Scientific Research Publishing

Open Journal of Pediatrics, 2025, 15(5), 933-944
https://www.scirp.org/journal/ojped
ISSN Online: 2160-8776
ISSN Print: 2160-8741

Determinants of Exclusive Breastfeeding at 6 Months in Infants in Brazzaville

Judicaël Kambourou[1,2*], Aymar Pierre Gildas Oko[1,2], Linda Isabelle Espérance Nsivouila[2], John Claude Edzan[2], Neli Yvette Ngakengni[1,2], Léticia Lombet[2], Wilson Fabrice Ondongo[3], Engoba Moyen[1,2], Georges Marius Moyen[1,2]

[1]Faculty of Health Sciences, Marien Ngouabi University, Brazzaville, Republic of the Congo
[2]Pediatric Intensive Care Unit, Brazzaville University Hospital, Brazzaville, Republic of the Congo
[3]Expanded Program on Immunization, Brazzaville, Republic of the Congo
Email: *judycokam@yahoo.fr

How to cite this paper: Kambourou, J., Oko, A.P.G., Nsivouila, L.I.E., Edzan, J.C., Ngakengni, N.Y., Lombet, L., Ondongo, W.F., Moyen, E. and Moyen, G.M. (2025) Determinants of Exclusive Breastfeeding at 6 Months in Infants in Brazzaville. *Open Journal of Pediatrics*, **15**, 933-944.
https://doi.org/10.4236/ojped.2025.155088

Received: August 26, 2025
Accepted: September 22, 2025
Published: September 25, 2025

Abstract

Introduction: Breastfeeding is the best way to feed newborns and infants. The WHO recommends exclusive breastfeeding for the first six months of life. **Patients and Methods:** A multicenter cross-sectional analytic study was carried out from December 1, 2023, to November 31, 2024, in the CHU-B mother-child consultation unit and eight integrated health centers. It targeted infants aged 6 to 24 months. The variables studied were socio-demographic characteristics, mothers' and infants' histories, feeding, and mothers' knowledge of exclusive breastfeeding. SPSS software was used for data analysis. **Results:** A total of 1008 infants were included; the prevalence of exclusive breastfeeding at 6 months was 26.4%. Factors influencing exclusive breastfeeding were caesarean section, neonatal resuscitation, knowledge of the benefits of EI, and support from relatives during the EI period ($p < 0.05$). **Conclusion:** The rate of exclusive breastfeeding in the Congo is up compared to previous years, but efforts are still needed to meet WHO and UNICEF requirements.

Keywords

Exclusive Breastfeeding, Determinants, Infants, Brazzaville

1. Introduction

Breastfeeding consists of feeding newborns and infants exclusively with breast milk, whether directly from the breast or from a bottle after using a breast pump, with the exception of solid or liquid foods, medications, and vitamins prescribed by a healthcare professional [1]. It is the ideal feeding method for newborns and infants.

The World Health Organization (WHO) believes that it ensures optimal growth and development of the infant by exerting a biological influence and offers psycho-emotional benefits to both the mother and the infant [2]. The WHO therefore recommends exclusive breastfeeding (EBF) during the first six months of life and continued breastfeeding until the age of two years or beyond [3]. Despite the progress made in nutrition in recent decades, few infants worldwide are exclusively breastfed at six months of age because the practice of this feeding method remains insufficient among many mothers, despite its many benefits [4]. Differences in the practice of EB have been observed between Western countries [5] [6] and those in Africa [7]. Its prevalence varies from one region to another: 27% to 65% in Europe, 25.8% in the United States, and 28.7% in China [4] [8] [9]. In Sub-Saharan Africa, lower statistics have been observed, ranging from 12% to 37%, particularly in Côte d'Ivoire (12%), Benin (14.7%), Niger (23%), Cameroon (23.5%), and the Democratic Republic of the Congo (31%) [10]-[15]. These rates are slightly better in Burkina Faso (44.6%) and Ethiopia (45.5%) [16] [17].

The factors explaining this disparity, all of which are preventable, are related to the mother, the infant, the family environment, and socio-cultural practices on the one hand, and to health systems and policies on the other [18]. These factors include: the mother's age, occupation, marital status, level of education, parity, socio-economic status, support, and the socio-cultural practices of the family and community [18].

In the Republic of the Congo, the proportion of children who are exclusively breastfed at 6 months is low. According to the 2012 Demographic and Health Survey (DHS Congo 2012), the rate of exclusive breastfeeding at 6 months was 21% [19]. This rate had fallen to 17% a year later [20]. Furthermore, the determining factors remain poorly documented. In order to guide strategies for raising awareness among mothers about infant feeding and contribute to improving the nutritional status of children in Brazzaville, it is important to have recent data on the reasons that prevent exclusive breastfeeding from continuing at 6 months. The overall objective of this study was to examine the determinants of exclusive breastfeeding at 6 months among infants in Brazzaville. The specific objectives were to describe the socio-demographic and clinical characteristics of the study population, report the prevalence of exclusive breastfeeding at 6 months among infants in Brazzaville, and identify the factors that influence exclusive breastfeeding at 6 months among infants in Brazzaville.

2. Patients and Methods

2.1. Type, Duration, and Setting of the Study

This was a multicenter, prospective, cross-sectional study conducted from December 1, 2023, to November 31, 2024. It was conducted at the mother/child consultation unit (MCC) of the Brazzaville University Hospital Center (UHC-B) and in eight integrated health centers (IHC) with a minimum package of activities (MPA) extended to deliveries (IHC of Terinkyo, Bissita, Sœur Martin, Mounkondo, Jane

Vialle, Marien Ngouabi, Itsali, and Nkombo). All of these healthcare facilities are located in the department of Brazzaville, the political capital of the Republic of the Congo. Brazzaville covers an area of 100 km^2 and had an estimated population of 2,388,000 in 2020. It is subdivided into 10 districts and comprises 10 health districts (HD) and 46 health facilities.

2.2. Study Population

The general population consisted of mothers of all infants aged 0 to 24 months who attended postnatal follow-up consultations at the selected health facilities during the study period. The target population consisted of mothers of infants aged 6 to 24 months who attended the same centers. We included mothers of infants aged 6 to 24 months who were born at term, resided in Brazzaville, and gave their free and informed consent to participate in the study.

2.3. Sampling

We conducted a simple non-probabilistic random survey based on the list of health centers in the ten health districts provided by the Departmental Directorate of Health Care and Services (DDHCS) in Brazzaville. Thus, in addition to the UHC-B, eight IHCs with expanded MPA services for childbirth were selected, *i.e.*, one IHC per health district. The Madibou health district, which did not have any IHCs with expanded MPA services for childbirth, and the Mbamou Island district, which was difficult to access, were not selected. The sample size was calculated using the SWARTZ formula: $N = P\ (1-P)\frac{Z_{\alpha}^{2}}{i^{2}}$, where P is the prevalence, i is the margin of error or precision, and Z is a constant corresponding to the margin coefficient derived from the confidence level. For a confidence level of 95% and a margin of error of 5%, Z was equal to 1.96. The prevalence P considered is 31% from Kateng *et al.* in the Democratic Republic of the Congo [15]. The minimum sample size required for statistical analysis was 327 patients. To minimize bias, we identified all mothers of infants meeting the inclusion criteria who were present in healthcare facilities during the study period, consecutively as they arrived, for a total of 1008 mothers. The data were collected using a pre-established survey form with a pre-tested questionnaire to ensure its comprehensibility; the results of the pre-test allowed for the readjustment of certain items.

2.4. Study Variables

The study variables were:

Socio-demographic variables for the mother age, level of education, sector of activity, nationality, religion, marital status, place of residence, place of consultation, socio-economic status (SES) assessed on the basis of the food poverty threshold defined by the National Center for Statistics and Economic Studies (CNSEE) [21] and infants (age, sex, birth order).

The socio-economic level was considered low if families spent less than 523 CFA

francs per person per day, medium if spending was between 523 and 1685 CFA francs, and high if it exceeded 1685 CFA francs.

- Clinical and medical history:

- Regarding the mother: medical and surgical history, gestation, and parity.
- Regarding the infant: medical and surgical history, pregnancy (course, monitoring, location, number of prenatal visits (NPV), qualifications of the agent who performed the NPV), delivery (location, vaginal or cesarean section, qualifications of the agents who performed the delivery, health status of the newborn at birth (birth weight, adaptation to extrauterine life, resuscitation, hospitalization during the neonatal period)), feeding practices (exclusive breastfeeding, partial breastfeeding, or milk substitutes, time to initiation of breastfeeding (latching on), duration of feedings, number of feedings per day, daily feeding schedule, knowledge and practices of breastfeeding, source of information, support from family and friends).

2.5. Statistical Analysis

Data processing and analysis were performed using Microsoft Excel 2021 and the Statistical Package for Social Sciences (SPSS) version 2020 software. Quantitative variables were presented as means with their standard deviations, while qualitative variables were expressed as frequencies (%). To search for correlations, we used Pearson's chi^2 test with a significant threshold of 5%. Logistic regression was used to rule out any potential confounding factors.

2.6. Ethical Considerations

The study was conducted in strict anonymity, keeping the identity of participants confidential. A unique code and number were assigned to each participant. Only mothers who had given their prior written consent were included in the study. The research protocol was submitted to the Health Science Research Ethics Committee (CERSSA) and approval was obtained under number N˚164-24/MESRSIT/DGRST/CERSSA/-24.

3. Results

3.1. Descriptive Study

3.1.1. Infant Selection Procedure

During the study period, 1008 infants aged 6 to 24 months who met the inclusion criteria were selected, with a participation rate of 90.2% (**Figure 1**).

3.1.2. Socio-Demographic Characteristics of the Study Population

The infants included in the study were aged 10.4 ± 0.8 months on average, with extremes ranging from 10 to 19 months; those aged between 6 and 12 months accounted for 74.8%. There were 514 (51%) boys and 494 (49%) girls, with a *sex ratio* of 1.04. The average age of the mothers was 28.2 ± 1.1 years (ranging from 16 to 45 years). They had a secondary education level in 665 (65.9%) cases. In 486 (48.2%) cases, they were unemployed, and 707 (70.1%) of them were single.

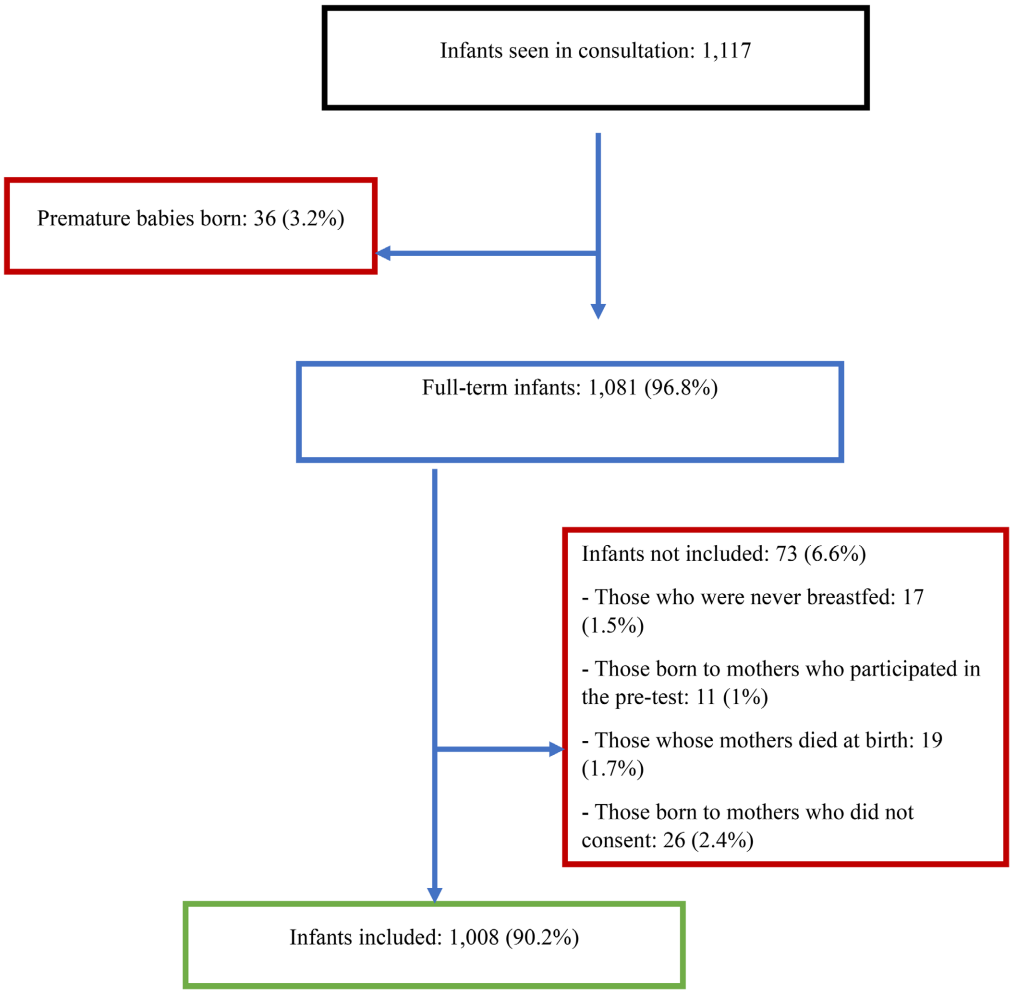


Figure 1. Selection flow diagram.

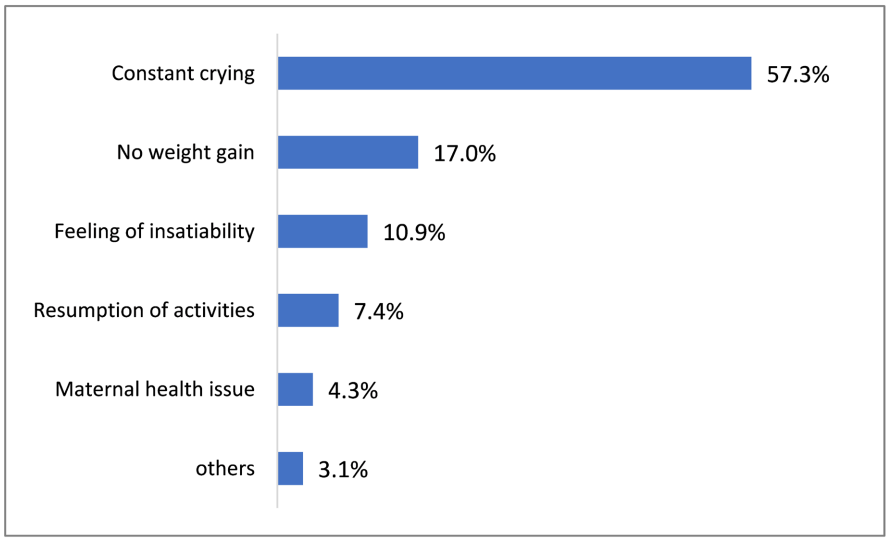
3.1.3. Feeding Practices

Infants were breastfed within the first hour after birth in 611 (60.6%) cases. In 397 (39.4%) cases, breastfeeding began at least three hours after delivery. The reasons given for this delay in early breastfeeding were: lack of information n = 141/397, neonatal pathology n = 103/397, cesarean section n = 49/397, delayed milk production n = 37/397, maternal exhaustion after delivery n = 36/397, complications in the immediate postpartum period n = 21/397, and difficulty suckling n = 10/397. The average number of feedings was 7.1 ± 1.9, with extremes of 2 and 15. Breastfeeding was on demand in 593 (58.8%) cases and at fixed times in 61 (6.1%) cases. Three hundred and four (30.2%) women had used pre-lactation feeding at birth. The pre-lactation foods given to the newborn were: milk substitutes n = 212, water n = 124, and infusions n = 6.

3.1.4. Prevalence of Exclusive Breastfeeding

At birth, the rate of initiation of breastfeeding was 69.8% (704 cases). At 6 months, the rate of exclusive breastfeeding was 26.4% (266 cases), with 438 mothers opting for partial breastfeeding or giving foods other than milk before the age of six months.

The other foods given by mothers in addition to milk substitutes were: water n = 349 (88.8%), flour n = 238 (60.6%), vegetables n = 42 (10.7%), fruit juice n = 212 (53.9%), as well as dairy products and decoctions n = 10 (2.5%) and n = 5 (1.3%) respectively. The age at which foods were introduced was four to five months in 268 (76.8%) cases, two to three months in 76 (21.8%) cases, and one month in five cases. The main reason for this partial breastfeeding was incessant crying (Figure 2).



Others: Travel, advice from friends and family.

Figure 2. Main reasons for partial breastfeeding.

3.1.5. Breastfeeding Outcomes

At the time of the study, 766 (76%) mothers were still breastfeeding their infants, while 282 (24%) mothers had already weaned their infants. The average age of weaning in Brazzaville was 10.8 ± 1.3 (range 2 to 24 months). The reasons for stopping breastfeeding are shown in Table 1.

Table 1. Distribution of infants according to reasons for weaning from breastfeeding.

Reasons for weaning	n	%
Child rejection	111	**45.9**
Lack of information	39	16.1
Resumption of activities	30	12.4
Lack of milk	26	10.7
Advice from friends and family	24	9.9
Breast lesions (pain/sores)	7	2.9
Medication	5	2.1
Total	**242**	**100**

n: Partial sample size; %: Percentage.

3.1.6. Knowledge of the Benefits of Exclusive Breastfeeding

Six hundred and fifty-two (64.7%) mothers were aware of the benefits of exclusive breastfeeding, and 613 (60.8%) of them reported receiving advice on breastfeeding. The source of advice was healthcare personnel in 488 (79.6%) cases, family and friends in 65 (10.6%) cases, the media in 34 (5.6%) cases, and school in 26 (4.2%) cases. Advice was received before pregnancy in 109 (17.8%) cases, during prenatal contacts (PC) in 338 (55.1%) cases, and during the postnatal period in 166 (27.1%) cases. Eight hundred and thirty (82.3%) mothers reported not receiving support during breastfeeding.

3.2. Analytical Study: Factors Associated with Exclusive Breastfeeding

Table 2 shows the various factors influencing exclusive breastfeeding after logistic regression.

Table 2. Factors influencing exclusive breastfeeding practices.

Potential risk factors	OR	IC 95%	p-value
Single mother	2.5	1.4 - 3.7	0.000
Mother working in the informal sector	1.3	1.02 - 1.9	0.032
Birth order	1.5	1.1 - 2.2	0.016
Primiparity	1.5	1.1 - 1.9	0.007
Caesarean section	3.9	2.5 - 6.2	0.000
Neonatal resuscitation	1.7	1.1 - 2.8	0.023
Unawareness of EB benefits	2.1	1.6 - 2.7	0.000
Lack of support during breastfeeding	1.5	1.1 - 2.1	0.027

EB: Exclusive breastfeeding.

4. Discussion

The overall objective of this study was to examine the determinants of exclusive breastfeeding at 6 months in infants in Brazzaville, more specifically to report the prevalence of exclusive breastfeeding at 6 months and to identify the factors that influence its practice. The choice of a cross-sectional study, its 12-month duration, and its setting were guided by the desire to obtain a representative sample. The inclusion of infants aged six months and older made it possible to verify the application of WHO recommendations on exclusive breastfeeding for six months by wet nurses. The infants included in our study were on average 10.4 months old, with a predominance of males (*sex ratio* = 1.04); those aged 6 to 12 months were the most represented (74.8%), certainly due to the combined activities of the expanded program on immunization (EPI) and growth monitoring at this age.

These infants were born to relatively young mothers (average age 28.2 ± 1.1 years), as in the series by Karamoko *et al.* in Mali [22], and most of whom had a secondary education. However, the literacy rate among mothers is declining in Brazzaville:

65.9% in this study, whereas Moyen *et al.* reported in 2013 a rate of 72% of women with a secondary education level [20].

The infants included in this study were breastfed early after birth, with 60.6% being breastfed within the first hour. This rate is increasing in Congo, as it was only 24% according to the 2012 Congo DHS [19]. This result is certainly encouraging, but it does not yet comply with WHO recommendations, which require that newborns be breastfed immediately after birth [2]. Efforts therefore remain to be made in raising awareness and providing health education to mothers on feeding newborns and infants. Breastfeeding begins earlier in Sub-Saharan Africa than in the Maghreb countries, with Halima *et al.* in Niger [23] reporting a rate of 48% among Nigerien women who have given birth, compared to only 10.4% in rural Egypt according to Ghwass *et al.* [24]. The rate of exclusive breastfeeding at 6 months has improved significantly in Congo: 26.4% in this study. The 2012 Congo Demographic and Health Survey (DHS Congo) [19] reported a lower rate of 21% for exclusive breastfeeding at 6 months in Congo. This rate was even lower in the work of Moyen *et al.* in 2015, at 17% [20]. Methodological differences, particularly the study setting and sample size of each of these studies, would explain this disparity.

Several studies report relatively low rates of EB in Africa, America, Europe, and Asia: 12% in Côte d'Ivoire, 14.7% in Benin, 23% in Niger, 23.5% in Cameroon, 25.8% in the United States, 27% - 65% in Europe, and 28% in China [5] [8]-[12] [14]. However, in the Democratic Republic of the Congo and India, these rates are higher, at 31% and 62%, respectively [15] [25]. Socio-cultural, economic, geographical, and environmental factors, as well as policies related to the healthcare system and the marketing of industrialized milk, may explain this difference. Prenatal contacts are a crucial time for information, education, and learning for future breastfeeding mothers, as evidenced by 60.8% of mothers in our study. According to them, healthcare personnel were the main source of information on breastfeeding (79.6%). Similarly, for Karamoko *et al.* in Mali, midwives were the main source of information for pregnant women on nutrition [22].

The factors that have a negative influence on breastfeeding at 6 months in Brazzaville are: cesarean section, neonatal resuscitation, mothers' lack of knowledge about the benefits of breastfeeding, and lack of support from family and friends during the breastfeeding period ($p < 0.05$).

These factors have an impact on both the initiation and duration of breastfeeding. According to several international institutions, including the WHO, UNICEF, and the AAP [2] [26] [27], early initiation of breastfeeding reduces neonatal mortality and helps increase its chances of success and maintenance during the first six months of life. Non-compliance with this recommendation can be explained by the fact that, in certain situations, wet nurses are forced to opt for pre-lactation feeding, thus hindering the practice of breastfeeding.

Caesarean section is therefore recognized as one of the factors that negatively influence breastfeeding practices. It encourages the use of pre-lactation feeding,

the adoption of partial breastfeeding from birth, and prevents the early initiation of breastfeeding due to the mother's medical condition, which may contraindicate breastfeeding or cause a delay in milk production; the type of anesthesia, which can cause drowsiness in both the mother and the child; and pain caused by incorrect positioning of the newborn and post-operative treatment, which can affect milk flow and harm the infant's health [28]-[35].

The notion of resuscitation, found in 74 infants in our study, is also a factor that negatively impacts exclusive breastfeeding at 6 months due to hospitalization in the neonatal intensive care unit, justifying the fact that food other than breast milk is given to newborns.

5. Conclusions

The prevalence of exclusive breastfeeding for 6 months in Brazzaville is 26.4%, a slight increase compared to previously reported rates. It is practiced more by primiparous mothers over the age of 26 who live in a common-law relationship. The factors influencing the continuation of exclusive breastfeeding at 6 months are: mode of delivery, awareness of neonatal resuscitation, knowledge of its benefits, and support from family and friends.

Communication on the promotion of newborn and infant feeding among pregnant women seems necessary to bring about behavioral change.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Agence Nationale de l'Accréditation et d'Évaluation en Santé, Service Recommandations et Références Professionnelles (2003) Allaitement maternel: Mise en œuvre et poursuite dans les six premiers mois de vie de l'enfant. Recommandations (Mai 2002). *Gynécologie Obstétrique & Fertilité*, **31**, 481-490. https://doi.org/10.1016/s1297-9589(03)00114-0

[2] Organisation Mondiale de la Santé (1999) Données scientifiques relatives aux dix conditions pour le succès de l'allaitement. OMS. https://apps.who.int/iris/bitstream/handle/10665/65956/?sequence=1

[3] World Health Organization and United Nations International Children's Fund (2003) Global Strategy for Infant and Young Child Feeding. WHO.

[4] Turck, D., Vidailhet, M., Bocquet, A., Bresson, J.-L., Briend, A., Chouraqui, J.-P., *et al.* (2013) Allaitement maternel: Les bénéfices pour la santé de l'enfant et de sa mère. *Archives de Pédiatrie*, **20**, S29-S48. https://doi.org/10.1016/s0929-693x(13)72251-6

[5] Yngve, A. and Sjöström, M. (2001) Breastfeeding in Countries of the European Union and EFTA: Current and Proposed Recommendations, Rationale, Prevalence, Duration and Trends. *Public Health Nutrition*, **4**, 631-645. https://doi.org/10.1079/phn2001147

[6] Cattaneo, A., Yngve, A., Koletzko, B. and Guzman, L.R. (2005) Protection, Promotion and Support of Breast-Feeding in Europe: Current Situation. *Public Health Nutrition*, **8**, 39-46. https://doi.org/10.1079/phn2005660

[7] Sokol, E., Aguayo, V.M. and Clark, D. (2007) Protéger l'allaitement maternel en Afrique de l'Ouest et du Centre. 25 années d'application du Code International sur la Commercialisa-tion des Substituts du Lait Maternel. UNICEF, Bureau Régional pour l'Afrique de l'Ouest et du Centre.

[8] Meek, J.Y. and Noble, L. (2022) Policy Statement: Breastfeeding and the Use of Human Milk. *Pediatrics*, **150**, e2022057988. https://doi.org/10.1542/peds.2022-057988

[9] Ruan, Y., Zhang, Q., Li, J., Wan, R., Bai, J., Wang, W., *et al.* (2019) Factors Associated with Exclusive Breast-Feeding: A Cross-Sectional Survey in Kaiyuan, Yunnan, Southwest China. *PLOS ONE*, **14**, e0223251. https://doi.org/10.1371/journal.pone.0223251

[10] Coulibaly, A., Ake Tano, O., Bénie Bi Vroh, J., Traoré, Y. and Dagnan, N.S. (2014) Facteurs socioprofessionnels et pratique de l'allaitement exclusif par les primipares à Abidjan (Côte d'Ivoire). *Santé Publique*, **26**, 555-562. https://doi.org/10.3917/spub.144.0555

[11] Institut National de la Statistique, International Classification of Functioning, Disability and Health (2013) Enquête démographique et de santé et à indicateurs multiples du niger 2012. INS et ICF International.

[12] Chiabi, A., Mah, E., Fayçal, F., Nguefack, S., Fru, F., Um, S.N., *et al.* (2014) Breastfeeding Practices by Women Attending the Vaccination and Pediatric Out-Patient Clinics at the Yaounde Gynaeco-Obstetric and Pediatric Hospital, Cameroon. *Health Sciences and Disease*, **15**, 1-6.

[13] Andriamifidison, N., Ravaoarisoa, L., Randriatsarafara, F., Razafintsoa, A., Rakotonirina, E., Ramangasoavina, L., *et al.* (2016) Déterminants de l'allaitement maternel exclusif au CSBII d'Ambohitsoa, Antananarivo: Étude cas-témoins. *La Revue Médicale de Madagascar*, **6**, 725-729. https://doi.org/10.62606/rmmao00190

[14] Adedemyj, D., Bagnan-Tossa, L., Noudamadjo, A., Agossou, J. and Hounhakou, P. (2014) Fréquence et facteurs associés à la pratique de l'allaitement maternel exclusif de 0 à 6 mois à l'hôpital de la mère et de l'enfant Lagune (HOMEL) de Cotonou. *Journal de la Société de Biologie Clinique du Benin*, No. 21, 38-44.

[15] Kanteng, G.W., Lubala, T.K., Mutombo, A.M., Mutoke, G.N., Kasongo, A.N., Stanis, O.W., *et al.* (2014) Perception de l'allaitement maternel et de la diversification alimentaire dans une zone urbaine congolaise. *Pan African Medical Journal*, **19**, Article 336. https://doi.org/10.11604/pamj.2014.19.336.5038

[16] Kere, I.W.Z., Hama-Ba, F., Sankara, S., Bougma, S., Zoungrana, B., Ouedraogo, M., *et al.* (2024) Factors Associated with Exclusive Breastfeeding among Mothers of Children Aged 0 to 12 Months and Father's Perceptions of Exclusive Breastfeeding Practice in the Central Region of Burkina Faso: Case of the Boulmiougou Health District. *Food and Nutrition Sciences*, **15**, 1106-1122. https://doi.org/10.4236/fns.2024.1511072

[17] Awoke, S. and Mulatu, B. (2021) Determinants of Exclusive Breastfeeding Practice among Mothers in Sheka Zone, Southwest Ethiopia: A Cross-Sectional Study. *Public Health in Practice*, **2**, Article ID: 100108. https://doi.org/10.1016/j.puhip.2021.100108

[18] Noirhomme-Renard, F. and Noirhomme, Q. (2009) Les facteurs associés à un allaitement maternel prolongé au-delà de trois mois: Une revue de la littérature. *Journal de Pédiatrie et de Puériculture*, **22**, 112-120. https://doi.org/10.1016/j.jpp.2009.03.006

[19] Centre Nationale de la Statistique des Études Économiques, International Classification of Functioning, Disability and Health (2013) Enquête démographique et de santé du Congo (EDSC-II) 2011-2012. CNSEE et ICF International.

[20] Moyen, E., MoignyGaju, Y. and Kambourou, J. (2015) Conduite de la diversification alimentaire chez le nourrisson à Brazzaville. *Médecine d'Afrique Noire*, **62**, 191-197.

[21] Centre National de la Statistique et des Etudes Economiques (CNSEE) (2015) Enquête Congolaise auprès des Ménages pour l'Évaluation de la Pauvreté 2005. https://catalog.ihsn.org/catalog/2254/related-materials

[22] Karamoko, S., Maiga, B., Konaté, D., Diakité, F.L., Diakité, A.A., Doumbia, S., *et al.* (2019) Pratique de l'Allaitement Maternel au CHU Gabriel Touré de Bamako, Mali. *Health Sciences and Disease*, **20**, 43-47.

[23] Halima, D.O. and Abdourahamane, B. (2021) Déterminants clés de la pratique optimale de l'allaitement exclusif au niveau de la communauté urbaine de Niamey, Niger. *International Journal of Biological and Chemical Sciences*, **15**, 1006-1014. https://doi.org/10.4314/ijbcs.v15i3.13

[24] Ghwass, M.M.E.A. and Ahmed, D. (2011) Prevalence and Predictors of 6-Month Exclusive Breastfeeding in a Rural Area in Egypt. *Breastfeeding Medicine*, **6**, 191-196. https://doi.org/10.1089/bfm.2011.0035

[25] Chudasama, R.K., Amin, C.D. and Parikh, Y.N. (2009) Prevalence of Exclusive Breastfeeding and Its Determinants in the First 6 Months of Life: A Prospective Study. Online Journal of Health and Allied Sciences, **8**, 1-7.

[26] American Academy of Pediatrics Committee on Drugs (2001) The Transfer of Drugs and Other Chemicals into Human Milk. *Pediatrics*, **108**, 776-789. https://doi.org/10.1542/peds.108.3.776

[27] WHO and UNICEF (2020) Protecting, Promoting and Supporting Breastfeeding: The Baby-Friendly Hospital Initiative for Small, Sick and Preterm Newborns. WHO. https://www.who.int/publications/i/item/9789240005648

[28] Prior, E., Santhakumaran, S., Gale, C., Philipps, L.H., Modi, N. and Hyde, M.J. (2012) Breastfeeding after Cesarean Delivery: A Systematic Review and Meta-Analysis of World Literature. *The American Journal of Clinical Nutrition*, **95**, 1113-1135. https://doi.org/10.3945/ajcn.111.030254

[29] Abdel-Rahman, M.E., El-Heneidy, A., Benova, L. and Oakley, L. (2020) Early Feeding Practices and Associated Factors in Sudan: A Cross-Sectional Analysis from Multiple Indicator Cluster Survey. *International Breastfeeding Journal*, **15**, Article No. 41. https://doi.org/10.1186/s13006-020-00288-7

[30] Ogah, A.O., Ajayi, A.M., Akib, S. and Okolo, S.N. (2012) A Cross-Sectional Study of Pre-Lacteal Feeding Practice among Women Attending Kampala International University Teaching Hospital Maternal and Child Health Clinic, Bushenyi, Western Uganda. *Asian Journal of Medical Sciences*, **4**, 79-85.

[31] Teshale, A.B., Worku, M.G., Tessema, Z.T. and Tesema, G.A. (2021) Prelacteal Feeding Practice and Its Associated Factors among Mothers Having Children Less than 2 Years of Age in East Africa: A Multilevel Analysis of the Recent Demographic and Health Surveys. *International Breastfeeding Journal*, **16**, Article No. 68. https://doi.org/10.1186/s13006-021-00414-z

[32] Parashar, A., Sharma, D., Gupta, A. and Dhadwal, D. (2017) Prelacteal Feeding Practices and Associated Factors in Himachal Pradesh. *International Journal of Health and Allied Sciences*, **6**, 30-34.

[33] Berde, A.S. and Ozcebe, H. (2017) Risk Factors for Prelacteal Feeding in Sub-Saharan Africa: A Multilevel Analysis of Population Data from Twenty-Two Countries. *Public Health Nutrition*, **20**, 1953-1962. https://doi.org/10.1017/s1368980017000659

[34] Boccolini, C. and Pérez-Escamilla, R. (2014) Risk Factors for Prelacteal Feedings in Seven Latin America and Caribbean Countries: A Multilevel Analysis (131.7). *The FASEB Journal*, **28**, Article 131.7.

https://doi.org/10.1096/fasebj.28.1_supplement.131.7

[35] Sheehan, D., Krueger, P., Watt, S., Sword, W. and Bridle, B. (2001) The Ontario Mother and Infant Survey: Breastfeeding Outcomes. *Journal of Human Lactation*, **17**, 211-219. https://doi.org/10.1177/089033440101700304