



## INFLUENCE OF PARITY AND INDEX CHILD FACTORS ON ADOPTION OF EXCLUSIVE BREASTFEEDING BY NURSING-MOTHERS IN IMO STATE NIGERIA

Ibe, S.N.O.<sup>1+</sup>

Obasi, O.<sup>2</sup>

Nwoke, E.A.<sup>3</sup>

Nwufo, C.R.<sup>4</sup>

Ebirim., C.I.C.<sup>5</sup>

Osuala, E.O.<sup>6</sup>

Amadi, C.O.<sup>7</sup>

Ezenwuba, C.O.<sup>8</sup>

<sup>1,3,4,5,7</sup>Department of Public Health, Federal University of Technology, Owerri Nigeria

<sup>2</sup>Department of Sociology, Imo State University, Owerri Nigeria

<sup>6</sup>Department of Nursing Science, Nnamdi Azikiwe University Nnewi Campus, Nigeria

<sup>8</sup>Department of Nursing Science, Imo State University, Owerri Nigeria



(+ Corresponding author)

### ABSTRACT

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This study determined the influence of nursing-mothers' parity and index child factors on adoption of exclusive breastfeeding practice by rural nursing-mothers in Imo State Nigeria. Nigeria has only 13% compliance to exclusive breastfeeding practice, hence the need for this study that employed descriptive survey design to obtain information from 340 nursing mothers from three selected communities in the state. The target population of the study was all the 405 nursing-mothers with children aged twenty-four months and below in the selected communities but 340 nursing-mothers responded. Instruments for data collection were structured questionnaire and Focus Group Discussion (FGD). Reliability of the instrument was established and  $r = 0.8$ . Ten nursing mothers from each of the communities participated in FGD. Results of the study revealed that exclusive breastfeeding practice was 13.5% in the target communities. Only parity, place of ante-natal care and place where the child was delivered were statistically significant ( $P < 0.05$ ). The study concluded that parity and type of facility attended for ante and natal care played a role in the adoption of exclusive breastfeeding practice. There is need to strengthen maternity facilities to render effective exclusive breastfeeding promotion, and also to follow up mothers in the community.

**Contribution/Originality:** This is an original research article. The study contributes to existing literature on exclusive breastfeeding, particularly as it relates to nursing-mother's parity, facility where she received ante-natal care, where she delivered her child and index child's factors. These variables received little attention previously and hence, this study fills this gap.

### 1. INTRODUCTION

Exclusive breastfeeding practice had received low adoption rate in Nigeria and indeed globally. Several years after the policy on exclusive breastfeeding was formulated by the World Health Organization (WHO) and United Nations Children' Fund (UNICEF) as the best infant feeding practice in the first six months of life, the desired level of practice was yet to be achieved globally. Only thirty-five percent of children were exclusively breastfed globally for five months [1]. In Nigeria exclusive breastfeeding rate was only thirteen percent [2] which was lower than that of some other developing countries [3]. This level of practice posed great concern considering the acclaimed benefits of exclusive breastfeeding especially in developing countries, where breastfeeding was correlated to a

reduction in infant mortality and morbidity [4]. Nigeria had one of the highest under-five mortality rates among selected countries in sub-saharan Africa [5]. Exclusive breastfeeding is recommended for the first six months of life after which breast milk alone would no longer be adequate in meeting the nutritional needs of the infant hence the need to introduce other foods [6].

Most of the studies carried out in the past approached the problem of low exclusive breast-feeding compliance from the maternal perspective without adequate attention to infant related factors. Also, there was dearth of empirical data on this dimension of exclusive breast-feeding that targeted Imo State Nigeria. The purpose of this study was to determine the influence of nursing-mothers' parity, number of alive children and index child factors on the adoption of exclusive breastfeeding by nursing-mothers in selected communities in Imo State, Nigeria. The index child factors studied were age, sex, birth-weight, birth-order, place of antenatal, place of delivery and mode of delivery. The factors of exclusive breastfeeding studied included; if infant was breastfed, time of initiation of breast feeding, if new-born was allowed to suck colostrum, if infant sucked the breasts as long as he/she desired, if infant slept with the mother at night and if infant was fed only with breast milk without any supplementary feeds until the completion of six months. The infant was to be gradually introduced to family diet after six months but breastfeeding was to continue till two years [7, 8].

The findings of this study would form input in the design of relevant and new strategies that would address the low rate of exclusive breastfeeding especially among mothers in Imo State. This research report is an excerpt from a more extensive study that determined "Factors influencing the adoption of exclusive breastfeeding practice by nursing-mothers in selected rural communities in Imo State, Nigeria" but the results presented here were delimited to factors of parity and index child.

Butler, et al. [9] examined factors associated with non-exclusive breastfeeding in New Zealand and reported that high parity was significantly associated with exclusive breast-feeding as more mothers with high parity were not practising exclusively breastfeeding. Similarly, Uchendu, et al. [10] reported that mothers who had fewer children had higher exclusive breastfeeding rate but noted statistical significant difference between those with 1-2 or 3-4 children and those with 5 or more children. Hofnie [11] reported that forty-nine percent of mothers with three or more babies were exclusively breastfeeding compared to thirty-one percent (31%) exclusive breastfeeding reported for first-time mothers.

Increasing age of the infant was associated with significantly less exclusive breastfeeding practice in Nigeria where fifty percent of infants less than 3 months of age received both breast milk and water [3]. In Nigeria it was cultural to feed the infant with water and breast milk to quench child's thirst [12]. Male babies were 6.88 times more likely to be breastfed when compared to female children [13] but Kok and Lui [14] reported no statistical significant association between infant's sex and initiation of breastfeeding in Hung Kong. In Sri-Lanka, solid food was introduced to male infants earlier at six months than female infants who were started at seven months. In Nigeria, Agho, et al. [3] reported that female infants were more likely to be exclusively breastfed than male infants.

Weight of infant at birth influenced the time of introduction of solid food in Limpopo province of South Africa where sixteen percent (16%) of underweight infants were introduced to solid foods within the first months of life compared with only 5 percent of the normal weight infants Steyn, et al. [15]. Kok and Lui [14] found out that in Hung Kong the first and second birth order infants were more likely to be breastfed than those of successive birth orders. Seventy-seven percent (77%) of those of the first and third order were breastfed as against fifty-six percent (56%) in those of a lower birth order with a statistically significant relationship.

According to Agho, et al. [3] mothers who attended four or more antenatal clinic visits during pregnancy in Nigeria had significantly higher exclusive breastfeeding rates than those who made no antenatal clinic visits (23.5% vs 6.0%), and exclusive breastfeeding was also higher among mothers who were delivered by trained health professionals when compared with those assisted by traditional birth attendants (TBAs) or untrained persons. Sheehan, et al. [16] reported that in Ontario, Canada a postpartum stay longer than 48 hours was a risk factor for

not breastfeeding which was attributed to hospital practices such as separating mothers and babies that delay initiation of breastfeeding and promote the use of formula and bottles. Hofnie [11] reported that the use of private doctors and hospitals among others were associated with non-exclusive breastfeeding. Kok and Lui [14] found no statistical significant association between infant's mode of delivery and initiation of breastfeeding.

It is worthy of note that some of the studies cited above were on breastfeeding practice and not exclusive breastfeeding. They were relevant to this study because exclusive breastfeeding cannot take place if breastfeeding practice is poor.

## 2. METHODOLOGY

A descriptive survey design was utilised for this study and the communities were selected through purposive sampling method based on their being rural communities and located in the different geopolitical (senatorial) zones of the state. Community entry was facilitated by the Community Development Officers in the LGAs and community leaders consented to the study. All nursing-mothers in these communities were targeted and the households were visited for eligible respondents.

The target population of the study was 405 nursing-mothers with children aged twenty-four months and below in the three selected communities. The target population was made up of 118 nursing-mothers from Dikenta-na-Odinma community, 125 from Umuowa community and 162 from Umuokanne community. However, a total of 340 nursing mothers (84% of the target population) responded to the questionnaire. The rest were either not found at home when visited or declined participation. The distribution of respondents by their communities was as follows: 107 (91%) of the target population in Dikenta na Odinma community, 111 (89%) of the target population in Umuowa community and 122 (75%) of the target population in Umuokanne community. This was representative of the target population. In addition 30 nursing-mothers participated in the Focus Group Discussion (FGD), (10 from each of the three communities). The theme for FGD was 'barriers to exclusive breastfeeding practice'.

The study took place between December, 2012 and June, 2013. Data were collected with the assistance of eight trained Research Assistants and the Community Development Officers (CDOs) in the various Local Government Areas (LGAs). They assisted in community entry and also served as principal guides in the communities. The instruments for data collection were structured questionnaire and Focus Group Discussion (FGD) guide developed by the researchers. Some of the FGD guiding questions included: 'What did exclusive breastfeeding mean to you? What were the constraining factors to the practice of exclusive breastfeeding by nursing-mothers in this community? What were your reasons for not practicing exclusive breastfeeding as you were taught by health workers?'

Reliability of the instrument was established with Crombach's alpha coefficient reliability test and the value was 0.8. Data were analysed using the Statistical Package for the Social Sciences (SPSS) computer software package (version 16.0). Statistical analytic techniques used were frequency counts and percentages. Chi-square ( $\chi^2$ ) statistics was employed to test hypotheses for associations, while multivariate logistic regression analysis was used to determine the independent contribution of variables. The FGD was translated and transcribed by the researchers. The decision rule was to accept the alternate hypothesis ( $H_1$ ) set for this study if  $P$ -value was significant ( $P < 0.05$ ) and reject  $H_1$  if  $P$ -value was  $> 0.05$  level of significance.

## 3. RESULTS

### 3.1. Distribution of Nursing-Mothers by Parity

Results in Table 1 showed that the parity of the nursing-mothers ranged from one to eleven (1-11). Majority (194; 57.1%) had parity of 2 to 4 in grouped data (Table 2).

**Table-1.** Distribution of nursing-mothers by parity (n = 340)

Variable	Frequency	Percentage (%)	Cumulative (%)
<b>Parity</b>			
1	37	10.9	10.9
2	64	18.8	29.7
3	64	18.8	48.5
4	66	19.4	67.9
5	36	10.6	78.5
6	34	10.0	88.5
7	18	5.3	93.8
8	12	3.5	97.4
9	7	2.1	99.4
10	1	0.3	99.7
11	1	0.3	100.0
Total	340	100.0	

Source: Field work (2013)

### 3.2. Nursing-Mothers' Parity and Adoption of Exclusive Breastfeeding Practice

Results in Table 2 showed the influence of nursing-mothers' parity on adoption of exclusive breastfeeding practice. Nursing-mothers (37) whose parity was just one had 13.5 percent exclusive breastfeeding practice, those (194) with parity 2-4 had 18 percent exclusive breastfeeding practice and those (100) with parity 5-8 had 6 percent exclusive breastfeeding practice, while those (9) with parity 9 and above had zero percent (0%) exclusive breastfeeding practice. Parity of nursing-mother was significantly related to the adoption of exclusive breastfeeding. Chi-square value = 9.6, df = 3 and *P*-value = 0.02.

**Table-2.** Nursing-mothers' parity and adoption of exclusive breastfeeding practice (n = 340)

Parity	Frequency (%)	Exclusive Yes (%)	Breastfeeding No (%)	practice Total (%)	X <sup>2</sup>	Df	<i>P</i>
1	37(10.9%)	5(13.5%)	32(86.5%)	37(100%)			
2-4	194(57.1%)	35(18%)	159(82%)	194(100%)	9.63	3	0.02
5-8	100(29.4%)	6(6%)	94(94%)	100(100%)			
9 & above	9(2.6%)	0(0.0%)	9(100%)	9(100%)			
Total	340(100%)	46(13.5%)	294(86.5%)	340(100%)			

Source: Field work (2013)

### 3.3. Distribution of Nursing-Mothers' By Number of Alive-Children

Results in Table 3 showed the distribution of nursing-mothers by number of alive-children. Seventy-five nursing-mothers (22.1%) reported having two alive children, sixty-eight nursing-mothers (20%) reported having four alive children, 63 (18.5%) reported having 3 alive-children, while 40 (11.8%) had one alive child. The rest nursing-mothers had between 5 and eleven alive-children. However, only one nursing-mother (0.3%) had eleven alive-children.

Table-3. Distribution of nursing-mothers by number of alive-children (n = 340)

Variable	Frequency	Percentage (%)	Cumulative (%)
<b>Number of alive-children</b>			
1	40	11.8	11.8
2	75	22.1	33.8
3	63	18.5	52.4
4	68	20.0	72.4
5	35	10.3	82.6
6	30	8.8	91.5
7	10	2.9	94.4
8	11	3.2	97.6
9	7	2.1	99.7
11	1	0.3	100.0
<b>Total</b>	<b>340</b>	<b>100.0</b>	

Source: Field work (2013)

### 3.4. Number of Alive-Children and Adoption of Exclusive Breastfeeding Practice by Nursing-Mothers

Results in Table 4 showed the influence of number of alive-children on adoption of exclusive breastfeeding practice. Only five nursing-mothers (12.5 percent) out of forty who had one alive-child practiced exclusive breastfeeding. Thirty-five nursing-mothers (17 percent) out of 206 with 2-4 alive-children practised exclusive breastfeeding and 6 (7 percent) out of 86 with 5-8 alive children practised exclusive breastfeeding, while none of the 8 nursing-mothers with nine and above alive children practised exclusive breastfeeding. Number of alive-children was not significantly related to the adoption of exclusive breastfeeding. Chi-square value = 6.55, df = 3 and *P*-value = 0.09.

Table-4. Number of alive-children and adoption of exclusive breastfeeding practice by nursing-mothers

Alive Children	Frequency (%)	Exclusive Yes (%)	Breastfeeding practice No (%)	Total (%)	X <sup>2</sup>	Df	<i>P</i>
1	40(11.8%)	5(12.5%)	35(87.5%)	40(100%)			
2-4	206(60.6%)	35(17%)	171(83%)	206(100%)	6.55	3	0.09
5-8	86(25.3%)	6(7%)	80(93%)	86(100%)			
9 & above	8(2.4%)	0(0.0%)	8(100%)	8(100%)			
Total	340(100%)	46(13.5%)	294(86.5%)	340(100%)			

Source: Field work (2013)

### 3.5. Demographic Factors of Index Child and Adoption of Exclusive Breastfeeding by Nursing-Mothers

#### 3.5.1. Age of Index Child and Exclusive Breastfeeding Practice

Results in Table 5 showed the distribution of nursing-mothers by age of index child. The age of index child ranged from one month to twenty-four months. More (45) nursing-mothers had index children aged three months (13.2%). Only one nursing-mother had index child aged twenty months. However, in a grouped data more (101) of the nursing-mothers (29.7%) had index children aged four to six months. Influence of age of index child on nursing-mothers' adoption of exclusive breastfeeding was shown in Table 6.

Fifteen (16.9%) out of eighty-nine nursing-mothers with index child aged 0-3 months practiced exclusive breastfeeding. Eleven nursing mothers (10.9%) out of one hundred and one nursing-mothers with infants aged 4-6 months practised exclusive breastfeeding and thirteen(14%) out of eighty nursing-mothers with index child aged 7-12 months practised exclusive breastfeeding while only seven (12.3%) out of fifty nursing-mothers with index child above twelve months practised exclusive breastfeeding. Age of the index child had no significant relationship with nursing-mother's adoption of exclusive breastfeeding practice (chi-square value 1.53, df 3, *P*-value = 0.68).

Table-5. Distribution of nursing-mothers by age of index child (n = 340)

Variable	Frequency	Percentage (%)	Cumulative (%)
Age of index child (in months)			
1	16	4.7	4.7
2	28	8.2	12.9
3	45	13.2	26.2
4	34	10.2	36.2
5	40	11.8	47.9
6	27	7.9	55.9
7	17	5.0	60.9
8	8	2.4	63.2
9	22	6.5	69.7
10	10	2.9	72.6
11	20	5.9	78.5
12	16	4.7	83.2
13	13	3.8	87.1
14	14	4.1	91.2
15	7	2.1	93.2
16	9	2.6	95.9
17	5	1.5	97.4
18	3	.9	98.2
19	4	1.2	99.4
20	1	.3	99.7
24	1	.3	100.0
<b>Total</b>	<b>340</b>	<b>100.0</b>	

Source: Field work (2013)

### 3.6. Sex of Index Child and Exclusive Breastfeeding Practice

The result of influence of sex of index child and adoption of exclusive breastfeeding practice by nursing-mother was shown in Table 6. One hundred and eighty-six (106) nursing-mothers had male index children which constituted 54.7percent while the rest had females. Nursing-mothers whose index children were males had 14.5% exclusive breastfeeding practice, while those with females had 12.3%. Sex of index child had no significant relation with nursing mother's adoption of exclusive breastfeeding practice (chi-square .34, df 1,  $P$ - value = 0.56). Sex of index child had no significant relationship to nursing mother's adoption of exclusive breastfeeding practice ( $P$  = 0.56).

### 3.7. Birth Weight of Index Child and Exclusive Breastfeeding Practice

The distribution of nursing-mothers by birth weight of index child was shown in Table 7. One hundred and thirty-three (133) out of the 350 respondents knew/remembered the birth weight of their index children. The index children weighed between 2.0kg to 5.0kg at birth. Forty-six (46; 34.6%) nursing-mothers reported that their index children weighed 4.0kg. Grouping based on standard classification showed that only four out of the one hundred and thirty-three children whose birth weights were known had low birth weight of less than 2.5kg. Fifty-seven of them had normal birth weight of 2.5kg-3.9kg, while seventy-two of the children had birth weight of 4kg and above and would be described as 'big babies' at birth.

The influence of index child's birth weight on nursing-mothers' adoption of exclusive breastfeeding practice was shown on Table 6. All the four nursing-mothers whose index children weighed less than 2.5kg did not practice exclusive breastfeeding. Nine (15.8%) out of the fifty-seven nursing-mothers with index children weighing 2.5-3.9kg at birth practised exclusive breastfeeding, while only five nursing-mothers (6.9%) out of seventy-two with index children who weighed 4.0kg and above at birth practised exclusive breastfeeding. Index child's birth weight

had no significant relationship with nursing mothers' adoption of exclusive breastfeeding practice (chi-square 3.13, df 2,  $P$ -value = 0.21).

### 3.8. Birth Order of Index Child and Exclusive Breastfeeding Practice

Seventy-five out of the three hundred and forty children (22.1%) fell into the second birth order, sixty-eight (20.0%) were in the fourth birth order and seven in the ninth birth order while only one child was in the above ninth order group (Table 6). Out of the 75 nursing-mothers whose index children fell into the second birth order, only thirteen practised exclusive breastfeeding. None of the seven mothers with index child in the 9<sup>th</sup> birth order practised exclusive breastfeeding. Similarly the only nursing-mother with index child above 9<sup>th</sup> birth order did not practice exclusive breastfeeding. Third birth order had higher percentage exclusive breastfeeding of 25.4% followed by second birth order 17.3%, then first birth order 12.5%. Birth order had no significant relationship with nursing mother's adoption of exclusive breastfeeding practice ( $P$ -value 0.11).

**Table-6.** Index child demographic factors and adoption of exclusive breastfeeding by nursing mother (n =340)

Variable	Frequency (%)	Exclusive Yes (%)	Breastfeeding practice No (%)	Total (%)	X <sup>2</sup>	Df	P
<b>Age of index child (months)</b>							
0-3	89(26.2%)	15(16.9%)	74(83.1%)	89(100%)			
4-6	101(29.7%)	11(10.9%)	90(81.1%)	100(100%)	1.53	3	0.68
7-12	93(27.4%)	13(14.0%)	80(86.0%)	93(100%)			
>12	57(16.8%)	7(12.3%)	50(87.7%)	57(100%)			
Total	340(100%)	46(13.5%)	294(86.5%)	340(100%)			
<b>Sex of index child</b>							
Male	186(57.7%)	27(14.5%)	159(85.5%)	186(100%)			
S					0.34	5	0.56
Female	154(45.3%)	19(12.3%)	135(87.7%)	154(100%)			
Total	340(100%)	46(13.5%)	294(86.5%)	340(100%)			
<b>Birth Weight (kg)</b>							
<2.5	4(1.2%)	0(0.0%)	4(100.0)	4(100%)			
2.5-3.9	57(16.8%)	9(15.8%)	48(84.2%)	57(100%)	3.13	2	0.21
4.0 & above	72(21.1%)	5(6.9%)	67(93.1%)	72(100%)			
Total	133(100%)	14(10.5%)	119(89.5%)	133(100%)			
<b>Child birth order</b>							
1 <sup>st</sup>	40(11.8%)	5(12.5%)	35(87.5%)	40(100%)			
2 <sup>nd</sup>	75(22.1%)	13(17.3%)	62(82.7%)	75(100%)			
3 <sup>rd</sup>	63(18.5%)	16(25.4%)	47(74.6%)	63(100%)			
4 <sup>th</sup>	68(20%)	6(8.8%)	62(91.2%)	68(100%)			
5 <sup>th</sup>	35(10.3%)	2(5.7%)	33(94.3%)	35(100%)	14.41	9	0.11
6 <sup>th</sup>	30(8.8%)	2(6.7%)	28(93.3%)	30(100%)			
7 <sup>th</sup>	10(2.9%)	1(10%)	9(90%)	10(100%)			
8 <sup>th</sup>	11(3.2%)	1(9.1%)	10(90%)	11(100%)			
9 <sup>th</sup>	7(2.1%)	0(0.0%)	7(100%)	7(100%)			
Above 9 <sup>th</sup>	1(0.3%)	0(0.0%)	1(100%)	1(100%)			
Total	340(100%)	46(13.5%)	294(86.5%)	340(100%)			

Source: Field work (2013)

Table-7. Distribution of nursing-mothers by index child's birth weight (n = 133)

Variable	Frequency	Percentage (%)	Cumulative (%)
<b>Birth weight (Kilogram)</b>			
2.0	4	3.0	3.0
2.5	4	3.0	6.0
2.9	4	3.0	9.0
3.0	21	15.8	24.8
3.5	23	17.3	42.1
3.6	1	.8	45.9
3.8	4	3.0	42.9
4.0	46	34.6	80.5
4.3	1	.8	81.2
4.5	24	18.0	99.2
5.0	1	.8	100.0
Total	<b>133</b>	<b>100.0</b>	

Source: Field work (2013)

### 3.9. Influence of Facility Attended While Pregnant with Index Child and Mode of Delivery on Adoption of Exclusive Breastfeeding Practice

#### 3.9.1. Place of Ante-Natal Care and Exclusive Breastfeeding Practice

One hundred and fifty-one (44.4%) respondents attended ante-natal care at government hospital/health centre while pregnant with the index child. Ninety-one (26.8%) attended ante-natal at private maternity home, Fifty-eight (17.1%) attended ante-natal care at private hospital, Thirty-five (10.3%) attended at mission hospital/maternity (faith-based) and only five (1.5%) attended ante-natal at the traditional birth attendants' home (Table 8). Nursing-mothers who had their ante-natal care in private maternity homes had exclusive breastfeeding practice of 26.4% and those who attended private hospitals had 10.3%, while the rest recorded lower value. The place where nursing mother attended ante-natal care while pregnant with the index child was significantly related to adoption of exclusive breastfeeding practice (chi-square value 19.20, d.f. 4 and P-value < 0.001).

#### 3.9.2. Place of Delivering and Exclusive Breastfeeding Practice

One hundred and seventy-one (50.3%) nursing-mothers delivered the index child at the government hospital/health centre, seventy-seven (22.6%) delivered at the private maternity home, fifty-three (15.6%) delivered at the private hospital and nine (2.6%) delivered at the traditional birth attendant's home, while two (0.6%) delivered at their home without any trained assistant (Table 8). Out of seventy-seven nursing-mothers who delivered in private maternity homes twenty-four (31.2%) practised exclusive breastfeeding. Those who delivered in private maternity homes had higher percentage exclusive breastfeeding practice than those who delivered elsewhere, followed by those who delivered at the traditional birth attendant's (11.1%), then government hospital/health centre (9.9%). The place where index child was delivered had significant relationship with adoption of exclusive breastfeeding practice by the nursing-mothers (chi-square 27.90, df 5 and  $P < 0.001$ ).

### 3.10. Mode of Delivery of Index Child and Exclusive Breastfeeding Practice

Results in Table 8 revealed that most of the nursing-mothers (286; 84.1%) had normal delivery. Forty-nine (14.4%) delivered by Caesarean Section (surgery) and five (1.5%) had instrument (vacuum/forceps) delivery. Out of the two hundred and eighty-six mothers who had normal delivery only forty (14.0%) practised exclusive breastfeeding and six (12.2%) out of forty-nine who delivered through Caesarean Section practised exclusive breastfeeding, while none of the five nursing-mothers who had instrument (vacuum/forceps) delivery practised exclusive breastfeeding. The mode of delivery of index child had no significant relationship with the nursing-mothers' adoption of exclusive breastfeeding practice (chi-square 0.90, df 2 and  $P$ -value = 0.64).



Table-8. Facility attended, mode of delivery and adoption of exclusive breastfeeding by nursing-mother (n =340)

Variable	Frequency (%)	Exclusive Yes (%)	Breastfeeding practice No (%)	Total (%)	X <sup>2</sup>	Df	P
<b>Place of ante-natal care</b>							
Government Hospital/ Health centre	151(44.4%)	15(9.9%)	136(90.1%)	151(100%)			
Private hospital	58(17.1%)	6(10.3%)	52(89.7%)	58(100%)			
Private maternity home	91(26.8%)	24(26.4%)	67(73.6%)	91(100%)	19.19	4	< 0.001
Mission hospital/ maternity	35(10.3%)	1(2.9%)	34(97.1%)	35(100%)			
Traditional birth attendant's home	5(1.5%)	0(0.0%)	5(100%)	5(100%)			
Total	340(100%)	46(13.5%)	294(86.5%)	340(100%)			
<b>Place of delivery</b>							
Government Hospital/ Health centre	171(50.3%)	17(9.9%)	154(90.1%)	171(100%)			
Private hospital	53(15.6%)	3(5.7%)	50(94.3%)	53(100%)			
Private maternity home	77(22.6%)	24(31.2%)	53(68.8%)	77(100%)	27.90	5	<0.001
Mission Hospital/ Maternity	28(8.2%)	1(3.6%)	27(96.4%)	28(100%)			
Traditional birth Attendant's home	9(2.6%)	1(11.1%)	8(88.9%)	9(100%)			
At home	2(0.6%)	0(0.0%)	2(100%)	2(100%)			
Total	340(100%)	46(13.5%)	294(86.5%)	340(100%)			
<b>Mode of delivery</b>							
Normal birth	286(84.1%)	40(14%)	246(86%)	286(100%)			
Caesarean Section (surgery)	49(14.4%)	6(12.2%)	43(87.8%)	49(100%)			
Instrument (vacuum/forceps)	5(1.5%)	0(0.0%)	5(100%)	5(100%)			
Total	340 (100%)	46(13.5%)	294(86.5%)	340(100%)			

Source: Field work (2013)

### 3.11. Multi-Variate Logistic Regression Analysis of Independent Correlates of Exclusive Breastfeeding Practice among Nursing Mothers in Imo State

Results in Table 9 showed the result of the multi-variate analysis of independent variables associated with exclusive breastfeeding practice in this study. Respondents who were parity one (OR = 2.4, P = 0.002) and 2-4 (OR = 1.3, P = 0.020) were more likely to practice exclusive breastfeeding when compared with parity 9 and above. Also those who attended ante-natal care at Government/health care centres (OR = 2.6, P = 0.035), private hospital (OR = 2.9, P = 0.028) and those who attended private maternity homes (OR = 3.2, P = 0.016) were more likely to practice exclusive breastfeeding when compared with those who attended traditional birth attendants' home. Furthermore, those who had their deliveries at government hospital (OR = 1.8, P = 0.041) and private maternity homes (OR = 2.7, P = 0.017) had a higher likelihood of practicing exclusive breastfeeding when compared with others.

**Table-9.** Multi-variate Logistic Regression Analysis of independent correlates of Exclusive Breastfeeding Practice among nursing mothers in Imo State (n = 340)

Variables	Odds ratio	95% Confidence limit		P-value
		Lower	Higher	
<b>Parity</b>				
9 & above	1			
1	2.4	1.034	3.309	0.002*
2-4	1.3	1.231	3.012	0.020*
5-8	2.5	0.532	1.129	0.078
<b>Place of ante-natal care while pregnant with index child</b>				
Traditional birth attendant	1			
Government hospital/health centre	2.432	1.373	5.419	0.035*
Private hospital	2.065	1.479	5.505	0.028*
Private maternity home	3.230	1.069	4.761	0.016*
Mission hospital/maternity	1.002	0.506	1.917	0.323
<b>Place of delivery</b>				
At home	1			
Government hospital/health centre	1.803	1.405	4.680	0.041*
Private hospital	0.082	0.060	1.221	0.999
Private maternity home	2.740	1.002	4.974	0.017*
Mission hospital/maternity	2.176	0.003	3.305	0.783
Traditional birth attendant's home	6.589	0.000	9.002	0.998
Others	2.705	0.003	4.710	0.778

Source: Field work (2013)

### 3.12. Focus Group Discussion (FGD)

The groups discussed constraints to exclusive breastfeeding practice as. The discussion revealed that most nursing-mothers did not practice exclusive breastfeeding for different reasons. A mother said, *“For many mothers, the breast milk does not come till the second day. What do you do in such a case? Something must be given to the baby for survival”*. Another mother said, *“The health workers taught us to breastfeed without giving any other fluid. While still in the public health facility the health workers would not allow you give your baby other fluids, but you only spend one or two days there. When you get back home you can give your baby anything you want to give him/her. Another mother said “Babies suffer abdominal colic and need water in which you can add some medicinal herbs and roots as remedy, moreover you cannot watch your baby die of dehydration by not giving water”*? Yet another said, *“My babies are big and they suck so much. There is no way only breast milk can be sufficient for the baby even in the first month. There is need to supplement feeds”* (quotes are researchers' translation from the Igbo language used by the mothers).

## 4. DISCUSSION

### 4.1. Nursing-mothers' parity

Exclusive breastfeeding practice was generally very low (13.5%) among nursing-mothers in the selected communities. The observed trend showed that Parity 2-4 had higher percentage of exclusive breastfeeding practice than those with less parity and higher parity. Parity was significant at Parity 1 and Parity 2-4. This situation might be because at first child birth in Nigeria, the nursing-mother received a lot of attention and advice from family members and friends who were more experienced as mothers. If most of these advisers did not practice exclusive breastfeeding they were likely to advice against exclusive breastfeeding. Higher parity of above 4 might signal some appreciable experience in child rearing and the mother had charted a pattern of infant feeding for herself. These mothers would need consistent and sustained efforts with proven benefits of exclusive breastfeeding to adopt this innovative practice of infant feeding. These findings corroborated with [Uchendu, et al. \[10\]](#) who reported that mothers who had fewer children had higher exclusive breastfeeding rate which was statistically significant between those with 1-2 or 3-4 children and those with 5 or more children, and also with [Butler, et al. \[9\]](#) who reported that

more mothers with high parity were not practising exclusively breastfeeding and that high parity was significantly associated with exclusive breastfeeding.

Nursing-mothers with more than four but less than nine alive-children had less exclusive breastfeeding percentage when compared with those with lower number of alive-children while none of those with above eight alive-children practised exclusive breastfeeding. A mother who had successfully nursed more than four of her children and they were alive and probably well, would likely believe that her method of child rearing which included breastfeeding pattern was adequate. Those with fewer alive-children would be more responsive to the introduction of new child survival strategies such as exclusive breastfeeding,

#### 4.2. Index Child Demographic Factors

Exclusive breastfeeding practice was higher for children aged 0-3 months (16.9%) and lowest in those aged 4-6 months (10.9%). There was a general belief that from three months other feeds should be added to breast milk which was deemed insufficient for the infant at this time. The tendency was for nursing-mothers to introduce cereals and other fluids from three months. This result was in line with common cultural infant feeding practices in Nigerian communities and aligned with [Davies-Adetugbo \[12\]](#).

Nursing-mothers whose index children were males had higher percentage (14.5%) exclusive breastfeeding practice than those with female index children (12.3%), though the values for both sexes did not reflect remarkable variation. The preference for male children in Nigeria still persisted especially among the *Igbos* (the tribal group that participated in this study), and usually extra care was given to male infants, which could translate to keeping the health worker instruction on exclusive breastfeeding for the good of the infant. The people hold a general belief that male infants were predisposed to excessive suckling on the breast than the female infants. [Patil, et al. \[13\]](#) reported that male babies were 6.88 times more likely to be breastfed compared to female children, but on the contrary [\[3\]](#) reported that female infants were more likely to be exclusively breastfed than male infants. [Kok and Lui \[14\]](#) found no statistical significant association between infant's sex and initiation of breastfeeding.

The percentage exclusive breastfeeding practice between the first and third birth orders were in a descending order. Third birth order had higher percentage exclusive breastfeeding practice of 25.4 percent followed by second birth order 17.3 percent and first birth order 12.5 percent, but there was no statistical significant relationship between birth order of index child and nursing-mother's adoption of exclusive breastfeeding practice. This does not align with [Kok and Lui \[14\]](#) which showed that first and second birth order infants were more likely to be breastfed than those of successive birth orders with statistically significant relationship between the initiation of breastfeeding and infant birth order. This disagreement might arise from the difference in exclusive breastfeeding and just breastfeeding as [Kok and Lui \[14\]](#) studied breastfeeding and not exclusive breastfeeding.

The results of this study showed no significant relationship between child's weight at birth and nursing-mothers' adoption of exclusive breastfeeding practice. [Steyn, et al. \[15\]](#) reported 16 percent of underweight infants were introduced to solid foods within the first months of life in Limpopo province of South Africa when compared with only 5 percent of the infants with normal weight.

#### 4.3. Facility Attended by Nursing-Mother for Ante-Natal Care and Child Delivery

Place of ante-natal care was significantly related to adoption of exclusive breastfeeding practice at government hospital/health centre, private hospital and private maternity home. Mothers who had their ante-natal care in private maternity homes had higher exclusive breastfeeding practice than those who attended elsewhere. It could have been expected that that exclusive breastfeeding practice would be higher with those who attended government hospital/health centres because more resources for the promotion and support of exclusive breastfeeding were channeled to such health facilities by local and international agencies. Commitment of health workers, result oriented method of breastfeeding education and follow-up might result in the difference observed in the various

facilities with different ownership. The place of antenatal care should play a role in providing exclusive breastfeeding information that will lead to the development of positive attitudes towards exclusive breastfeeding practice by nursing mothers.

The place of child birth/delivery was also significant with adoption of exclusive breastfeeding practice by the nursing-mothers but only at government hospital/health centre and private maternity home. Those who delivered in private maternity homes had higher percentage exclusive breastfeeding practice than those who delivered elsewhere. These findings were surprising as it was expected that the government owned (public) facilities would put more mechanisms in place to ensure that nursing-mothers comply with exclusive breastfeeding practice, because the public health agencies had championed this course. These findings corroborated to a certain extent with [Agho, et al. \[3\]](#) who reported that higher exclusive breastfeeding rates were found among mothers who were delivered by trained health professionals when compared with those assisted by traditional birth attendants or untrained persons in Nigeria. Similarly, [Hofnie \[11\]](#) reported that the use of private doctors and hospitals among others were associated with non-exclusive breastfeeding.

In Nigeria mothers usually had short post-partum stay in government hospitals if they had normal delivery. Those mothers who delivered in government hospitals were likely to follow health workers instructions on exclusive breastfeeding while under the observation of those health workers, but might abandon the practice immediately after discharge from the health facility. Research findings from facilities' based studies on exclusive breastfeeding practice might therefore show disparity with community based studies such as this, because nursing-mothers while in their homes were not under the observation of health workers and equally attempt to impress the researcher with their responses would be highly reduced.

#### 4.4. Mode of Child Delivery

The practice of exclusive breastfeeding was higher with normal vaginal delivery (14.0%) than with Caesarean Section (12.2%) and other instrumental delivery (0%). It would be difficult for a woman who underwent Caesarean Section to initiate breastfeeding very early unlike mothers with normal delivery. The mother who had Caesarean Section needed to recover from anaesthesia after surgery and also to overcome the associated pain to a certain degree, before she could breastfeed. Nevertheless, these mothers should be equally encouraged to commence exclusively breastfeeding as soon as possible like those with normal delivery.

Mothers who delivered through Caesarean Section would probably spend more days in the health facility than those with normal delivery and this situation should provide opportunity for health workers to support exclusive breastfeeding. However, the results of this study revealed otherwise which was in line with [Sheehan, et al. \[16\]](#) who reported that when a mother stayed longer than 48 hours in health facility after delivery of her baby there was a risk of lower chance of breastfeeding. This study revealed no significant relationship between mode of delivery and adoption of exclusive breastfeeding by the nursing-mother which aligned with [Kok and Lui \[14\]](#) who observed no statistical significant association between infant's mode of delivery and initiation of breastfeeding.

#### 5. FGD

Responses from mothers revealed that most nursing-mothers did not practice exclusive breastfeeding for various reasons. Their constraints aligned with results gotten from the quantitative data.

#### 6. CONCLUSION

Percentage of exclusive breastfeeding among nursing-mothers was generally low and very much below the target after many years of the campaign. Previous efforts had not yielded desired effect. Parity, ownership of place of ante natal care and place of delivery were highly significant at different categories revealing areas that need intensification of efforts for the promotion of exclusive breastfeeding practice.

## 7. RECOMMENDATIONS

There is need to review and evaluate existing strategies for the promotion of exclusive breastfeeding with the view of developing workable strategies. Promotion of exclusive breastfeeding practice should go beyond clinic based Information, Education and Communication (IEC) but should include follow-up activities in the communities to sustain the clinic efforts.

## 8. ETHICAL APPROVAL/INFORMED CONSENT

Ethical approval was gotten from the Department of Sociology, Imo State University Owerri. Community leaders and the respondents gave informed consent for the study.

## 9. LIMITATIONS

Mothers who were absent at home when visited were not re-visited due to time constraint but the percentage of respondents was representative and FGD enriched the findings. Furthermore, the number of dead children was not elicited which would have buttressed the influence of number of alive children on exclusive breastfeeding. Though this omission did not invalidate the result of this study, the researchers recommend its inclusion in future similar study for balance.

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