



(RESEARCH ARTICLE)



Original theme: Problem of exclusive breastfeeding in the town of Kélo, province of Tandjile (Chad)

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Abstract

With the aim of evaluating the problem of breastfeeding (AME) exclusive of breast milk during the first 6 months of life, a prospective cross-sectional study was spread over a period of three months from May 10 to August 10, 2023. It involved 550 people, including 500 breastfeeding mothers of children aged 0 to 6 months and 50 health personnel. The study or investigation took place in five neighborhoods of the city of Kélo and in five urban health centers of the said city. The pre-established questionnaire sheets made it possible to collect the necessary data which were entered and analyzed using the SPSS version 25 software. The Pearson Chi-2 test was used at a threshold of 0.05 to investigate the relationship between the dependent variables and independent variables. The results showed that the average age of mothers is 32.50 and that of health personnel is 35.50. Married women number 474 or 94.8%, 49.40% are educated at the secondary level followed by 39.60% at the primary level. Almost all breastfeeding mothers are housewives, i.e. 65.80%. The proportions of mothers who practiced non-exclusive breastfeeding are 96.60% compared to 3.40% who practiced exclusive breastfeeding. Also a good proportion of mothers (26.40%) breastfed immediately after childbirth and the majority of these mothers breastfed their children on demand (77.20%). Herbal tea and water were the main foods introduced into the infant's diet before the age of 6 months. Finally, our results showed that there is a relationship between exclusive breastfeeding and factors such as the mother's profession, the place of delivery, the sex of the child, advice on AME, knowledge of the advantages of AME and the practice of AME immediately after delivery. Knowledge of the advantages of AME must be made more available to mothers in order to improve the health of newborns and even children.

Keywords: Breastfeeding; Exclusive Breastfeeding; AME issues; Lactating women; Chad.

1. Introduction

The World Health Organization (WHO) recommends exclusive breastfeeding of children (i.e. breastfeeding without any other food, except possible medicines or vitamins) until the age of six months, as well as mixed breastfeeding (i.e. the combination of breastfeeding with other foods) until the age of two years or more [17]. It is also recommended not to give the child pacifiers or artificial milk supplements, conditions for successful breastfeeding [18]. Indeed, breast milk provides all the nutrients necessary for the child's development; it also contains antibodies that protect it from common illnesses such as diarrhea and [3]. Several studies have also highlighted the long-term influence of breastfeeding on the health of the child, namely a reduction in the risk of obesity and type II diabetes, as well as a reduction in blood pressure and cholesterol level [6]. Prolonged exclusive breastfeeding has also been shown to have a positive effect on children's cognitive development [3, 8]. Exclusive breastfeeding (AME) is a cornerstone of child survival and health. It provides essential and irreplaceable nutrition for child growth, resilience and development [9]. Despite its importance, breastfeeding rates remain below recommended targets. In 2012, The World Health Assembly (WHA) set a global

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nutrition goal to increase the rate of exclusive breastfeeding in the first six months to at least 50% by 2025. In 2012, the global rate of exclusive breastfeeding is 37% and 44% in 2019 and 2021. Only 35 countries were on track to meet the global target [9]. In Africa, the exclusive breastfeeding rate is 35.5% in 2012 and 43.6% in 2019 just below the global rate of 44%. It is much lower in Southern Africa (33.5%) and West Africa (32.3%) and significantly higher in East Africa (60.7%). There is no data available for Central Africa in 2019, but in 2012 the rate was 28.5% [2]. In Chad, according to the latest MICS survey in August 2016, 97% of children under six months of age are breastfed but less than one percent (0.3%) only received breast milk [13]. The 2018 SMART report gives an exclusive breastfeeding rate of 17.7% across the territory and 15% in the Tandjilé province ([14]. and that of the 2022 report, the rate of AME sees itself reduced by 7.3% nationally and 1.9% in Tandjilé [15]. Given this variability in the prevalence of AME observed each year, we will focus on this issue. It would therefore be important to identify the different factors that influence the practice of exclusive breastfeeding during the first six months of life, to identify complementary foods before the age of six months and finally to identify the level of knowledge of women on the practice of exclusive breastfeeding in the city of Kélo.

2. Material and Methods

2.1. Study framework

The study took place in five neighborhoods of the city of Kélo and in five urban health centers, namely: Bargadjé Health Center 2, Djengreng I, Djengreng Résidentiel, Hindina and Pagré.

2.2. Presentation of the city of Kélo

The commune of Kélo has 4 municipal districts, 36 neighborhoods divided into 108 squares. The very cosmopolitan population includes all ethnic groups in the country. The population of the town of Kélo is 105,435 inhabitants in 2021, mainly young people whose school age range is estimated at 69.42 [1].

2.3. Study population

This consists of children aged 0 to 6 months and breastfeeding mothers who will be subject to a questionnaire.

2.4. Study variables

They are composed of sociodemographic characteristics (age, sex, level of education, profession, marital status), average duration of breastfeeding, nutritional status and difficulties related to breastfeeding.

2.5. Sampling

The population of Kélo is estimated at 105,435 inhabitants with 36 neighborhoods divided into 108 squares [1]. We chose five large neighborhoods, each with an average population estimated at 1000 inhabitants. This amounts to surveying 100 households per neighborhood. We have 500 households plus 50 health personnel, for a total of 550 households surveyed.

2.6. Materials

To move on to the survey itself, we first carried out a pre-survey which consisted of testing the questionnaires. The questionnaire sheet takes into account the following aspects: general information, the type of breastfeeding and the behavior of mothers in relation to breastfeeding their children.

2.7. Data collection techniques

There are several elements of data collection: paper tablet, telephone and computer. For our case, information was collected on two categories of pre-established sheets containing 65 questionnaires including 12 questionnaires addressed to health personnel and 50 to breastfeeding mothers. It should also be noted that there are three methods for collecting data: self-enumeration, face-to-face interview and telephone interview. We therefore used face-to-face interviews for data collection.

2.8. Techniques for analyzing results

After collecting data from the pre-established questionnaire, the information obtained is entered into the computer. Once the data was compiled, we proceeded to processing and analyzes with SPSS 25 software.

3. Results

3.1. Descriptive analysis of data from mothers of children aged 0 to 6 months

3.1.1. Sociodemographic characteristics of breastfeeding mothers

The following results show the distribution of mothers of children aged 0 to 6 months according to sociodemographic characteristics.

Table 1 Age of mother

Age of mother	Frequency	Percentage %
15-20	171	34.2
21-30	265	53
31-40	62	12.4
41-30	2	0.4
Total	500	100

Table 2 Marital status

Marital status	Frequency	Percentage %
Married	474	94.8
Single	20	4
Divorced	5	1
Widow	1	0.2
Total	500	100

Table 3 Ethnic group

Ethnic	Frequency	Percentage %
Lele	172	34.4
Marba	168	33.6
Zime	20	4
Nangtchere	29	5.8
Gambaye	57	11.4
Gourane	7	1.4
Arabe	6	1.2
Others	41	8.2
Total	500	100

Table 4 Level of study

Level of study	Fréquence	Pourcentage %
Primary	198	39.6
Secondary	247	49.4
Superior	42	8.4
Koranic	6	1.2
Others	7	1.4
Total	500	100

Table 5 Religion practiced

Religion practiced	Frequency	Percentage %
Muslims	70	14
Protestants	263	52.6
Catholics	158	31.6
Others	9	1.8
Total	500	100

Table 6 Mother's occupation

Mother's occupation	Frequency	Percentage %
Household	329	65.8
Shopkeeper	86	17.2
Pupil/Student	66	13.2
Official	14	2.8
Others	5	1

The survey revealed that mothers are predominantly young and the most represented age group is 21 to 30 years old, or 53% with an average age of 32.5 years old. The majority of mothers surveyed are married with a percentage of 94.8%. These results are close to those found by Traoré et al. (2014) in Mali who worked on the factors associated with exclusive breastfeeding and who found marital situations were predominant with an average age of 26.86 years.

Table 7 Connection to the SNE (National Electricity Company)

Connection to the SNE	Frequency	Percentage %
Yes	5	1.0
No	494	99.0
Total	500	100

Table 8 Presence of latrine in the household

Presence of latrine in the household	Frequency	Percentage %
Yes	149	29.8
No	351	70.2
Total	500	100

Table 9 Source of water consumed

Source of water consumed	Frequency	Percentage %
wells	371	74.2
drilling	40	8.0
Chadian Water Company	89	17.8
Total	500	100

Regarding household goods, we note that most of the respondents come from poor households: 99.0% do not have electricity, 70.2% do not have latrines, 74.2% only consume well water and only 14.8% have a monthly income of 201,000 francs or more. These different characteristics also show the level of sanitation of the households surveyed.

3.1.2. Sociodemographic characteristics of children

The following tables present the sociodemographic characteristics of children aged 0 to 6 months.

Table 10 Gender child

Gender child	Frequency	Percentage %
Masculine	241	48.2
Feminine	259	51.8
Total	500	100

Table 11 Condition of the child, good and bad

Condition of the child, good and bad	Frequency	Percentage %
Good	464	92.8
Bad	36	7.2
Total	500	100

The distribution of newborns according to sex gave 51.8% female and 48.2% male with a sex ratio F/M of 1.07. The age range from 0 to 3 months represents 64.6% and 35.4% for the intervals 4 to 6 months and 92.8% children are healthy at birth.

3.1.3. Characteristics on the AME

The different characteristics on the AME are as follows:

3.1.4. Source of information on the AME

Table 12 Source of information on the AME

Source of information on the AME	Frequency	Percentage %
Médiuas	219	43.8
Prenatal Consultation	219	43.8
Husband	35	7.0
Doctor	24	4.8
Others	3	0.6
Total	500	100.0

Among the mothers surveyed, 43.8% affirmed on the one hand that the media were the source of information and on the other hand the CPN (43.8%) was also the source of information on AME.

3.1.5. Advice received on AME

Figure 1 presents the advice received on AME by women.

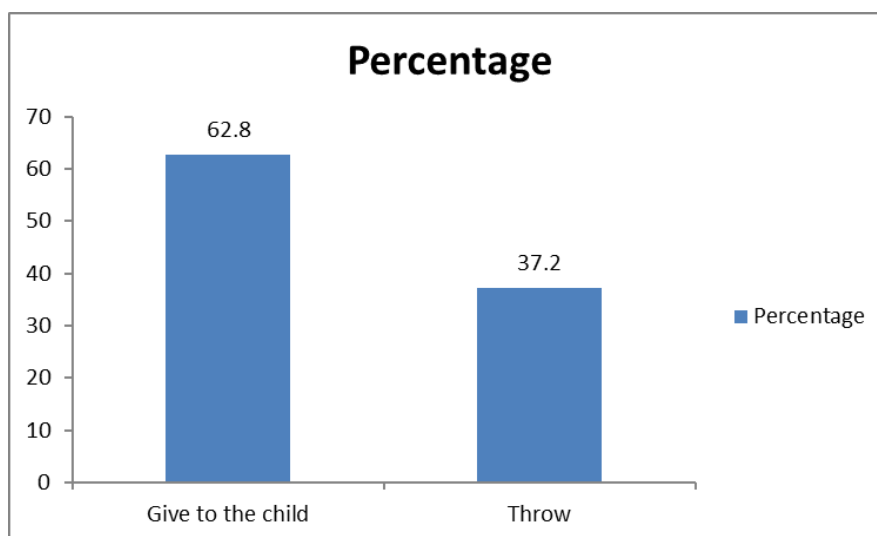


Figure 1 Advice received on AME

The results show that the majority of the study population had received advice on AME, i.e. 64.6% out of 35.4%.

Characteristics of AME

4. Practice of AME

The practice of AME is presented in Figure 2.

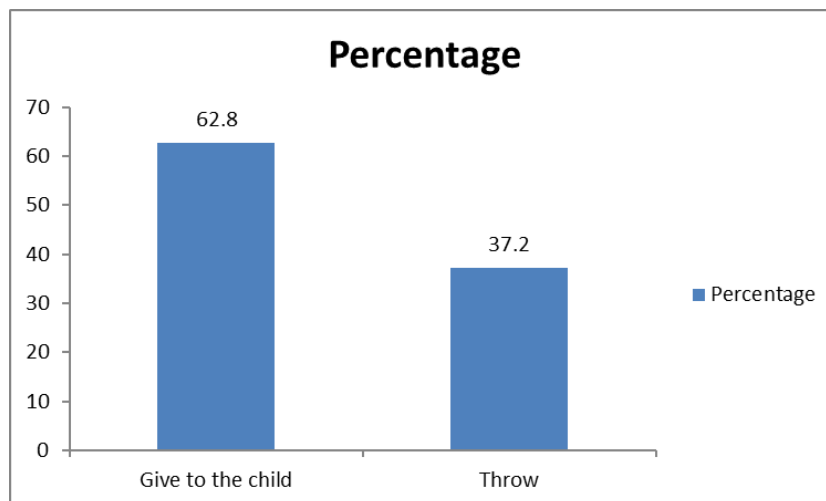


Figure 2 Practice of AME

4.1. Decision-making by women for the practice of AME

Decision-making by women for the practice of AME is presented in Table XIX.

Table 13 Decision-making for the practice of AME

decision-making for the practice of AME	Frequency	Percentage %
During pregnancy	14	2.8
After childbirth	2	.4
Total	16	3.2
System	484	96.8
Total	500	100.0

4.2. Characteristics of childbirth

4.2.1. Distribution of mothers according to place of delivery

Of the 500 mothers of children aged 0 to 6 months, 44.2% gave birth at the CS followed respectively by 34.80% at home and 20.40% at the hospital city of Kelo.

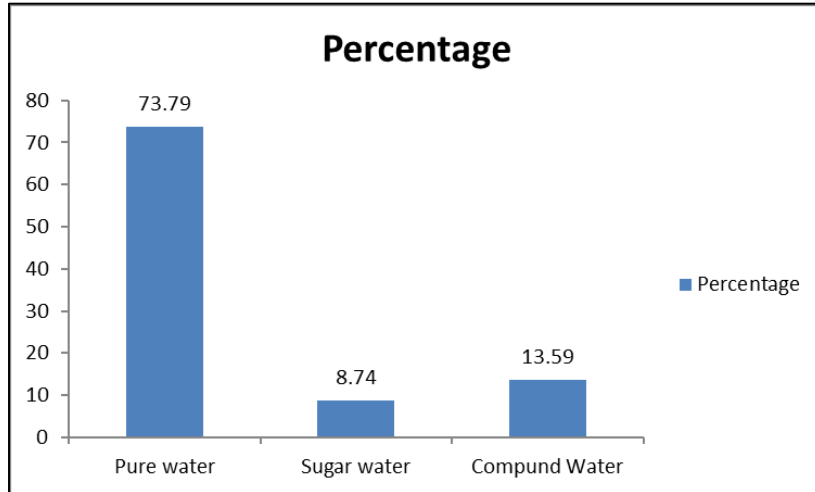


Figure 3 Distribution of mothers according to place of delivery

4.2.2. *Breastfeeding time after childbirth*

Table 14 Breastfeeding time after childbirth

Time	Frequency	Percentage %
Immediately after	132	26.4
Within 5 hours after delivery	42	8.4
6-24 Hours	101	20.2
2 to 3 day	166	33.2
More than 3 days	59	11.8
Total	500	100

Among the respondents: 33.2% put their baby to the breast between 2 to 3 days after delivery followed respectively by 26.4% immediately after and 20.2% between 6 hours to 24 hours after delivery; The other intervals are negligible.

4.2.3. *Distribution of foods given apart from milk before breastfeeding*

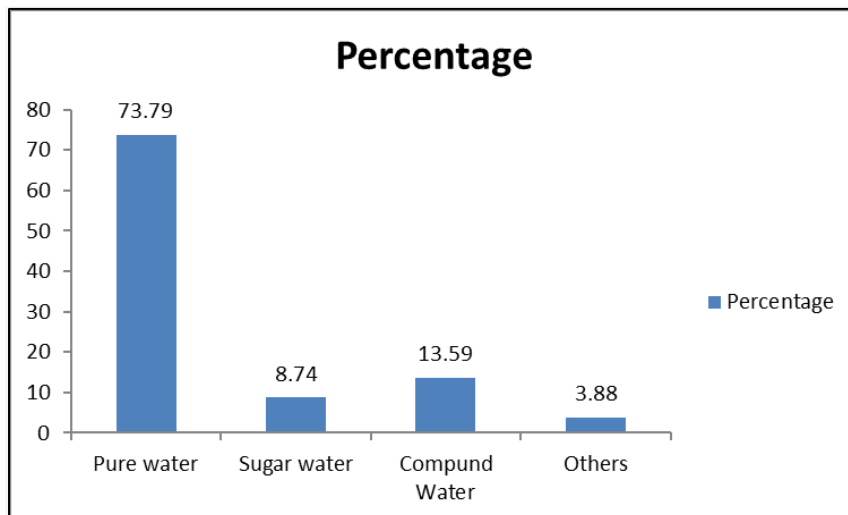


Figure 4 Distribution of foods given apart from milk before breastfeeding

Most of the mothers surveyed (74.2%) gave water before breastfeeding.

4.2.4. Breastfeeding frequency

Table 14 Breastfeeding frequency

Temps	Frequency	Percentage %
Less than 5 times a day	30	6.0
5 to 10 times a day	82	16.4
On demand	386	77.2
Others	2	0.4
Total	500	100

Mothers who breastfed their babies on demand were 77.2% and the others are in the minority.

4.2.5. Distribution of mothers according to duration of AME

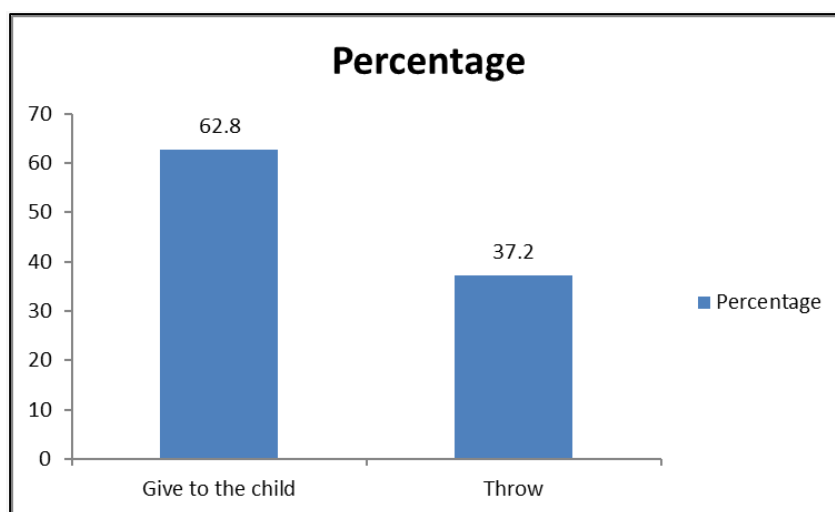


Figure 5 Distribution of mothers according to duration of AME

Among the 17 mothers who practiced exclusive breastfeeding (AM), 88.2% declared that they will stop with exclusivity at the interval of 3 to 4 months and 11.8% at the interval of 4 to 6 months with an average of 4.5.

4.3. Types of foods or liquids given

Table 15 Types of foods or liquids given

Time	Frequency	Percentage %
Water	118	23.6
Herbal tea	295	59
Cow's milk	4	0.8
Artificial milk	22	4.4
porridge	61	12.2
Total	500	100

4.4. Differences made between colostrum and secretions by mothers of children aged 0 to 6 months

Figure 6 presents the differences made between colostrum and secretions by mothers of children aged 0 to 6 months.

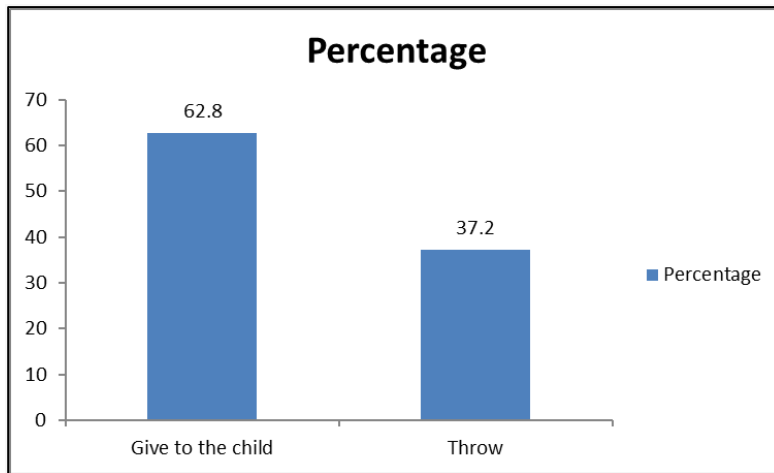


Figure 6 Differences made between colostrum and milk secretions by mothers of children aged 0 to 6 months

Among the respondents, 79.2% recognized that there is a difference between colostrum and milk secretions; 20.8% did not recognize this difference.

4.5. Use of colostrum after childbirth

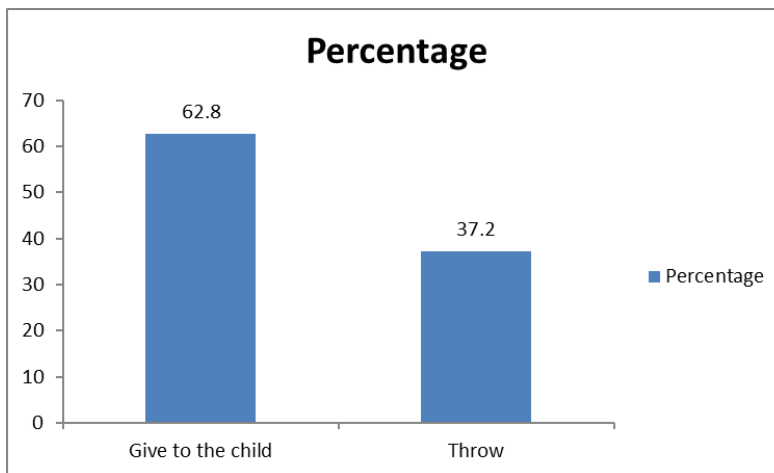


Figure 7 Use of colostrum after childbirth

In the population studied, 62.8% of women confirmed having given colostrum to their child compared to 37.2% who did not.

Table 16 Reasons given for administering colostrum to the child

Responses	Frequency	Percentage %
Good	296	59.2
No good	164	32.8
None	40	8.0
Total	500	100

4.6. Advice and difficulties with exclusive breastfeeding

Table 18 Difficulties encountered during AME

Difficulties encountered during AME	Frequency	Percentage %
Sore breast	184	36.8
blocked duct	18	3.6
Breast engorgement	29	5.8
breast abscess	24	4.8
Insufficient milk	75	15.0
Oooccupation	11	2.2
None	156	31.2
Others	3	0.6
Total	500	100.0

The main difficulties encountered during breastfeeding are: painful breast (36.8%) and insufficient milk (15.0%).

4.7. The difficulties linked to the AME

The difficulties linked to the AME are enormous. Table II above explains the obstacles due to AME [14]. Exclusive breastfeeding (EA) is in contradiction with the common practice of giving water to the baby according to a traditional healer from Mauritania: "Water is clean for humans. Just look at what a thirsty person does, water is life.» [14]. The main difficulties encountered during breastfeeding are: painful breast (36.8%) or insufficient milk (15.0%).

5. Discussion

It was observed that 65.8% of mothers were housewives while Sangho et al. in Mali in 2011 observed 54.8% of housewife mothers. The study reveals that 474, or 49.4% of respondents, have secondary school education, followed by 198 or 39.6% at primary level. This result is close to that obtained by Sangho et al. (2011) where educated women represented 54.2%. This similarity could be explained by the fact that we carried out our study in the municipality where the enrollment rate for girls is average, that is to say 126.5 or 25.3%. Our result differs from that found by Youssouf in Mali in 2015 where 65.3% of the women surveyed were not solarized. This difference could be justified by the fact that he carried out his study in a rural area and it was carried out in an urban area. 3.1.2. Socioeconomic characteristics of the household surveyed.

Regarding the duration and frequency of AME, WHO and UNICEF recommend exclusive breastfeeding for up to 6 months, while recognizing that some mothers will not be able to follow this recommendation or will decide not to follow it [18]. Furthermore, the crucial role of breastfeeding is at the heart of the global strategy for infant and young child feeding [12]. In Chad, in 2021, Minister Dr ABDOULAYE Saber Fadoul highlighted Chad's commitments during the ceremony and declared that the country was committed to reaching the rate of 50.00% exclusive breastfeeding by 2025. The results produced by Moussavou et al. (2005) showed that breastfeeding began at birth in 98.60% of mothers; exclusive breastfeeding lasted less than 2 years among 63.60% of mothers, between 2 and 4 months among 26.07% and between 4-6 months among 9.60% in Libreville, Gabon. The duration of the AME was from one week to 6 months with an average of 2.1 in Libreville, Gabon. These results are different from ours, because of the 500 breastfeeding mothers surveyed, only 17 women practiced exclusive breastfeeding, i.e. 3.40%. Among the 17 women who practiced AME, 88.20% declared that they would stop with exclusivity at the interval of 3 to 4 months and 11.80 at the interval of 4-6 months. These results are much lower compared to the results of the 2018 SMART report which was 17.70% across the territory and 15.00% in the Tandjilé province. These results are close to the SMART 2022 report which drops by 7.30% across the territory and 1.90% in the Tandjilé province. This variability in prevalence is due to negligence, belief and the unavailability of mothers to practice exclusive breastfeeding.

Most of the mothers surveyed (59.0%) gave herbal tea in addition to breast milk during the first months of life. ME is sufficient to meet the nutritional and fluid needs of a healthy newborn if he feeds efficiently and on demand. Several studies have shown that the introduction of liquids other than breast milk is widespread and associated with increased

risks of diarrheal morbidity and mortality [16]. The study carried out in an urban environment in Burkina-Faso by Traoré et al. (1999) showed that the majority of women, more than 85%, are in the habit of giving something other than breast milk to the newborn from birth. This was advised by health personnel, either administered according to the practices of the ethnic group of origin or the family. Newborns received these substances until the mother's mature milk appeared. It was either sugar water, hot water, lemon or orange juice, herbal tea or artificial milk. These results are similar to ours, because we noted respectively that the children received herbal tea (59%), water (23.6%) and artificial milk (4.4%). This convergence can be explained by the fact that the above study took place in Burkina Faso, whose customs are almost identical to ours [11].

According to the practice of colostrum, 59.2% of women declared that colostrum is good for the health of the child; 32.8% stated that it is bad and 8.0% did not know any reason for administering colostrum. Colostrum has long been considered useless and even dangerous in many cultures. This was particularly the case among the Marba and Nangtchéché (according to our survey) who say that colostrum is bad milk and is dangerous for newborns. Thus, in Burkina Faso, colostrum is most often thrown away because it is wrongly considered dirty because of its yellowish color [11].

Immediate breastfeeding allows the newborn to benefit from colostrum, the nutritional importance of which against infections is no longer in doubt (Sana, 2008). In the Sana study in 2008, we noted that 83.8% of the women interviewed were in favor of immediate breastfeeding, 12.50% were against this practice and 3.8% had no idea. opinion on this subject. As for our results, we found among the 500 mothers of children surveyed, 166 or 33.2% put their babies to the breast between 2 to 3 days after delivery followed respectively by 132 or 26.4% immediately after birth. 'childbirth ; 101 or 20.2% between 6 hours and 24 hours after delivery; 59 or 11.8% more than 3 days after childbirth and 42 or 8.4% within 5 hours following childbirth. Our results are different from the results cited above. This difference is due to lack of knowledge about breastfeeding immediately after childbirth.

According to the study carried out by Sana in 2008 in Marrakech, 90.3%, several mothers (96.5%) recognized that colostrum is good for babies, 68.3% of whom do not know the reasons, 0.8% of women considered it bad for the child's health, 1.5% think that colostrum should be extracted and thrown away and 2.5% have done it at least once. These results are roughly close to our study series where 62.8% confirmed having given colostrum to their children and 37.2% did not. 59.2% of women said that colostrum is good for the baby's health, 32.8% said that it is bad and finally 8% did not know the reason for administering colostrum to children. We can note that breastfeeding mothers in the town of Kélo were informed and made aware of the benefits of colostrum by telling them that AME protects children against respiratory infections. and diarrheal diseases on the one hand and helps children to develop well and grow normally on the other hand. It constitutes a contraceptive for breastfeeding mothers and protects them against breast cancer etc.

6. Conclusion

Exclusive breastfeeding is an important component of infant and young child feeding practices. Its advantages and benefits for the child, the mother, the family and beyond, society are widely recognized. Therefore, it seemed relevant to us to focus on the study of the determinants identified for this practice, particularly those linked to the health care context, among which the opinions of health professionals were part of the study. It appears that the rate of AME during the first six months of life of children in the five districts of the city of Kélo is very low, i.e. 3.4%. Also a small proportion of mothers who breastfed their children within 30 minutes of giving birth and the majority of them breastfed their children on demand, i.e. 77.2%. Herbal tea and water were the main foods introduced into the diet of infants before the age of six months. Our results showed a correlation between AME and factors such as: the level of education of the mother, the degree of training of health personnel, etc. The factors thus identified are modifiable. Their support will help improve the practice of AME in the city of Kélo.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict of interest between the different authors.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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