were enrolled in this study because of the means used for the survey. Indeed, only people with a minimum level of education could access the questionnaire platform and produce answers to the questions. It emerges from this first fact that education remains essential in the management of crises in Africa and especially in the management of this epidemic where several false information circulates and where it is necessary to have a minimum level of education to unravel the real false.

In a context where human contact promotes the spread of the virus in populations, public transport such as that used in West African countries and highlighted in this study is not likely to slow the spread of the coronavirus. According to Anderson [9] as well as to the ECDC [10], social distancing promotes the slowdown of the spread of the virus in the population. It would thus be conceivable that public transport would be avoided by the populations until the end of the coronavirus pandemic. To this end, it would also be important to limit the flow of people, especially in the markets of West African countries already affected by the pandemic.

From this study, it is once again clear that correct hand washing is one of the most effective ways to prevent the unwanted spread of pathogens. According to Larson and Jin [11, 12], routine hand hygiene protocols that indicate the use of soap and running water to wash hands and/or alcohol-based hand sanitizers to rub hands are effective at physically removing virus from human hands.



Figure 5. Representation of buses transport in most West African countries.

4. Conclusions

Contamination cases in West African countries could become more and more important in the future weeks. The observed facts such as the affluence in universities and markets could easily cause more serious damages to West African countries. Radical and effective changes should be applied in West African countries to avoid the spread of COVID-19. People have knowledge about this disease in West African countries in which concern its spreading, its symptoms and the preventive means. Added to the effective practice of hygiene measures such as simple hand washing with soap and water and hydro-alcoholic friction, it could be the beginning for reduce the rate of new infected people. However, misinformation about this diseases should be avoid and the price of sanitizers and soap should be supported by the government of these countries for a real

Knowledge on the subject:

1. COVID-19 is a pandemic that affects all regions of the world.
2. Personal and collective hygiene measures must be respected to limit the spread of the virus.
3. The disease is manifested by dry coughs, fevers and respiratory problems.

What is added by this study?

1. This study made it possible to determine the level of real knowledge of this pandemic in West Africa in which concern the spreading of the COVID-19, its symptoms and the preventive means.
2. Certain hygiene measures, notably simple hand washing with soap and water and hydro-alcoholic friction, are respected by populations included in the study since the beginning of coronavirus pandemic in West Africa.

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Data collection tool:

https://docs.google.com/forms/d/e/1FAIpQLSfY14MHFofSzCdJQX6bp38CS6RJaGiNxlzu-EJ3j6MkthyDQ/viewform?usp=sf_link

Conflict of interest

Authors declare no conflict of interest.

Authors' contributions

Victorien Dougnon, Jean-Pierre Gnimatin, Phénix Assogba and Esther Deguenon wrote the protocol, performed the study and designed the manuscript. Victorien Dougnon and Jean-Pierre Gnimatin performed the statistical analyses. Jacques Dougnon, Mathieu Hounkpatin, and Lamine Baba-Moussa reviewed the manuscript. All authors have read and approved the manuscript.

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