

The Non-Compliance with Covid-19 Preventive Measures in The City of Bafia in Cameroon

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ABSTRACT

Since 2019, the world has been facing one of the most serious health crises of the century called Covid-19. Given its speed of propagation and the extent of the damage it has caused, it has been classified by the World Health Organization (WHO) as a pandemic. Governments have put in place a set of measures to prevent and reduce the spread of COVID-19, including Cameroon. However, despite the promulgation of preventive measures by the Cameroonian government, the evolution curve of new cases of Covid-19 has continued to increase to the point where there have been 30,313 cases with 476 deaths as of February 2021 (Banen and Nguendo, 2020). Indeed, WHO has acknowledged that some of these measures are difficult to implement in Africa (WHO, 2020). This statement by the WHO is verified in the case study carried out in Cameroon (Bafia), where 17.39% of the individuals surveyed do not respect any COVID-19 preventive measures (IFORD, 2021). This leads to the following research question: what are the determinants of non-compliance with the preventive measures in the fight against the Covid-19 pandemic in Cameroon (Bafia)? Although there are several theories on the determinants of health, five relevant theories have been selected to better support the reflection around this study. These include the Health Belief Model, the theory of reasoned action, the theory of planned behaviour, the model of resistance to innovation and change, and the theory of social representations. This study covered a representative sample of 1,547 individuals, households' heads aged at least 15 years. The data were obtained from a field survey, which combined quantitative and qualitative research, from an interview guide and questionnaire. The analyses show that individuals who have not perceived the severity of the disease and who are not unaware with the preventive measures are 2 and 3 times more likely not to comply with the preventive measures. For effective prevention communications against Covid-19, the study calls for an awareness-raising campaign on everyone's vulnerability to the pandemic and its harmful consequences on the health of individuals.

Keywords: non-compliance, barrier measure, Covid-19, determinants, Bafia, Cameroon.

INTRODUCTION

Since its appearance in November 2019 in Wuhan in China, the Coronavirus disease (Covid-19) has quickly become a public health and development problem, for both Northern and Southern countries. Indeed, Covid-19 has never ceased to worry the international community, prompting countless collective actions and efforts by public institutions in all societies around the globe. These actions aim to improve, promote, protect, prevent and restore the health of populations in the face of the threat posed by the coronavirus.

Covid-19 constitutes a development problem, because it is the cause of considerable human suffering (UNDP, 2020). In addition to the health and human consequences, the spread of the coronavirus also has serious effects on economic activities (UNDP, 2020). On 2 March, 2020, the Organization for Economic Cooperation and Development (OECD) predicted a decline of 0.5% point in the growth of the world Gross

Domestic Product (GDP), which would be reduced to 2.4% this same year. Also, according to the Economic Commission for Africa (ECA), despite the relatively low number of infected cases, the economic impact could cost the African continent more than one percentage point of its GDP (from 1.8% to 3.2%); which would impact on the quality of life of the population.

In sub-Saharan Africa, Covid-19 appeared for the first time in Nigeria and subsequently spread to other countries, including Cameroon, where the first case was reported on 6 March, 2020 (MINSANTE, 2020). As of April 28, 2020, according to the African Union, the majority of African countries had 33,273 registered cases, 10,091 recoveries and 1,467 deaths. The rate of contamination within the Cameroonian population was such that between March and June 2020, we went from 0 to 11,281 confirmed cases (MINSANTE, 2020). As of June 19, 2020, Cameroon crossed the line of 11,000 positive cases and thus became the 6th most affected country in Africa after South Africa, Egypt, Nigeria, Algeria and Ghana (MINSANTE, 2020). The Centre and Littoral regions were the most affected areas with 7,885 and 3,436 cases respectively as of July 6, 2020 (MINSANTE, 2020).

Concerned about this alarming health situation, the Cameroonian government enacted a set of measures as part of the government's response to this pandemic, with the aim of reducing its spread. This is particularly the case of the thirteen (13) preventive measures adopted on 17 March, 2020 by the government. These measures were complemented by seven (7) others on 9 April, 2020 (BUCREP, 2020). Among these measures, we can cite, among other things, the compulsory wearing of face masks, the systematic washing of hands with soap and water, physical distancing, the ban on gatherings of more than fifty (50) people, the closure of public and private educational institutions as well as of vocational training institutions, temporary closure of borders, ban on overloading in public transportation system, etc.[\[1\]](#).

However, it has been found that certain restrictive measures prescribed by the Cameroonian government with the aim of limiting the spread of this virus are not respected by part of the population (Chazai and Partners, 2020). Indeed, several aspects of these preventive measures have proved difficult to apply to certain population, insofar as the difficult living conditions of certain households often require them to favor the quest for "*daily bread*" to the detriment of the respect for preventive measures (INS, 2020). According to the same source, these difficulties relate to the lack or non-access to drinking water and soap, overcrowding and low income which are all obstacles to strict compliance with these measures, in particular those relating to systematic washing of hands, social distancing and where appropriate, self-confinements.

Despite the promulgation of these measures by the government, the evolution curve of Covid-19 new cases has continued to increase to the point where, on 2 February 2021, there were 30,313 cases with 476 deaths (Banen and Nguendo, 2020). However, the WHO recognizes that some of these measures are difficult to implement in Africa (WHO, 2020). This statement is relevant in the case of Cameroon, particularly in the city of Bafia where 17.39% of the individuals surveyed do not respect any preventive measure (IFORD, 2021). Whereas, faced with threatening situations, the individual is supposed to adopt protective behaviours. The distinction between protective behaviours and health risk behaviours is assumed to be clear and indisputable to reasonable and knowledgeable people (Thomson, 2005). Preserving oneself in the event of health risk is considered instinctive, deviations from this behaviour therefore constitute dissonances to be explained (Bajos, 1999).

This research has a triple interest, namely: political, scientific and social. At the political level, the study of the determinants of the non-compliance with the preventive measures in the city of Bafia finds its justification due to the fact that Covid-19 has become a public health problem with numerous and multi-sectoral consequences, of which solutions need to be sought. The resolution of this health problem requires considering this disease in the Cameroon's pandemic management policy, present in the Health Sector Strategy (SSS) of 2016-2027. The integration of Covid-19 into the country's health policy can only be done effectively if it is based on scientific evidence. To do this, decision-makers therefore need reliable specific

indicators to influence decision-making, develop and implement specific and effective strategies in the response to this pandemic.

From a scientific perspective, the interest of studying the determinants of non-compliance with the COVID-19 preventive measures lies in the timeliness of the issue in the Cameroonian context and particularly in the city of Bafia. This concern is still little explored in our context. As a result, this study will therefore contribute to improving knowledge on the factors that influence the non-adoption of healthy behaviours in the context of the Covid-19 health crisis. The scientific interest is also found in the fact that Bafia is a secondary city where the population has retained rural behaviour in many aspects, not always being aware of certain dangers that city dwellers could perceive more easily. Regarding the social level, the indicators provided by this study will be able to support awareness-raising actions for the promotion of the adoption of healthy behaviours in order to reduce cases of contamination due to Covid-19.

This study aims to analyse the determinants of the non-compliance with COVID-19 preventive measures in Cameroon, more specifically in the city of Bafia. To do this, the central question that prompts this research is formulated as follows: what are the determinants of the non-compliance with preventive measures in Cameroon in general, and in Bafia in particular in the context of Covid-19? In other words, what justifies the fact that individuals do not adhere to COVID-19 preventive measures despite numerous communication actions (awareness and information) carried out by the health and administrative authorities?

METHODOLOGY

Sample and target population

The data for the study come from the 2021 Student Survey of the Institute of Training and Demographic Research (IFORD), the theme of which focused on: “Covid-19 health crisis and household resilience in urban areas: the case of the city of Bafia” (ECORB). The aim of this survey was to contribute to a better understanding of the effects of the health crisis linked to Covid-19 on households and the resilience strategies developed by them, in order to guide state policies in order to reduce its spread.

The method used was field survey, which combined quantitative and qualitative research. The quantitative survey was conducted on a representative sample of 1547 individuals, households' heads aged at least 15 years. In addition, regarding the qualitative aspect, individual interviews were carried out with quarter heads on the one hand, and on the other hand, the heads of Bafia health facilities. Also, focus group interviews were carried out with the population of Bafia (group of high school students, motorcycle taxi drivers, etc.). These (qualitative) interviews aimed to capture the perceptions and attitudes of the population on Covid-19.

The sampling frame used for the quantitative survey is the list of urban enumeration areas (EA) of the city of Bafia provided by BUCREP, updated in 2018. It contains a total of 57 EAs and 11,968 households. The sampling method used for this survey was the two-stage probabilistic sampling. At the first level, EAs were selected and at the second level, households. At the first level, we carried out a systematic selection with unequal probability according to the size of the EAs (total number of households in the EA).

Variables

The variable to be explained in this research is the non-compliance with the preventive measures recommended by the government. It will be operationalized in this study by non-compliance with preventive measures. Non-compliance with preventive measures here means the non-commitment of individuals to observe health protection measures against Covid-19. It refers to the non-adoption of response measures by individuals. In other words, it is the fact for individuals not to adopt preventive behaviours, not to adhere to the health precautions made public by the government (Phelinas et al., 2021). Non-compliance with the

preventive measures is a composite variable, because it stems from five preventive measures enacted by the Cameroon government and accentuated during the ECORB survey. The different categories of this variable are: hand washing, wearing a face mask, social distancing and disinfection of objects touched by several people with hydro-alcoholic gel and limiting visits. Non-compliance in this study is measured by the fact of not having respected any of the five (5) preventive measures considered in the study.

For the construction of this variable, a Principal Component Analysis (PCA) was carried out after dichotomising each of the variables. K-means clustering^[2] made it possible to classify individuals into seven classes. Subsequently, the variable was grouped into two (2) categories, namely: compliance (82.61%) and non-compliance (17.39%).

Several key variables likely to influence non-compliance with preventive measures in the city of Bafia have been selected, mostly based on studies that have highlighted their relevance. At the level of the socio-cultural context, religion and exposure to the media were used. The institutional context is operationalized by trust in hospital institutions. Meanwhile, the household characteristics include: the household standard of living and household overcrowding. The immediate environment consists of the quality of housing and the supply of drinking water. Regarding individual characteristics, they consist of the individual's age, level of education, sector of activity, hospital attendance, knowledge of preventive measures, knowledge of the symptoms of the disease, the change in the social relationships of individuals and the perception of the severity of the disease. It should be noted that after analysing the distribution of study variables, results showed that all the variables used have a "non-response" rate of less than 10%.

Method of Analysis

The multivariate explanatory analysis used in this study made it possible to specify the determinants of the non-compliance with preventive measures in urban areas in Cameroon, more specifically in the city of Bafia. The dependent variable of the study (non-compliance with preventive measures) has two categories: compliance and non-compliance. Given the dichotomous nature of the dependent variable, the study employed the multi-models binary logistic regression.

The M0 model gives the raw effect of each potentially explanatory variable on the dependent variable. In other words, it makes it possible to highlight the influence of the explanatory variables taken by group of concepts on the variable studied. The global model or saturated model is given by M5. It gives the net effect of each explanatory variable on the dependent variable. It is from this last model that are identified all the independent variables that contribute the most to the explanation of the dependent variable at the chosen level of significance of 10%.

RESULTS

To ensure the robustness of the model, several statistical tests were performed. The multicollinearity^[3] analysis revealed strong associations between household standard of living and housing quality. Given that these two variables provide information on the living conditions of the household, the standard of living of the household was preferred. Thus, housing quality was no longer considered in the explanatory analysis. The classification test reveals a prediction rate of 85.42%, which shows a good prediction for this model. Also, the area under the roc curve is 0.74, which reflects an acceptable discrimination of the model according to Taffe Patrick (2004). The Chi-square probability associated with the model is 0.000. This means that at least one of the independent variables of the study explains the non-compliance with the preventive measures.

From this model, the determinants of the non-compliance with the Covid-19 preventive measures in the city of Bafia are: trust in hospital institutions, household standard of living, hospital attendance, knowledge of

preventive measures, perception of the severity of the disease and change in social relationships.

The household’s standard of living significantly influences the non-compliance with preventive measures at 10% level of significance. Thus, individuals who live in households with a high standard of living are 50% less likely to not comply with the preventive measures compared to those living in households with a low standard of living.

The analysis shows that knowledge of the preventive measures significantly influences (at the 1% level of significance) the risk for an individual of not respecting the preventive measures. Thus, it appears that individuals who are not aware of the preventive measures have about 3 times more risk of not complying with the preventive measures than those who are aware of the preventive measures. In explaining the non-compliance with preventive measures against Covid-19 in Bafia, hospital attendance has a direct and significant influence at 1% level of significance. Indeed, the model reveals that individuals who have visited a hospital facility at least once are 45.5% less likely not to comply with the preventive measures compared to those who have not visited a hospital facility during the reference period.

The perception of the severity of Covid-19 has a direct and significant influence at the 1% level of significance on non-compliance with preventive measures in Bafia. The analysis equally reveals that, all other things being equal, individuals who think that Covid-19 is not a deadly disease are almost twice as likely not to comply with the preventive measures compared to individuals who think the disease is deadly.

The change in social relations influences the non-compliance with preventive measures at the 1% level of significance. Indeed, individuals who have not experienced any change in their social relationships are approximately twice as likely to not comply with the preventive measures compared to those who have experienced changes in their relationships.

Trust in hospital institutions has a significant effect on the risk of not complying with the preventive measures, at the 10% level of significance. The final model reveals that individuals who do not trust hospital institutions are nearly 1.5 times more likely to not comply with the preventive measures compared to those who trust hospital institutions. However, age and knowledge of symptoms were not significant in this study.

Table 1: Raw and net effects of independent variables on non-compliance with preventive measures against Covid-19

Variables	Number (%)	Raw model	Net models (odds ratio)				
		M0	M1	M2	M3	M4	M5
Religion		Ns	Ns	Ns	Ns	Ns	Ns
Christians	1062 (70.71)	Ref cat.	Ref cat.	Ref cat.	Ref cat.	Ref cat.	Ref cat.
Muslims	243 (16.18)	1,031ns	1,025ns	1,057ns	1,010ns	0,993ns	0,920ns
Other religions	197 (13.12)	1,218ns	1,220ns	1,204ns	1,168ns	1,168ns	1,198ns
Media exposure		***	***	***	***	***	Ns
Exposed	1230 (81.89)	Ref cat.	Ref cat.	Ref cat.	Ref cat.	Ref cat.	Ref cat.

Not exposed	272(18.11)	2,551***	2,552***	2,475***	1,810***	1,812***	1,354ns
Trust in hospital institutions		***		***	***	***	*
Yes	858 (57.12)	Ref cat.		Ref cat.	Ref cat.	Ref cat.	Ref cat.
No	644 (42.88)	1,741***		1,675***	1,700***	1,712***	1,295*
Household standard of living		***			***	***	*
Low	707 (47.07)	Ref cat.			Ref cat.	Ref cat.	Ref cat.
Moderate	679 (45.21)	0,493***			0,611***	0,607***	0,792ns
High	116 (7.72)	0,245***			0,324***	0,323***	0,500*
Overcrowding		Ns			Ns	Ns	Ns
Overcrowded	270 (82.55)	Ref cat.			Ref cat.	Ref cat.	Ref cat.
Not overcrowded	1277 (82.55)	1,157ns			1,125ns	1,127ns	1,188ns
Water supply		Ns				Ns	Ns
Tap	301 (20.04)	0,915ns				1,133ns	1,104ns
Standpipe	124 (8.26)	1,342ns				1,193ns	1,088ns
Other sources	1077 (71.70)	Ref cat.				Ref cat.	Ref cat.
Age group		Ns					Ns
15-34	131 (8.72)	0,798ns					0,765ns
35-64	276 (18.38)	1,015ns					1,102ns
65 and plus	1095 (72.90)	Ref cat.					Ref cat.
Level of Education		***					Ns
No Education	153 (10.19)	1,740***					1,064ns
Primary	326 (21.70)	1,783***					1,157ns
Secondary and plus	1023 (68.11)	Ref cat.					Ref cat.
Sector of activity		***					Ns
Formal Sector	249 (16.58)	0,436***					0,749ns

Informal Sector	1253 (83.42)	Ref cat.					Ref cat.
Hospital Attendance		***					***
Never	820 (54.59)	Ref cat.					Ref cat.
Atleast once	682 (45.41)	0,406***					0,542***
Knowledge of preventive measures		***					***
Yes	1065 (70.91)	Ref cat.					Ref cat.
No	437 (29.09)	3,497***					2,998***
Perception of severity		***					***
Yes	1313 (87.42)	Ref cat.					Ref cat.
No	189 (12.58)	5,780***					4,158***
Changes in their social relationships		***					***
Yes	808 (53.79)	Ref cat.					Ref cat.
No	694 (46.21)	2,040***					1,554***
Knowledge of symptoms		***					Ns
Yes	1109 (73.83)	0,329***					1,434ns
No	393 (26.17)	Ref cat.					Ref cat.
Number	1502	1502	1502	1502	1502	1502	1502
Log of likelihood			-674,5277	-667,6476	-659,6038	-659,1693	-586,7570
Chi2			35,103	48,863	64,951	65,82	210,644
Pseudo R²			0,0254	0,0353	0,0469	0,0476	0,1522
Significance			***	***	***	***	***
Level of Significance: *** (p<1%) ; ** (p<5%) et * (p<10%) /Ns : non-significant							

Source: Data analysis of ECORB, IFORD, 2021

DISCUSSION AND CONCLUSION

Perception of severity

The perception of the severity of Covid-19 has an influence on the risk of not respecting the preventive measures. This result corroborates those found by N'Goala et al. (2020) and Phelinas et al. (2021). Indeed, these authors found that it is the severity of the epidemic that strongly influences the adoption of barrier gestures.

Health behaviour models predict that individuals are more likely to engage in appropriate behaviour if they believe they are at risk and recognize the severity of the health problem (Rosenstock, 2005; Jones et al., 2014). Also, N'Goala et al. (2020) found that the perceived severity of the disease for the person and those around them (through the belief as far as the severity of the health consequences are concerned) has a significant effect on the non-respect for barrier gestures. Thus, it is this severity of the epidemic that strongly influences the adoption of barrier gestures. Phelinas et al. (2021) found that psychological reasons encourage individuals to adhere to confinement and barrier gestures. According to these researchers, fear is certainly a negative emotion that can cause significant levels of distress and degrade the mental health of individuals, however, it also motivates the avoidance of risky behaviours.

Similarly, the HBM model states that, the more individuals think that a health problem will have strong consequences on their future, if they do not adopt a preventive behaviour or if they do not try to treat themselves quickly, the more they perceive the threat to themselves as important and the more they will adopt preventive behaviours (Verhliac, 2008). The perception of the severity therefore increases the perception of threat. The high perception of health risk is an important determinant of behaviour in this context of Covid-19 (Ogouyomi et al., 2021). Consequently, such a result could be understood insofar as individuals who experience fear of Covid-19 comply more with health instructions. Individuals who believe that coronavirus disease is fatal tend to better comply with the preventive measures for fear of dying.

Hospital attendance

Individuals who attended a hospital centre at the time of the health crisis are less likely to not comply with the preventive measures. This can be explained by the fact that attending hospitals exposes people to awareness of the coronavirus disease. Indeed, at the hospital there are doctors, nurses, health workers who are qualified to better educate the population on the dangers of Covid-19 on the health of individuals while indicating the measures to be taken to avoid this disease.

Indeed, according to the reasoned action theory, action spur under the influence of the advice of others, in particular a professional, can affect people's perception of Covid-19 as a threat. According to this theory, the trigger for adopting a behaviour is the behavioural intention (Maltête, 2012). This behavioural intention is dependent on subjective norms. Subjective norms correspond to the social pressure perceived by the individual to adopt or not adopt the behaviour. It is determined by normative beliefs and the motivation to submit. Normative beliefs are the beliefs of the individual in relation to the opinions of others, individual(s) or group(s) of reference, vis-à-vis the behaviour envisaged (example: teachers, doctors, etc.). Individuals give more credit to the information received by health professionals on Covid-19.

Nevertheless, hospital attendance by the population of the city of Bafia is not common. A 2020 survey by the National Institute of Statistics (NIS) in Cameroon reveals that, although the majority of households (56.6%) declare that they continue to use the services of health centres/hospitals as before the pandemic, it is noted that nearly 36.8% remain reluctant and report having used it less than in the past. Indeed, part of the population of the city of Bafia preferred to resort to other therapeutic trajectories during the Covid-19 health

crisis.

Knowledge of preventive measures

Individuals who are unaware of the preventive measures are more likely to not comply with the preventive measures. It was not possible to compare this result with that of other researchers, because in the literature consulted to date, we have not found works that have tested the relationship between this variable and the dependent variable of the study. Indeed, on 17 March 2020, an inter-ministerial meeting was held to take stock of the situation (health crisis) and identify the actions to be implemented. At the end of this meeting, the Cameroon government instructed thirteen (13) measures which were then relayed by the Prime Minister (Chazai and Partners, 2020). On 9 April 2020, seven (7) additional measures were added to the thirteen (13) measures previously announced (Chazai and Partners, 2020). This makes a total of twenty (20) preventive measures taken by the government.

Compliance with preventive measures closely depends on the knowledge of these measures, because one cannot apply what they do not know. Beforehand, to respect the preventive measures, it is necessary to be informed about the said measures in order to make arrangements. For Lo Monaco and Lheureux (2018), it is the possession of knowledge that makes it possible to protect oneself from exposure to the risks of contamination with the disease.

The population of Cameroon declared that they have not integrated certain gestures into their daily habits due to a lack of information and/or knowledge on the subject (Biboum and Essono, 2020). The lack of information on preventive measures is therefore an obstacle to the adoption of preventive measures. As part of the fight against Covid-19, awareness-raising messages inviting people to observe preventive measures have been broadcasted through the media (television, radio, internet, etc.). An example of note as part of the response strategy to the Covid-19 pandemic is the 13th measure taken by the government concerning wide dissemination (in French and English) by public and private press organs, as well as social networks, of the sanitary measures recommended by the WHO. This with a view to informing the entire population of the actions to be taken in order to avoid the spread of the disease. However, these information channels do not really integrate all categories of the population, in particular that of women where the illiteracy rate is not to be neglected (nearly 30%) (NIS and ICF, 2020).

Change in social relationships

This result shows the influence of social ties in the prevention and fight against Covid-19. Indeed, the coronavirus pandemic has caused social dysfunction in all societies in the world. It has accentuated the weakening of the social bond between the inhabitants of common courtyards (Nantob, 2020). African populations have found it difficult to respect social distancing for both personal and socio-cultural reasons (Nga, 2021).

Africans in general like to stay together or in community (Kamdem, 2002), which prevents them from distancing and/or confining themselves. Also, the prevailing social interdependence is a cultural factor that inhibits the implementation of the social distancing and confinement measures (Biboum and Essono, 2021). Indeed, in Cameroon, the perceptions and meanings of social distancing constitute an important basis for understanding the behaviour of individuals with regards to this preventive measure (Nga, 2021). As a result, perceptions emerge from the discussion with the population: social distancing is perceived as a psychosocial injury, a social tragedy, a cultural ex-communication and an obstacle to freedom (Nga, 2021).

For some individuals in Cameroon, social distancing is perceived as difficult to respect given the usual proximity maintained between individuals (Nga, 2021). Indeed, a characteristic of African cultures is their attachment to a community (Nga, 2021). Africans feel at home in their lives, in their relationships with

others. Thus, connectedness serves as the glue that hold Africans in general and Cameroonian in particular together. *“At home, we have a sense of belonging to the community; this is very important, because everything revolves around community relations and interdependence. Imposing social distancing in daily community activities such as handshakes, close contacts, family visits, eating in the same plate, social congregations create disconnection and weaken identity; which creates a feeling of disconnectedness vis-à-vis the community”*. Also, some individuals in Bafia find in social distancing a Western strategy to weaken Africa, which still share certain values such as solidarity. In order not to give in to the “enemy’s trap”, they shy away from these measures which can contribute to the deterioration of the ties they maintain with those around them.

Standard of living

People with a high standard of living are less likely to not comply with the preventive measures compared to those with a low standard of living. This result is in line with that of the National Institute of Statistics and Economic Studies (INSEE, 2020), Dubost et al. (2020), and Biboum and Essono (2021). This result is explained by the fact that people who live in households with a low standard of living have more difficulties respecting barrier gestures because of the precariousness of their living conditions (INSEE, 2020). In a study carried out in Mayotte (suburb of France), INSEE (2020) concluded that the housing conditions of many inhabitants of Mayotte make it difficult to comply with health recommendations. Similarly, the analysis of the exploratory study conducted in Cameroon by Nga (2021), shows that African populations have faced difficulties in respecting social distancing for economic reasons.

Indeed, given that the standard of living of the household provides information on the living conditions of households (Otsomotsi, 2010), people living in households with a low standard of living generally live in unsuitable housing that does not have equipment necessary for the implementation of preventive measures. Also, people who live in households where the standard of living is low, are most often in cramped accommodation, deprived of certain equipment, which exposes them to the risk of not complying with the preventive measures (IReSP, 2020). It is in this respect that a respondent in Bafia affirms that: *“The government has embarked on the management of this crisis when the population lacks the basic subsistence: for example, in Bafia, how can one do a week without water or electricity and want people to wash their hands”* (Mr. Beiasl, 51 years old). The equipment available to households in their homes has been of particular importance during the period of restricted movement due to Covid-19. However, unlike individuals who live in households with a low standard of living, with degraded housing conditions, individuals who live in households with a high standard of living more often have common household appliances (refrigerator, hob or stove, television and washing machine) or digital (laptops, tablets, etc.) (INSEE, 2020) which favour compliance with barrier gestures.

Also, this result can find an explanation in the HBM model which stipulates that the perception of financial costs can constitute a barrier in the adoption of health behaviours (Maltête, 2012). According to this theory, individuals ponder on the costs and benefits of adopting a behaviour in a particular situation. The poor, because of their low financial power compared to people with a high standard of living, not only have limited means to support the costs of sanitizers and face masks, but also, they prefer to meet more basic needs such as food. Similarly, Rosenstock (2005) and Jones et al. (2014) state that health behaviour patterns predict that individuals are more likely to engage in appropriate behaviour if they feel they can afford the cost of respecting the rules. Presented by Ram and Sheth (1989) as a factor of resistance to innovation, the cost also justifies the dissatisfaction with hydro-alcoholic hand sanitizer as a barrier gesture against Covid-19 (Biboum and Essono, 2020). Furthermore, the work of Biboum and Essono (2020) showed that staying at home during the confinement period proved difficult for Cameroonians in general. Indeed, this is what more than 70% of respondents report, *“We are Cameroonians, we live from day to day, we have to go out to look for something to eat”* p.57. This exposes them more to the risk of not complying with the preventive

measures decided by the government.

Similarly, the theory of planned behaviour can also help to understand this result. Indeed, this theory through perceived behavioural control makes it possible to account for volitional behaviours; that is, behaviours that require resources, opportunity or the help of others and which can therefore escape the voluntary control of the person (Verhaci, 2008). Compliance with preventive measures requires a cost that can be high or low depending on the measure to be respected. Indeed, following the confirmation of the first case of Covid-19 in Cameroon, certain agro-food products saw their prices increase (Biboum and Essono, 2021). In this situation, the respondents did not fail to note that they have “*no means to buy a sanitizer*”.

Trust in hospital institutions

The analysis revealed that trust in hospital institutions reduces the risk of not complying with covid-19 preventive measures. These results correlate with those obtained by Mathonnat et al. (2021) and Phelinas et al. (2021). Thus, trust in hospitals (medical authorities) is a determinant of non-compliance with Covid-19 preventive measures. It plays an important role in the perception of risks and the behaviour of individuals in the fight against epidemics (Bavel et al, 2020). Indeed, a wide range of medical and scientific authorities at the national and local levels has called on their fellow citizens to take preventive measures against Covid-19 (Phelinas et al., 2021). However, it should be noted that some individuals say it is probable that the government on the one hand, and doctors and scientists on the other, are hiding information about the health crisis (Mathonnat et al., 2021). This could lead to mistrust between citizens and medical authorities.

Trust in hospitals is therefore an essential factor in the success of the health policy put in place to limit the spread of the virus (Phelinas et al., 2021). Literature suggests that higher levels of public trust facilitate the adoption and implementation of restrictive health policies in democratic countries (Bargain and Aminjonov, 2020; Brodeur et al., 2020, Kao et al., 2021). We can then assume that individuals who trust health authorities (due to their expertise) will adopt preventive behaviour more easily and will more readily comply with health recommendations out of respect for their legitimacy (Phelinas et al., 2021). Trust in science (experts, doctors) and in central authorities has a positive impact on individual behaviour and on compliance with directives to combat Covid-19 (Mathonnat et al., 2021).

Age of the individual

The age of the individual turned out to be insignificant in the study of the determinants of non-compliance with covid-19 preventive measures in the city of Bafia. This result can be explained by the fact that in the city of Bafia, part of the population doubts the reliability of the information they have received on Covid-19. Indeed, some respondents believe that Covid-19 exists because it is talked about in all media. However, they are sceptical because they say they have not seen any concrete cases. Other respondents argue that they do not know this disease, “*that it is a disease of money which only locates rich people*”. Moreover, one of the participants in a group interview said: “*I am not sure that Africa is affected by the coronavirus. This disease is a divine punishment*”. Similarly, another respondent says, “*We still try to believe, because it is said that whoever accepts without seeing will have eternal life.*” Some say they are reluctant to wear imported face masks because they believe it is a Western strategy to transmit the disease to them.

Despite the proven vulnerability of the elderly to Covid-19, the different perceptions of the population to this disease influence their behaviour in terms of non-compliance with preventive measures. Similarly, other respondents equate Covid-19 to a disease for frail people. According to the theory of comparative optimism [4] developed by Milhabet et al. (2002), the feeling of vulnerability towards a pathology is not that obvious, because individuals tend to underestimate the risk perceived by them compared to others (unrealistic optimism).

Knowledge of Symptoms

The analysis shows that knowledge of the Covid-19 symptoms does not influence the non-compliance with preventive measures in the fight against Covid-19. In other words, non-compliance with the preventive measures is not related to the knowledge of the symptoms of the disease in the city of Bafia. It should be noted that specific studies that have tested the relationship between the non-compliance with preventive measures and knowledge of the symptoms of Covid-19 are rare, or even non-existent with regard to the literature consulted. It was therefore impossible to compare this result with those of other studies. However, by considering the elements of the context in connection with the perceptions of Covid-19, this result may be true in the city of Bafia.

Indeed, common perception of the disease is never identical to its scholarly or biomedical representation (De Sardan, 1999). If for the WHO there is a Covid-19 pandemic in the world, it should be noted that for the Cameroonian populations, the name Covid-19 does not refer exactly to the conceptualization of biomedicine. This disease is the subject of several popular representations that have been developed by deconstructing the biomedical representation (Biboum and Essono, 2021). To this end, a group of teachers from the Bafia Technical High School, during a group interview, declared that: *“Covid-19 is a disease like any other, such as HIV/AIDS... is a savage, barbaric flu”*.

The various symptoms associated with Covid-19 such as sneezing, coughing, rise in body temperature, fever, breathing difficulties (in case of complication) etc., do not seem new for the inhabitants of the city of Bafia. These symptoms are mostly present in their daily lives. As a result, they are used to them.

Despite these symptoms, the idea of black invulnerability to the coronavirus is developing and it is based on three main factors (Biboum and Essono, 2021). Africans in general and Cameroonians in particular believe they are invincible to Covid-19. The latter is first dispossessed of its new character and assimilated to common diseases: malaria and influenza. This assimilation is facilitated in part by the somewhat confusing description of the disease and the assumptions about effective treatments (Biboum and Essono, 2021). Messages such as, *“Covid-19 looks like the flu but can be more severe; 80% of those contaminated do not need treatment to be cured. The disease is critical for a minority of patients for whom intensive care is required”* have contributed to the trivialization of this disease (Biboum and Essono, 2021, p.31).

Another argument that underlies this result is the belief in the biological supremacy of the black race which updates the tendency of the revalorization of the black race flouted by Westerners and the endurance acquired by the Negroid. The Cameroonian in particular, over the course of history and because of the difficult living conditions (Arab slavery, slave trade, colonization and neo-colonialism) in which he grows has become more resistant to possible attacks (Biboum and Essono, 2021). Finally, the third factor is due to certain assumptions about the environment of the virus. In particular that on the high vulnerability of the virus to heat. Africa with high temperatures is thus believed to be out of reach by the coronavirus. Like the countries of sub-Saharan Africa known for their relatively warm climate, one can think that Bafia benefits from a certain immunity against Covid-19. Indeed, scientific research at the start of the Covid-19 health crisis showed that the coronavirus spreads more quickly in temperate climates. Bourhriba and Dadush (2020) found a very significant relationship between temperature and the incidence of Covid-19 (positive cases per million inhabitants) in a sample of around 100 countries.

This result can also find an explanation in the theory of cognitive dissonance. This theory stipulates that when faced with information that contradicts what we have always done or thought, tactics are put in place to ensure mental coherence (Festinger and Aronson, 1960). These tactics come in two ways. In the case of non-compliance with preventive measures in the context of Covid-19, the individual has two perspectives. In the first perspective, he will first try to deny the information on the measures that he finds disturbing, to

discredit the source of information, and to devalue the implementation of the preventive measures. However, if the new information on Covid-19 gains momentum, the individual will have to change or upset his initial way of thinking.

This work contributes to the advancement of the state of knowledge on the determinants of non-compliance with preventive measures in urban areas in Cameroon, where this issue remains very little explored. One of the important contributions of this study is that it has highlighted the links between socio-cultural, socio-psychological, socio-economic, demographic variables and the health behaviour of individuals in the city of Bafia. The originality of this study also lies in the triangulation of quantitative and qualitative data, which helped to feed the discussion of the results of the study.

Nevertheless, like any scientific work, the study has certain limitations that should be evoked. Thus, one of the limitations of this study could relate first of all to the absence of certain variables (political positioning, trust in political and scientific institutions, etc.) that can better account for the effect of institutional factors on the phenomenon. Also, of the twenty (20) preventive measures passed by the Cameroon government, only five (5) were captured during the ECORB survey and taken into account in the construction of the indicator of non-compliance with preventive measures. Another limitation of the study relates to the construction of the dependent variable, the non-compliance with preventive measures. Indeed, this variable has two (2) categories namely: respect and non-respect. The respect modality in this study includes individuals who have observed at least one of the five (5) preventive measures considered. This approach may constitute a bias insofar as only one of the five (5) measures retained in the study cannot be sufficient to guard against the risk of contamination with Covid-19. Finally, it is possible that reporting biases have somewhat altered the reality. Several studies before Covid-19 have shown the existence of such reporting biases during surveys. Sometimes, respondents for various reasons do not want to reveal their real behaviour when a question is asked directly (Mathonnat et al., 2021).

Based on the results of the analyses, the study calls for the strengthening of awareness-raising campaigns against Covid-19. To this end, emphasis must be placed on the vulnerability of all individuals to the Covid-19 pandemic and its harmful consequences on health, for effective Covid-19 prevention communications. Also, awareness-raising strategies against Covid-19 must fight against preconceived ideas and representations built around the disease through the media (television, radio, social networks, etc.) and community networks (quarter associations, churches, etc.). It is also necessary to integrate traditional medicine practitioners into the strategy to raise public awareness against Covid-19. The public authorities should put in place measures to reduce the costs associated with covid-19 barrier equipment (soap, sanitisers, etc.), allowing the adoption of health precautionary behaviours.

REFERENCES

1. AJZEN I et FISHBEIN M. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*, Research Gate, 573p.
2. BANEN J. B. et NGUENDO-YONGSI H. B. (2021). « La pandémie de la Covid-19 au Cameroun : Analyse des mesures barrières et répercussions socioéconomiques à Douala Banen », *International Journal of Science Academic Research*, vol. 2, n°2, pp.1058-1064.
- BARGAIN O. et AMINJONOV U. (2020). « Trust and Compliance to Public Health Policies in Times of Covid-19 », *Journal of Public Economics*, Vol. 192, p.13205.
3. BAVEL V. et al. (2020). Using social and behavioural science to support Covid-19 pandemic response, *Nature Human Behaviour*, n°4, p.460-471.
4. BIBOUM A. D. et ESSONO A. L. (2020). « Facteurs explicatifs de la résistance à l'adoption des gestes-barrières face à la propagation de la covid-19 : une étude en contexte camerounais », in : MOUNGOU MBENDA S. et ONDOUA BIWOLE V., *Epidémiologie de l'économie et confinement de l'organisation Covid-19, Yaoundé (Cameroun)*, les Presses Universitaires de Yaoundé, pp.49-52.

5. BOURHRIBA O. et DADUSH U. (2020). « Coronavirus and Climate: Learning From France », Policy center for the New South, 16p.
6. BUCREP (2020). Impact genre de la Covid-19 au Cameroun, Yaoundé, BUCREP, 27p.
7. CHAZAI et PARTNERS (2020). Recueil des mesures prises par le gouvernement camerounais dans le cadre de la lutte contre la Covid-19, Cameroun, Cabinet d'avocats d'affaires, Yaoundé, 11p.
8. D'ONGHIA F. (2009). Comment persuader les automobilistes à respecter les limitations de vitesse : effets du cadrage et de la présence d'une image dans les messages de prévention routière, thèse pour l'obtention du doctorat en Psychologie, 304 p.+ annexes.
9. DE SARDAN O. J-P. (1999). « Les représentations des maladies : des modules ? », in JAFFRE Y. (dir.) et DE SARDAN O. J-P.(dir), La construction sociales des maladies : les entités nosologiques populaires en Afrique de l'Ouest, Paris, PUF, pp.15-40.
10. DUBOST C. L. et al. (2020). « Les inégalités sociales face à l'épidémie de Covid-19 – Etat des lieux et perspectives », Les Dossiers de la DREES, n°62, pp.1-40.
11. FESTINGER L. et ARONSON E. (1960). « The arousal and reduction of dissonance in social contexts », Group Dynamics, Vol.1, pp. 214-231.
12. INS (2020). Freiner la Covid-19 : Comment protéger la santé et les droits des femmes et des filles dans le contexte actuel, 27p.
13. INS et ICF (2020). Enquête Démographique et de Santé du Cameroun 2018, Yaoundé, Cameroun, et Rockville, Maryland, USA :INS et ICF, 71p.
14. INSEE (2020). Covid-19-Les conditions de confinement à Mayotte, La précarité des conditions de vie rend difficile le respect des mesures de confinement, Insee Analysis, n°23, 4p.
15. INSEE (2020). Moins souvent en appartement qu'en métropole, mais des problèmes persistants, Insee, Flash Réunion, n°179, 5p.
16. JONES C. J., SMITH H. et LLEWELLYN C. (2014). « Evaluating the effectiveness of health belief model interventions in improving adherence: a systematic review», Health Psychology Review, vol.8, n°3, pp. 253-269.
17. LO MONACO G. et L'HEUREUX F. (2007). « Représentations sociales : théorie du noyau central et méthodes d'étude », Revue Electronique de Psychologie Sociale, pp. 1 – 55.
18. MALTETE S. (2012). Construction d'un questionnaire explorant les déterminants socio-psychologiques de la non prise de rendez-vous chez le dermatologue chez les patients à risque adressés pour une lésion suspecte de mélanome, thèse pour l'obtention du diplôme d'Etat de docteur en Médecine, Université de Nantes, 124p.+annexes.
19. MATHONNAT J. AUDIBERT M. ET NOSSEK V. (2021). Perception de la Covid et comportement des ménages au Burkina Faso : Une analyse sur données d'enquête, FERDI, 57p.
20. MILHABET I. et al. (2002). « Comparaison sociale et perception des risques : l'optimisme comparatif », in : BEAUVOIS J-L., JOULE R-V. et MONTEIL J-M, Perspectives cognitives et conduites sociales (vol.8), Rennes, Presses universitaires de Rennes, pp.215-245.
21. MINSANTE (2016). Stratégie Sectorielle de Sante 2016-2027, 200p.
22. MINSANTE (2020). Rapport de situation Covid-19, n°22 (Sitrep 22), Cameroun, 4p.
23. MINSANTE (2020). Rapport de situation Covid-19, n°23 (Sitrep 23), Cameroun, 4p.
24. MINSANTE (2020). Rapport de situation Covid-19, n°36 (Sitrep 36), Cameroun, 4p.
25. MINSANTE (2020). Bulletin d'information de la Médecine Traditionnelle n°1, Yaoundé, MINSANTE, 30p.
26. N'GOALA G. et al. (2020). « Le respect des gestes barrières face à l'épidémie de Covid-19 : une explication par le modèle des croyances envers la santé », DataCovid, pp. 1-14.
27. NANTOB M. M. (2020). « Consolidation du lien social à l'épreuve de la pandémie au coronavirus (Covid-19) dans les cours communes à Adidogomé dans la ville de Lomé », Akofena, Spécial n°3, pp. 197-208.
28. NGA NKOUMA TSANGA R. C. (2021). « Perception et réactions des consommateurs africains à l'égard de la distanciation sociale en contexte Covid-19 », Journal of Social Sciences and Organization Management, vol.II, n°1, pp.1-17.

29. OGOUYOMI O. R. et al. (2021). « Influence de la perception du risque sur d'adoption des mesures de ripostes à la Covid-19 : analyse du rôle de la vulnérabilité perçue », *Revue Internationale des Sciences de Gestion*, vol.4, n°1, pp.213- 233.
30. OMS (2020). Covid-19 Bulletin d'Information de l'OMS Cameroun, n°001, Infos, Edition spéciale, 46p.
31. PHELINAS P., HERNANDEZ V. et CIRIEZ C. (2021). « Perception de la Covid-19 et comportement des ménages en Argentine », *Etudes et Documents*, n°11, pp.1-39.
32. RATEAU P. et LO MONACO G. (2013). « La Théorie des Représentations Sociales : orientations conceptuelles, champs d'applications et méthodes », *CES Psicología*, vol. 6, n°1, pp.1-21.
33. REUHLIN M. (1991). *Précis de statistique*, Col. Le Psychologue, 256p.
34. ROSENSTOCK I. M. (2005). « Why people use health services », *The Milbank Quarterly*, vol.83, n°4, pp. 1-32.
35. RAM S. et SHETH J. N. (1989). « Consumer Resistance to Innovations: The Marketing Problem and its Solutions », *The Journal of Consumer Marketing*, vol.2, n°6, pp. 5-14.
36. TAFFE P. (2004). *Cours de Regression Logistique appliquée*, Institut de médecine Sociale et Préventive (IUMSP) et Centre d'épidémiologie Clinique (CepiC), Lausanne, 60p.
37. VAIDIS D. et HALIMI-FALKOWICZ S. (2007). « La théorie de la dissonance cognitive : une théorie âgée d'un demi-siècle », *Revue électronique de Psychologie Sociale*, n°1, pp.9-18.