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Research Article

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Assessed Cholera-Related Knowledge in The Centre and Littoral Regions

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Summary

The study assessed knowledges of cholera in the Centre and Littoral regions. It was a cross-sectional descriptive study. One hundred and eighty-two people (182), including all community stakeholders, were surveyed. The quantitative data collected by the surveys were produced in an Excel matrix, and the qualitative data consisted of a database of verbatims transcribed from the various interviews. 92.17% and 82.37% of informants from the Centre and Littoral regions respectively had already been informed about cholera by oral and media sources. More than 40% of respondents cited contact with sick people, contaminated food and drinking unsafe water as the means of cholera transmission. Diarrhoea and vomiting were the most frequently cited clinical signs, and hygiene was the main method of preventing cholera.

1. Introduction

Cholera, caused by the bacterium *Vibrio cholerae*, is an acute watery diarrhoeal syndrome [1, 2]. Cholera remains a public health problem. Worldwide, there are between 1.3 and 4.3 million cases of cholera each year, and between 21,000 and 143,000 patients die from the disease [3]. In 2023, 535,321 cases and 4,007 deaths were notified to the WHO in 45 countries [4].

Some 1,268 epidemiological cholera outbreaks were recorded in 54 African countries between 2010 and 2016. There were 1,232 cholera deaths during this period [5]. The average cholera case-fatality rate reported worldwide in 2021 was 1.9% (2.9% in Africa), which is well above the acceptable rate (<1%) [6].

In Cameroon in 2010, 10,759 cases of cholera were reported in 8 regions of the country, with a case-fatality rate of 6.1% [7]. Cameroon experienced its worst epidemic in 2011, with 22,762 cases and 786 deaths reported [8]. In 2020, there will be almost 1,885 cases, with a case-fatality rate of 4.2% [9].

44 WHO Member States in the African Region have implemented Integrated Disease Surveillance and Response, including Cameroon [10]. The WHO has supported 65 oral cholera vaccination campaigns by donating 16.2 million doses of vaccine to 18 countries, including 11 African countries [3].

By 2022, Cameroon had achieved 94.64% coverage. 1.8 million doses of oral cholera vaccine were received in June 2023 and administered in the 11 most affected health districts in the Centre region [11].

As part of the fight against cholera, Cameroon has implemented cholera-related prevention and health promotion activities in addition to vaccination activities (campaign and routine), integrated disease surveillance and response, and the incident management system. These activities have demonstrated their impact in reducing the incidence of cases between 2010 and 2022. Nevertheless, the case-fatality rate still remains above 1% in regions where flooding is most marked, as it is considered to be an aggravating factor in cholera [12]. In 2022, the Littoral and Centre regions reported high case-fatality rates of 2.9% and 3% respectively, and were included in our study to assess the population's knowledge of cholera [13].

2.Methodology

2.1Type of Study

This is a mixed quantitative-qualitative study. The theory used in our study is the socio-ecological model.

2.2 Study Framework

The choice of health districts for investigation was guided primarily by data from Sitrep No. 45, which presented the epidemiological situation of cholera in Cameroon. The study was carried out in areas and communities considered to be hotbeds of the epidemic, so the empirical work was carried out in 12 health districts, six of which were in the Centre region and six in the Littoral region.

2.3 Study Population

The primary target population of the study was the population of the Centre and Littoral regions (Douala in particular) aged 18 and over. The secondary target population included all the different categories of stakeholders found at the survey sites or locations: religious and traditional leaders, administrative authorities, shopkeepers, mototaxi and taximen drivers, cholera patients who had recovered their health, household members of former cholera patients who had recovered or died, members of households neighbouring affected households, ethno-therapists (traditional healers), informal sector drug sellers, naturopaths, CBO managers involved in prevention activities, CHWs/CRAs, etc.

2.4 Sampling

2.4.1Data collection

Data was collected by means of questionnaires using the KOBO COLLECT electronic tool for the quantitative survey, and semi-structured interview guides and observation grids for the qualitative component of the study.

2.4.2 Quantitative component

Household draws : Three-stage sampling was carried out. The primary sampling units (or clusters) were the health areas taken from the updated health mapping file. Within each health district, two health areas and two communities within each area were randomly selected (high-risk epidemic areas) with the help of district focal points. The secondary units were communities or villages/neighbourhoods. A first community was selected from those located within a 5 km radius of the nearest health facility. A second community was selected from those located more than 5 km from the nearest health facility. The tertiary sampling units were households. In each community selected, 30 households were systematically drawn. Households were drawn at a sampling rate of 1/15 or 20 households, depending on the level of household concentration. Within each household selected, a household questionnaire was administered to the head of the household or his or her representative, i.e. an adult (aged 18 and over) capable of providing adequate information on the household's living conditions.

2.4.3 Data analysis and management

The quantitative data collected by the surveys were entered and analyzed using Microsoft Excel". Univariate, bivariate and multivariate analyses were carried out. As for the qualitative data, a verbatim database was compiled following the transcriptions of the various interviews. A standard transcription template was given to the various transcribers. A qualitative data analysis matrix was drawn up. Thematic analysis and contextualising analysis techniques were used.

2.5 Ethical Considerations

The field survey was carried out using administrative authorisation from the Cameroon Ministry of Public Health. In the field, participants were informed in advance of the objective of the activity, the benefit-risk and the use that would be made of the data collected. They were only enrolled in an interview or focus group after giving their verbal consent. At the start of each interview, the interviewers reiterated the objectives of the interview and obtained the participants' permission to record.

3. Results

3.1 Sample Size

The sample size was calculated using the confidence interval method. It was planned to cover 48 communities in the 12 districts and 24 health areas.

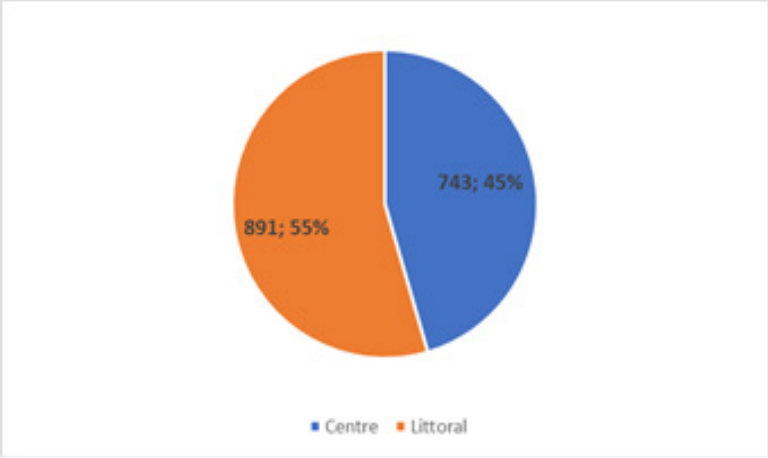

Figure 1: Distribution of the survey population by region

3.2 Distributions and Profiles of Targets Mobilized for Interviews and FGD

Favoring the triangulation of various sources of information, the field survey, in its qualitative aspect, mobilized a diversification of stakeholder profiles. The following graph gives an overview of the key informants mobilized for the interviews and the FGD (focus group discussion).

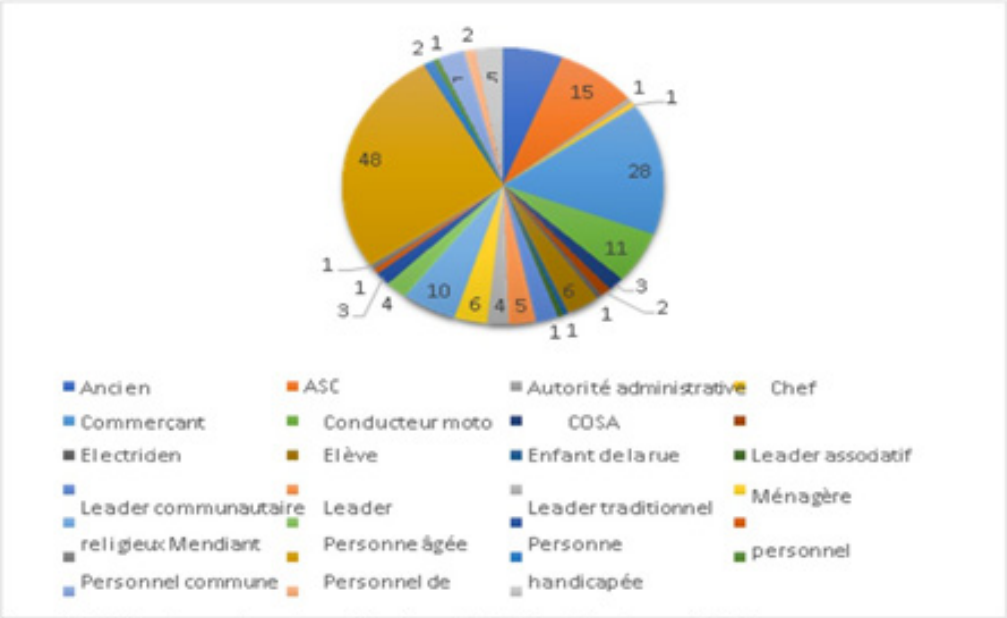

Figure 2: Distributions and profiles of targets mobilized for interviews and FGD

3.3 Socio-Demographic Characteristics of Study Participants

Ages	**Centre**	**Littoral**
18-19 years old	5,92%	4,83%
20-24 years old	9,42%	12,79%
25-34 years old	38,36%	25,59%
35-45 years old	25,19%	34,68%
>45 years old	21,13%	22,11%
Educational level	**Centre**	**Littoral**
None	5,39%	6,85%
Primary	22,78%	17,42%
Secondary	53,23%	50,45%
Higher	18,60%	25,28%
Marital status	**Centre**	**Littoral**
Single	26,65%	28,62%
divorced/separated	3,23%	2,02%
monogamous married	27,73%	35,24%
polygamous married	7,54%	9,88%
common-law	28,67%	16,95%
Widowed	6,19%	7,30%
Religion	**Centre**	**Littoral**
animist/traditionalist	1,88%	2,92%
Other	4,17%	1,35%
Catholic	51,55%	41,41%
Muslim	14,40%	14,81%
Pentecostal	8,88%	7,30%
Protestant	18,30%	29,29%
Jehovah's Witnesses	0,81%	2,92%

Average monthly income	Centre	Littoral
100000-150000	11,29%	13,58%
>150000	3,81%	4,22%
50000-100000	36,60%	39,50%
<50000	48,30%	42,69%

Table 1: Socio-demographic characteristics

3.4 People's Level of Information about Cholera

In the two regions of Centre and Littoral, 92.17% and 82.37% of informants had already been informed about the presence of cholera. The following tables and graphs illustrate this.

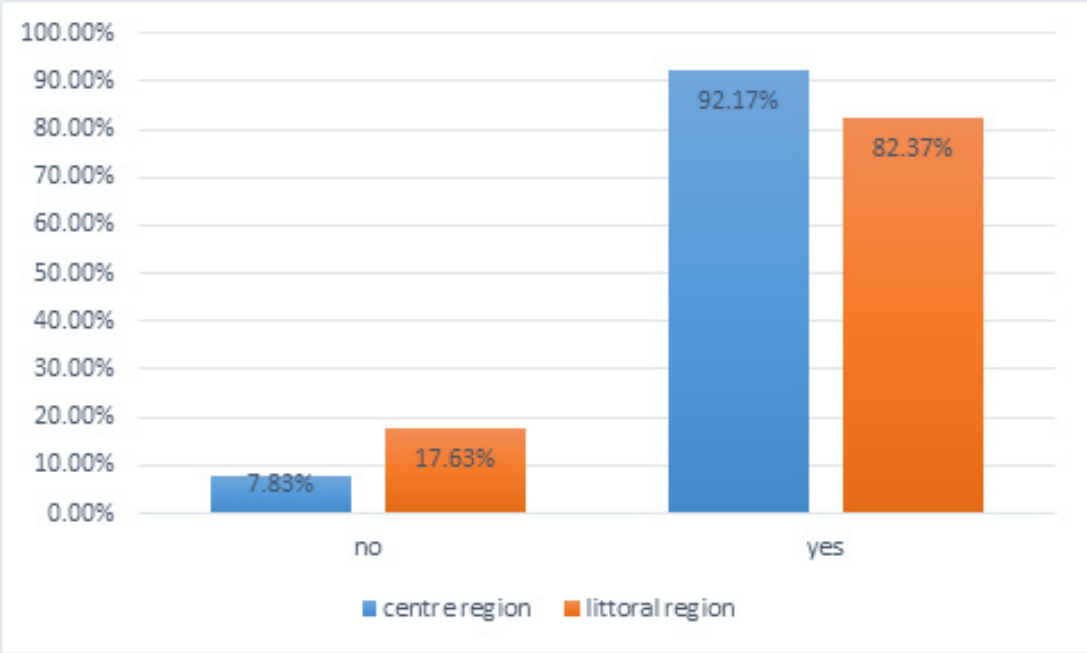

Figure 3: People's level of information about cholera

The interviews and focus groups discussion (FGD) show that the informants were already familiar with cholera: "Yes, I know cholera well, it's not a new disease. It's the lack of respect for hygiene rules that causes it. The symptoms include diarrhoea and vomiting", says a drug seller from the road side, Yaounde. In addition to these comments from, the elderly are also well aware of the existence of cholera: "Yes, you're asking me the question about cholera. Madame, are we really aware of all this stuff? Cholera is an old disease when we used to go out and talk about cholera, and we also used to ask whether it's mystical or not always cholera, always cholera! Can't it end one day, it's gone on too long, cholera?" patriarch in Ekounou II south side.

Others had heard about it through communication campaigns organized in various places and media: "I know that cholera has started. People are talking about it everywhere, on the radio, on television, even on social networks, even in the neighborhood. Last time I was at the Acacia market, everyone was talking about it", says a student. Another declares: "It was in May that I began to understand the cholera affair. Even in my neighborhood in Esse, here in Ekounou, the nurses often come by on Saturdays to raise awareness. Streetfood restaurant saleswoman.

3.5 Knowledge of Modes of Cholera Transmission

The modes of transmission mentioned by the population concerned the consumption of non-potable water or food contaminated by rubbish, sewage, food bought on the road or by contact with people who were ill or had died of cholera, as shown in the figure below.

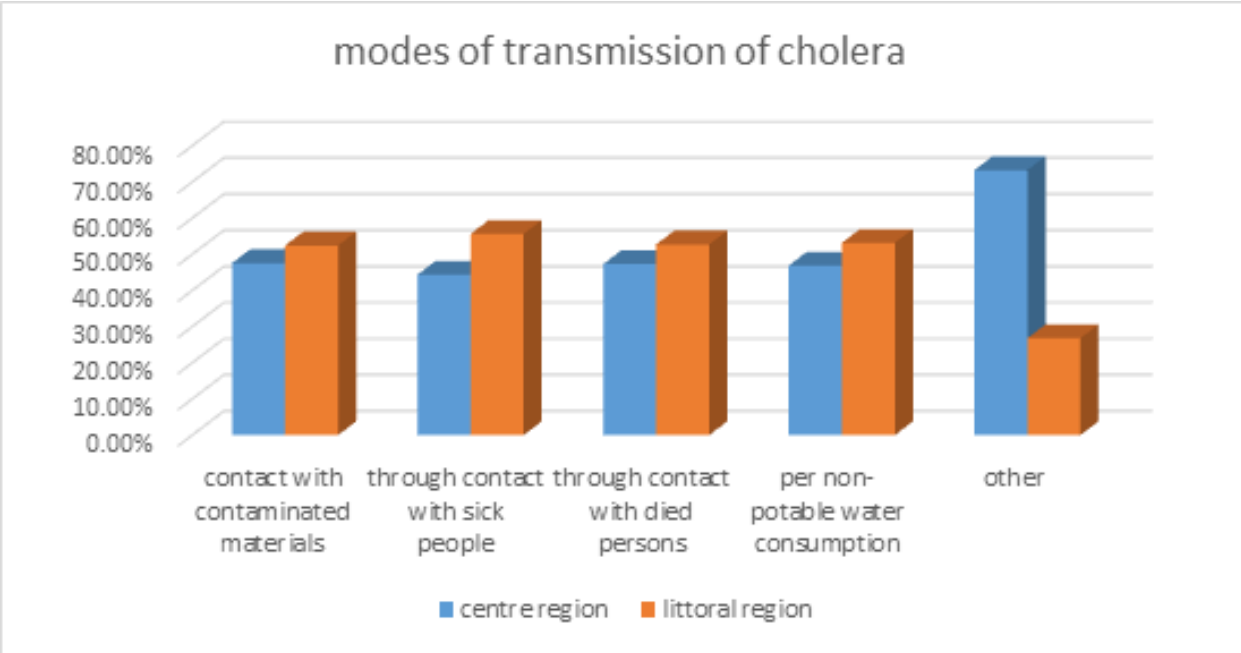

Figure 4: Distribution of cholera transmission modes

For a market trader, "it's a disease of dirt, and when you don't wash your hands where you are, you don't look after yourself, so the dirt there, the smells and the fruit too, you don't wash the vegetables, so that's what can give you cholera", roadside braised corn seller at the Ekounou market.

For others, contact with a sick person, or contact with objects used by the sick person during the illness, is enough to infect them: 'A person sick with cholera can transmit the disease to you by touching you' (interview with a pregnant woman, Littora)l; 'When you touch a person sick with cholera, or their objects, like clothes, or anything else that can catch your hands when you try to put your hands over them, and maybe when you try to put your hands through your lips, you can easily catch cholera. So you have to be careful, it's very contagious' ASC, Littoral.

Knowledge of cholera symptoms

Values	Centre		Littoral		Total
	numbers	Percentages (%)	Numbers	Percentages (%)	
Diarrhoea	669	45	832	47	1501
Vomiting	639	43	811	45.7	1450
No symptoms	7	0.3	15	0.8	22
Don't know	56	3.7	55	3.1	111
Other	113	7.6	58	3.2	171
Total	1484	100	1771	100	3255

Table 2: Distribution of respondents according to knowledge of cholera symptoms

The interviewers listed vomiting and diarrhoea as signs and symptoms of cholera, as shown in table 4 below.

Some people told us about the clinical manifestations of the disease: 'We were told that when you have diarrhoea, you vomit and your stomach hurts, that's cholera'. (Interview with a maize-braiser in Yaoundé); People with cholera have diarrhoea and vomit, said a transporter in the Besseké district.

However, these symptoms were confused with those of simple diarrhoea or indigestion by some respondents: 'When he started vomiting and having diarrhoea, I thought it was the drink. My brother liked to drink and every time he drank, he threw up, so my mother and I didn't mind and let him throw up. When he started having diarrhoea, we thought he must have eaten something that he didn't digest properly. My brother was capable of eating dirt. To tell the truth, he neglected the rules of hygiene. It was when the diarrhoea started coming out like water that we started to worry about his state of health' (interview with the brother of a relative who died of cholera).

Other respondents mentioned fatigue in addition to vomiting and

diarrhoea: ‘What we know about cholera is that it doesn't like dirt and I also know the symptoms of that, diarrhoea, vomiting and fatigue too’, a roadside braised corn seller at the Ekounou market.

3.6 Knowledge of Cholera Prevention Measures

Hygiene measures such as handwashing with soap, food hygiene and drinking water emerged from respondents' answers as measures likely to prevent cholera, as shown in table 5 above.

Values	Centre		Littoral		Total
	numbers	Percentages (%)	numbers	Percentages (%)	
Wash hands regularly with soap and running water	628	28.1	783	28.3	1411
Ensure the hygiene of utensils used in the kitchen and during Meals	488	21.8	564	20.4	1052
Use drinking water	584	26.1	694	25.1	1278
Limit exposure of food to the air	267	11.9	375	13.6	642
Limit open defecation	264	11.8	345	12.5	609
Total	2231	100	2761	100	4992

Table 3 : Knowledge of cholera prevention measures

Some of the people involved in communication and raising awareness in the community said: ‘Hygiene rules are part of everyday life. That's what we have to do every time you go to the toilet, or before you come back from the toilet, you have to wash your hands with soap. If you're given food, you have to wash your hands properly before and after eating’ ASC from Barcelona, DS Nylon.

‘I think that each member of the community should respect hygiene measures such as washing their hands with running water, because it's not the water in the bucket with the soap, because not everyone has a tap, we were taught that you put two buckets and the bucket there with a cup next to it’ PF communication DS Nylon.

For one carer, ‘to avoid cholera, you always have to wash your hands before and after meals, prepare your food properly and live in a clean environment’.

4. Discussion

Half of the people interviewed in the two regions had secondary education, and more than 80% of respondents in the Centre and Littoral regions were aware of the presence of cholera, as it was described as an ‘old disease’ or ‘known disease’ by the majority, which corroborates the results of the study conducted in the commune of Karisimbi, city of Goma in the DRC, on knowledge, attitudes and practices regarding cholera prevention measures [14]. In the Centre and Littoral regions, interpersonal communication (friends, family), leaders (religious, community), district health services or CHWs and the media/social networks are the most frequently cited channels of health information, as shown by the studies carried out in Ghana and in the commune of Karisimbi, town of Goma in the DRC [14,15].

Drinking non-potable water, eating without washing hands and being in contact with a cholera patient are the most frequently cited modes of transmission in the population, as demonstrated by the results of the study carried out in the commune of Karisimbi, city of Goma in the DRC, the results of an analysis of a multifactorial aetiology of cholera and those of the CAP survey conducted in Jazan in Saudi Arabia [14,16,17].

Vomiting and diarrhoea are the symptoms most frequently cited in both the centre and littoral regions, as shown by the studies carried out in Lebanon, the DRC and Saudi Arabia on knowledge of the causes of cholera [14,17,18].

The most frequently cited cholera prevention measures are: personal hygiene measures such as hand washing, ensuring that cooking utensils are clean and drinking water. These same measures were frequently cited in studies carried out in Tanzania and Katanga province in the DRC [19,20].

5. Limitations

The knowledge of the populations of the Centre and Littoral regions about the treatment of cholera and the vaccine against this disease was not evaluated.

6. Conclusion

Cholera is a public health problem because of its frequency and severity, a consequence of both inequalities and shortcomings in social and economic development. The study assessed knowledge of cholera in the centre and littoral regions, both quantitatively through a survey and qualitatively through individual interviews with 182 informants, the majority of whom were in the 25-45 age group and had a secondary school education. Nearly 80% of the respondents had already heard about cholera from oral sources (CHWs, health staff, leaders, etc.) and from the media. Diarrhoea and vomiting were the most frequently cited clinical signs (>40%). Hygiene remains the prevention measure most frequently emphasised. The results of this study show that people in the Centre and Littoral regions are aware of cholera, that communication strategies are appropriate and that Cameroon is

well on the way to achieving the objectives of the global cholera control strategy.

Fund

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