

Knowledge and Attitudes of Population Living in Rural and Semi-Rural Areas towards Covid-19 :Case of the Menoua Division, Cameroon

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Keywords: knowledge, Attitude, Menoua Division, Covid-19, Cameroon.

Abstract :

Background: The pandemic situation the world is facing caused by the new SARS-Cov-2 continues to evolve and still represent a real problem. With more than eight thousand reported cases infection, Cameroon stands as the seventh most affected country in Africa. Prevention remains the best way to fight against this zoonosis. However, the limited information available about this infection is a great barrier to stopping the propagation of the virus within the population, especially in rural and semi-rural areas, where the lack of financial and material resources is a reality. This study aimed to assessing Awareness and attitudes of the population of the Menoua Division on COVID-19 infection.

Methods: A cross-sectional study was conducted from March 9 to April 15 2020 amongst the populations of rural and semi-rural areas of the Menoua Division. Data were collected using a questionnaire administered face to face to each participant. The analysis was carried out using the Statistical Analysis System software (SAS version 9.4). The significance threshold was set at a P value of less than 0.05.

Results: A total of 434 participants of which male majority (sex ratio 1.07) were included in this study. The most represented age group was [21 - 40] years old representing 40.29% of the participants. Approximately all participants (98.57%) were aware of the world emergency state due to Coronavirus. 75.56%, 91% and 90.93% of the participants knew respectively that having close contacts, kissing and touching the face with the hands could favor the transmission of the virus. However, nearly 91.14% were not aware of the clinical symptoms of the disease. Moreover, 85.02% responded that they would not be able to comply with the confinement measures if they were applied at national level. The level of awareness varied significantly according to the occupation ($p=0.038$) and the educational level ($p<0.001$) of the participants.

Conclusion: The average level of awareness of the population of the Menoua Division on COVID-19 infection was relatively low. Overcoming this pandemic disease means ensuring the flow of the correct information towards the population. Community outreach activities focus on clinical manifestations and what to do in case of COVID-19 infection as well as material and financial support should be help the population to protect themselves effectively against pandemic, particularly in rural areas and surrounding.

Conoscenza e comportamenti della popolazione delle aree rurali e semi-rurali di fronte al COVID-19: il caso del dipartimento della Menoua, Camerun

Parole chiave: conoscenza, attitudine, dipartimento della Menoua, Covid-19, Camerun.

Abstract:

Contesto: la situazione pandemica che il mondo sta affrontando a causa della nuova SARS-Cov-2 continua ad evolversi e rappresenta ancora un vero problema. Con oltre ottomila casi di infezione segnalati, il Camerun rappresenta il settimo paese più colpito in Africa. La prevenzione rimane il modo migliore per combattere questa zoonosi. Tuttavia, le limitate informazioni disponibili su questa infezione rappresentano un grande ostacolo nel contrastare la propagazione del virus all'interno della popolazione, specialmente nelle aree rurali e semi-rurali, dove la mancanza di risorse finanziarie e materiali è una realtà. Questo studio mira a valutare la consapevolezza e gli atteggiamenti della popolazione del Dipartimento della Menoua sull'infezione COVID-19.

Metodi: uno studio trasversale è stato condotto dal 9 marzo al 15 aprile 2020 tra le popolazioni delle aree rurali e semi-rurali della Menoua. I dati sono stati raccolti utilizzando un questionario somministrato faccia a faccia a ciascun partecipante. L'analisi dei dati è stata effettuata utilizzando il software Statistical Analysis System (SAS versione 9.4). La soglia di significatività è stata impostata su un valore P inferiore a 0,05.

Risultati: un totale di 434 partecipanti di cui la maggioranza maschile (ratio per sesso 1,07) sono stati coinvolti in questo studio. La fascia d'età più rappresentativa aveva [21 - 40] anni e rappresentava il 40,29% dei partecipanti. Circa tutti i partecipanti (98,57%) erano a conoscenza dello stato di emergenza mondiale a causa del Coronavirus. Il 75,56%, il 91% e il 90,93% dei partecipanti sapeva rispettivamente che avere contatti stretti, baciare e toccare il viso con le mani poteva favorire la trasmissione del virus. Tuttavia, quasi il 91,14% non era a conoscenza dei sintomi clinici della malattia. Inoltre, l'85,02% ha risposto che non sarebbero stati in grado di conformarsi alle misure di confinamento se fossero state applicate a livello nazionale. Il livello di consapevolezza variava significativamente in base all'occupazione ($p = 0,038$) e al livello di istruzione ($p < 0,001$) dei partecipanti.

Conclusioni: il livello medio di consapevolezza della popolazione del dipartimento della Menoua sull'infezione COVID-19 era relativamente basso. Sconfiggere questa malattia pandemica significa garantire il flusso delle informazioni corrette verso la popolazione. Le attività di sensibilizzazione della comunità si concentrano sulle manifestazioni cliniche e su cosa fare in caso di infezione da COVID-19, così come il supporto materiale e finanziario dovrebbe aiutare la popolazione a proteggersi efficacemente dalla pandemia, in particolare nelle aree rurali e circostanti.

Results

I- socio-demographic description

We were able to collect data from 434 respondents, the majority of whom were male (sex ratio of 1.06), thus representing 51.61% (224/434), the most represented age group was [21 - 40] years old (174/434), for about 40.09%. In this study, 62% (269/434) of the participants were farmers and 50.23% (218/434) had primary education. Finally, 65.67% (285/434) of the responders mentioned having a clinical history. (Table 1)

Table 1: Descriptive statistics of sociodemographic variables

Variables	Modality	Percentage (%)	Frequency
Age of participants	[18 - 21]	34.79	151
	[21 -40]	40.09	174
	[40 - plus]	25.12	109
Sex	Male	51.61	224
	Female	48.39	210
Profession	Farmer	62.00	269
	Teacher	11.06	48
	Tramer	9.68	42
	Student	7.60	33
	Others	9.68	42
Level of education	Out of School	12.44	54
	Primary	50.23	218
	Secondary	32.02	139
	Superior	5.29	23
Medical background	Respiratory problem	1.61	7
	Obesity	5.30	23
	Diabetes	1.61	7
	High Blood Pressure	3	13
	Cardiac Problem	0.92	4
	Other affections	21.89	95
	None	65.67	285

II-Knowledge about COVID-19

As mentioned in the "Materials and Methods" section, some questions were designed to assess our respondents' awareness of COVID-19. For example, a large proportion of respondents were aware of a virus that is currently causing ravages (99.20% or 428/431), that it was all about the coronavirus (98.60% or 424/430) and that it caused a disease called coronavirus influenza (98.57 or 414/420). We also noted that 75.56% (303/40), 91% (374/411) and 90.93% (371/408) of the respondents knew respectively that having close contact with others, kissing and touching own face with hands, could favor the transmission of the virus. However, our analyses show that only 30.66% (130/424), 24.71% (105/425) and 27.79% (117/421) of the respondents knew respectively that the bat is a potential reservoir of the virus, that anyone can contract the disease, and that saliva is the substance through which transmission occurs most often. Finally, 91.14% (391/429) said they did not know the symptoms of the disease, and 85.02 (369/434) said they could not comply with the confinement if it was ever instituted in Cameroon. (Table 2).

Table 2: Awareness data for COVID-19

Variables	Modality	Percentage (%)	Frequency
Knowing on the existence of a virus that is currently raging	No	0.80	3
	Yes	99.20	428
Name of virus	Coronavirus	98.60	424
	Others	1.40	6
Name of disease caused by virus	Coronavirus influenza	98.57	414
	Others	1.43	6
Information chanel on the virus	Telephone	20.33	86
	Television	47.28	200
	Newspaper	13.48	57
	Interpersonal Exchange	3.55	15
	Radio	15.37	65
Epicentre of disease	China	50.23	215
	Others	2.34	10
	I don't know.	47.43	203

Variables	Modality	Percentage (%)	Frequency
Country most affected by the disease	China	7.94	34
Existence of Cases in Cameroon	No	1.44	6
	Yes	95.68	299
	I don't know.	2.88	12
Disease transmission route	Drinking contaminated water	2.13	9
	By eating contaminated meat	4.96	21
	Air Route	25.77	109
	Close contact	66.19	280
	Air route and Greetings	0.95	4
Person who may contract the disease	Children	0.94	4
	Young	2.22	9
	Adult	68.94	293
	Everybody	24.71	105
	I don't know.	3.29	14
Body substance that may contain the virus	Blood	8.08	34
	Air	45.13	190
	Sweat	6.65	28
	Saliva	27.79	117
	Vaginal secretions	3.09	13
	I don't know.	9.26	39

Variables	Modality	Percentage (%)	Frequency
Symptoms of disease	Fever	0.93	4
	Fatigue	0.93	4
	Cold	0.47	2
	Dry cough	1.86	8
	Nasal discharge	1.40	6
	Breathing difficulties	1.40	6
	All above	1.86	8
	I don't know.	91.14	391
Assimilation of this disease with another disease or infection in Cameroon	Influenza	63.55	258
	Cough	21.92	89
	Pneumonia	12.81	52
	Cough and influenza	1.23	5
	Influenza, cough and pneumonia	0.49	2
Contagiousness of this disease	No	0.93	4
	Yes	55.48	238
	I don't know.	43.59	187
Eating in the same dish	Cannot transmit or promote the transmission	82.83	337
	May transmit or promote transmission	16.17	65
Drinking in the same glass	Cannot transmit or promote the transmission	62.69	252
	May transmit or promote transmission	37.31	150
Close contacts	Cannot transmit or promote the transmission	24.44	98
	May transmit or promote transmission	75.56	303

Variables	Modality	Percentage (%)	Frequency
Wash your hands properly	Cannot transmit or promote the transmission	60.99	247
	May transmit or promote transmission	39.01	158
Wear a face mask	Cannot transmit or promote the transmission	80.87	338
	May transmit or promote transmission	19.14	80
Wear gloves	Cannot transmit or promote the transmission	39.42	164
	May transmit or promote transmission	60.58	252
Breath air containing the virus	Cannot transmit or promote the transmission	7.25	30
	May transmit or promote transmission	92.75	384
Stay 1 meter away from others	Cannot transmit or promote the transmission	91.57	380
	May transmit or promote transmission	8.43	35
	Cannot transmit or promote the transmission	95.68	399
	May transmit or promote transmission	4.32	18
Kissing	Cannot transmit or promote the transmission	9	37
	May transmit or promote transmission	91	374

Variables	Modality	Percentage (%)	Frequency
Touching the face with your hands	Cannot transmit or promote the transmission	9.07	37
	May transmit or promote transmission	90.93	371
Existence of treatment for COVID-19	No	77.19	335
	Yes	22.81	99
Name of the effective treatment for the disease	Garlic infusion	52.53	52
	Biter-cola	9.09	9
	King of Herbs	7.07	7
	Panacia	3.03	3
	Others	28.28	28
Existence of a vaccine against COVID-19	No	20.05	83
	Yes	25.36	105
	I don't know.	54.59	226
Comply with the Confinement if it is ever instituted in Cameroon	No	85.02	369
	Yes	0.14	65

III- Assessing the level of Awareness about COVID-19

The set of variables concerning awareness about COVID-19 allowed us to determine the overall level of awareness by assigning a score of 1 for each correct response from each respondent and a score of 0 when the response was incorrect. Those with an average score of less than 0.5 (less than 15 correct answers out of 30 on knowledge about COVID-19) were considered to have a poor level of awareness, while those with an average score of more than 0.5 (more than 15 correct answers out of 30) were considered to have a good level of awareness. Thus we could note that 67.28% (292/434) had a good level of awareness about COVID-19 infection. (Table 3)

Table 3: Level of awareness about COVID-19

Variables	Number (N)	Modality	Percentage (%)	Frequency
Knowledge level on COVID-19	434	Good	67.28	292
		Bad	32.72	142

IV- Influence of sociodemographic factors on the level of awareness to COVID-19

In order to assess the impact of sociodemographic variables on the knowledge level of respondents, we used the binary logistic regression method. This analysis showed that occupation $p=0.03$ and educational level $p=0.0001$ were significantly (P value <0.05) associated with the level of knowledge. Regarding occupation, being a student or a teacher favored having a good level of knowledge on COVID-19, compared to being a farmer; (OR: 6.92; 95% CI [1.37-44.01]; $p=0.02$) and (OR: 7.16; 95% CI [1.68-39.17]; $p=0.01$) respectively. Regarding school level, having a higher level of education contributed to a good level of knowledge on COVID-19; (OR: 6.47; 95% CI [2.43-17.46]). (Table 4)

Table 4: Results of the multivariate analysis by Binary Logistic Regression of Socio-demographic Factors as a Function of the Level of Awareness about COVID-19.

Modelled probability: level of awareness to COVID-19 (Reference: bad level of awareness [average score of awareness less than 0.5])

Variables	Modality	OR (95% CI)	P value by modality	Globale P-value by variable
Age	[18 - 21]	1		0.25
	[21 - 40]	0.78 (0.41-1.43)	0.42	
	[40 - plus]	1.40 (0.58-3.38)	0.45	
Sexe	Male	1		0.08
	Female	0.63 (0.37-1.06)	0.08	
Profession	Farmer	1		0.04*
	Dealer	3.17 (0.70-18.23)	0.16	
	Student	6.92 (1.37-44.01)	0.03*	
	Teacher	7.16 (1.68-39.17)	0.01*	
	Others	5.97 (1.02-43.76)	0.08	

Variables	Modality	OR (95% CI)	P value by modality	Globale P-value by variable
Level of education	Out of school	1		<0.0001*
	Primary	0.33 (0.08-1.18)	0.10	
	Secondary	0.78 (0.33-1.80)	0.56	
	Superior	6.47 (2.43-17.46)	0.0002*	
Medical background	None	1		0.45
	Obesity	6.66 (0.11-8.05)	0.06	
	Diabetes	2.66 (0.13-3.12)	0.40	
	High blood pressure	1.05 (0.47-4.16)	0.89	
	Disabled	4.36 (0.61-7.41)	0.97	
	Cardiac problem	2.59 (0.78-2.07)	0.99	
	Respiratory problem	2.55 (0.83-1.67)	0.23	
	Others affections	3.25 (0.04-3.60)	0.14	

Discussion

We report here the results of a study conducted in Cameroon among rural populations to assess their level of knowledge and attitudes regarding the COVID-19 pandemic. This study population was mainly composed of males. The analyzes found an average level of knowledge about COVID-19 disease of 68.87% in global population. This result, although higher than the 39.75% found in China among rural residents [16] is much lower than the results reported by other previously published studies 88.4%[17] and 90%[1]. Indeed, this study was conducted in the community (in households and public places) by interview of the participants as opposed to the collection approach via online survey questionnaires not always accessible to the different population classes. Also, our study was conducted at a time when the country was registering its first confirmed positive patients in the capital and when the population had not yet been able to benefit from an in-depth awareness campaign on COVID-19 to better protect themselves against the disease. The objective was to assess the general knowledge of the population on the pandemic, to identify gaps, risk groups and challenges faced by the population that could represent major obstacles in the fight against COVID-19.

When asked if they were aware of the health emergency the world is facing today, 99.2% of respondents answered in the affirmative and almost all of them knew the name and origin of the SARS-Cov-2 responsible for the many deaths around the world, among which China and Italy were cited as the largest payer country. The majority of participants were aware that Cameroon was not exempt from the pandemic and that cases of virus-positive patients had been recorded in the country. In general, the participants were well informed about the various barrier gestures and effective preventive measures to reduce the risk of contracting the disease. For this purpose, 91.57% and 95.68% respectively replied that the respect of a minimum safety distance of one meter and hygiene rules made it possible to limit the spread of the pandemic.

However, the different modes of transmission, the incubation period and the clinical manifestations of the infection were not well known to the inhabitants. Nearly 91.14% did not know the main symptoms of the infection, only that it could be assimilated to influenza (63.55%). This is a huge problem in the sense that it is important for each individual to remain vigilant and be able to detect any signs of the disease on himself or a relative to avoid exposing his surroundings and to follow the protocol recommended by the WHO in case of infection as which is to stay at home and contact the health service (WHO, 2020). Again, about one-third of the respondents (27.10%) were unaware that coronavirus infection is a zoonosis and that it was important to avoid going to animal markets and especially to avoid eating bushmeat in a pandemic situation. This observation was quite alarming when we know that bushmeat is particularly consumed in rural areas first for the preparation of certain mandatory traditional dishes but also for the quality of their flesh. Especially when there are wide variety of bats species in Cameroon.[19] Emphasis must be placed on this when planning the various awareness strategy in order to avoid uncontrollable outbreaks of coronavirus among the population.

Less than one-third (24.71%) of the populations were informed that everyone was likely to be infected with coronavirus. Indeed, the high morbidity rate recorded among the elderly, the expression of asymptomatic forms in nearly 80% of people and the first African case cure in china at the beginning of the epidemic who were a young Cameroonian have given rise to misinformation within the communities about the infection with the new coronavirus which would only affect the elderly and those of other origins. WHO reacted quickly in order to inform the public opinion but it is the responsibility of each State to use all available channels of communication to insist on this point and ensure that a relationship of trust is established with the populations, keep them informed of the evolution and new information on the COVID-19 pandemic in order to stop preconceived ideas, misinformation and generate more community involvement which represents an indispensable pillar to overcome the virus.

In terms of compliance with confinement measures, 85.02% (369/434) responded that they would not be able to comply if confinement measures were introduced. This can be understood by looking at the professional profile of the respondents. Indeed, 71.68% are either farmers or traders, working in the informal sector and having families to support. The study carried out by Austrian et al. in 2020 in Kenya also makes the same observation[6].Hygiene rules and medication were the alternatives put forward by the population in order to protect themselves from COVID-19. Especially 22.81% (99/434) reported having received recipes prepared from natural plants and names of drugs that would be effective against the disease and said they were ready to consume them in their homes if they ever contracted COVID-19 infection. In a study conducted in Nigeria, 11.86% of participants agreed with this view(Olapegba *et al.*, 2020).This result raises a major issue here, which is that of self-medication. To this end, it will be necessary to insist on raising awareness of the risks linked to this practice, especially when it is known that in Africa nearly 80% of the population still rely on medicinal plants to regain their health in the event of illness[21].

The main information channels enumerated in this study were national media (TV/Radio/Newspapers) for nearly 76.13%, with access to international media channels not being available to all. Internet through social media Whatsapp/Facebook... was nevertheless cited by 20.33% of respondents, mostly young people. This says a lot about the role that national and local media will have to play in the war against the virus. Especially when a lot of false information is relayed on social networks and becomes difficult to correct later on. SMS were not mentioned among the information channels in this study but they are a great means of communication to the population in this sense where the beneficiaries do not need internet connections and concerned telephone network, more than 80% of the country localities already enjoy network coverage [22]. The Ministry of Health could thus work in collaboration with national telephone operators to intensify the dissemination of awareness messages in order to reach as many people as possible.

Farmers and traders have been identified here as groups of people with a lower level of knowledge compared to students and teachers. They should be the main targets groups for awareness raising activities against COVID-19. Similarly, participants with a low level of education were more likely to have a poor level of knowledge about the pandemic. Similar results was found in two other studies conducted in Egypt and China[17-18]. Indeed, the department housing a public university institution, the student population as well as the teaching staff are numerous and they are more at the receiving end of useful information that would prevent them from contracting the disease.

Similarly, 34.33% (149/434) of the respondents had a history of chronic diseases, which makes them more at risk of developing severe forms of the disease in case of infection. This group of people should be better educated to better protect themselves against the pandemic. The African continent, although commonly confronted with important health situations such as Cholera epidemics, Ebola virus, malaria etc... responsible for many deaths, has never been confronted with disasters with outbreaks as observed today with the coronavirus nor demanded radical measures as imposed on the populations in the world today although indispensable; the WHO will not failed to sound the alarm to the African country by inviting everyone to prepare themselves for the worst face of this pandemic[11]. It is therefore a matter of the security of all country to implement strategies to limit the spread of viruses throughout their territory in order to avoid alarming deaths.

Conclusion

The aim of our study was to assess the level of awareness of people living in rural and semi-rural areas. We were able to obtain accurate and real field data from these populations on the COVID-19 pandemic. Generally, we found that nearly one third of the respondents had a poor level of awareness. This percentage is very high, especially when we now know that the effective fight against this pandemic is based on preventive measures. Understanding where there are weak spots, populations at risk and unavailable resources would make possible to develop appropriate interventions that take into account the realities and respond to the needs of the inhabitants. Thus, establish awareness-raising strategies at the community level, relayed by the national media in all dialects and above all, which provide material or/and financial assistance to populations to better manage this period of crisis, will generate greater receptivity among populations on the importance and seriousness of this situation, which requires community engagement.

Acknowledgements: The authors address their sincere thanks to all the participants to this study, as well as to all the traditional and administrative authorities for their collaboration in the success of the present work. Not forgetting the students of the Faculty of Medicine and Pharmaceutical Sciences for the role played in proximity awareness.

Conflicts of interest: The authors do not declare any conflict of interest in relation to this article

Funding: No funding was provided for this work.

Participant Consent: In this study, informed signed consents were submitted by the participants.

Authors contribution: EZM, ATT, EDT, GBDD Conception and design of the survey; ATT Data collection; EZM, ATT, EDT, Data analysis; EZM, ATT, EDT Interpretation of results; EZM, ATT, EDT, Drafting of the manuscript; All authors were involved in revising it critically for important intellectual content, and all authors approved the final version to be published. All authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved and declare to have confidence in the integrity of the contributions of their co-authors.

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