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Coronavirus-19 (Covid-19) Knowledge, and the Influence on Infants and Young Children Feeding Behaviors and Practices in the Mifi Health District, West Cameroon: Qualitative Study

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Abstract

Introduction: COVID-19 presents immediate and long-term nutritional challenges. Improving infant and young children feeding (IYCF) at the community level is a key priority for optimizing the survival, growth, and development of children. The study assessed the influence of the Covid-19 pandemic on the feeding behaviors and practices of children under five in households of the Mifi Health District.

Methods: This qualitative study used the non-random sampling technique; data was collected during focus groups (FG) among mothers & fathers, face-to-face individual interviews with Key informants (KI), and In-depth interviews (ID), and document review. Discussions were transcribed verbatim and repeated data was deleted. A thematic analysis was carried out.

Results: Forty-five participants (76% Female; 24% male), 03 FG, and 30 face-to-face individual interviews were conducted (15 KI; 15 ID). Demographically, 82.2% were Christians; 11.1% Muslims and 6.7% traditionalists. Mothers knew that it's necessary to exclusively breastfeed children up to six months and incorporate complementary foods beyond six months even during COVID19. They however believe that breastfeeding in public places exposes babies to COVID19; complementary foods from markets are a potential source of infection and an infected mother should not breastfeed. Participants mentioned a reduction in the consumption of meat and fruit in households. The spread of rumors led to increased demand for foodstuff. Mothers reported the need to wash their hands and wear face masks before breastfeeding. Equally, a decrease in attendance of vaccination services was noted.

Conclusion: Creating breastfeeding rooms in public places and an intensive sensitization on nutrition in the COVID19 context can improve IYCF.

Keywords: Infant and young child feeding; Health crisis; COVID-19; Cameroon, Knowledge attitudes practices

Introduction

A new public health crisis has been threatening the world since December 2019, with the emergence and spread of the new coronavirus 2019 (2019-nCoV) or severe acute respiratory coronavirus 2 syndromes (SARS-CoV-2). Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, previously 2019-nCoV) is suspected of having originated in 2019, China from a coronavirus infected bat of the genus Rhinolophus. Following the initial emergence, possibly facilitated by a mammalian host, SARS-CoV-2 is currently transmitted across the globe through human-to-human transmission [1]. Most people infected with the Coronavirus will suffer from mild to moderate respiratory disease and will recover without special treatment. In contrast,

the elderly and those with underlying medical conditions such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop a serious disease [2]. Presently, 213 countries are affected, with approximately 12.2 million cases of COVID 19 reported worldwide, including 4.5 million active cases and 553 thousand deaths, according to the Worldometter website [3]. In Cameroon, as of 6th May 2021, the overall epidemiological situation reported 74946 positive cases, 1152 deaths, and 70497 people recovered from COVID-19 [4].

All ages are likely to become infected with COVID-19. It is transmitted by inhaling droplets generated during coughing and sneezing from an infected person; through physical contact with symptomatic people, and also by asymptomatic people even if they do not yet present symptoms [5]. Furthermore, transmission could be by contact with surfaces contaminated with this virus, by rubbing the nose, mouth, and eyes with infected materials or hands. The virus is also present in stool, in water and subsequent fecal-oral contamination is also assumed [6].

To prevent infection at the community level, it is recommended that people avoid overcrowded areas and postpone non-essential travel to high-risk zones (places where prevalence is high). It is also recommended that people respect hygiene measures such as coughing in the elbow or other materials rather than in hands, washing hands frequently, using an alcohol-based hand sanitizer to disinfect their hands; wearing face masks for both people with respiratory symptoms and those without them [7]. Nevertheless, the use of these masks by healthy people in public places has not been effective against this respiratory viral infection [8]. However, according to Cowling BJ and Leung GM, the use of face masks by the general public is potentially very useful in reducing community transmission and the burden of the pandemic. Community-wide benefits are likely to be greater when face masks are used in conjunction with other non-pharmaceutical practices (such as social distancing), and when it is nationally adopted and compliance is high [9].

Several countries, such as Cameroon, have also adopted similar health measures such as the closure of schools; closure of borders except for cargo ships and ships carrying large quantities of consumer goods, essential goods, and equipment with limited and supervised stopover time. Furthermore, other measures such as systematic closure of drinking spots from 6 pm, restaurants and leisure venues; introducing a system to regulate the flow of costumers into markets and shopping centers; avoid overloading in buses, taxis, and motorbikes. These government measures are not without repercussions and can influence the food value chain within the national territory. They can influence intra-household eating habits and behaviors and impact the health of vulnerable people such as the elderly, pregnant women, and children under five years of age.

Accelerating interventions to improve infant and young child feeding (IYCF) at the community level is a key priority in the effort to optimize the equitable survival, growth, and development of children [10]. Several studies are currently available on the mode of transmission of coronavirus, but few studies are exploring the influence of the pandemic on household behaviors and practices and the overall feeding of infants and young children in Cameroon. Current scientific knowledge shows that the breast milk of a COVID-19 mother cannot be considered a vehicle of transmission, like other known respiratory viral infections [11, 12]. Some authors suggest that mothers who are COVID-19 positive should not breastfeed, but there is little solid evidence of exposure to infection compared to the benefits of breastfeeding. On the other hand, other authors recommend, at this time of the pandemic COVID-19 to combine the promotion of breastfeeding with correct measures to control infections, to limit contagion by droplets, and by contact with respiratory secretions of infected patients (including mothers who have just given birth) [13]. Indeed, the United Nations Children's Fund (UNICEF) and the Cluster Global Nutrition advocate maintaining best feeding practices for infants and young children while respecting strict hygiene measures, even if a mother is suspected of having Covid-19 [14]. IYCF best practices include initiating breastfeeding within one hour of birth, exclusive breastfeeding for up to six months, the introduction of safe and age-appropriate complementary feeding from six months, and continued breastfeeding for up to 6 months or more. Breastfeeding recommendations include breastfeeding within one hour of birth, exclusive breastfeeding until six months of age, and continuation till up to two years or more. Among the key recommendations on infant and young child feeding (IYCF) in an emergency, context is: the protection, promotion, and optimal support of the IYCF integrated with multi-sector interventions and the minimization of the risk of artificial breastfeeding [15].

The COVID-19 pandemic presents immediate and long-term nutritional challenges. It immediately threatens food systems, especially amongst the vulnerable population, and in the long term will test the world's ability to achieve sustainable development goals. However, there are lessons to be learned from the pandemic that deserves to be replicated for other global challenges. The urgency of the pandemic is forcing the international community to act while gathering evidence and at the same time collecting, sharing, and interpreting pandemic data to inform and refine the future response. This is a valid approach to consider in combating the malnutrition crisis as well [16]. The purpose of this study was to describe the influence of the pandemic on feeding behaviors and practices in infants and young children in one of Cameroon's regions, where confirmed cases of coronavirus 2019 have already been recorded.

Our hypothesis for this study is that mothers' knowledge/ conviction about the coronavirus-19 pandemic negatively impacts IYCF in communities. Although studies up to the date we implemented this study had not yet established links between breast feeding and transmission of COVID-19 to infants, or contamination of complementary foods found in markets or fields and transmission to young children, and there could be erroneous knowledge and barriers in the communities of the IYCF. Similarly, misinformation could play a barrier role in accessing child health care in health facilities. This study, therefore, aims to document

the knowledge/conviction, behaviors, and negative attitudes that negatively impact the IYCF. The results of this study serve as a basis for redirecting awareness messages and refining strategies to optimize IYCF in COVID-19 settings or other epidemic or pandemic settings.

Materials and Methods

Study Scheme

This was a qualitative study whereby data was collected in two phases from several groups of participants using a semi-structured questionnaire and in-depth interviews between April and May 2020. The first step was to explore the perceptions of staff at community health service in the Mifi Health District during the health crisis. And secondly, to study IYCF behaviors and other feeding practices among mothers who are community leaders.

Study Population

The Mifi Health District is one of the 20 health districts in the West region, Cameroon. With a population of 370,845, including 69,586 children aged 0 to 59 months, the district has twenty (20) health areas. The target population was children aged 0-23 months and their mothers, residing in the Mifi health district at least six months before the start of the study.

Sampling

Sample size: The sample size was based on the principle of data saturation, we stopped collecting data when no new information emerged. To measure saturation, a preliminary analysis of the data was done continuously from the theoretical sample of 30 interviews based on the literature, the decision of saturation was made together between the moderator and the observer. This method has already been used by several authors such as Kabir A and Maitrot MR [17]. Table 1 summarizes the methods in detail [18, 19, 20]. These studies had shown that the number of in-depth interviews required ranged from 16-21; interviews with 5-24 informants and 6-14 FG of 8-10 participants for each group.

Sampling method: We adopted a purposive sampling strategy [21], not aiming to achieve statistical representation of the population, but to identify a variety of experiences related to our research questions. Non-random sampling was used to select study participants based on the maximum variation. The sampling method was targeted to ensure a diverse sample in age, level of [22], economic situation, and geographic distribution. For Health Workers (HW), the selection was based on their experience in pediatric, immunization, or maternity services and the length of time spent working in the community. It was ensured that each health area (20 heath areas at Mifi Heath district) was integrated into the sample by the participant. Health care workers of each health area suggested to the investigator which Community Health Workers (CHW) were to be interviewed. Community health workers helped investigators identify mothers and households to interview based on their field experiences, and opinions on infant and young child feeding in households, and knowledge about COVID-19. Table 1 summarizes the method of data collection used by the type of study participant.

Out of a total of 45 participants (76% female and 24% male), we held 3 focus groups (FG) with 15 participants and 30 interviews (15 with key informants and 15 In-depth interviews) were conducted in the communities of the Mifi Health District in the West region, Cameroon. Interviews with key informants (KI) were conducted with 08 community health workers, 07 healthcare workers in health areas. In-depth interviews (ID) with 15 mothers (06 pregnant women and 09 breastfeeding women). Of the three focus groups organized, two discussions with 04 and 05 mothers and one with 06 fathers of families of the health district.

Method of data collection

The data was collected primarily during focus groups (FG), and one-on-one interviews with key informants [23]. This method was justified by the fact that it allowed unforeseen subjects to be asked and to explore in-depth the problem or subject of the research [24, 25]. Semi-structured discussion and interview guides had been developed by a team of experienced professionals in multidisciplinary fields, including public health, nutrition, and social sciences, and monitoring and evaluation. The guides covered an assessment of the knowledge of the COVID-19 pandemic; an assessment of the habits and practices of the IYCF in households before and during the COVID-19 pandemic and the influence of the pandemic on access to child health services in the study area.

Focus groups took place in health areas in a spacious location, calm, with privacy and low ambient noise for optimal recordings, chosen in agreement with the community health worker. Participants were separated by at least 1.5 meter's distance; a face mask was used by each participant per measures taken by the government of Cameroon to minimize the risk of exposure to COVID-19 during the FG. The seating model was circular where participants could talk face-to-face. For each focus group, a moderator and secretary were assigned with the assistance of a community health worker. The data was recorded anonymously on audiotape and then encrypted on a computer for security and confidentiality. Audio data from the discussions were transcribed verbatim into French [20]. Each moderator and group participant were briefed on qualitative research, study objectives, the study scope, and collection tools used in interviews. At the end of each discussion, each participant filled out a form to provide information on their socio-demographic data.

The documentation review of monthly activity reports (RMA) was done in District Health Information Software 2 to compare access to child health care such as vaccination among children before the pandemic and during the covid-19 pandemic over two years (2019 and 2020).

Ethical Consideration

This study was approved by the Mifi District Health Service.

Table 1: Methodology and participants

Method	Participants	Sites
In-depth interviews (16-21)	Pregnant Women (PW), Breastfeeding Women (BFW)	Mifi Health district
Interviews with key informants (5-21)	Health workers (HW), Community Health Workers (CHW), Mother leaders	Mifi Health district
Focus Groups (6-14)	Household members (Father, mother, grandmother)	Mifi Health district

Source: Adapted from Kabir A and Maitrot MR (2017)

Data were collected from all the participant who gave consent and provided sample freely. The collection sheets were anonymous for participant protection and confidentiality, and data were coded, entered, and stored virtually (One Drive), access to the database was safeguarded by a password, and access was limited only to those responsible for the study.

Data Analysis

The discussions and verbatim transcription were collected in the French language. A thematic analysis was carried out [22].

1. Two authors independently read all the transcripts in depth. Categories and themes were identified based on meticulous and systematic reading and coding of transcripts [26].

2. Both authors created a temporary coding tree, based on the themes that emerged from the data.

3. They identified each and encoded the relevant text passages in a health area transcript and refined the coding tree. Topics with similar domains were then categorized based on the study objective and data collected. Particular attention was paid to the number of participants who shared certain ideas in some of the quotes to guide the reliability of the data. The participants quotations were reported directly as they were uttered, without changing the grammar so as not to lose meaning [27]. Perceived discrepancies between the coders were discussed until a consensus was reached and the coding tree was finalized.

4. An author coded two remaining transcripts using the final

Results

Demographics Data

From all face-to-face individual interviews, we counted 05 (16.6%) male and 25 (83.4%) female participants, with ages ranging from 18 to 83 years, with an average age of 37 years. Fifteen participants in the FG, including 9(60%) female and 6(40%) male participants. Thirty-six (82.2%) participants were Christians; 05 (11,1%) Muslims and 03(06.7%) traditionalists. Table 2 presents participants' demographic characteristics by gender and by type of interview.

Population Knowledge on COVID-19

Knowledge of the COVID-19 case definition: FG with mothers and individual interviews have shown that community members have a good understanding of the definition of a COVID-19 case. Mothers know that it is a disease that manifests itself through nasal discharge, fever, and cough. One mother stated that these are "chronic cases of flu with flu-like symptoms more complicated and is transmitted through the oral and respiratory routes and also through hand contact." Mothers recognize that the disease affects everyone, mothers, children, and men. There are also some qualifiers for designing COVID-19 in communities such as "devastating disease"; "a very dangerous virus". Communities know that hygiene influences the transmission of the virus. A Community Health worker says, "It's a contagious disease transmitted by, I can say what, dirt." Nevertheless, we found, during data collection, that some parents still doubt the actual existence of COVID 19.

Knowledge of COVID-19 transmission: Participants could list the modes of transmission of COVID-19. According to the community participants, the infection is transmitted through droplets when sneezing and/or coughing in proximity to another person and also physical contact with an infected person by handshake and kissing. The community participants also related the mode of transmission of COVID-19 with those of certain diseases such as the Human Immunodeficiency Virus and Ebola. One mother says, "I know it's a virus like HIV and Ebola, it's transmitted through saliva when you're in close contact with a sick person."

Knowledge of the origin of COVID 19: The origin of the virus remains controversial among participants, some of which, according to some, is a disease transmitted to humans by animals, others of laboratory experimentation, whose virus would have escaped from the laboratory either by mishandling or intentionally by an individual. A breastfeeding woman in the interview said, "What I think is a disease created, it's not a natural disease because you can't get up one morning and say there's COVID-19 and it comes from animals because, if it certainly came from animals, we probably would have contacted that since because we always eat meat., chicken, fish and why don't we have that? I know it appeared since 2003 it's ended and it started again. It's a created disease. "Other communities believe that COVID-19 is the result of a virus that has escaped from a laboratory in China. Nevertheless, the community is unanimous that the first case of COVID-19 originated in China.

Knowledge of infant and young child feeding during COVID-19: The majority of breastfeeding and pregnant women know that children should be exclusively breastfed for the first six months even during this COVID-19 health crisis. Mothers also express reservations about the possibility of transmission of the virus

Table 2: Participants distributed by gender, religion, and type of interview

Sex	Focus Groups (FG)	In-depth interviews (ID)	Key informants (KI)	Total
Number (Average age in years) of participants by gender				
Feminine	09 (37.2)	15 (25.1)	10 (45.0)	34 (34.2)
Male	06 (44.8)	00 (00.0)	5 (46.6)	11 (45.6)
Total	15 (40.3)	15 (25.1)	15 (45.5)	45 (37.0)
Number of participants per interview by religion				
Religion				
Christians (%)	12 (80%)	14 (93.3%)	11 (73.3%)	37 (82.2%)
Muslims (%)	03 (20%)	01 (06.7%)	01 (06.7%)	05 (11.1%)
Traditionalists (%)	00 (00%)	00 (00.0%)	03 (20.0%)	03 (06.7%)
Total (%)	15 (100.0%)	15 (100.0%)	15 (100.0%)	45 (100.0%)

through breast milk and recognize its importance. A breastfeeding woman, in an interview, said, "In my opinion, the best way for a mother to secure her child is to breastfeed because it is the best method that God himself wanted, feeding a baby with breast milk. Already in terms of protection, breast milk has many antibodies. A baby who takes breast milk is very strong compared to a baby taking another food."

Mothers also know that breastfeeding should continue beyond six months of age, and supplemental foods such as porridge should be included. However, with the health crisis, mothers believe that complementary foods made from market-based products pose a risk to children's health due to the potential risk of COVID-19 virus contamination of products. Therefore, it is not recommended to make porridge enriched with food or milk from the market. "Yes, it is necessary breast milk is the best food for babies from 0 to 1-year-old at least and breast milk can be added some food to supplement their diet. No, by the standards I had to start giving him either artificial milk or porridge but since they say that all imported stuff can be infected with COVID-19 that's what worries me, I'm waiting. We were talking about June 1st if the quarantine was over, I can give him the milk."

All mothers, health workers, and other community actors believe that a mother infected with COVID-19 should not breastfeed, at the risk of exposing and contaminating her baby with COVID-19. In an FG, a mother answers the question of whether a mother suspected or infected with COVID-19 should breastfeed, "No, the child can carry the disease if his mother is affected because it is already said when you cough or even mix personal stuff with a sick person you will carry the disease. What more of the breast milk?".

Mothers are divided on whether it is recommended to breastfeed a child aged 0-6 months in public places during the COVID-19 pandemic. A minority knows that the child aged 0-6 months must be breastfed on demand, even in public and during the epidemic, provided that barrier measures are followed, including social distancing, wearing face masks, and regular hand washing. The vast majority of mothers believe that babies should not be breastfed in a public place in the context of the pandemic. Mothers think you should retreat to an isolated area before breastfeeding, while others recommend bottle feeding in a secluded location. "No, you have to make your food, either put your bottle in the bag and move away from an environment where there are too many people before you give the baby," says one mother. This second thought seems to be widespread even among some health workers. In an interview, staff responded that breastfeeding their baby in public during the pandemic would be a serious action that exposes the baby to infection with COVID-19 given the unsuitable environment. "It's still very serious, because an infected person can sneeze and within a meter, it settles on the end of the child's breast, and it will be contaminated," says a health worker regarding breastfeeding in public.

Eating behaviors of children aged 6-23 months in the context of the Covid-19 health crisis.

Mothers were asked whether certain foods have been newly introduced into children's meals since the beginning of the COVID-19 health crisis. Onion, ginger, and lemons are the foods most cited by mothers during FG. This choice is justified by the fact that these foods would have a curative effect of COVID-19 infection entrusted to mothers by their relatives or acquaintances. A community health worker supports this information when he says, "Children are given a lot of onions; ginger and lemon. According to some videos and recommendations, some of my family members were victims outside and they were treated by it." About 30.2% of parents reported, maximizing the consumption of fruits and vegetables in households.

Behaviors to immunization and other health care of Infants and Young Children in COVID-19 context.

Vaccination is a key intervention to ensure the health of infants in emergencies and other disasters. With the COVID-19 pandemic, several rumors and information have been circulated via social networks and the community, of the existence of a new vaccine against COVID-19 in the trial phase of the COVID19 in African countries. This stimulated a lot of discord on the part of the public and may have affected the attitude of mothers towards vaccination and access to certain health care.

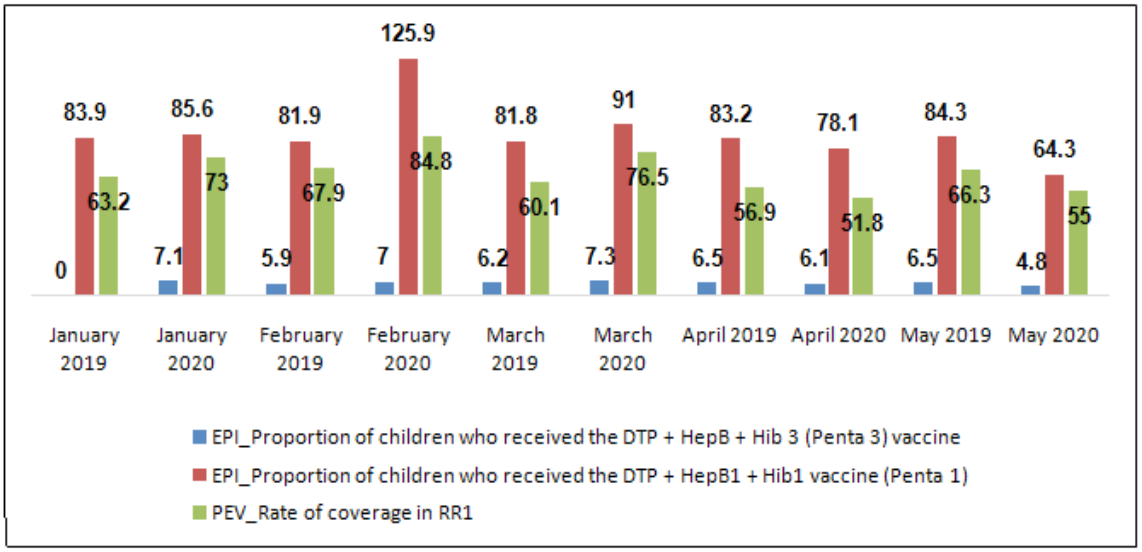

Figure 1: Performance of the EPI in the period from January to May 2019 and 2020 in Mifi Health district (DHIS, May 2020)

FG and interviews with mothers have shown that mothers currently have some mistrust and reluctance to vaccinate in health facilities at this time of the COVID-19 pandemic. One mother told us that she would not accept any vaccine for her child at this time of the pandemic, "No, we don't know what we are given and how the body will react. I would not accept any vaccine." The same concern comes from health workers, when one confides in the investigators, saying, "I don't see which parent can accept that their child is vaccinated today, I'm not lying to you, a routine vaccination that goes through the neighborhoods, they're not going to accept it, they're going to say it's the coronavirus vaccine. "Another concern in immunization services is the management of the flow of users or parents of children who come to vaccinate. Indeed, the care of vaccination is offered on a specific day of the month and the week and thus brings several people in the same service sometimes for several hours. Compliance with barrier measures should therefore be applied to reduce the exposure of parents and other users to COVID-19. Faced with this difficulty of implementing the measures, some vaccination days were sent back for later dates. "Vaccination is a bit tricky, there are many mothers, babies, it's not easy to determine if some mothers have or are not affected. Unless in some hospitals they do so by taking and respecting the necessary barrier measures. We were supposed to do the other one last week but we postponed it," says a vaccination official. A Community Health Officer said, "I had a baby the week before corona until today the child is not circumcised, the child had BCG and the week that followed there were already cases of corona. The next month I told her to go get the vaccine she refused. His father himself said don't take my child to the hospital." The health officer also mentions a decrease in the attendance rate of child health services than usual by up to 30%.

According to a health training official, "the statistics are not the same as before and then there are mothers, who come back a month later to say that they did not know that during the pandemic we were vaccinating, so there are many who come with a delay"; "Since the pandemic began one and a half months ago, first at the level of antenatal consultations, the attendance rate has changed, since before we could receive 100 women a week, now everyone stays at home saying that there is corona in the hospital that's what makes the rate very well reduced"; "There has been an impact on the attendance of the expanded program on immunization service, and even pediatrics". According to health workers, this is the result of a misinterpretation of "containment" in some people, which has led to the belief that health facilities are not open on the one hand, and that health facilities are hotbeds of Covid-19 infection.

We did the documentation review of the performance indicators of the Expanded Immunization Program (EPI) in the monthly activity reports to Districts Health Information Software 2 for the period from January to May 2019 and 2020 (period without pandemic and COVID-19 pandemic in Mifi health district). Figure 1 confirms the facts described by the participants during the interviews. According to RMA, the performance of the EPI for the three tracer indicators decreased in April and May 2020 compared to these two months in 2019 figure 1.

The Coronavirus health crisis and diet of children aged 0-23 months.

In some communities, it has been reported that coronavirus infection would be transmitted to humans by animals. Although the mode of transmission of the virus from animals to humans is not under control, the community nevertheless believes that meat consumption should be reduced during the pandemic period. "There is a change, I no longer eat meat, because we have banned it. It's better to avoid," says a pregnant woman. Similarly, in mothers with knowledge on transmission by bats,

fruit consumption has been reduced in children 6-23 months and older, as bats move from tree to tree, including trees with fruits, and may contaminate the fruits to be consumed. "We don't give fruit anymore because it is said that bats are involved. We don't give fruit anymore because bats sleep everywhere and birds as well. But talking about food that we have to cook well we do it and every time we want to give, we have to heat it again," says one mother.

On the other hand, the community members deplore the rise in the prices of certain foodstuffs in the market since the notification of the pandemic in the region. One mother confided to investigators, "Only I see that cost prices of food items have been raised a little bit since the onset of corona," another community adds, "Food is expensive, it is more expensive compared to the prices before." Among the foods that have seen an increasing price, fish, garlic, and lemon are the most mentioned by mothers.

With regards to exclusive breastfeeding of children aged 0-6 months, some mothers report continuous breastfeeding of their children normally. Others, however, point to the difficulty of being able to breast in public for fear of exposing the baby to COVID-19 because of people around them who may be carrying the virus. "When you go out with the baby you are not free to breastfeed the baby, and also in the presence of more than two people already you can't breastfeed, because you don't know if the third or second person is infected or not, by taking out the breast to give the baby an infected person can speak and it contaminates the child," says one mother in an interview.

One of the government's measures to reduce the transmission of infection in Cameroon, was the cessation of teaching in schools, intending to encourage people to stay at home and reduce the movement of people as much as possible. These decisions and recommendations, according to community health workers and mothers, have led to an increase in demand for the availability of meals in households. Indeed, the more children are on the move at home, the more they demand food, leading to an increase in the number of meals per day in the household. A head of household tells investigators, "With the quarantine the child does not go to school, from 6 am to 6 pm he is there apart from the 2 hours of classes on television "Mom I'm hungry". At all times he watches the kitchen the breakfast is there, at noon mom I'm hungry eh you come home in the evening the food is finished."

Household hygiene practices in the context of the crisis in Covid-19

To reduce the transmission of Covid-19, the World Health Organization and the Government of Cameroon recommend regular washing hands with water and soap or hydro-alcoholic gel. Parents confirmed that they followed hygiene and distance rules, wash their hands before breastfeeding, stop kissing children, and exchange clothes once they returned from the market. "When I go out and go home, I wash my hands or disinfect with the hydro-alcoholic gel. I wait 30 minutes I rinse my hands before entering and when I enter, I have to clean the house. I disinfect my hands from time to time, wash my hands and always clean my hands"; "I disinfect my hands before I breastfeed." "I don't kiss children anymore, I don't touch them anymore, just when I want to wash them, so a meter as they said because I can get out, I contact the virus I enter and give to the child it must not be good," says one mother during the FG.

Discussion

The study showed that community members have a good understanding of the definition of COVID-19 and the signs/symptoms of COVID-19 infection. According to the mothers, it is a disease that manifests it self in a runny nose, fever, cough. This could be explained by communication, mobilization, and sensitization of people in all regions of Cameroon, via social networks, radios, televisions, and posters/posters in health services and public places. Mothers recognize that the disease affects everyone, that hygiene influences the transmission of the virus. These results are similar to those of Keren Austrianet al. [28], all participants recognize fever and cough as symptoms of COVID-19, but only 42% reported breathing difficulties, 83% knew that anyone could be infected.

The most cited means of transmission of coronavirus infection was contact with droplets emitted when coughing or close contact; physical contact with an infected person by greeting, kissing. These modes of transmission have been confirmed by the work of Rothe C et al. [5], according to the author, the infection is transmitted either by inhaling droplets generated during coughing and sneezing from an infected person; physical contact with symptomatic people, and also asymptomatic people [5].

The origin of the virus remains controversial among communities. According to Cui J et al, almost all the first index patients had animal exposure before developing the disease at the beginning of the SARS epidemic. Data collected on genetic evolution, receptor binding, and pathogenesis showed that SARS-CoV most likely originated in bats by sequential recombination of SARSr-CoV [29]. This information is similar to that published by Singhal, Wu F et al, El Zowalaty ME, Jarhult JD, according to the authors the virus was transmitted to humans by the animal and whose first case was from Wuhan in China [1, 30, 31]. The information that the virus will come from laboratory testing is acquired from rumors in communities and social networks on the internet.

Breastfeeding and pregnant women know that children should breastfeed for the first six months even during the period of the COVID-19 health crisis. This knowledge is consistent with the recommendations of the World Health Organization (WHO). There is no reason to avoid or stop breastfeeding [32]. The reservations expressed by mothers about the possibility of transmission of the virus via breast milk would be to raise awareness among communities by the government and other partners about the means and mode of transmission of the infection, the possibility of mother-to-child transmission of which is not included. The WHO confirms that to date, no transmission of the COVID-19 virus through breast milk and breastfeeding has been observed

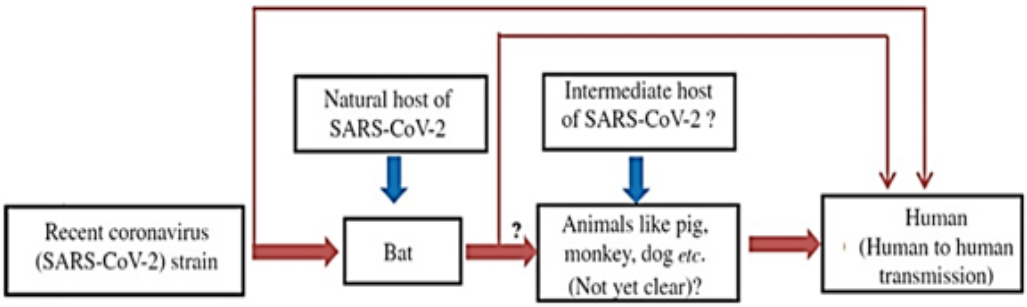

Figure 2: Transmission line of SARS-COV-2 [40]

(WHO, 2020).

Recent studies related to air pollution have reported that the new coronavirus could survive in ambient air for several hours and potentially be transmitted by aerosols, especially in closed indoor environments with limited social distance and poor ventilation [33, 34, 35]. When breastfeeding in public squares, mothers may wear cloth masks or masks to protect themselves from breathable virus carriers in the air, while their infants may not wear any respiratory protection to avoid direct exposure to indoor air. Concerning the aerial transmission of COVID-19, breastfeeding in public facilities is, therefore, a blind spot in current regulatory guidelines and risk mitigation efforts [36, 37, 38]. This could then justify mother's concern about exposure and transmission of COVID19 infection in the case of breastfeeding in a public place. Nevertheless, mothers should be encouraged to breastfeed in open areas where good ventilation and physical distance can be achieved [39].

The community believes that meat consumption should be reduced during the pandemic period. The literature review shows that bats are unique mammals with flight capacity, and zoonotic reservoirs or natural hosts of several CoVs such as SARS-CoV, MERS-CoV [40]. Figure 1 shows the chain of transmission of COVID19 according to Chakraborty C, et al. It is also noted a reduction in fruit consumption in children 6-23 months and older. This is because bats move from trees to trees, including fruit trees, and could contaminate the fruits to be consumed. Although the reasons differ, Anna V, et al. have also shown that it is common for people to eat low fruits and vegetables during their fortiesfigure 2 [41].

Mothers and other community members reported an introduction or increase in the use of certain foods in meals at the beginning of the pandemic in Cameroon. According to the online newspaper Ecomatin, MS Nguimfack, notification of the health crisis in Cameroon has led to strong demand for certain food products, including ginger, garlic; onion, and lemon. A salesman also emphasizes in this newspaper that, the therapeutic virtues of these different foods taken individually on health are proven [42, 43]. This knowledge and beliefs about the therapeutic effect could explain the practices of mothers manifested by an introduction and increase of onions, lemon, and garlic in the diet of children 6-23 months of age and other children in the household.

In Pakistan, available data from district health systemsindicate a dramatic decline in access and provision of antenatal care services [44]. The same result is observed by E Sobngwi et al, in some hospitals of Yaounde in Cameroon in routine health services. This is consistent with our findings that mothers are no longer attending child health services enough during the health crisis. Interviews have shown that this is based on the beliefs of mothers, who believe that health services are the hotbeds of Covid-19 infection [45]. The drop in vaccination attendance when it could find its explanation for the beliefs and rumors that a vaccine being tested in African countries.

Conclusion

The study showed that mothers are aware of Covid-19, apparent symptoms, and good practices of IYCF. They however believe that breastfeeding in public places exposes babies to COVID19. Complementary foods from markets are a potential source of infection and an infected mother should not breastfeed. Participants mentioned a reduction in the consumption of meat and fruit in households. Quarantine has led to an increase in the demand for children's meals. Rumors have led to strong demand for certain food products (lemons, onions, garlic, ginger) and increased cost prices of foodstuff in the market. Equally, a decline in attendance of vaccination services was noted. We recommend the creation of safe and ventilated breastfeeding rooms in public places in the West region of Cameroon. Mothers should be sensitized about the continuity of primary health care services for children during the health crisis.

Strengths and Limitations of This Study

This study helps to describe and understand the motivations of infants and young children's feeding behaviors and practices in the context of the first phase of the COVID-19 epidemic in Cameroon, mainly in Western Cameroon. In any case, these

data cannot be generalized for Cameroon, given the technique of sampling, the geographically restricted nature of the study area, and the socio-cultural diversity of Cameroon. Also, the type of study and sampling method does not establish a statistical association between pandemic and infants and young child feeding behaviors and practices.

Author's Contribution

AIGA, ATT, Conception, and design of the survey; AIGA, ATT, DLMD, GIZN, GAZD, Data collection; AIGB, VATN, RYEN, Data analysis; Interpretation of results; AIGB, ATT, DLMD, VATN, GIZN, ZPSM, RYEN, GAZD, ANA, MSS; Drafting of the manuscript; All authors were involved in critical revision of the manuscript 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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