Impact of Exclusive Breastfeeding on Anthropometric Indices of Under 6 Month Infants Among Mothers Attending Infant Welfare Clinic of Uniosun Teaching Hospital, Osogbo

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Abstract- ***This study adopted descriptive design to investigate impart of Exclusive Breast Feeding (EBF) on Anthropometric Indices of under six month infants in infant welfare clinic of Osun State University teaching hospital, Osogbo. The study was conducted among mothers with infants below six month attending infant welfare clinic of the Hospital. The sample size of 190 respondents were selected using purposive sampling techniques and each completed a validated questionnaire designed for data collection and returned it for Data Analysis. Data were analysed using Statistical Package for Social Sciences (SPSS), where descriptive statistics of frequency and percentages as well as charts were employed to analyse data. Also hypotheses were tested using PPMC at 0.05 level of significance. Findings revealed that, majority of the respondents were below 35 years old and their infant were 1 month to six month. Finding also revealed that, about a-third (36.1%) of the respondents complied fully with EBF, while 75.8% infants were mildly underweight. Also, majority (87.9%) of the infants had smaller normal head circumference than normal. The study concluded that, only about a third fully complied with exclusive breast feeding, which was evidence in the weight and head circumference of those infants. Promotion of exclusive breastfeeding through improved education and creating of enabling, breastfeeding-friendly environment for working mothers is recommended.***

Indexed Terms- ***Exclusive Breastfeeding, Anthropometric Indices, Weight for Age, Z-score, Head Circumference***

I. INTRODUCTION

Good nutrition is significant to growth and development of children, especially during infancy, especially for under six months old. This is because nutrition for under six-month old, promote tissue building, receptive capabilities as well as enhance prevention of childhood illness such as febrile illness or diseases associated with child growth and development (Masi & Stewart, 2024). Therefore recent global health agenda had prioritized exclusive breastfeeding for infants below six months and global health professionals have continue to place emphasis on promotion of exclusive breastfeeding across the globe. This is because Human breast milk provides all the energy, nutrients and fluid an infant needs for optimal growth and development in the first 6 months. It provides natural passive immunization that greatly reduces the risk of an infant developing respiratory infections and diarrhea disease (Abdulla *et al.,* 2022). World Health Organization (WHO) (2021) define exclusive breastfeeding to include administration of breast milk to infant from zero to six months, without diluting or mixing it with any form of substances or foods items or even water. Hoehn *et al.* (2021) also recommended among others that, important anthropometric indices for detecting infant below 6 months at risk of morbidity and mortality include, weight for age Z-score, Length for age, head circumference among others. Recent arguments canvassed for inclusion of basic modern medication administered to infants during the first six month, such as ORS and syrups, as situation may require (WHO, 2023). However, timely administration of breast milk to infant after birth have been said to be low across studies (Ayalew et al., 2020). This probably explain the increasing rate of infant morbidity and mortality in Nigeria, especially among under 6 month.

World Health Organization (2024) reported that globally about 48% of infants 0–6 months old were exclusively breastfed in 2023. This indicates a global improvement towards the 50% targets projected by World Health Assembly by 2025. However, a report by WHO (2018) specified that, three in five babies were not breastfed within the first hour of life. This may put them at higher risk of infant mortality or morbidity. New born who are breastfeed in the first hour of life, are significantly more likely to survive, but delay for few hours after birth could pose life-threatening consequences. Meanwhile, World Health Organization (2021) reported that in 2020, globally 45% of child deaths were caused by under nutrition. About 45 million were estimated to be malnourished (too thin for height), and 38.9 million were overweight or obese. In the report of UNICEF (2025), Eastern and South African Countries recorded 60% exclusive breastfeeding, while Central and West African recorded 47% exclusive breastfeeding, however rates varied across countries. For instance according to National Demographic and Health Survey (2024), there has been a consistent decrease in rate of under 6 month exclusive breastfeeding from 2018 (42%) to 2023 (29%). However this is clearly a wide range from the target projected by World Health Assembly by 2025. Suboptimal breastfeeding is responsible for 96% of deaths among children under 12 months of age in developing countries (Joseph & Earland, 2019). Recent online survey have shown that, available studies have prioritized importance of exclusive breast feeding with no in-depth stud into the impact on childhood growth and development. This study will therefore investigate impart of Exclusive Breast Feeding (EBF) on Anthropometric Indices of under six month infants in infant welfare clinic of Osun State University teaching hospital, Osogbo

Objectives

1. Assess compliance to exclusive Breastfeeding among mothers of 0-6 months in infant welfare clinic of Osun State University teaching hospital, Osogbo.
2. Determine the weight for age Z-score of 0-6 months in infant welfare clinic of Osun State University teaching hospital, Osogbo.
3. Examine the head circumference of 0-6 months in infant welfare clinic of Osun State University teaching hospital, Osogbo.

Hypotheses

1. There is no significant relationship between compliance to exclusive Breastfeeding and weight for age Z-score of 0-6 months in infant welfare clinic of Osun State University teaching hospital, Osogbo.
2. There is no significant relationship between compliance to exclusive Breastfeeding and head circumference of 0-6 months in infant welfare clinic of Osun State University teaching hospital, Osogbo.

II. METHODOLOGY

This research was a quantitative based, descriptive studies conducted among under 6 month old infants and their mothers attending welfare clinic of Osun State University teaching hospital, Osogbo, Osun State, Nigeria. Mothers included were from 18years and above who were available during the study. The sample size of 190 was arrived at using Leslie Kish sample determination formula. Respondents were selected using a non-probable sampling method. Precisely, purposive sampling techniques was adopted to select respondents. A validated questionnaire divided into four sections were used to collect data from respondents. After the questionnaires had been retrieved, it was thoroughly checked for completion and that no omission has been made before entering the Data into statistical package for the social science (SPSS). Descriptive Statistics of frequency and valid percent was used to analyse data, while hypotheses were tested using Pearson product moment correlation at 0.05 level of significance.

III. RESULTS

Table 1: Demographics characteristics

Items	Frequency (190)	Percentage
Age		(%)
Below 24 years	50	26.3
24-30 years	61	32.1
31-35 years	43	22.6
36 years & above	36	19.0

Age of child in months		
1-2months	74	38.9
3-4months	64	33.7
5-6months	52	27.4
Child's gender		
Male	87	45.8
Female	103	54.2
Religion		
Christianity	96	50.5
Islam	88	46.3
Traditional	6	3.2
Marital status		
Single	72	37.9
Married	110	57.9
Others	8	4.2
Education Level		
No formal education	73	38.4
Primary	36	19.0
Secondary	55	28.9
Tertiary	26	13.7

The result on demographic characteristics revealed that, on age, 26.3% were below 24years old, 32.1% were between 24-30years, 22.6% were between the age of 31-35years while 19.0% were 36years and above. On age of infant (in months) 38.9% were between 1-2 months, 33.7% were 3-4months, while 27.4% were between 5-6months. On child's gender, 45.8% were male while 54.2% were female. Result on religion shows that, 50.5% of the respondents practice Christianity, 46.3% practice Islam while 3.2% practice traditional religion. On marital status, 37.9% of the respondents were single, 57.9% were married while 4.2% were others. On educational level, 38.4% of the respondents had no formal education, 19.0% had primary education, 28.9% had secondary education, while 13.7% had tertiary education.

Table 2: Frequency Distribution of Respondents on Compliance to Exclusive Breast feeding

Items		Yes	No
Do you initiates BF almost one-hour after birth?	F	67	123
	%	35.3	64.7
Is Breast Feeding the only food administered to your babies so far?	F	75	115
	%	39.5	60.5
Do you often introduce water to baby?	F	118	72
	%	62.1	37.9
Do you often administered some routine medicine to baby to prevent some illness?	F	130	60
	%	68.4	31.6
Do you had to introduce another food substance but later stop and continue with only breast feeding due to some unforeseen circumstances?	F	89	101
	%	46.8	35.2
Do you prepare to practice EBF for at least six month?	F	72	118
	%	37.9	62.1

Result on compliance to exclusive breastfeeding reveals that, 35.3% affirmed that, they initiates BF almost one-hour after birth, while majority (64.7%) declined. Further result reveals that, 39.5% of the respondents affirmed that, Breast Feeding the only food administered to your babies so far while majority 60.5% disaffirmed. More result shows that, majority 62.1% of the respondents agreed that they often introduce water to baby, while 37.9% disaffirmed. Further result reveals that, higher percentage 68.4% of the respondents affirmed they often administered some routine medicine to baby to prevent some illness, while 31.6% disaffirmed. More result shows that, 46.8% of the respondents affirmed that, they had to introduce another food substance but later stop and continue with only breast feeding due to some unforeseen circumstances while 53.2% disaffirmed. 37.9% of the respondents agreed that, they prepare to practice EBF for at least six month while 62.1% affirmed.

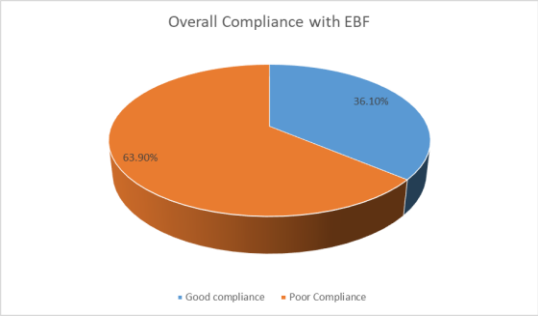

Figure above shows that, slightly above a third (36.1%) fully complied with exclusive breastfeeding.

Anthropometric indices

Table 3: Frequency Distribution of Respondents by Weight for Age Z-scores (WAZ)

	Variable	Options	Freq	Percent
	WAZ	Normal (-2 to +2)	38	20.0
		Mildly Underweight (-3 to -2)	144	75.8
		Severely underweight (below -3)	8	4.2
		Total	190	100.0

Table above presents frequency distribution of respondents by WAZ. Results shows that, 20.0% were normal in weight, majority (75.8%) children were mildly underweight and a few (4.2%) were severely underweight.

Table 4 Frequency Distribution of Respondents by Head Circumference

	Variable	Options	Freq	Percent
	Head circumference	Smaller	167	87.9
		Normal (17inches or below)	22	11.6
		Slight high	1	0.5
		Total	190	100.0

Table above presents frequency distribution of respondents by Head Circumference. Results shows that, only 11.6% had Normal (17inches or below) head circumference.

Table 5: Correlation Matrix Showing the Relationship between Compliance to Exclusive and Infant Anthropometric indices

Variables	1	2	3
WAZ	1		
Head circumference	.164	1	
Exclusive Breast Feeding	.562	.681	1

**P<0.01, *P< 0.05, N=190

Table 5 above presents Correlation Matrix showing the relationship between Compliance to Exclusive Breast feeding and Anthropometric indices. The results show that, exclusive breast feeding significantly influence WAZ [r= .562; p< 0.05]. This is an indication that the null hypothesis one which states that, there is no significant relationship between compliance to Exclusive Breast feeding and WAZ was rejected. Therefore the alternative hypothesis which states that, there is a significant between compliance to Exclusive Breast feeding and WAZ was upheld.

The results above show that, exclusive breastfeeding significantly influence Head circumference [r= .681; p< 0.05]. This is an indication that the null hypothesis one which states that, there is no significant relationship between compliance to Exclusive Breast feeding and Head circumference was rejected. Therefore the alternative hvpothesis which states that, there is a significant relationship between compliance to Exclusive Breastfeeding and Head circumference.

IV. DISCUSSION

Findings revealed that, majority of the respondents were 35 years and below. This is an illustration that, the respondents were within the reproductive age. More so, findings revealed that, all the babies were below 6 month, which indicates that, the right babies were used as stipulated in the inclusion criteria. More finding revealed that, female are more than male babies. This supported by the fact that, the population of Nigeria, female are more than male. Also, the three most common religion were well represented. This is an indication that, the study isn't religious bias. More findings revealed majority of the respondents had in time past been wedded. More findings revealed that, majority were educated, although quiet about half were limited (such as those who had primary and secondary education). However a significant do not undergo formal education.

Findings also revealed that, only about a third plus were compliance to exclusive breast feeding. Jama et al., (2020) reported similar result that, the prevalence of exclusive breastfeeding was 20.47% (95% CI 18.84, 23.63%). This probably due to the fact that, child illness and need to give the child water. This is evidence in the results presented in table 4.2 above where majority often introduce water to baby before six month. Also the fact that, majority also had to

introduce another food substance but later stop and continue with only breast feeding due to some unforeseen circumstances, which may include childhood illness or perception that, the child is no longer satisfied. Salim and Stones (2020) reported that, Members of the Tumbuka (OR = 1.71, CI. 1.13–2.59) and Ngoni (OR = 2.05, CI. 1.38–3.05) communities were more likely to practice EBF.

More findings revealed that, only a fifth (20.0%) had normal WAZ. This is an indication that, most of the babies are malnourished. Aside the fact that, most mothers did not comply to exclusive breast feeding, most still breast fed their babies. Khan and Islam (2017) reported that, EBF should not be discontinued and that, If EBF was terminated preterm: during 0–2 months, 2–4 months the odds of becoming underweight were 2.16 and 2.01 times higher, respectively, than babies for whom EBF was not terminated. More, this was evidence in the head circumference of majority of the babies, which is normal. These findings is evidence in the result presented in tables 3 and table 4. However a significant part (>10% as well as >24%) of the respondents had below normal head circumference. Finding further revealed that, compliance to exclusive breast feeding significantly influences WAZ and head circumference. This implies that, compliance to exclusive breast feeding increases the chances of babies having normal WAZ and Head Circumference and vice versa. These findings is evidence in the results presented in table 4.6 above. Ezeofor et al. (2020) reported Low WAZ was the most discriminate predictor of 'weight faltering' (sensitivity 69%, ppv 86%, likelihood ratio 5.5; area under ROC 0.90)

CONCLUSION

Breastfeeding reduces the risk of neonatal complications, respiratory and other varieties of illnesses. Furthermore, breastfeeding reduces the risk of neonatal complications, respiratory and other varieties of illnesses. Based on anecdotal and empirical evidence on the benefits of breastfeeding to the mother and baby, the World Health Organization has recommended 2-year breastfeeding; first 6 months exclusive breastfeeding; more than 8 times breastfeeding of the baby per day in the first 3 months of an infant's life. The study concluded that, about a third fully complied with exclusive breast feeding, which was reflective in the BMI and head circumference of the babies. The study also concluded that, the low compliance to exclusive breast feeding influence physical functioning of the babies, however does not influence behavior temperaments.

There is need for the health educators especially those specialized on maternal and child health to be involved in health education targeted on increasing compliance to exclusive breastfeeding. This will equip mothers with the knowledge that could lead them to adopt exclusive breastfeeding. This positive action of adopting exclusive breastfeeding will lead to improvement in child survival during the early stage. It is necessary for publicity regarding attendance of antenatal care services, where these information may be passed cross to pregnant women in preparation. The reason may be due to awareness creation programmes by midwives and improvement in maternal health services in the study area. This has an important implication for health educators and health policy makers. It shows that, when health intervention programmes are executed and targeted on mothers, they will improve on maternal health. They will also improve maternal survival, and development drastically.

Promotion of exclusive breastfeeding through creating an enabling, breastfeeding-friendly working environment for working mothers is recommended. In addition, advocacy efforts targeting the extension of maternity leave up to the first six months after delivery should be exerted to prevent sub-optimal exclusive breastfeeding and associated health problems among children. This study have also implored the midwives to know that they have a lot to do regarding changing the practice of working class nursing mothers. The nursing and midwifery council could advocate for extension in the time stipulated for maternity leave / holiday for both civil servants and private organizational workers. They also need to intensify the sensitization of exclusive breast feeding among the uneducated, using local language to explain while they should adopt exclusive breast feeding. Nurses and health team at large should discourage any form of practice that will prevent exclusive breastfeeding such as the use of bottles, teats or pacifiers.

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