

Research Article

Prevalence and Associated Factors of Exclusive Breastfeeding in Rural Areas of Burkina Faso

Abdoulaye Hama Diallo^{1,2,*} , Roseline Maimouna Bamouni² ,
Seydou Ouattara^{1,2} , Jeoffray Diendere³ , Jocelyne Valerie Gare¹ ,
Blaise Gnoumou² , Souleymane Ouedraogo² 

¹Department of Public Health, University Joseph Ki-Zerbo, Ouagadougou, Burkina Faso

²Centre Muraz Research Institute, Bobo-Dioulasso, Burkina Faso

³Research Institute for Health Sciences (IRSS), National Centre for Scientific and Technologic Research (CNRST), Bobo-Dioulasso, Burkina Faso

Abstract

Introduction: Child malnutrition remains a major public health threat in sub-Saharan Africa and is reported to be associated with half of child deaths in Burkina Faso. The World Health Organization recommends exclusive breastfeeding (EBF) as a major intervention to improve overall child nutritional status and survival for the first 6 months of life. The study objectives were to assess the prevalence rates of EBF and to identify factors associated with improved EBF rates. **Methods:** As part of the evaluation of the Alive and Thrive interventional project in a Western area of Burkina Faso, we conducted a prospective cross-sectional survey in twelve villages randomly selected in the “Boule du Mouhoun” region. The EBF-prevalence was calculated as the proportion of children who were exclusively breastfed. The factors associated with increased EBF-prevalence were identified using multivariable logistic regression models. The results were expressed as odds ratios (OR) and the corresponding 95% confidence intervals (95% CI) were constructed. **Results:** Overall, 157 mother-infant pairs were enrolled in the study, with an average of 13 pairs per village. The average age ($\pm$ SD) of the babies at inclusion was 2.6 months ($\pm$ 1.2), and 51.6% were girls. The average age ($\pm$ SD) of the mothers was 27.7 years ($\pm$ 7). Overall, 96.2% of mothers were married and 61% had no formal education. The EBF-prevalence rate was 66.2% (95% CI: 46.8-81.4) using the 24-hours recall period. The factors associated with improved EBF-rates were the intervention study arm (adjusted OR: 3.38, P =0.003) and the early initiation of EBF within 72 hours of delivery (adjusted OR: 10.95, P <0.001). **Conclusion:** This study clearly highlights the relevance of EBF promotion around the time of birth and the importance of early initiation of EBF within 72 hours of birth. A policy focused on these two practices should be implemented in rural areas of Burkina Faso.

Keywords

Exclusive Breastfeeding, Prevalence Rates, Risk Factors, Rural, Burkina Faso

*Corresponding author: hamadial@yahoo.fr (Abdoulaye Hama Diallo)

Received: 15 September 2025; **Accepted:** 20 October 2025; **Published:** 12 November 2025



Copyright: © The Author(s), 2025. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

1. Background

Despite the various international policies from the World Health Organization (WHO) aimed at reducing the levels of child mortality across the resources-limited countries [1-4], child survival remains a significant challenge for many mothers in sub-Saharan African countries [5, 6]. In this region, the burden of child mortality is still high, with about 45% of the global 6.3 million children deaths in 2015 [7].

In Burkina Faso, where many of recommended child survival policies were implemented, the infant and child mortality rate fell from 129 to 76 per 1,000 live births between 2010 and 2018 [8]. Despite this overall progress, neonatal mortality has remained stagnant for almost 30 years, with an estimated rate of 40 per 1,000 live births in rural areas [9]. Malnutrition remains a major underlying cause of child deaths. According to the 2016 nutritional survey report by the Ministry of Health in Burkina Faso, the prevalence of stunting among children under 5 years of age was 27%, and the rates for underweight and wasting were 19% and 7.2%, respectively [10]. The effective implementation of nutritional practices recommended by the WHO is essential for reducing acute malnutrition. These practices include early and exclusive breastfeeding (EBF) during the first six months of life, which play a key role [3, 11]. There is clear evidence that EBF has a positive impact on child survival, morbidity related to diarrhoea or pneumonia, and neurocognitive function [12-14]. Despite these benefits, the national prevalence of EBF was just 55% [10] in 2016, considerably below the expected target and there were regional variations across the country.

The Alive and Thrive project (www.aliveandthrive.org) is an international initiative that promotes healthy nutritional practices for young children in western Burkina Faso through community- and facility based-promotion of EBF and early initiation of breastfeeding. It gave us the opportunity to assess the prevalence of EBF and its associated factors in a rural area of Burkina Faso.

2. Methods

The evaluation protocol of the Alive and Thrive Project in Burkina Faso was approved by the National Health Research Ethics Committee of the MoH (N°2015/05/06) and approved by the Institutional Review Ethical Committee of Centre MURAZ (N°2015/017).

2.1. Study Site

The study was conducted in the Boucle du Mouhoun region, in western Burkina Faso in twelve villages: Fakena, Karo, Nounou, Oulo, Oury, Poundou, Safane, Serena, Siby, Tikan, Vy and Wahabou. This region comprises six provinces and as many health districts. The total population was estimated at 1,976,217 in 2017, including 440,841 women of childbearing age (15 to 44 years) and 44,870 children under six months of age [15]. Health infrastructure includes a regional hospital

centre (CHR) in Dedougou, five medical centres with surgical facilities (CMA), seven medical centres (CM) and 226 primary health Care Centres (PHCCs) [15]. Malaria and acute respiratory infections were the leading causes of death among children under 5 [15]. Acute malnutrition was the leading underlying factor of this high infant and child mortality rate. In 2016, stunting, underweight, and wasting were estimated to be 23.6%, 17.3%, and 8.8%, respectively. In the region, EBF was observed in 43.4% of cases in 2016; however, more than 99% of children aged 12-15 months were still being breastfed [10].

2.2. Type and Duration of Study

We conducted a cross-sectional study between June and August 2016 in 12 villages in the study region as part of the biological validation component of the Alive and Thrive project evaluation. This evaluation was a community-based cluster randomised trial, the results of which have been published [16].

2.3. Participant Selection and Sampling

The study population consisted of mother-child pairs whose babies were less than 6 months old. Participants were recruited from 12 villages in two provinces (Bale and Mouhoun), randomly selected among the target villages of the Alive and Thrive project evaluation. The criteria for selecting villages included the presence of a PHCC and geographical accessibility throughout the year. The inclusion criteria for mother-child pairs were as follows: i) mother residing in one of the 12 selected villages; ii) singleton baby under 6 months of age and breastfed; iii) mother consenting to take part in the study. Eligible mother-child pairs were identified from the local PHCC birth records (which also included home births), followed by a home visit to eligible women. A simple random sampling method was used to select 12 mother-child pairs per village. This size was calculated based on the main indicator of the Alive and Thrive project's biological validation study.

2.4. Data Collection and Nature of Variables

Data were collected during a home visit after the husband's authorisation and the mother's consent. Data collection was carried out during an interview conducted in the main language of the region (Dioula) and based on a three-part questionnaire:

- 1) A socio-demographic section with variables relating to the socio-demographic data of the mother (age, parity, marital status, level of education, occupation), the baby (age, sex, place of birth, birth weight), and the household (residence, property, socioeconomic data).
- 2) A nutritional section aimed at collecting data on the

mother's nutritional practices immediately after giving birth, during the first 72 hours of the baby's life (liquids, decoctions, breastfeeding, etc.), and currently (items recalling the baby's diet during the last 24 hours and during the previous week). There were 23 items on the baby's diet recall, including breast milk, animal milk (cow, goat, sheep), infant-milk formula, liquids (water, decoctions, juice, tea, alcohol, etc.), solid foods (meat, fish, eggs, etc.), porridge, vegetables (carrots, squash, etc.), and other foods.

- 3) An anthropometric component was carried out at the local PHCC, with the baby's weight (in g) and height (in mm) measured using standardised Seca®334 scales (accuracy of ± 10 g) and Seca®417 measuring rods adapted for infants under 6 months (accuracy of ± 1 mm). Each parameter was measured twice.

The investigators recruited for the study received comprehensive training on the data collection tools. A pre-test ensured standardisation in the administration of the questionnaire and the recording of anthropometric measurements. Regular weekly supervision of data collection was carried out throughout the study.

2.5. Data Processing

The collected data were double-entered into EpiData 3.1 software. Data cleaning and analysis were performed using STATA SE/13.0. We first performed a descriptive analysis of continuous quantitative variables (mean, standard deviation, median, interquartile range) and qualitative variables (proportions). For each variable and if relevant, the confidence interval was 95% (95% CI).

The EBF rate is the proportion of children who are exclusively breastfed. It's defined on the basis of 23 items related to the recall of the baby's feeding at three time-points: (i) in the first 72 hours after birth; (ii) in the 24 hours, and (iii) in the week preceding the survey. The prevalence of EBF was calculated, and the corresponding 95% confidence intervals were constructed.

After the univariate analysis, which generated crude odds ratios (ORs), we conducted a multivariate analysis that took into account the variables showing a statistical association with $p < 0.20$ in the univariate analysis, as well as the confounding variables reported in the literature. The statistical

significance threshold was set at a p -value of 0.05.

3. Results

A total of 157 mother-child pairs were included in the study, with an average of 13 pairs per village. The average age of the babies at inclusion was 2.6 months $\pm$ 1.2, and 51.6% were girls. Almost all (98.1%) were born at the PHCC, with an average birth weight of 3,038g $\pm$ 506 g and an average height of 59.4cm $\pm$ 4.5 cm. The median z -scores of the children at inclusion were -0.295 for the weight-to-age ratio, -0.484 for the height-to-weight ratio, and 0.007 for the height-to-age ratio.

The average age of the mothers was 27.7 years $\pm$ 7. 96.2% were married, 61% were illiterate, and their body mass index (BMI) was normal in 80% of cases, with an average of 22.2 $\pm$ 3.2. The socio-demographic characteristics of the mother-child pairs are presented in Table 1.

The prevalence of EBF was 74.5% [95% confidence interval (CI): 62.1-83.9] using the 72-hour feeding recall after birth. The rates were 66.2% [95% CI: 46.8-81.4] and 57.3% [95% CI: 36.6-75.8], respectively, for the 24-hour and one-week feeding recalls. A gradual but non-significant decrease in EBF rates was therefore observed according to the child's age and the duration of feeding recall in the survey (Table 1).

For factors associated with EB, univariate analysis showed that residence in an intervention village (crude odd ratio [cOR] = 4.64, $P < 0.001$) and initiation of EBF within the first 72 hours of the child's life (cOR = 10.22, $P < 0.001$) were significantly associated with the EBF rate (Table 2). Neither the mothers' level of education nor their socioeconomic status was associated with the EBF rate, regardless of the duration of feeding recall (Table 2). In children, our data showed that neither age at inclusion, sex, nor low birth weight was associated with the EBF rate (Table 2).

Multivariate analysis adjustment for study arm, parity, maternal educational level, polygamous household status, baby's sex, birth weight, feeding status in the first 72 hours, and age at inclusion confirmed the results found in the univariate analysis (Table 2), with study arm (adjusted odd ratio [aOR] = 3.38, $P = 0.003$) and early initiation of EB (aOR = 10.95, $P < 0.001$) as factors significantly associated with the EBF rate.

Table 1. Sociodemographic characteristics and prevalence of exclusive breastfeeding according to 2 recall periods (24h and 7 days) among 157 mother-infant pairs enrolled in the survey in rural Burkina Faso.

Variables	Numbers N (%)	Breastfed exclusively based on the last 24h recall, n (%)	P	Breastfed exclusively based on the last 7 days recall, n (%)	P
Study arms			<0.001		0.001
Control	78 (49.7)	39 (50.0)		29 (37.2)	

Variables	Numbers N (%)	Breastfed exclusive- ly based on the last 24h recall, n (%)	P	Breastfed exclusively based on the last 7 days recall, n (%)	P
Intervention	79 (50.3)	65 (82.3)		61 (77.2)	
Age of mothers (years)			0.867		0.777
<20	29 (18.5)	18 (62.1)		18 (62.1)	
20-35	103 (65.6)	69 (67.0)		57 (55.3)	
>35	25 (15.9)	17 (68.0)		15 (60.0)	
Parity at inclusion			0.527		0.484
1	32 (20.4)	23 (71.9)		20 (62.5)	
2-5	97 (61.8)	61 (62.9)		52 (53.6)	
> 5	28 (17.8)	20 (71.4)		18 (64.3)	
Mother's occupation			0.722		0.420
Housewife	30 (19.1)	18 (60.0)		14 (46.7)	
Agriculture/livestock	49 (31.2)	33 (67.4)		29 (59.2)	
Traders/others	78 (48.7)	53 (68.0)		47 (60.3)	
Mother's educational level			0.172		0.601
Never attended school	96 (61.1)	69 (71.9)		58 (60.4)	
Primary	45 (28.7)	26 (57.8)		24 (53.3)	
Secondary	16 (10.2)	9 (56.3)		8 (50.0)	
Polygamous household			0.355		0.040
Yes	49 (31.2)	35 (71.4)		34 (69.4)	
No	108 (68.8)	69 (63.9)		56 (51.9)	
Socio-economic status of the household†			0.996		0.986
Low	60 (38.0)	40 (66.7)		58.3)	
Average	47 (30.0)	31 (66.0)		57.4)	
Less poor	50 (32.0)	33 (66.0)		28 (56.0)	
Child's place of birth			0.224		0.396
At the health facility	154 (98.1)	103 (66.9)		89 (57.8)	
At home	3 (1.9)	1 (33.3)		1 (33.3)	
Child's sex			0.825		0.889
Female	81 (51.6)	53 (65.4)		46 (56.8)	
Male	76 (48.4)	51 (67.1)		44 (57.9)	
Child's birth weight (in g) ‡			0.669		0.347
≥ 2500g	141 (91.6)	95 (67.4)		84 (59.6)	
<2500g	13 (8.4)	8 (61.5)		6 (46.2)	
Was the child exclusively breastfed during the first 72 hours of birth?			<0.001		<0.001
Yes	117 (74.5)	93 (79.5)		70.9)	
No	40 (25.5)	11 (27.5)		7 (17.5)	
Child's age at inclusion (months)			0.967		0.778

Variables	Numbers N (%)	Breastfed exclusive- ly based on the last 24h recall, n (%)	P	Breastfed exclusively based on the last 7 days recall, n (%)	P
<1	10 (6.3)	7 (70.0)		6 (60.0)	
1 - 3	91 (58.0)	60 (65.9)		54 (59.3)	
3 - 5	56 (35.7)	37 (66.1)		30 (53.6)	

†: generated household assets energy and water sources and housing, ‡: Three babies born outside the health facility had no birth weight reported

Table 2. Associated factors of exclusive breastfeeding prevalence rates using the 24-hours recall among 157 mother-infant pairs enrolled in the survey.

Variables	Univariate analysis cOR [95% CI]	Multivariate analysis aOR [95% CI]	P
Study arms			0.003
Control	1.00	1.00	
Intervention	4.64 [2.23 - 9.64]	3.38 [1.51 - 7.59]	
Age of mothers (years)			
<20	1.00		
20-35	1.24 [0.53 - 2.92]		
>35	1.30 [0.42 - 4.02]		
Parity at inclusion			
1	1.00	1.00	
2-5	0.66 [0.28 - 1.59]	0.27 [0.06 - 1.13]	0.073
> 5	0.98 [0.32 - 3.02]	0.48 [0.08 - 2.89]	0.424
Mother's occupation			
Housewife	1.00		
Agriculture/livestock	1.38 [0.53 - 3.54]		
Traders/others	1.41 [0.59 - 3.39]		
Mother's educational level			
Never attended school	1.00	1.00	
Primary	0.54 [0.25 - 1.13]	0.43 [0.17 - 1.08]	0.073
Secondary	0.50 [0.17 - 1.49]	0.32 [0.05 - 1.83]	0.199
Polygamous household			
Yes	1.00	1.00	
No	0.71 [0.34 - 1.48]	0.74 [0.29 - 1.89]	0.532
Socio-economic status of household†			
Low	1.00		
Average	0.97 [0.43 - 2.18]		
Less poor	0.97 [0.44 - 3.43]		
Child's place of birth			

Variables	Univariate analysis cOR [95% CI]	Multivariate analysis aOR [95% CI]	P
At the health facility	1.00		
At home	0.25 [0.02 - 2.82]		
Child's sex			
Female	1.00	1.00	
Male	1.08 [0.55 - 2.09]	1.05 [0.45 - 2.45]	0.907
Child's birth weight (in g) ‡			
≥ 2500g	1.00	1.00	
<2500g	0.77 [0.24 - 2.51]	0.57 [0.13 - 2.51]	0.454
The child exclusively breastfed in the first 72 hours of birth			
No	1.00	1.00	
Yes	10.22 [4.46 - 23.41]	10.95 [3.90 - 30.70]	<0.001
Child's age at inclusion (months)			
<1	1.00		
1 - 3	0.83 [0.20 - 3.45]	1.16 [0.25 - 5.48]	0.850
3 - 5	0.83 [0.19 - 3.62]	0.76 [0.15 - 3.81]	0.735

aOR: Adjusted odd ratio, cOR: Crude odd ratio, †: generated household assets energy and water sources and housing, ‡: Three babies born outside the health facility had no birth weight reported

4. Discussion

The prevalence of EBF in our study was 66.2%, higher than the national (55%) and regional (43.4%) averages for the Mouhoun region reported in the 2016 national nutrition survey [10]. These results were observed in a context where the Alive and Thrive intervention (www.aliveandthrive.org) was strongly associated with EBF-rates both in the present study and in another one conducted in the same area during the same period. This study showed a strong association between the Alive and Thrive project (www.aliveandthrive.org) intervention and EBF rates, in line with previous findings in this area [16]. Furthermore, the mother's early initiation within the first 72 hours of the baby's life was strongly associated with EBF. Indeed, mothers who had initiated this behaviour were almost eleven times more likely to exclusively breastfeed their babies than those who had not. This significant finding highlights the need to review the usual strategies for promoting healthy nutritional practices for children, with a particular focus on interventions around the time of delivery.

Unlike other studies, our results showed no association between EBF rates and mothers' educational level [17], marital status [18] or baby's sex [19]. This difference may be due to the low variability of the first two variables in our sample, as well as different cultural norms regarding a child's gender.

The EBF rate declined from an average of 74.5% at birth to

66.2% at around three months. This finding is consistent with a previous result [20], which supports the high quality of the collected data. In an African context, there was evidence that mothers were willing to initiate breastfeeding regardless of the timing of initiation. However, the main challenge remains maintaining this choice three months later. In Burkina Faso, the median duration of EBF is short (less than two months), and more than 90% of children are still breastfed at 23 months of age [10]. Therefore, the challenge is to increase both the prevalence and duration of EBF practice, which has been linked to benefits such as improved survival [12], lower morbidity [9, 12] and potentially better cognitive performance in early childhood [14, 21, 22].

Although important, the results of this study are limited to a single region and have a relatively modest scope, covering only twelve villages. Given the study's context, it is also possible that the responses of women in the intervention arm may include a certain degree of desirability bias, even though their number is equal to that of the control arm. Despite the classic challenges associated with such a survey, our study emphasized the potential effectiveness of community-based interventions in improving reported EBF rates. Furthermore, it demonstrated the importance of conveying significant messages about the importance and benefits of EBF during the first six months of a baby's life to mothers around the time of delivery. We recommend higher involvement of local community-health workers in delivering interventions such as

peer-promotion of EBF.

5. Conclusion

The EBF rates in rural areas of Burkina Faso remain suboptimal, as only two-thirds of mothers in this study practiced it. Community-based interventions to promote EBF appear to be associated with higher reported rates of this practice, and mothers should be targeted around the time of delivery.

Abbreviations

aOR	Adjusted Odd Ratio
EBF	Exclusive Breastfeeding
cOR	Crude Odd Ratio
CI	Confidence Intervals
BMI	Body Mass Index
CHR	Regional Hospital Centre
CMA	Medical Centre with Surgical Facilities
CM	Medical Centre
PHCC	Primary Health Care Centre

Author Contributions

Abdoulaye Hama Diallo: Conceptualization, Methodology, Investigation, Writing - original draft, Funding acquisition

Roseline Maïmouna Bamouni: Methodology, Investigation- Writing, review & editing

Seydou Ouattara: Writing, review & editing

Jeoffray Diendere: Writing, review & editing

Jocelyne Valerie Gare: Writing, review & editing

Blaise Gnoumou: Data curation

Souleymane Ouedraogo: Investigation, Writing, review & editing

Funding

This work was supported by the Alive & Thrive Project (grant OPP50838/2014) and the Ministry of Health, Burkina Faso, (Data collection, Health facilities).

Conflicts of Interest

The authors declare that they have no competing interest.

References

- [1] World Health Organization, UNICEF (2003) Global Strategy for Infant and Young Child Feeding. WHO: Geneva. (cited 17 Oct 2025). Available at <https://www.who.int/publications/i/item/9241562218>
- [2] Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, and the Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet* 2003; 362: 65-71. [https://doi.org/10.1016/S0140-6736\(03\)13811-1](https://doi.org/10.1016/S0140-6736(03)13811-1)
- [3] Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E et al. and the Maternal and Child Undernutrition Study Group. What works? Interventions for maternal and child undernutrition and survival. *Lancet* 2008; 371: 417-40. [https://doi.org/10.1016/S0140-6736\(07\)61693-6](https://doi.org/10.1016/S0140-6736(07)61693-6)
- [4] Bhutta ZA, Chopra M, Axelson H, Berman P, Boerma JT, Bryce J, Bustreo F, Cavagnero E, Cometto G, Daelmans. Countdown to 2015-decade report (2000-10): taking stock of maternal, newborn, and child survival. *Lancet* 2010; 375: 2032-44. [https://doi.org/10.1016/S0140-6736\(10\)60678-2](https://doi.org/10.1016/S0140-6736(10)60678-2)
- [5] Liu L, Oza S, Hogan D, Perin J, Rudan I, Law JE et al. Global, regional, and national causes of child mortality in 2000-13, with projections to inform post-2015 priorities: an updated systematic analysis. *The Lancet*. 2015; 385(9966): 430-440. [https://doi.org/10.1016/S0140-6736\(14\)61698-6](https://doi.org/10.1016/S0140-6736(14)61698-6)
- [6] You D, Jones G, Hill K, Wardlaw T, Chopra M. Levels and trends in child mortality, 1990-2009. *Lancet Lond Engl*. 2010; 376(9745): 931-933. [https://doi.org/10.1016/S0140-6736\(10\)61429-8](https://doi.org/10.1016/S0140-6736(10)61429-8)
- [7] You D, Hug L, Ejdemyr S, Idele P, Hogan D, Mathers C et al. Global, regional, and national levels and trends in under-5 mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Inter-agency Group for Child Mortality Estimation. *Lancet*. 2015; 386(10010): 2275-2286. [https://doi.org/10.1016/S0140-6736\(15\)00120-8](https://doi.org/10.1016/S0140-6736(15)00120-8)
- [8] UNICEF. The State of the World's Children 2019. November 30, 2019. Accessed January 30, 2020. <https://www.unicef.org/reports/state-of-worlds-children-2019>
- [9] Diallo AH, Meda N, Ouedraogo WT, Cousens S, Tylleskar T, PROMISE-EBF Study Group. A prospective study on neonatal mortality and its predictors in a rural area in Burkina Faso: can MDG-4 be met by 2015? *J Perinatol Off J Calif Perinat Assoc*. 2011; 31(10): 656-663. <https://doi.org/10.1038/jp.2011.6>
- [10] Ministère de la Santé du Burkina Faso. Enquête Nutritionnelle Nationale 2016. 2016. Accessed October 9, 2025. <https://reliefweb.int/report/burkina-faso/burkina-faso-enquete-nutritionnelle-nationale-2016>
- [11] Christian P, Mullany LC, Hurley KM, Katz J, Black RE. Nutrition and maternal, neonatal, and child health. *Semin Perinatol*. 2015; 39(5): 361-372. <https://doi.org/10.1053/j.semperi.2015.06.009>
- [12] Bahl R, Frost C, Kirkwood BR, Edmond K, Martinez S, Bhandari N, Henri P. Infant feeding patterns and risks of death and hospitalization in the first half of infancy: multicentre cohort study. *Bull World Health Organ*. 2005; 83(6): 418-426. <https://doi.org/S0042-96862005000600009>
- [13] Black RE, Morris SS, Bryce J. Where and why are 10 million

- children dying every year? *Lancet*. 2003; 361(9376): 2226-2234. [https://doi.org/10.1016/S0140-6736\(03\)13779-8](https://doi.org/10.1016/S0140-6736(03)13779-8)
- [14] Kramer MS, Aboud F, Mironova E, et al. Breastfeeding and child cognitive development: new evidence from a large randomized trial. *Arch Gen Psychiatry*. 2008; 65(5): 578-584. <https://doi.org/10.1001/archpsyc.65.5.578>
- [15] Direction generale des etudes et des statistiques sectorielles du Ministère de la Sante du Burkina Faso. Annuaire Statistique 2018. 2019. Accessed January 30, 2020. http://cns.bf/IMG/pdf/annuaire_ms_2018.pdf
- [16] Cresswell JA, Ganaba R, Sarrassat S, Some S, Diallo AH, Cousens S et al. The effect of the Alive & Thrive initiative on exclusive breastfeeding in rural Burkina Faso: a repeated cross-sectional cluster randomised controlled trial. *Lancet Glob Health*. 2019; 7(3): e357-e365. [https://doi.org/10.1016/S2214-109X\(18\)30494-7](https://doi.org/10.1016/S2214-109X(18)30494-7)
- [17] Ogbo FA, Agho KE, Page A. Determinants of suboptimal breastfeeding practices in Nigeria: evidence from the 2008 demographic and health survey. *BMC Public Health*. 2015; 15(1): 259. <https://doi.org/10.1186/s12889-015-1595-7>
- [18] Ayawine A, Ae-Ngibise KA. Determinants of exclusive breastfeeding: a study of two sub-districts in the Atwima Nwabiagya District of Ghana. *Pan Afr Med J*. 2015; 22. <https://doi.org/10.11604/pamj.2015.22.248.6904>
- [19] Yalçın SS, Berde AS, Yalçın S. Determinants of Exclusive Breast Feeding in sub-Saharan Africa: A Multilevel Approach. *Paediatr Perinat Epidemiol*. 2016; 30(5): 439-449. <https://doi.org/10.1111/ppe.12305>
- [20] Tylleskär T, Jackson D, Meda N, Engebretsen IM, Chopra M, Diallo AH et al. Exclusive breastfeeding promotion by peer counsellors in sub-Saharan Africa (PROMISE-EBF): a cluster-randomised trial. *Lancet Lond Engl*. 2011; 378(9789): 420-427. [https://doi.org/10.1016/S0140-6736\(11\)60738-1](https://doi.org/10.1016/S0140-6736(11)60738-1)
- [21] Horta BL, Loret de Mola C, Victora CG. Breastfeeding and intelligence: a systematic review and meta-analysis. *Acta Paediatr Oslo Nor 1992*. 2015; 104(467): 14-19. <https://doi.org/10.1111/apa.13139>
- [22] Kafouri S, Kramer M, Leonard G, Perron M, Pike B, Richer L et al. Breastfeeding and brain structure in adolescence. *Int J Epidemiol*. 2013; 42(1): 150-159. <https://doi.org/10.1093/ije/dys172>