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To Compare The Growth And Developmental Patterns Among Exclusively And Non-Exclusively Breast-Fed Children In A Tertiary Care Hospital.

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ABSTRACT

Breastfeeding practice is a very important factor for growth and development of a child. Growth retardation in childhood plays an important role in poor cognitive and motor development of child and thus leads to increased mortality. The present study focuses on the nutritional factor, in particular Exclusive Breastfeeding, since early infant feeding practice is a major preoccupation of parents and health professionals. The primary objective of the study being to assess the Growth and Developmental patterns amongst exclusively and Non -Exclusively breast fed children 6 months to 24 months of age group. A Hospital based Cross-Sectional study was conducted in Pediatrics Department at a Tertiary Care Hospital. 250 healthy babies aged 6-24 months of either gender who were born and visited the hospital for regular immunizations were included in the study. Out of these 250 subjects; only 47% were Exclusively Breast fed (EBF). In the study, there were 127 male subjects and 123 female subjects. Anthropometric measurements, growth and development were better in Exclusively Breast fed (EBF) babies. A child is not a "miniature adult." Childhood is a totally different physiological state compared to adulthood. Healthy babies are nation's future. Exclusive breastfeeding is very important for growth and development of child. It should be promoted in nursing mothers. Our government is promoting exclusive breastfeeding program.

Keywords: Exclusive breast feeding (EBF), Non- Exclusively Breast fed (NEBF), Growth and Development, anthropometric measurement

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INTRODUCTION

The first 1000 days (between conception and up to 2 years of life) give a unique window of opportunity for optimal child growth and development, as well as laying the foundation for excellent health across the life course [1].

During this period, appropriate newborn and young child feeding practices are crucial for the child's health and well-being. Notably, EBF lowers the infant's chance of developing diarrheal disorders, upper respiratory tract infections, and obesity later in life and EBF may improve the child's neurocognitive skills [2-5].

Globally, India has the highest under-five mortality (0·9 million deaths in 2016), attributable to an array of factors such as poverty, poor water and sanitation, poor healthcare access and non-EBF 6-8].

Despite being known breast feeding to improve child survival and growth only 54.9% of children are exclusively breastfed in India [9].

WHO recommends "Exclusive breastfeeding" during the first six months of life for the optimal Growth and Development of the infants". UNICEF and WHO recognized the importance of breastfeeding through the age of two and beyond [10]. Anthropometry is defined as the science of measuring the size, weight and proportions of the human body [11]. This involves obtaining the physical measurements of an individual and relating them to standards. These measurements can be used as valuable indicators of health, development and growth of infants, children and adolescents [12]. Since age and disease can affect this quantitative relationship, anthropometry is a means that can be used to detect the resultant changes in the body [13]. It is also hoped that this study's outcome will contribute to the growing body of scientific knowledge on infant feeding practices and how to design and situate health interventions in the communities. Moreover, this research will in no doubt serve as a basis for future research.

Aim And Objective

To assess and compare the advantages of breast feeding on growth and developmental patterns amongst exclusively and non- exclusively breastfed children of 6 months to 24 months of age at a Tertiary Care Hospital.

MATERIAL AND METHODS

A Hospital based Cross-Sectional study was conducted at Pediatrics Department in a Tertiary Care Hospital with a sample size of 250 to assess the Growth and Developmental patterns amongst exclusively and non -exclusively breast fed children who fulfilled the selection criteria. The permission to conduct this study was granted by Institutional Ethical Committee. Written consent was taken from participants. A Pre-designed and pretested questionnaire based on Anthropometry (weight, height and head circumference. WHO growth charts and CDC 2000 Anthropometric standards) and Trivandrum Developmental Screening Chart (TDSC) was used [14, 15].

Exclusion Criteria

- Those children who were suffering from any congenital disease, chronic lung diseases or any other life threatening conditions.
- Those children whose parents did not give consent for participation in the study.
- Those children who are either pre-term (<37weeks of gestation) or LBW i.e. low birth weight or both.

Study Tools

Electronic weighing machine, infanto-meter, height scale, torch, measuring tape, and stethoscope.

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RESULTS

Out of these 250 subjects; 47% were EBF. Male subjects were higher than females. In the study, there were 127 male subjects and 123 female subjects. In age wise distribution with maximum subjects falling in the 6 months to 12 months of age (47%) (Table-1)

Table 1: Distribution of study subjects according to selected background characteristics.

Variables		Frequency (%)*
Gender	Male	127(51%)
	Female	123(49%)
Type of feeding practiced	Exclusively Breast fed	117(47%)
	Non- Exclusively Breast fed	133(53%)
Age-group	6 months to 12 months	117(47%)
	>12 months to 18 months	74(30%)
	>18 months to 24 months	59(24%)

*Note: *percentage may not add up to 100, due to rounding off.*

In present study, we observed that all three anthropometric measurements like weight, head circumference, height were non-significant at birth. (Table -2)

Table2: Difference of selected Anthropometric Measures of children in both the groups at baseline.

Anthropometric Measures	Group	At the time of birth	
		Mean±SD	p-value
Weight(kg)	Exclusively breast fed	3.31±0.34	0.36
	Non -Exclusively breast fed	3.24±0.36	
Head circumference(cm)	Exclusively breast fed	33.98±0.98	0.76
	Non -Exclusively breast fed	33.39±1.36	
Height(cm)	Exclusively breast fed	46.96±2.40	0.89
	Non -Exclusively breast fed	47.01±2.44	

*Note: *significant at 5% level of significance.*

During follow-up after 6 months, we observed that weight (kg) of EBF children at birth was 9.37±0.91; head circumference (cm) of EBF children at birth was 12.59±2.05 while height (cm) of EBF children at birth was 32.08±6.61. These all anthropometric Measures were showing significant difference amongst EBF and NEBF children. (Table-3)

Table3: Difference of selected Anthropometric Measures of children in both the groups after 6 months of follow up period.

Anthropometric Measures	Group	After 6 months of follow up	
		Mean±SD	p-value
Weight(kg)	Exclusively breast fed	9.37±0.91	0.00*
	Non -Exclusively breast fed	7.85±1.68	
Head circumference(cm)	Exclusively breast fed	12.59±2.05	0.02*
	Non -Exclusively breast fed	11.61±2.84	
Height(cm)	Exclusively breast fed	32.08±6.61	0.00*
	Non -Exclusively breast fed	29.62±7.03	

*Note: *significant at 5% level of significance.*

In present study, we observed that there was significant association between development of children and breast feeding practice. (Table -4)

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Table 4: Association between development of children and breast feeding practice.

Group	Test Positive	Test Negative	Test statistics	p-value
Exclusively breast fed	16	101	χ^2=30.26	0.00*
Non -Exclusively breast fed	72	61		

*Note: *significant at 5% level of significance; According to TDSC -Test positive means children who have not achieved the milestone appropriate of age.*

DISCUSSION

Poor feeding practices such as suboptimal breastfeeding is still widespread and often leads to malnutrition which is a major cause of more than half of all child deaths [16]. The present study population comprises of 250 children in the age-group of 6-12 months to assess the growth and developmental patterns and prevailing feeding practices and to create awareness about the benefits of Exclusive Breastfeeding. In our study, 47% were EBF however; NFHS 2015-16 reported around 54.9% children were exclusive breastfeed. This could be due to the fact that our study was based on cross-sectional, hospital data conducted at Pediatrics Department in a Tertiary Care Hospital [9].

A study conducted by Onayade et al. (2004) and Kuchenbecker et al.(2015) found that the children who were Exclusively breast fed showed better growth than those children who were Non-exclusively breast fed. The anthropometric measurements like weight, height and head circumference were used for assessing growth. These studies were accordance to our present study[17, 18].

In our present study, we observed that in exclusive breast feed babies the growth pattern was normal. This was in accordance to a previous study done by Mathur et al. (1994) that revealed that growth pattern was normal and average with ICMR standards [19].

Similar result was also observed in another study done by Selvakumar et al. (2007) at Puducherry, India, using same tool, Trivandrum Developmental Screening Chart (TDSC) [20]. Thus it can be concluded that exclusive breast feeding should be promoted as one of the most important measure for child health promotion.

Cognitive development in an infant is affected by genetic and environmental factors. Type of infant feeding practice is highly associated with mother's education and their social class, as it plays important role in cognitive development of a child. A previous study done by Drane & Logemann, revealed that breastfeeding mothers were older, better educated, and were from upper socioeconomic class. It has been also established that education and support for pregnant women can dramatically increase exclusive breastfeeding rates [21-23].

Anderson J, et. al. in their study of Breastfeeding and Cognitive development in U.S.A found that DHA (Docosa-Hexaenoic Acid), the 22-carbon, long-chain fatty acid found in breast milk, “plays a key role in the structure and functions of neural tissues”, most notably those of the retina and brain. Detectable improvements in cognitive function during infancy may be seen in breastfeeding preterm and term infants. Special fatty acids in breast milk lead to increased Intelligence Quotients (IQs) and better visual acuity [24]. In a previous study, Willatts, P., & Forsyth, J.S. [25] stressed upon the role of LCPUFAs in infant cognitive development.

CONCLUSIONS

A child is not a “miniature adult.” Childhood is a totally different physiological state compared to adulthood. Growth and development go hand in hand in a child. The innocenti declaration sponsored by UNICEF and WHO was adopted by 32 governments world-wide and 10 United Nations agencies which states, “As a global goal for optimal maternal and child health and nutrition, all women should be enabled to practice Exclusive Breastfeeding (EBF) and all infants should be fed exclusively on breast milk from birth to six months of age.”

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