

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease



ELENGA Hygin Bellarmin¹, LITOTO PAMBOU Lucien², MAMBOUANA Sandrez Dorian³,
ITOUA ONIANGUET ASSOBA Kiel⁴, ALONGO Yvon Rock Ghislain⁵, BAYETTE Jean Bruno⁶

^{1,2,3,4,5,6}Higher Institute of Physical and Sports Education, Marien NGOUABI University, Brazzaville, Republic of Congo

ABSTRACT: This research has made it possible to take stock, as much as possible, of the receptivity of information relating to the perception of the corona virus pandemic by Brazzaville residents, after the announcement of the policies of the supposed violence of this pandemic. A study, as part of the master's degree in sport, at Marien Ngouabi University in Brazzaville, was conducted under our direction. Two hundred and fifty (250) men and three hundred and sixty (360) women were questioned on the approach to conceptualizing the real or supposed existence of this pandemic.

It emerges from the surveys, opinions divided between the real existence of the pandemic, the whims of politicians to distract populations weakened by unresolved daily concerns and the risk of contamination due to the lack of confidence of politicians, supposed to reassure on the measures to be taken to resist the pandemic.

It can be said that relationships of trust must be rebuilt between leaders and the governed to prevent populations from taking such risks in the face of life-threatening pandemics.

INTRODUCTION

The news of the existence of a pandemic with devastating effects fell like a chopper in the ears of almost everyone on the continent. Those of Brazzaville, capital of the Republic of Congo welcomed the news and resigned themselves to the measures to be taken to prevent and fight against its spread. Immediately after the announcement, politicians developed strategies and put in place mechanisms to combat the arrival and spread of this pandemic. These measures brought very little hope in view of the expectations of the authorities. Relations between politicians and the people on the one hand and, on the other hand, the rejection of belief in such a pandemic, however of real existence, linked to poverty can justify the poor management of information around the pandemic.

For almost three years now, the debate on the repercussions and the behavior to adopt in the face of the pandemic has been topical both in private conversations and in major international meetings where the related issues are treated with great interest, thus fueling the chronicles of various press organs of almost all the States. Due to its scale and the effects it has on health and the global economy, the pandemic has turned into a health crisis and is mobilizing as much energy around the world by crystallizing all scholarly intelligence on the strategies to be implemented for its eradication. Due to its collateral effects, this crisis has become a major social concern, the perception of which by certain populations, especially in disadvantaged countries, complicates its control with regard to the strong subjective considerations and poverty that inhabit them.

On December 31, 2019, the World Health Organization (WHO) was alerted by the appearance of several cases of pneumonia of unknown origin in the city of Wuhan (China). On January 7, 2020, Chinese authorities determined that these cases were caused by a new coronavirus, temporarily named "2019-nCoV". It was later and soon baptized "COVID 19 Virus"

As of April 1, 2020, the dangerous development of this pandemic has been reported, from which there are some obvious data presented summarily as follows: 82,631 confirmed infections were recorded in the 34 Chinese provincial administrative regions which caused 3,321 deaths. The latest epidemiological situation report from the World Health Organization (WHO) reports 8,708,008 infections and 461,715 deaths in more than 200 countries. The pandemic is a serious threat to global health. The basic reproduction number of SARS-CoV2 has been estimated between 2.24 and 3.58%. The first confirmed case of COVID-19 in Africa was reported in Egypt on February 14, 2020 and the second, later in Algeria on February 25, 2020. In March 2020, cases of COVID-19 were reported on the major part of the continent (Mambouana, 2022).

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

This magnitude in the increase in cases of this pandemic has more than developed since then, making this pandemic a real public health problem. The Republic of Congo and almost all African countries have been alerted to the seriousness of this pandemic. Like all the other States, the appropriate measures have been considered, although with weak application and mixed effectiveness. Other subjective considerations linked, certainly, to beliefs of all kinds, including religious and traditional ones reinforced by the fragile social situation, weaken the effectiveness of the measures envisaged and the response. In the Republic of Congo, the first case of COVID-19 was reported on March 14, 2020. Since then, a worrying evolution of this pandemic has been observed, particularly in Brazzaville, where Talangai, Ouenzé and Djiri remain hotspots with 216, 176 respectively. , 117 and 102 confirmed cases. (Arkadit Jeandria Nkodia et al, 2020)

The alert, although maximum, and, accentuated on the ground by emergency measures and restrictions of fundamental freedoms, legally imposed by the authorities, is badly perceived by the populations who, for the most part, believe, less less, to the reality of this pandemic and the effects it can produce. Some, disillusioned by their social status, especially young people, waiting for a better life; the oldest, whose retirement pensions and social situation are deteriorating, consider these announcements as smokescreens allowing decision-makers to turn away from the essence of the fundamental concerns of the populations, The breakdown of the bonds of trust between the leaders and the populations means that the dialogue, although sincere and communicating on the true facts and on public health, is rejected, on principle, at the risk of compromising an entire destiny.

And yet, the magnitude of the pandemic on the ground is very real, the deaths caused by it just as real as experienced in families and known by both health services and populations. However, the Brazzavillois, for their majority, find other types of explanation for these deaths. These oscillate between facts of witchcraft, mystical practices of the authorities in place whose blood requirements are, according to these Brazzavillois, one of the foundations of the preservation or the conquest of political power. This approach to conceptualizing the disease between the rejection of politics and the policies it establishes for health security and the reality of the disease is very serious and only rarely allows its eradication.

The consequences of these biased and poorly maintained relationships between leaders and their people mean that the most reliable information of great importance for the health of the people is misinterpreted and managed by the people at the risk of their health and the great misfortune of the development of economies. The influence of politicians, especially those in charge of management, is thus weakened and, the relationship to politics, deteriorated by the loss of confidence due to governance strategies poorly appreciated by the populations with contamination effect on the depreciation of all forms of social relations. This relationship, distorted in power relations, encroaches on the capital of trust and sincerity between the rulers and the ruled. It thus jeopardizes the taking into account of information, however useful, for the life of populations to the point of jeopardizing, by this fact, their health. This is the strong image that the populations of Brazzaville send back to the announcement of the existence of the pandemic with the subsequent effects, the trivialization of the dangers relating thereto and that of the security measures to be taken to fight against its spread with for major risk: Death, for lack of effective treatment.

Issues and Hypotheses.

In the Congo, few studies have looked into the issues of perception of the corona virus pandemic by the populations. And yet, we believe, the foundations of the response should and must be built on the socio-educational aspects of this pandemic to better organize it. Raising awareness and mobilizing populations for their adherence to the awareness-raising approach should have the sociological and psychological field of investigation as a field of investigation. Sociologists and psychologists would be alongside doctors, the real actors in the management of this pandemic to reassure the attitudes to adopt to meet the practical requirements of eradicating the pandemic. Most of the work, in the management of this health crisis which is resurfacing with more risk today than in the past, has been considered more from the epidemiological and health angle than from the psychological and social ones.

The measures taken by the authorities, to meet the requirements linked to the management of this pandemic, beyond the positive effects observed, have developed remarkable behaviors which reveal the need to fully involve the doctor in other intelligences, with all their skills, to help better control certain slippages.

In early March 2020, the Congolese authorities took a series of measures to fight the pandemic, including: The development of a preparedness and response plan against Covid-19, including rapid interventions, epidemiological surveillance, diagnosis and awareness, the prohibition of events of national and international scope on the territory, the closure of educational establishments, the suspension of all religious events and ceremonies. This plan, for its effectiveness, was reinforced by the establishment of a national curfew from March 21, 2020 with the closure of borders (air, land and rail) and major markets. Restrictions on the attendance of public places such as markets, restaurants, drinking establishments, cinemas, games and shows are also adopted.

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

These combined restrictions of fundamental freedoms to guarantee, at best, life and secure public health, have had repercussions on all areas of life and, impacted

whatever the form, on the minds of the Congolese and their methods of managing social relations. In France, the Court took stock of the areas with a high impact of effects due to the restrictions imposed against the pandemic. Volume 1 of its 2021 annual public report published in the Documentation française, 2021.-334p gives all the indications in this direction in a clear and expressive manner.

In Brazzaville, confinement for the populations with the restriction of mobility and other health restriction measures have had effects on the lifestyle of the populations. It has been observed, as in other places, according to certain related studies, the appearance of psychopathological disorders in populations, the most observable of which are: anxiety, boredom and sleep disorders (Wang et al, 2020). It is therefore useful to introduce sociological and psychological aspects underlying the adoption of certain behaviors into the strategy for managing measures to eradicate the pandemic.

The pandemic seems to reinforce the interest in behavioral approaches, because there is a need to solve concrete problems, where human behavior is central (e.g. how to encourage the population to wear a mask, to maintain social distances, etc.). Governments with units specializing in behavioral approaches have typically mobilized them for the pandemic, which enabled a rapid response, as the expertise and coordination mechanisms were already in place (OECD 2020).

Behavioral approaches have mostly been used to improve communication or technology (including tracing calls), while they could be used more widely (OECD 2020).

International organizations and in particular the World Health Organization have developed approaches and tools to change behavior in connection with Covid-19, for example on distancing, masks or vaccination (WHO 2021; WHO 2020).

In the Republic of Congo, an approach to sociological understanding of the perception of the corona virus pandemic was considered, as part of a Master's study in sport, Dorian Sandrez Mambouana, (2022). It was concerned, fundamentally, with the reading and attitude of the populations of Brazzaville to the announcement of restrictions on freedoms by the government for the purpose of combating the spread of the pandemic and the effects of these perceptions on the practice of physical activities and sports.

His approach seems to us limited although interesting. Limited, by the own limits that the author has set himself by devoting himself only to sport on the one hand and by the weakness of his population and his sample, on the other hand.

Interesting, insofar as it lays the groundwork, at the sociological level, which makes it possible to set the benchmarks, the approaches to be adopted to fight against large-scale crises on the one hand and, on the other hand, to trace, if necessary, outlines of a sociological approach to the management of political power in times of acute and persistent crisis.

Reframing in this way, our work is built around the following fundamental concerns:

Main question.

How were the people of Brazzaville informed of the existence of the Corona virus pandemic and, what may be the perception that they have of such a disease, despite official explanations, on this subject? , provided by the competent authorities?

Secondary questions.

Is the way and the approach likely to reassure on the reality and allow to build at the health and social level the collective and consensual measures of response to the pandemic?

What can be the consequences of such an approach to the perception of the pandemic by Brazzaville residents on the social, health and economic levels?

HYPOTHESES

This main question and the related secondary questions call for a main hypothesis and two secondary hypotheses that we have formulated as follows:

Main hypothesis.

The populations of Brazzaville were not prepared to receive such information in such a spontaneous and rapid manner, although in an official and reassuring manner by the competent authorities. They therefore have a negative and erroneous perception of the disease and its existence in their living environment.

Secondary assumptions.

The way and the approach used to inform and organize the response by the authorities are not likely to reassure about the reality of this pandemic, although real and in the environment. They cannot, therefore, make it possible to build, at the health and social level, collective and consensual measures to respond to the pandemic.

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

The consequences, at the social, health and economic level, can only be disastrous with regard to the attitudes and behaviors that the actors present in the face of the reality of the disease and its relative evolution on the ground.

Main objective.

The general objective of this study is to try to understand the influence of a communicational approach, badly negotiated, of the corona virus pandemic, on the perception of it at the level of the collective imagination of the populations of Brazzaville.

Secondary objectives.

In addition to the general objective, this study has two secondary objectives:

Trying to understand the reasons for a poorly negotiated communication approach to the corona virus pandemic, on the effects of conceptualization at the level of mentalities of the existence or not of the pandemic, on the one hand, and, on the other hand, consequences on the perception of the disease and their effects on the health, social and economic plan of the populations.

Interests of the study

This study, in view of its importance, presents several interests, two of which, essentially, have caught our attention with regard to the related issues: This is the scientific and social dimension.

On a scientific level. This study makes it possible to fix minds on the outlines to be taken into account in the management of major crises other than armed ones, at the level of communication and related sciences including sociology and psychology in an attempt to orient the effects of crises and, avoid major disasters both during and after these crises.

At the social level. This makes it possible to build, through consensual and elaborate schemes and community dynamics, the monitoring methods that are built around communication strategies that alert and inform, reassuring, on all possible eventualities, in order to avoid interpretations erroneous with unfortunate consequences for society.

THEORETICAL APPROACH

The apparent novelty of the disease and its effectiveness in action meant that actions in the context of documentary research were not so lively from the start. A little later, the mobilization around its scope made it possible to orient research, beyond its origins and modes of reaction, on its various effects, both in terms of collective action and on perceptions with all their consequences. In Africa, especially, the various approaches to the perception of this pandemic have not made it possible to facilitate people's awareness of its existence. This approach could, if we are careful, make this area a real hotbed of resistance and proliferation of the disease. The endogenous factors linked to poverty and related beliefs have crystallized, in the consciousness collective of many, the fallacious and, moreover, non-compliant explanation, according to which, among other things, this pandemic would be non-existent, hence the resistance to vaccination. This is more or less justified by the relevance of the meaning of perception understood as a relationship between the subject and the object (Akoun and Ansart, 1999) which results in attributing to perceived objects meanings relating to action. Meanings are somehow manipulated, selected and, possibly, in the light of the situation in which the person sees himself engaged and according to the action planned or undertaken. (Bandura, 1986). The approaches to conceptualizing the pandemic clearly reflect, in the Republic of Congo, this ambivalent nature between the reality of the pandemic and the negative and nihilistic perceptions of everything that would come from the authorities. Each individual reacts to phenomena and gives them a meaning according to the particular perspective he has of them and which cannot be reduced to those of others (Mambouana, 2022).

There is therefore, in the collective conscience, a feeling of rejection of any information as true and of great importance for health, coming from the authorities with whom, the relations of confidence with the populations are broken for bad governance and hegemonic and dictatorial tendency in the management practices of human and natural resources. This process is not mechanical, it is built and maintained in relation to reality. Perceptions evolve with age and are constructed by adding new elements to old structures. All perception is a process of active construction. The foundation of perception rests on a certain assimilation of sensory data to a schema. For Piaget, in fact, it is the human person who, through his personality, manages, through a process, to structure the perceptual field even if it has a certain organization. (Piaget, 1984, 1965).

So, in its complexity, the perceptual mechanism owes its credibility not only to the taking of information but also to the cognitive process which, attributes a value to it, which predisposes to an attitude which could trigger the behavior. The relationship between the reality, the experience and the attitudes of the rulers in African countries have had a significant negative influence on the attitude of the populations, in the belief in the existence of the corona virus pandemic.

The daily difficulties of the populations reinforce their rejection of policies, of the information they convey, however true they may be and even on important subjects, and of the channels they use to control the execution of these measures. The reality of

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

political power contributes to constructing patterns in the collective consciousness that allow individuals to construct other types of personality in relation to their existential reality according to available needs. The relationship to politics therefore creates the crystallization of new behaviors in reaction to social realities. Behavior is an act that a human being performs in order to adapt to a situation that influences him. It is determined by the interaction of factors such as personality, attitudes, the various perceptions of individuals as well as the situations in which they evolve.

An interesting study on the issue of perceptions of the first months of covid-19 was carried out by a group of researchers in six African countries: South Africa, Nigeria, Cote d'Ivoire, Senegal, Egypt and Morocco. This study revealed, to a large extent, the obvious weaknesses in the knowledge of the disease which cause the mechanisms linked to the response to be dangerously misinterpreted to allow the management of health security.

It is obvious that these approaches are developed by a poor quality of management of public relations both in terms of individual relationships and those between politicians and the governed. This presupposes that any information, even true, is withheld with tweezers, especially when it is relayed by politicians, who are nevertheless responsible for health and safety management.

REFERENCE THEORIES

This study, with an essentially sociological basis and strong psychological and, if necessary, political implications, calls on three reference theories, among many others. We insisted on basing our field analyses, for their scientific nature, on behaviorism (1); The comprehensive sociology of Max Weber (2), socioconstructivism (3) and the individualist approach of Raymond Boudon (4).

1. Behaviorism is a very useful theory in scientific psychology that takes into consideration only the relationships between stimuli and responses. (The little illustrated Larousse, 2011). Man in relation to his environment therefore collaborates in such a way as to influence each other in the attitudes to be taken and the possible reactions. Communicating about certain realities that impact his life allows him to react often, in what he believes to be right for his dignity and honor. In a universe where survival and first-hand existential needs are his daily concern, information that tends to complicate his situation further, when not delivered with tact and pedagogy, can irritate him. This is all the more serious, when even official, it comes from politicians for whom he considers to be responsible, rightly or wrongly, for his misfortune.

2. Max Weber's approach focuses on the subjective appreciation that social actors have of reality. It concerns the phenomena of beliefs, the meaning that social actors give to their lives. To explain the social is to account for the way in which men orient their actions. (Max Weber, 1992).

3. Socio-constructivism. This theory at the crossroads of sociology and constructivism makes it possible to read the influence of society in the construction of perceptions of the phenomena of life. Here, this theory allows us to understand the possible relationships between social constructions and the action of actors. The attitudes to adopt in the face of social phenomena are partly based on social constructs. The reaction of the populations in the face of the pandemic responds to the constructs that men have made, in this universe of advanced impoverishment, of the way in which they conceive their relationship to life, in relation to the management of power by those in power.

4. The methodological individualist approach of Raymond Boudon. It consists in understanding the basis of the actions, beliefs or individual attitudes responsible for the social phenomenon that one seeks to explain. (Boudon, Raymond, 1977) Methodology It fixes us on the type of study, the field of investigation, the survey period and the data collection tool.

III.1 Definition of the type of study, the field of investigation and the period of the survey

Our study is quantitative.

This character is due to the fact that it emphasizes numerical data that will be analyzed statistically (Lamoureux, 1995). The analysis of the report on the approach to the perception of the pandemic at Covid-19 among Brazzaville residents is part of this perspective. The study was carried out in Brazzaville, and concerned all the districts. It took place over two months from May 09 to July 09, 2022.

II.2 Study population and sample.

For this study, we worked with a population of 1167 people of both sexes, unevenly distributed, by district. This population is represented according to the table below.

Table I: Representation of the study population, by district

District(s)	Population
Makélékélé	153
Bacongo	125

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

Poto-Poto	156
Moungali	215
Ouènze	132
Talangäi	100
Mfilou	156
Madibou	132
Djiri	154
Total	1167

Source: Authors' survey, Brazzaville, 2022

With regard to the sensitivity of the subject, we drew, according to the non-probabilistic method of reasoned choice, a sample of 610 people chosen according to the following criteria:

Inclusion criteria.

The following criteria enabled us to select certain Brazzaville residents for the purposes of this study:

Be at least 18 years old;

Have an ease in communication in one of these three languages: French, Lingala, Kituba;

Be residing in Brazzaville;

Be able to pass an interview;

Completed the questionnaire in its most basic aspects.

Exclusion criteria.

Be under the age of 18;

Not being able to communicate with ease in one of the three languages: French, Lingala and Kituba;

Not residing in Brazzaville; Not being able to pass an interview; Not having completed the questionnaire in its most fundamental aspects;

III.3 Data collection instrument

To validate the theoretical postulates established in our problem, the data of the study were collected from a questionnaire. This instrument is considered by Festinger et al. (1974) as the most appropriate and often the most fruitful for collecting the attitudes, opinions and perceptions of individuals. In addition, the questionnaire has the advantage of introducing into the study the fundamental quantitative aspects, and the operations of passing and counting of answers are simple, fast, and inexpensive.

However, it is important to remember that quantitative data collection instruments require special precautions in their construction to ensure their reliability, relevance and clarity. It is for this reason that Baillargeon et al. (1998, p. 32) consider that any questionnaire must first undergo the pre-test: On a small group before the actual survey. This step allows you to validate the level of understanding of the questions, to know how they are perceived and to identify those that are poorly accepted or disappointing. This pre-test also makes it possible to modify, if necessary, the choice of answers or the order of the questions.

To meet this requirement, our questionnaire was subjected to a pre-test with a small group of Brazzaville residents with the same characteristics as those in the study sample. This test group is made up of fifty (100) Brazzaville residents. These were chosen on the basis of voluntary participation. The pre-survey consisted of checking the level of understanding of the respondents. The different answers to the questions made it possible to identify superfluous questions, badly formulated and not consistent with the objectives, or the order of the questions. At the end of the pre-survey, we reframed some of our questions. Ultimately, our questionnaire is built around ten (10) (closed) questions.

III.4 Conduct of the investigation

The survey is, according to Tsala Tsala (1992, p. 11): "an investigation in the natural environment; in the field which aims to understand a phenomenon caused or not. Speaking of our investigation, it is useful to specify that it took place during the period from May 09 to June 09, 2022 in Brazzaville.

The questionnaire was distributed by a group of students, under our supervision and, this, within the framework of our work laboratory. Our students were instructed on the purpose of the study and the filling instructions to be explained to the subjects. They were instructed to reassure the participants of the anonymous nature of the answers to the questions. Some were keen to respond, upon receipt of the questionnaire, a few minutes later; others fixed our students in the most reassuring way possible at the places where the questionnaires were collected, after they had answered.

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

III.5 Data analysis method

The data collected was processed, in stages, so that no major detail could compromise the scientific nature of the results of our work. The manual counting was the first consecrated step. It made it possible to classify the responses by center of interest in order to identify the main trends that are observed, according to the perception that Brazzaville residents have of the pandemic, in relation to their existential reality. The second and final step is data processing. It was done in Excel and using SPSS version 25.0 software.

Two types of analysis were carried out: a descriptive statistical analysis, which made it possible to have the numbers which were expressed as percentages; A differential statistical analysis which made it possible to verify the existence or not of a correlation between the variables of the study. To do this we used the Chi-square test and the frequency test. The results obtained were presented in tables, to facilitate their reading and the meaning of their analysis.

IV.I. Study results

Table No. I: Characteristics of the subjects surveyed

This table presents the results of participants by age group, by gender and expressed as a percentage.

Variables		Effectifs (n)	Pourcentage (%)
Old age group	18 to 26 years	85	13,94%
	27 to 38 years	175	28,69%
	39 and over	350	57,37%
Gender	Male	360	59,01%
	Féminine	250	40,99%

Source: Authors' survey, Brazzaville, 2022

This table provides an update on the difference in age groups, gender, and the number of subjects questioned expressed as a percentage. There is a fairly remarkable inequality between men, who number three hundred and sixty (360), or 59, and women, who number two hundred and fifty (250), or a percentage of 40.99.

This first table reflects a significant difference, in the issues related to the surveys, between people of different age groups and between gender. The less young, in this case, seem less interested and concerned, moreover, by the problem of the health crisis than the older ones. The percentages expressed and the number of participants in this study give a perfect illustration of this. The same is true of women who seem less concerned by issues related to current concerns.

Table No. II: Knowledge of the existence of the pandemic, Negative perceptions, as a decoy, according to gender

Variables		Male	Feminie	χ^2
Q1	Yes	150 (60%)	280 (77,78%)	8,318**
	No	100(40%)	80 (22,22%)	
Q2		125 (50%)	105 (29,16%)	6,953*
	No	100 (40%)	235 (65,27%)	
	Others	25 (10%)	20 (5,55%)	
Q3	Yes	100 (40%)	60 (16,67%)	5,479*
	No	150 (60%)	300 (83,33%)	
	Wizards	195 (78%)	310 (86,11%)	
Q4	Magicians	55 (22%)	50 (13,89%)	11,397*
	Others	126 (50,4%)	80 (22,22%)	
	No	124 (49,6%)	280 (77,78%)	
Q5	Yes	125 (50,0%)	310 (86,11%)	10,667**
	No	125 (50,0%)	50 (13,89%)	

Source: Authors' survey, Brazzaville, 2022

Legend: ns = indicates a non-significant difference $p > 0.05$; ***= indicates a highly significant difference $p < 0.001$; χ^2 = indicates the Chi-square test. This table shows that most of the subjects questioned about the reality of the Covid-19 pandemic had a strong knowledge about the Covid-19 pandemic in Brazzaville out of a workforce of two hundred and fifty boys, one hundred and fifty (150) boys recognized the reality of the pandemic, i.e. a percentage rate of 60%, on the other hand, one hundred-twenty-five (125) boys, i.e. a percentage of 40% of boys who did not believe in the existence or the reality of the Covid-19 pandemic. On the other

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

hand, two hundred eighty (280) girls recognized the reality of the Covid-19 pandemic, i.e. a percentage of 77.78%, on the other hand eighty (80) girls who do not know the existence (reality) of the pandemic, i.e. a percentage rate of 22.22% with a significance of 8.318**.

The girls have a strong knowledge of the reality of Covid-19 in relation to percentages. With regard to question two (2) relating to the Covid-19 invention by the WHO, one hundred and twenty-five (125) boys answered yes, i.e. a percentage of 50%, as well as one hundred and five (105) girls who gave the same answer, however one hundred (100) boys answered no, i.e. a percentage of 40% and two hundred and thirty-five (235) girls answered the same thing, i.e. a percentage of 65.27% among girls and twenty-five (25) boys, i.e. a percentage of 10% who think that other factors are at the origin of Covid-19 against twenty (20) girls, i.e. a percentage of 5.55% who think the same with a significance of 6.953*, girls answered no much more than boys. With regard to question 3, namely: do you know in your environment or in your immediate environment someone who has suffered from the coronavirus? For this question one hundred (100) boys answered yes, i.e. a percentage rate of 40% in the case of girls, sixty gave the same answer, on the other hand, one hundred and fifty (150) boys, i.e. a percentage rate of 60%, did not not people who have suffered from Coronavirus in their immediate environment against three hundred (300) girls with a percentage rate of 83.33% with a significance of 5.479*.

Question number four appeals to other minds that could take advantage of the coronavirus situation to be able to do harm. They are: wizards; magicians; No; others. One hundred and ninety-five (195) boys, i.e. a percentage rate of 78%, think that wizards took advantage of doing harm during the period of the coronavirus pandemic against and three hundred and ten (310) girls think the the same with a percentage rate of 86.11%; with regard to magicians fifty-five boys (22%) only think that magicians have taken advantage of the situation and fifty girls with a percentage rate of 13.89% but also for against one hundred and twenty-six boys (50.4 %) and eighty girls think that other minds have taken advantage of the coronavirus to harm the population and one hundred and twenty-four (124) boys with a percentage rate of 40.6% against two hundred and four -twenty (280) girls with a percentage rate of 77.78% who think the same thing, that is to say no mind has taken advantage of the coronavirus with a significance of 11.397*.

When asked whether the measures taken by the authorities were effective in combating the Covid-19 pandemic, with regard to this question, more than one hundred and twenty-five (125) boys answered 'yes', i.e. a rate of percentage of 50.0%, still in the same direction, three hundred and ten (310) girls also answered yes, for a percentage rate of 86.11%. On the other hand, of those who answered negatively, we had one hundred and twenty-five (125) boys, i.e. 50.0%, and fifty (50) girls, i.e. a percentage rate of 13.89% with a significance of 10.667**.

Table No. III: Perception of respondents on the covid-19 pandemic according to gender

Variables		Male	Feminine	χ^2
Q6	A	200 (80%)	198 (55%)	13,482**
	B	50 (22,5%)	140 (38,88%)	
	C	0 (0,0%)	22 (6,11%)	
Q7	A	150 (60%)	300 (83,33%)	6,827*
	B	20 (8%)	10 (2,77%)	
	C	80 (32%)	50 (13,88%)	
Q8	Restrictive	150 (60%)	200 (55,55%)	6,960*
	Interesting	20 (8%)	70 (19,44%)	
	Others	80 (32%)	90 (25%)	
Q9	Yes	200 (80%)	180 (50%)	25,091***
	No	14 (20%)	90 (25%)	
	Others	0 (0,0%)	90 (25%)	
Q10	Yes	160 (64%)	160 (44,44%)	9,141**
	No	90 (36%)	200 (55,56%)	

Source : Enquête de terrain des auteurs, 2022

Legend: Q6: A: capacity building of medical personnel and construction of infrastructure.

B: Prior information on hygiene measures C: Others Q7: A: The increase in food prices in our markets. B: Scarcity of fuel. C: Others. This table highlights the perception of respondents on the Covid-19 pandemic according to gender, question number six (6) was to know the measures that could be taken in the future to protect themselves from such a pandemic. Two hundred boys (200) or 80% responded for the capacity building of medical personnel and the construction of infrastructure. Still in the same pace, one

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

hundred – ninety-eight (198) girls gave the same opinion, i.e. 55%; those who are in favor of prior information on hygiene measures fifty (50) boys or 22.5% opted for prior information and one hundred and forty (140) girls or 38.88% as well as those who think that d Other arrangements can be made for boys: 0.0% and girls 22, ie a percentage rate of 6.11% with a significance of 13.482**.

Question seven (7) was about whether the arrival of the pandemic was the trigger for the increase in food prices in our markets; fuel scarcity. Regarding this question, we had one hundred and fifty (150) boys who chose the first point, that is to say that the pandemic is the pandemic is the trigger for prices in our markets, i.e. a percentage rate of 60% and three hundred (300) girls answered the same; with regard to option two twenty (20) boys opted for answer B, i.e. a rate of 8% and ten people among girls who think the opposite, i.e. a percentage of 2.77%.

On the other hand, some people think that the appearance of the pandemic is the trigger for other facts among boys, we have eighty respondents, a percentage rate of 32%, but this is not the case. among girls, there were fifty respondents, i.e. a percentage of 13.88% with a significance of 6.827*. Moving on to question eight (8), most of the respondents found that the changes in their lifestyle in relation to the Covid-19 pandemic were constraining in the boys we had one hundred and fifty (150) respondents, i.e. a percentage 60% and for girls two hundred (200) i.e. a percentage of 55.55%.

Despite this, twenty (20) boys or a percentage of 8% and among the girls one hundred and ten (70) or a percentage of 19.44% think that it was interesting during this period. But there are eighty (80) boys who think the opposite, i.e. a percentage of 32% and ninety girls, which makes perfect equality, i.e. a percentage of 25% on both sides with a significance of 6.960* .

Question 9 was whether the lack of management of Covid-19 patients has impacted their health lives? Two hundred (200) boys answered yes, i.e. a percentage of 80% and one hundred and eighty (180) girls always in the same direction, i.e. a percentage of 50%; on the other hand, one hundred and fifty (150) boys think negatively, i.e. a percentage of 20% and ninety (90) girls, i.e. 25% and none think anything else, i.e. zero for boys and ninety (90) girl i.e. 25% with a high significance of 25.091***.

Question 10 was whether wearing a mask could cause other illnesses. For this question one hundred and sixty (160) boys answered yes, i.e. a percentage of 64% and one hundred and sixty (160) girls, i.e. a percentage of 44.44% and ninety boys answered no, i.e. a percentage of 36, 5% and two hundred girls with a percentage of 55.56% with a significance of 9.141**.

Table No. IV: Knowledge of the covid-19 pandemic as a decoy according to age groups

Variable		[18-26]	[27-38]	[39 et plus [χ^2
Q1	Yes	60 (70%)	110 (62,86%)	200 (57,14%)	5,864*
	No	25 (30%)	65 (37,14%)	150 (42,86%)	
Q2	Yes	30 (35,29%)	50 (28,57%)	40 (11,42%)	14,334**
	No	45 (52,94%)	100 (57,14%)	310 (88,58%)	
	Others	10 (11,76%)	25 (14,28%)	0(0,0%)	
Q3	Yes	25 (30%)	60 (34,28%)	30 (8,57%)	4,851*
	No	60 (70%)	115 (65,72%)	320 (91,42%)	
	Wisards	35 (40,17%)	42 (24%)	250(71,42%)	
Q4	Magicians	10 (11,76%)	18 (10,28%)	45 (12,85%)	21,090**
	others	15 (17,64%)	40 (22,85%)	10 (2,85%)	
	No	25 (29,41%)	75 (42,85%)	45 (12,85%)	
Q5	Yes	55 (64,70%)	115 (65,72%)	50 (14,28%)	7,654*
	No	30 (35,30%)	60 (34,28%)	300 (83,53%)	

Source: Authors' survey, Brazzaville, 2022

The average age of the respondents was 27.03 ± 6.93 (18 – 47). This table shows that the age of the subjects varies between 18 and 47 years. In fact, the majority of boys were aged 27 and over, while the majority of girls were aged 24 to 26. This difference gives a non-significant result ($\chi^2 = 5,864^*$; $p > 0,05$).

Tableau : Perception des enquêtés sur la pandémie à covid-19 selon les tranches d'âge

Variable		[18-26]	[27-38]	[39 et plus [χ^2
Q6	A	50 (58,83%)	100 (57,1%)	300 (85,7%)	9,558*
	B	35 (41,17%)	65 (37,14%)	50 (14,29%)	
	C	0 (0,0%)	10 (5,71%)	0 (0,0%)	
Q7	A	50 (58,82%)	105 (60%)	300(85,71%)	5,658 ^{ns}
	B	10 (11,76%)	20 (11,42%)	0 (0,0%)	
	C	25 (29,41%)	50 (28,57%)	50 (14,29%)	

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

Q8	Restrictive	45 (52,9%)	100 (57,1%)	350 (100%)	21,413^{***}
	Interesting	15 ((17,64%)	25 (14,28%)	0 (0,0%)	
	Others	25 (29,41%)	50 (28,57%)	0 (0,0%)	
Q9	Yes	60 (70,58%)	90 (51,42%)	250(71,42%)	24,196^{***}
	No	25 (29,41%)	35 (20%)	60 (17,14%)	
	Others	0 (0,0%)	50 (28,58%)	40 (11,42%)	
Q10	Yes	65 (76,47%)	88 (50,28%)	200 (57,1%)	1,408^{ns}
	No	20 (23,53%)	87 (49,71%)	150 (42,9%)	

Source: Authors' survey, Brazzaville, 2022

With: Q6: A: capacity building of medical personnel and construction of infrastructure B: Prior information on hygiene measures C: Others Q7: A: The increase in food prices in our markets B: Scarcity of fuel C: Others

This table shows the perception of respondents by age group in relation to the questions asked.

IV.II- Discussion

The general objective of this study is to try to understand the perception that the populations of Brazzaville have of Covid-19, within the framework of a socio-sanitary approach to pandemics.

Regarding knowledge of Covid-19, it should be noted that it has been noted that its evaluation as well as that of the behavior of the public in the face of such epidemics is essential, in particular because of the large number of misconceptions and false information that circulating on social media regarding disease transmission and methods of acquisition Khasawneh et al. [2020].

We observed that all Brazzaville's composed of 150 boys or 60% and 280 girls or 77.78% against 125 boys or 40% and 80 girls or 22.22% had a good level of knowledge about Covid-19 (table n ° 2). These results are in agreement with the study conducted in Italy by Gallès et al. [2020]. Indeed, these authors reported that students taking undergraduate courses in life sciences had a good level of knowledge about Covid-19. Similarly, another study conducted in China by Bao-Liang et al. [2020] showed that 82.4% of the population surveyed had a high level of knowledge about Covid-19.

It allowed us to highlight the cumulative reactions of the Congolese, in relation to their conception of diseases, on the attitudes they may have in the approaches to solving them. We used a qualitative method of our variables in the field from a questionnaire and the observation that we submitted for the approval of our subjects.

This type of study is topical and of high scientific and intellectual significance. It allowed us, basically, to scrutinize the various tendencies gathered, in the conception of pandemics, by the subjects questioned. The analysis of our questionnaires sent to our subjects shows the results, the possible comments of which are presented below our tables. They show, in essence, that almost all of the subjects interviewed have information, albeit sketchy, about the pandemic and the practical ways to combat its spread. Could the coronavirus be an invention of the WHO?

With regard to question two (2) relating to the Covid-19 invention by the WHO, one hundred and twenty-five (125) boys answered yes, i.e. a percentage of 50%, as well as one hundred and five (105) girls who gave the same answer, i.e. a percentage of 29.16%, on the other hand one hundred (100) boys answered no, i.e. a percentage of 40% and two hundred and thirty-five (235) girls answered the same thing, i.e. a percentage of 65.27% on the other hand 20 girls and 25 boys or a percentage of 15.55% who think that it is about other factors which are at the origin of Covid-19. Girls answered no more than boys. However, we did not find articles going in the same direction. We can then conclude that covid-19 is not the invention of the WHO.

Knowledge of a person suffering from covid-19 in the immediate environment.

Regarding this item, one hundred (100) boys answered yes, i.e., a percentage rate of 40% for girls, sixty (60) gave the same answer, a percentage rate of 16.67%, on the other hand, one hundred and fifty (150) boys, i.e. a percentage rate of 60% do not know, people who have suffered from Coronavirus in their immediate environment against three hundred (300) girls with a percentage rate of 83.33% with a significance of 5.479*. Few of the participants had in their immediate or social environment people suffering from covid-19.

Possible measures to be taken in the future to protect against such a pandemic.

Two hundred boys (200) or 80% responded for the capacity building of medical personnel and the construction of infrastructure and one hundred and ninety-eight (198) girls gave the same opinion or 55%; fifty (50) boys or 22.5% opted for prior information and preparation on the measures to be taken in terms of hygiene measures and one hundred and forty (140) girls or 38.88%. There are others with a low percentage who are thinking about taking charge of other provisions. On this subject, the boys did not comment and 22 girls expressed themselves on this subject, i.e. a percentage rate of 6.11% with a significance of 13.482**. It is important that the staff be trained and prepared for any eventuality, for the future, rather than being taken aback by the

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

diseases whose information by the politicians is less and less reassuring in view of the biased relations with the people. Modern infrastructures should therefore be built and strengthen those that exist by improving the technical platform and the permanent capacity building of health workers. This is where politicians are expected to strengthen their link with the populations in responding to the essential concerns of their lives.

Changes in lifestyles in relation to the covid-19 pandemic.

The advent of the pandemic has imposed on populations other habits contrary to those they practiced before. These habits, although recommended by the Organization World Health Organization and, relayed by national policies to fight against the spread of the pandemic, were experienced by the populations as constraints difficult to accept. One hundred and fifty (150) boys made it known, i.e. a percentage of 60% and two hundred (200) girls, i.e. a percentage of 55.55%. Others, at a lower percentage, twenty (20) boys representing 8% and seventy (70) girls, representing a percentage of 19.44%, think that these measures were worthwhile during this period, although they have shaken up existing habits. However, eighty (80) boys, i.e. a percentage of 32%, and ninety (90) girls, i.e. a percentage of 25.8% with a significance of 6.960* advanced other types of explanations, including the most fundamental are explained by the lack of jobs and lack of confidence in the authorities, whose measures interest this category of people less and less.

The effects of wearing a mask in the eradication of the corona virus pandemic.

With regard to question 10, namely: Can wearing a mask cause other illnesses? For this question, one hundred and sixty (160) boys, i.e. a percentage of 64%, and one hundred and sixty (160) girls, i.e. a percentage of 44.44%, think that wearing a mask can cause other illnesses. On the other hand, ninety (90) boys or a percentage of 36% and two hundred (200) girls or a percentage of 55.56% think the opposite with a significance of 9.141**. This design ambivalence in the approach of the mask in health leaves something to be desired in terms of its effects. Some studies, in this regard, have confirmed that the mask produces effects on health: Surgical masks, filtering half masks: Physiological effects and their consequences A. Aublet-cuvelier, L. Claudon (2020).

Considering the results obtained as presented at the end of our work, a critical analysis is required. It allows us to try to scrutinize these approaches with others that translate into reality, in order to identify the true outlines that can help open up other possible avenues of research.

Three tracks allowed us to build our argument, to allow us to discuss these results: The real or supposed meaning of the perception that individuals have of this pandemic; protection measures by the mask and other sanitary modalities and, the projection on the attitudes to adopt with regard to pandemics.

Perception is a notion of psychological and sociological essence. It alludes to the image that we build of an object that we judge, sometimes in an exaggerated way compared to reality, or that which we want to give of it according to the personal reactions that we one would like to obtain from this object according to one's own interests. This approach developed by the great authors has allowed us to verify the reality of this corona virus pandemic, on the part of the Congolese, with regard to the image they send back of this pandemic.

The perception that individuals may have of their physical and mental health and their well-being depends on their personality, but also on their social, economic and security environment. However, the analysis of the results indicated that the majority of participants believe in the reality of the Covid-19 pandemic out of a workforce of six hundred and ten (610) participants four hundred and thirty (430) think that the pandemic exists either 150 participants among men and 200 among women see (Table N ° 2), In addition, two hundred and five do not have the same point of view concerning the reality of the pandemic.

This finding appears at first glance worrying, for such an approach, but it turns out that the measures recommended by the authorities indicate that they are well respected by the population of Brazzaville by those who have a non-rational perception of the disease than by others. The multivariate analysis, by age group or by gender, shows, on the other hand, that the level of education does not have enough effect on the perception of the origins of the disease. This, regardless of gender. Women have a significantly higher perception of threat and are more likely to engage in a wide range of preventive behaviors (Perrotta et al. 2020; Galasso et al. (2020). ; Belo et al. (2020). This explanation comes, mainly, from the fact that they have experienced difficult situations more frequently than men since the start of the epidemic (loss of employment, time spent caring for loved ones, increased mental workload, etc.).

If the various governments continue to take measures to fight against Covid-19, the populations, in their different strata, do not perceive their interest in the same way and do not always act, consequently, in the direction of the orientations and results desired by their authorities. Also, the perception of the disease could not be influenced by the socio-economic constraints that individuals face. For the concept of perception, we retain in this work the definition given by Slovic, namely, the perception of risk designates all the qualitative and quantitative judgments that individuals express when they are asked to evaluate a product or an activity. dangerous.

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

The second is the interpretation that the subjects have of the mask. Beyond the real aspects related to the fact that it can have repercussions on the health of certain people suffering from serious illnesses such as asthma, the subjects, for the most part, reject wearing a mask, which they consider to be restrictive and cumbersome. . It seems that these are only interested in the mask without taking into account what it guarantees their health. These approaches are also explained by the lack of communication strategies put in place by the authorized structures to best explain the pandemic. There are also the considerations of religious faith which the followers of the new religiosity convey. All this helps to weaken the construction of a strong logic in the fight against the pandemic.

The third and final approach is the fragility of the economic and social model generated by the pandemic.

The pandemic, in various countries and particularly in the Republic of Congo, has shown how fragile the economic and social fabric is. The accompanying measures that should support the effectiveness of disease-related rigor have shown their limits. Field surveys have clearly demonstrated this since in the markets, contact obeyed less to prescribed standards than to the logic of coming into contact with food.

CONCLUSION

This research focused on a sociological approach to the perception of the Covid-19 pandemic among Brazzaville residents.

The objective set by this study is to read and try to understand the perception of the Covid-19 pandemic by Brazzaville residents. The data useful for understanding the object of study were collected by means of a questionnaire developed according to the needs of the research. The various data were subjected to a double statistical treatment, in particular descriptive statistics and differential statistics.

An exploratory survey on a sample of three hundred and sixty (360) Brazzaville residents was conducted on a random basis. It resulted in a summary analysis of government measures and cultural aspects, as well as that of the perception of the risk of Covid-19 by the respondents. The results obtained revealed a questionable perception, with a tinge of political rejection, of this pandemic by the people of Brazzaville. The mask, although recommended by health authorities, as a possible solution approach to the pandemic, is perceived as the cause of other diseases. However, it must be recognized that the results of this study remain quite limited if we take into account the size of the sample and the remarkable fragility of social conditions.

However, it can facilitate a deepening of the reflection of Congolese researchers on the various questions raised by the Covid-19 pandemic at the same time as it opens windows on the opportunities to develop multidisciplinary research programs following the socio-economic changes imposed. by the pandemic. Taking these considerations into account, the advisability of conducting a much larger study with a more representative sample should be considered in order to allow extrapolation to the entire population of Brazzaville. In addition, it also seems relevant to seek to understand, in the future, the perception of Covid-19 among the population of Brazzaville on the basis of a comparative approach involving several social strata.

It remains that this study is of great value to enable researchers and decision-makers to strengthen the dynamics of capacity building to claim to face future epidemics.

REFERENCES

- 1) Aublet-cuvelier, A. L. Claudon (2020). Masques chirurgicaux, demi-masques filtrants : effets physiologiques et leurs conséquences.
- 2) Akoun, A. et Ansart, P. (1999). Dictionnaire de la sociologie. Paris : Seuil.
- 3) Arkadit Jeandria Nkodial, Nicy Carmel Bazebizonaza Tchiguina, Hardy Medry Dieu-veille Nkodia : Caractéristique Epidémiologique et Dynamique Spatio-Temporelle de la pandémie à Covid-19 en République du Congo, 2020
- 4) Baillargeon G et Martin L. (1998). Méthodes quantitatives et analyse de données en sciences humaines. Trois-Rivières. Edition : SMG
- 5) Bandura A. (1986). Les origines du comportement. In C. Benabou et H. Abravanel Gallè F, Sabella EA, Da Molin G, et al. Understanding Knowledge and Behaviors Related to CoViD-19 Epidemic in Italian Undergraduate Students: The EPICO Study. Int J Environ Res Public,
- 6) Belot, Michele, syngjoo choi, Julian C. Jamison, Nicholas W. Pagageorge, Egon Tripodi, and Eline Van den Broek-Altenburg. "Unequal consequences of Covid-19 A cross Age and Income : Representative Evidence from six countries" SSRN Scholarly Paper. Rochester, NY : Social science Research Net work, June 1, 2020. <https://papers.ssrn.com/abstract=3638012>
- 7) Boudon, Raymond (1977) La logique de la frustration relative, Archives Européennes de Sociologie, XVIII, 1977;

Brazzaville Residents and the Perception of the Corona Virus Pandemic: Between Faith in Politics and the Reality of the Disease

- 8) Denoël Zhang P, Wang T, Xie SX (2020). Meta-analysis of several epidemic characteristics of Covid-19. ; 18 (3) : 536-49. <https://doi.org/10.6339/jds.202007>
- 9) Festinger L.K. (1974). Les méthodes de recherche dans les sciences sociales. T1 Paris Edition P.U.F
- 10) Gallès F, Sabella EA, Da Molin G, et al.(2020). Understanding Knowledge and Behaviors Related to CoViD-19 Epidemic in Italian Undergraduate Students: The EPICO Study. Int J Environ Res Public
- 11) Galasso, Vincenzo, Vincent Pons, Paola Profeta, Michael Becher, Sylvain Brouard, and Martial Foucault. "Gender Differences in COVID-19 Related Attitudes and Behavior: Evidence from a Panel Survey in Eight OECD Countries." Cambridge, MA : National Bureau of Economic Research, 2020. <https://doi.org/10.3386/w27359>.
- 12) Lamoureux, A. (1995). Recherche et méthodologie en science Humaine. Laval. Edition études vivantes.
- 13) Khasawneh AI, Humeidan AA, Alsulaiman JW, Bloukh S, Ramadan M, Al-Shatanawi TN, Awad HH, Hijazi WY, Al-Kammash KR, Obeidat N, Saleh T, Kheirallah KA. Medical Students and COVID-19: Knowledge, Attitudes, and Precautionary Measures. A Descriptive Study From Jordan. Front Public Health. 2020 May 29;8:253. doi: 10.3389/fpubh.2020.00253. PMID: 32574313; PMCID: PMC7274076.
- 14) MAMBOUANA S. (2022). Approche sociologique de la perception de la pandémie a covid-19 par les Brazzavillois, Mémoire de Master en Sciences et Techniques des Activités Physiques et Sportives, Institut Supérieur d'Education Physique et Sportive, Université Marien Ngouabi, Brazzaville, République du Congo.
- 15) Perrotta, Daniela, André Grow, Francesco Rampazzo, Jorge Cimentada, Emanuele Del Fava, Sofia Gil-Clavel, and Emilio Zagheni. "Behaviors and Attitudes in Response to the COVID19 Pandemic: Insights from a Cross-National Facebook Survey." Preprint. Public and Global Health, May 15, 2020. <https://doi.org/10.1101/2020.05.09.20096388>.
- 16) Piaget(1965) Etudes Sociologiques, Paris, Genève, Droz.
- 17) Piaget, J. (1984). Six études de psychologie, Paris, Gonthier, coll « Médiation ».
- 18) Weber, Max, (1977) Economie et Société. Les catégories de la Sociologie, Tome, 1, Paris, Pocket.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.