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Patterns of Breastfeeding Practices among Children Aged One to Five Years in Jaffna District

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Abstract: Breastfeeding is pivotal to infants and early childhood period to their normal physical and mental growth. Currently, Sri Lanka has adopted the World Health Organization (WHO) recommendation of exclusive breastfeeding for six months, followed with continuation of breastfeeding up to or beyond two years. The objective of this study was to assess the patterns of breastfeeding practices among children aged one to five years in Jaffna district. Multistage cluster sampling was used and 856 children aged one to five years were selected from Jaffna district, proportionate to the population. Among 856, 10 (1.2%) of the children were non-respondents. Information regarding households including socio-demographic status and breastfeeding patterns was recorded by using interviewer administered questionnaires. Data entry and analysis was done using SPSS Version 16. A total of 846, 414 (48.9%) were males. The mean (±SD) age of children was 34.6 (±13.1) months. The mean (±SD) and median duration of exclusive breastfeeding (EBF) was 5.2 (±1.6) and 5 months respectively. In this study population, 64.4% (*n*545) children were exclusively breastfed until the completion of 6 months, 0.5% (n4) continued EBF beyond 6 months, 2.6% (*n*22) were never exclusively breastfed (formula milk introduced during initial period) and 32.5% (*n*275) children were breastfed, but not exclusively breast fed until the completion of 6 months. Of the total, 0.4% of mothers had no schooling and they have stopped EBF at the mean of 3.5 months. Of the mothers 9.8, 85.4, and 4.5% had primary, secondary and tertiary education respectively and have stopped EBF at the mean of 4.2, 5.8, and 5.4 months, respectively [Spearman's rho correlation coefficient (0.781) was significant at the 0.05 level]. Furthermore the early cessation of exclusive breastfeeding before six months depend on the employment status of mothers, type of family and wealth class of the households in this study ($p<0.05$). Of this total population, 261 (30.8%) mothers had been continuing breastfeeding at the time of data collection while 585 (69.1%) of mothers had stopped breastfeeding to their children. Of these 585 children, 55.6% (*n*325) of children were breastfed beyond 2 years while 12.6% (*n*74) of children were breastfed beyond 3 years. Few mothers stopped breastfeeding their children [7.5% (*n*44)] within one year. Of a total of 261 children who were on breastfeeding, 29.9% (n=78) were breastfed beyond two years while 62.4% were on breastfeeding within 1-2 years. Based on this research finding, it appears that the rate of exclusive breastfeeding is lower than the national data of Sri Lanka and the duration of breastfeeding in this study population has not reached 2 years of satisfactory period. Our study revealed that the six months exclusive breastfeeding is not properly implemented in the Jaffna district and early cessation of exclusive breastfeeding depends on socio-economic factors and some malpractices in this region.

Keywords: Exclusive breastfeeding, Feeding pattern, Children aged one to five years and Undernutrition.

I. Background And Objective

Proper breastfeeding practices play a pivotal role in determining the optimal development of physical and mental capacity, immunity, and correct feeding habits, and to prevent the adverse consequences for the health and nutritional status of children [3]. Thus, it is well recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioral development in children [4].

With a view of optimizing nutritional status among children, in 2001, WHO recommended that infants be exclusively breastfed for the first six months and thereafter to be given nutritious complementary food and continue breastfeeding up to the age of two years or beyond [5]. WHO defines exclusive breastfeeding as giving infant only breast milk, excluding solids or any other fluids (including infant formula) except medicines, vitamins, oral rehydration solution and minerals [6]. Sri Lanka adopted this recommendation in 2005 and continuing the exclusive breastfeeding period up to 6 months. According to Sri Lanka Demographic and Health Survey (DHS) 2006/07, by the Department of Census and Statistics, published in 2009, 75.8% children between 0 to 5 months received exclusive breastfeeding, which is highest for the South East Asian region [1]. But in this survey, the Northern Province was not included due to the prevailed situation of conflict. Thus, though the breastfeeding rate in Sri Lanka is reported to be high, in Jaffna no any scientific studies to proof and many inappropriate feeding practices during early childhood have been practiced by mothers in Jaffna. Therefore, this study was conducted in children aged one to five years in Jaffna district, with the objective of assessing the pattern of breastfeeding practices among children in Jaffna district.

II. Subjects And Methods

2.1. Subject

The study area was Jaffna district, the northern most district of the Sri Lanka where all eleven Medical Offices of Health areas (MOH) were selected. The study was conducted in children aged 1 to 5 years in Jaffna district during the period between March 2010 to May 2012. A population based multistage cluster sampling method was used to identify the samples those represent the children aged 1 to 5 years in Jaffna. To find out the minimum number of subjects to be recruited to demonstrate a statistically significant association of a predictor of malnutrition, formula of $[z^2p(1\text{-}p)/d^2]$ was used, where p is the highest proportion of underweight from the previous studies [2]. With a z value of 1.96 (at 95% confidence level with Type-1 error=0.05), margin of error of 5%, 10% of non-respondent and design effect of 2, minimum required sample size of 856 was derived.

2.2. Ethical consideration

Permission to conduct the study was obtained from Director, Regional Division of Health Office (RDHS), Jaffna. Informed written consent was obtained from mothers to include their children in the study. The research proposal was reviewed by the Research and Higher degree committee and Ethical review committee of Faculty of Medicine and Ethical clearance was obtained to conduct the study.

2.3. Study instruments

The study instrument consisted of pretested interviewer administered questionnaire which was used to get the information on exclusive breastfeeding, duration of breastfeeding and socio-demographic factors.

2.4. Data collection

Data collection was carried out by a team which comprised investigators, pre-intern doctors, Midwife and Health volunteers. Age of the child was defined as the completed months by the date of data collection. Children whose birth weight is less than 2.5 kilograms (kg) are considered as low birth weight [1].

Information on the age, sex and birth weight of the child were derived from the Child Health Development Records (CHDR) book and recorded.

Pattern of Exclusive breastfeeding (EBF) and duration of breastfeeding (BF) practices were questioned and recorded. Mothers were questioned about the feeding pattern such as exclusive or non exclusive since birth to their infants. Under this, duration of the EBF and BF were specifically questioned. Then, the mothers were allowed to describe how they fed their children and specific questions were asked either to verify the validity of the information, or to help the mother to remember the details. In Sri Lanka, the third dose of Diphtheria-Pertussis-Tetanus (DPT) and oral polio vaccine is given at six months, hence the mothers were questioned whether they were exclusively breastfed their children by the time of the third dose of these vaccines. Duration of breastfeeding was recorded as the age in complete months. If any mothers were on breastfeeding to their child at the date of data collection, those details were recorded separately and entered as "child on breastfeeding" at the date of data collection.

Educational levels of the mothers, type of family (Nucleated or Extended family), Employment status of mothers and household assets were obtained from the mothers by using interviewer administered questionnaires. Educational levels of the mothers were categorized as ordinal data as no schooling, primary education (grade one to five), secondary education (grade 6 to 13) and tertiary education (diploma, graduate and postgraduate degrees holders). Household assets were used to construct the wealth index.

2.5. Statistical Analysis

Data entry and analysis was done using SPSS Version 16. Pearson Chi-square for trend, Spearman's rho correlation coefficient were used to test statistical significance and statistical tests in this study were considered significant at $p<0.05$.

III. Results and Discussions

Breastfeeding practices are important determinants of the nutritional status of children, particularly those under the age of five years [1].

Eight hundred and fifty six children aged one to five years were selected from Jaffna district, proportionate to the population. Among 856, 10 (1.2%) of the children were non-despondence and response rate was 98.8%. A total of 846 children were recruited for this study. Among the 846 children, 414 (48.9%) were males. The mean age of children was 34.73 months [95% CI (33.84, 35.62)].

3.1. Exclusive Breastfeeding

In this study population, 64.4% (n545) children were exclusively breastfed until the completion of 6 months, 0.5% (n4) continued EBF beyond 6 months, 2.6% (n22) were never exclusively breastfed (formula milk introduced during initial period) and 32.5% (n275) children were breastfed, but not exclusively breast fed until the completion of 6 months (Table 1). The mean (±SD) and median duration of exclusive breastfeeding were 5.2 (±1.6) and 5 months, respectively.

Table 1: Duration of Exclusive Breastfeeding

Age (months)	Children	
	No.	(%)
0	22	2.6
1	23	2.7
2	21	2.5
3	100	11.8
4	82	9.7
5	49	5.8
6	545	64.4
7	4	0.5

The exclusive breastfeeding rate had an increasing trend from age group 48-59 to 24-35 months. But it has not significantly improved over a period of four years and existed at sustainable level (chi-square for trend was applied ($p>0.05$)) (Table 2).

The rate of exclusive breastfeeding (64.4%) was lower in children from Jaffna district than that from the national data of Sri Lanka in 2007, which was 75.8 [1].

Table 2: Trend in exclusive breastfeeding rate based on the age of the children

Age (months)	Children		Exclusive Breastfed Children	
	No.	%	No.	(%)
12-23	212	25.05	138	65.09
24-35	237	28.01	164	69.19
36-47	224	26.48	142	63.39
48-59	173	20.44	101	58.38

The mothers in this area do some malpractices such as introducing the infant formula earlier to six months without any scientific reason and some mothers hope it is necessary to give infant formula to their children to prevent the undernutrition. This could be due to lack of awareness on Exclusive Breastfeeding. Therefore it might be useful to make them aware about the nutritive quality of breast milk, to avoid these myths.

Major determinant of exclusive breastfeeding practices has been educational level of the mothers, knowledge of the mothers on breastfeeding, Employment status of mothers, the type of family and wealth of the households in the study. Accordingly of the total, 0.4% of mothers had no schooling and they have stopped EBF at the mean of 3.5 months. Of the mothers 9.8, 85.4, and 4.5% had primary, secondary and tertiary educational level, respectively and they have stopped EBF at the mean of 4.2, 5.8, and 5.4 months, respectively [Spearman's rho correlation coefficient (0.781) was significant at the 0.05 level]. Mothers who were working [13.7% (*n*116)] had discontinued the exclusive breastfeeding before the completion of six months [45.7% (*n*53)] when compared to non-working mothers [67.4% (*n*492)]. In this study, it was observed that 18% of the mothers in Jaffna District were unaware of the duration of exclusive breastfeeding (as six months).

Rate of exclusive breastfeeding [68.8% (*n*238)] was significantly higher among the children of extended families (*n*346) than that of children from nucleated families [61.4% (n307)] ($p<0.05$). Only 13.6% of the mothers form the fourth wealth class was exclusively breastfed to their infants while 61.3% of the mothers from middle class were exclusively breastfed. This could be due to the early introduction of expensive infant formula with in the six month period from the birth.

Thus, early cessation of exclusive breastfeeding before six months might depend on the educational level of mothers, employment status of mothers, type of family and wealth class of the households in this study. Nevertheless other socio-economic factors and some malpractices might also contribute.

3.2. Breastfeeding duration

The mean (±SD) breastfeeding duration was 22.4 (±8.48) months in this study population. Of this total population, 261 (30.8%) mothers had been continuing breastfeeding at the time of data collection while 585 (69.1%) of mothers had stopped breastfeeding to their children. Of these 585 children, 55.6% (*n*325) were breastfed beyond 2 years while 12.6% (*n*74) of children were breastfed beyond 3 years. Few number of mothers stopped breastfeeding to their children [7.5% (*n*44)] within one year. Of a total of 261 children who were on breastfeeding, 29.9% (*n*78) were breastfed beyond two years while 62.5% were on breastfeeding within the period between 1-2 year. Duration of breastfeeding was not according to the WHO recommendations in the population, where only 56.38% had been breast fed beyond two years.

3.3. Nutritional status of children

The overall prevalence of wasting, underweight, stunting and overweight was 21.6, 33.1, 26.4 and 3.4%, respectively. Prevalence of undernutrition was significantly higher among non-EBF children compared to EBF children (Table 3).

The mean birth weight was 2942.9g [95% CI (2476.2, 3414.6)]. Low birth weight rate was 14.3% (*n*121) in children aged one to five years weighed less than 2.5 kg at birth.

Table 3: Prevalence of malnutrition in children with exclusive breastfeeding

	EBF children (%)(*n*)	**Non EBF children (%) (*n*)**	**OR[1] (CI)**	***P*-value**
Wasting	14.3 (78)	36.2 (104)	3.5 (2.5-4.9)	0.001
Underweight	21.7 (118)	54.2 (162)	4.3 (3.2-5.9)	0.001
Stunting	21.5 (117)	32.2 (8)	2.0 (1.4-2.7)	0.001
Overweight	4.2 (23)	0.7 (5)	0.1 (0.03-0.6)	0.014

[1]ORs for Non-EBF group considering EBF as the reference.

The exclusive breastfeeding was significantly associated with weight gain of the children, especially who were Low birth weight infants (Multinomial Logistic regression model was significant at p=0.049).

IV. Conclusion

Based on this research finding, the rate of exclusive breastfeeding is lower than National data of Sri Lanka and duration of breastfeeding in this study population has not reached 2 years of satisfactory period. This shows that the six months exclusive breastfeeding is not properly practiced in the Jaffna district. Thus more efforts are needed to encourage and produce awareness for exclusive breastfeeding in this region. Furthermore early cessation of exclusive breastfeeding before six months depends on the educational level of mothers, employment status of mothers, type of family and wealth class of the households. In addition to that some malpractices might also contribute. As a result, an interventional program should be initiated to correct malpractices in this region for the development of normal physical and mental growth of children as well as for health in later life.

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