

Factors Influencing the Decision to Breast-feed and the Duration of Breast-feeding in Imo State, Nigeria¹

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ABSTRACT Using data collected in a fieldwork in selected parts of Igboland in South-eastern part of Nigeria, this paper examines the patterns and determinants of the extent and duration of breast-feeding in the area. The survey was originally intended to collect data on the socio-economic correlates and demographic consequences of lactation among the Igbo of Eastern Nigeria living in Imo State, Nigeria.

After the examination of the patterns and differentials, the paper identified the factors influencing the decision to breast-feed and the duration of breast-feeding both in the area as a whole and controlling for the place of residence. The factors identified as the predictors of the decision to breast-feed are education, age, working status, sex of the child, place of delivery and delivery assistants while various factors were identified as predictors of specific duration of breast-feeding in the area. The statistical technique used in the analysis is the logistic regression model.

The policy implications of the findings are discussed.

INTRODUCTION

Various studies have reported a high wastage of human life in the first five years of life in the sub-saharan Africa (Quashie and Mensah, 1990). Nearly half of the children born in this part of the world do not celebrate their fifth birthday. Much of the infant-child mortality in this region has been attributed to preventable childhood diseases and malnutrition. According to the UN (1984), the two major killer diseases in children in sub-Saharan African continent are infectious and parasitic diseases particularly respiratory infections and diarrhoea. These diseases interact with malnutrition to lead to childhood mortality.

Malnutrition, apart from being an important cause of infant and child mortality, also exposes the child to infection and consequently deaths,

if serious efforts are not made to rectify the situation. This problem is more crucial among infants because they stand a lower chance of survival within the age group 0-4. Breast-feeding has been singled out as the safest and cheapest means of ensuring a high nutritional status of a young child hence the current international campaign to encourage its use (Odimegwu, 1994; Afaf, 1987; Van Landingham, 1992).

The importance of breast-feeding in the prevention of diarrhoea has been demonstrated in several studies. The protection against these deadly diseases has been greatest among infants who are exclusively breastfed. Recent research has demonstrated that giving young infants supplementary fluids such as water and or teas in addition to breastmilk is associated with a significant increase in the risk of diarrhoeal disease (WHO Update, 1991). The WHO Update reported that in Lima, Peru, the incidence and prevalence rates of diarrhoea in infants younger than 6 months were significantly higher among those who received water and teas in addition to breastmilk than among those who were exclusively breastfed. The diarrhoea prevalence rates doubled with the addition of these supplementary fluids.

These studies and others support the view that the survival chances of the newly born child are enhanced when it is breastfed, particularly during the first year of life (McCan et. al., 1981). Naturally, breast milk provides the total nutrient requirements for the first four to six months of life, and, when combined with appropriate weaning foods is an invaluable source of nutrient until past the second birthday. Colostrum in breastmilk provides the baby's first immunization against disease and it prevents diarrhoea which kills millions of infants. Not only is breastmilk easily digestible, it is safe from contamination, readily available, and cheap (Jelliffe

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and Jelliffe, 1978). The importance of breast-feeding during this period is therefore widely recognized.

However, research surveys are indicating a declining trend in the pattern and duration of breast-feeding. Modernization is the principal factor that affects the pattern and duration of breast-feeding. The social transformation associated with the continuous process of development in some parts of Nigeria may affect the suckling patterns and consequently reduce the length of breast-feeding (Odimegwu, 1994).

It is in this context that this paper intends to examine the socio-economic and demographic factors that affect the decision to breast-feed, the pattern and duration of breast-feeding among the Igbo of Eastern Nigeria in Imo State. It is hoped that this study will identify the critical variables that will aid in the formulation and implementation of more effective programmes that will encourage and support the promotion of breast-feeding in Nigeria and hence reduce the incidence of infant-child mortality.

DATA SOURCE AND METHODOLOGY

The study is based on data collected from a survey on lactation, birth spacing and fertility among the Nigerian Igbos, between June and September, 1992. Information was collected on maternity history, family planning use, breast-feeding, work and fertility histories of the eligible women.

The study was a single round-survey of selected households in Imo State. Only women aged 15-49 years with at least one livebirth and who slept in the household in the night before the interviewer's visit were eligible for interview. A systematic multistage random sampling method was used to select the households and the eventual eligible respondent. A total of 1,000 households was selected but at the end of the interview, we were able to have interviewed only 816 women. In a household where there are more than one eligible respondent, a simple lottery method was used to select the one to be interviewed. The relevant questions for this analysis are: Did you ever breast-feed this child? Are you still breast-feeding (Name of Child)? If stopped, how many months did you breast-feed (Name)? Why

did you stop breast-feeding (Name)? Other questions were asked on prenatal care services and experience.

The technique for this analysis is the logistic regression. This is specified thus,

$$\log_e$$

$$P \text{ over } \{1 - P\} = \theta_0 + \theta_1 X_1 + \theta_2 X_2 + \dots + \theta_n X_n$$

Where P is the probability of ever breastfed, and ever breastfed at specific terminal durations. θ_0 to θ_n are independent variables. Under this approach, the dependent variable for each observation in our study takes the value of 1 if the respondent ever breastfed while a value of 0 is assigned to those individual, women who never breastfed.

The independent variables are education, age, place of residence, marital separation, marital status, working status, occupational status, location of place of work, children ever born, type of marriages, sex of child, prenatal care, place of delivery and delivery assistant, living children and desire for more children. These variables are dichotomized. Wherever possible, the variables are designed to relate to the specific birth intervals of the mother during the last five years before the survey.

The decisions to breast-feed and to breast-feed for specific durations are the dependent variables. For the decision to breast-feed, the question was framed thus, "Did you ever breast-feed this child?". The decision to breast-feed is coded as Yes = 1 and Not breast-feed = 0. In the case of duration of breast-feeding, it is divided into 6 months, 9 months and 12 months. These are the points where breast-feeding durations peak. In each of the categories, the model is specified as one if she breast-feeds up to a specific duration and zero if not.

Characteristics of the Sample

The profile of the respondents is presented in table 1. More than half of the interviewed women lived in the urban area (54 per cent) and 46 percent in the rural areas at the time of the survey.

The socioeconomic and demographic characteristics of the sample showed the two groups to be different in the distribution of some of the socio-economic features. In the case of age, residents have larger concentration in age group

Table 1: Percentage of the respondents by some selected socioeconomic and demographic characteristics, Imo State, Nigeria, 1997

Characteristics	Rural	Urban	Total
Current Age	46.3	53.7	100.00
15 - 24	7.5	7.5	7.5
25 - 34	50.4	62.2	56.9
35 - 49	42.1	30.3	35.6
Level of Education			
None	10.2	0.7	5.0
Primary	53.7	11.3	30.2
Secondary	23.3	37.2	31.0
Tertiary	12.7	50.8	33.8
Working Status			
Working	18.1	51.7	35.9
Not working	81.9	48.3	64.1
Type of Occupation			
Employee of private organization	10.3	7.7	8.3
Govt. employee	55.2	80.6	74.8
Self-employed	5.2	8.2	7.5
Farmer/trader	29.3	3.6	9.4
Religion			
Roman Catholic Church	44.4	52.5	48.3
Protestant	37.0	34.7	35.7
Pentecostal	5.5	10.4	8.1
Other sects	12.8	2.3	7.5
Marital Status			
Married	93.3	97.1	95.4
Widowed	4.5	2.3	3.3
Divorced/separated	1.9	0.7	1.2

25-34, while in the case of education, 54 percent have primary in the rural and in the urban 51 percent have tertiary education. In other words about one out of every 5 of the respondents in the urban survey sites has a higher level of education. This is not surprising because rural-urban migration is selective of the youths who have finished their higher education and are looking for jobs. The urban centres are also the areas where there can be job opening for these high school graduates. This is also supported when we examine the distribution of the working respondents. Whereas in the urban segments, 52 per cent is working, but in the rural area, 82 per cent is not working. Those who are working in the urban centres are mostly government civil servants (81%). Generally, those not working (64%) are more than those working (36%). Also, 94% of the respondents are married while the remaining percent is either widowed (4.5) or divorced/separated (1.9%). In the case of current breast-feeding status, 79 per cent have ever

Table 2: Differentials in mean duration of breast-feeding, Igbo, Imo State, Nigeria, 1997*

Characteristics	Rural	Urban	Total
Age Group			
15 - 29	10.6	10.1	10.4
30 - 39	12.7	9.8	11.1
40 - 49	13.4	13.0	12.3
Education			
None	16.0	12.0	15.6
Primary	13.4	11.1	12.7
Secondary	11.3	10.0	10.6
Tertiary	9.5	9.4	9.6
Husband's Education			
None	14.0	-	14.0
Primary	13.1	9.5	13.1
Secondary	10.4	10.7	12.0
Tertiary	10.1	9.5	10.6
Husband's Occupation			
Prof/Tech.	13.4	9.3	9.8
Clerical	11.4	9.5	10.8
Sales	11.8	9.8	10.8
Transportation	13.7	10.8	10.9
Artisans	12.9	11.1	12.5
Farming	16.5	10.4	16.3
Teaching	10.8	10.8	10.7
Work Status			
Working	11.1	9.5	9.9
Not working	12.9	10.5	12.0
Place of Work			
Away	10.0	9.9	10.9
Nearer home	10.0	9.3	9.6
At home	13.8	6.7	10.7
Occupational Type			
Employee of private organisation	15.0	9.0	11.9
Employee of government	9.9	7	10.2
Self-employed	13.0	9.0	9.8
Farmer/trader	11.5	8.6	11.2
Desire for Children			
Yes	14.2	7.9	11.1
No	8.5	6.7	7.7
Children ever Born			
< 2	11.3	9.3	8.5
3 - 5	13.1	10.2	10.1
6 +	13.0	11.2	12.2
Living Children			
< 2	9.4	6.5	8.3
3 - 5	11.3	9.7	10.3
6 +	13.4	10.8	12.7
Religion			
Roman Catholic Mission.	12.4	10.3	11.1
Protestant	12.7	9.1	11.3
Pentecostal	11.8	10.7	11.1
Other sects	12.7	6.4	11.1
Total Mean	10.4	9.5	10.6

* Calculations based on current status technique.

breastfed their current child. This also varies by place of residence.

Patterns and Differentials in Breast-Feeding in Gboland, IMO State, Nigeria

Table 2 presents the mean duration of breast-feeding for both the urban and rural areas of residence by selected socio-economic and demographic variables. Differences in breast-feeding exist not only between urban and rural areas but also according to the age, education of the woman and her husband, the working status of the woman and the husband's occupation among others. The table shows that women who had more than 6 children will breast-feed on the average 12 months plus (12.2 months) while those with smaller family size will tend to breast-feed for shorter duration. This applies also to the number of living children categories.

As observed, the duration of breast-feeding tends to decrease as the level of education increases. This is because the more educated women are more likely to work away from home, which may compete with childbearing. This variation is more pronounced in the urban than in the rural area, as the effect of education on the lifestyle and behaviour is stronger among the urban women than the rural ones. Similar variations in breast-feeding duration and practice are also seen according to the mother's work status. Work status is a reflection of the value of time and the household socioeconomic status. The higher the value of time is in competition with breast-feeding, the shorter is likely to be the breast-feeding duration.

It should also be observed that in the rural area, working mothers at home breast-feed longer than those working away from the home and nearer home but in the urban area, women who are working at home breast-feed for a period of 7 months, less than the other categories.

Determinants of the Decision to Breast-Feed

To determine the relative importance of the factors that would influence the decision to breast-feed or not we applied a logistic regression model (see specification in section on Data Source and Methodology). The decision to breast-feed is dichotomized into 0, never breastfed; and 1, ever breastfed. The results for

the general population of study and by place of residence is shown in table 3.

The above result shows that for the entire population, education, age (age 40-49), working status, occupational status, marriage type, sex of the child (female child), place of delivery and delivery assistants influence the decision to breast-feed. When the level of education changes from none to primary, the log odds of ever breast-feeding increases by the beta coefficients for each of the categories. It also shows that women aged 40-49 are more likely to ever breast-feed their last child than those age 15-29 who are in the young age groups. Clearly, the effect of working is evident, as the result shows that though those working are likely to breast-feed, those in the formal public sector are less likely to breast-feed. The identified variables are significant at different levels.

When the determinants are examined by place of resident, the result shows that the main factors that influence the decision to breast-feed include education (the tertiary level), marital status, type of marriage (polygyny), place of delivery and delivery assistant for the rural respondents. For the urban sector the predictor variables are age 40-49, place of delivery and delivery assistant. It should be noted that other variables may be suffering from the effect of interaction. This analysis did not examine the net effect of the covariate (that is the interaction effects of some of the variables).

Determinants of Peak Duration of Breast-Feeding

The preceding discussion identified the key factors that influence the decision to breast-feed or not. In this section, the factors that influence the decision of the respondents to breast-feed at various peak durations are identified. The duration of breast-feeding was divided into three groups: duration of up to 6 months; 9 month-duration and 12 months and above. A logistic model was then fitted to the data using the selected predictor variables. Various factors are identified as affecting particular peak durations. The variables selected are based on the existing literatures in this area.

From the above table, there are various determinants for breast-feeding duration and the

Table 3: Determinants of whether or not children are ever breastfed for all the respondents, and controlling for place of residence, Igboland, Nigeria, 1997

<i>Variables</i>	<i>All beta coefficient beta-Coeff</i>	<i>Rural beta coefficient beta-Coeff</i>	<i>Urban beta coefficient beta-Coeff</i>
<i>Education</i>			
None	RC	RC	RC
Primary	0.5659	1.6640	-2.1047
Secondary	2.6994*	-1.01289	0.2513
Secondary+	2.0295**	-1.4224**	-0.7181
<i>Age</i>			
15-29	RC	RC	RC
30-39	-0.4550	-0.4081	-0.7681
40-49	-1.7800*	-2.1378	-2.6385
Urban Residence	0.1444	na	na
<i>Marital Separation</i>			
Living Together	RC	RC	RC
Husband Elsewhere	0.3597	-0.0987	0.3011
<i>Marital Status</i>			
Married	RC	RC	RC
Widowed/Divorced	-1.4540	-3.0440*	-2.9615
Employed before Marriage	RC	RC	RC
Not Employed before marriage	0.5224	-0.4607	-0.5316
<i>Working Status</i>			
Civil Servant	-1.6962**	1.3885	0.5822
Private Company employee	RC	RC	RC
Self-employed	-1.2863	5.333	5.8618
Farmer/Trader/Artisan	-0.9434	0.7593	N.E.
<i>Location</i>			
Away from Home	RC	RC	RC
Nearer Home	0.3736	-0.5922	-0.1802
At Home	1.2326	0.1582	8.9561
<i>Marriage Type</i>			
Monogamy	RC	RC	RC
Polygyny	-0.8411**	-0.7378**	0.3828
Female Child	1.9507**	1.6000	10.3621
No Prenatal Care	-0.1203	6.1553	-
<i>Place of Delivery</i>			
Govt. Hospital	RC	RC	RC
Private Hospital	2.1775*	1.1708	4.0934**
Trad. Birth Home	3.5381**	3.0307*	3.4473**
At Home	7.5907	2.9521	-
<i>Delivery Assistant</i>			
Doctor	RC	RC	RC
Nursing	3.9152*	4.0791*	3.2776**
Contracepting	1.3900	0.9124	9.3209
<i>Desire for More Children</i>			
Yes	RC	RC	RC
No	0.2219	9.7238	-0.6374
<i>Living Children</i>			
< 2	RC	RC	RC
3-5	-1.0327	0.3289	1.1075
6 and above	-0.5427	0.4769	0.1256
-2 Loglikelihood	333.570	99.422	112.882
Chi-square	700.524	170.777	208.774
Constant	-1.8522	1.0422	1.7022

* Significant at 10%

** Significant at 5%

Table 4: Determinants of breast-feeding at various duration peaks, Igboland, Imo State, Nigeria, 1997

	Peak Durations		
	6 Months	9 Months	12 Months
<i>Education</i>			
None	RC	RC	RC
Primary	0.4937	7.4341	0.5507
Secondary	1.3723	7.6924	0.1320*
Secondary and above	1.5058	7.5304	-0.3181
<i>Age</i>			
15-29	RC	RC	RC
30-39	0.4687	-0.4042	0.5386*
40-49	-0.4686	-0.8184	-0.3325
Urban Residence	0.5303	-0.1171	-0.0444
<i>Marital Separation</i>			
Living Together	RC	RC	RC
Elsewhere	-1.0932**	0.3538	0.1982
<i>Marital Status</i>			
Married	RC	RC	RC
Widowed/Divorced	-5.5838	-1.0728	-0.3180
Employed before marriage	1.0495**	-0.2489	0.5631**
Working Status	0.3277	-0.2341	-1.2469**
<i>Employment Status</i>			
Private company	RC	RC	RC
Government job	0.0865	0.5263	1.4797**
Self-employed	-0.6219	1.0115	1.1501*
Farmer/trader/artisans	0.3523	-0.8890	1.1829**
<i>Location of Place of Work</i>			
Away from Home	RC	RC	RC
Nearer Home	-0.2051	-0.0655	0.3729
At Home	.9884	-0.5802	0.6962
<i>Living Children</i>			
< 2	RC	RC	RC
3-5	-0.7082	0.4325	-5.117
6 and above	-0.7334	-0.6508	-4.088
Polygyny	0.0212	-1.2258*	-4.963*
Sex: Female Child	0.4514	0.4670*	.0848
No Antenatal Care	1.8977	2.6968	5.0083
<i>Place of Delivery</i>			
Government Hospital	RC	RC	RC
Private Hospital	0.3371	0.6988**	0.5934**
Traditional Birth Homes	-0.1955	1.0989	1.1475**
At Home	-3.2684	-7.0003	0.8083
<i>Delivery Assistants</i>			
Doctor	RC	RC	RC
Nurse/Midwife	0.7849**	0.1170	.1370
No Postnatal care	-0.7816	-0.0025	.1675
No desire for more children	1.0547	0.9141	-1.664
-2 Log likelihood	341.279	453.536	
Chi-square	72.473	117.851	
df	28	28	
Constant			

* = 5%; ** = 10%

Reference categories (RC) for Urban Residence: Rural Residence;

Employed before marriage: Not employed before marriage;

Polygyny: Monogamy; Female Child vs Male Child

No Antenatal care vs Antenatal Care; No Postnatal care vs Postnatal care, and No Desire for more children vs Desire for more children

different duration peaks. The determinants for six month breast-feeding duration include marital separation (i.e. whether couples are living together or separated), employment status and delivery assistant. For duration of nine months, the factors are working status, marriage type (polygyny), sex of the child (female child), antenatal care experience and place of delivery. And for the probability of breast-feeding for 12 months or more, the factors of interest include education (particularly secondary education), age (age 30-39), working status and occupational status, marriage type (polygyny) and the place of delivery. Though the relationship between the other independent variables and the dependent variable is in the expected direction, yet they are not significant statistically.

It can be deduced from the result that relative to mothers whose husbands are living together, children born to mothers without husbands at home have a decreased probability of breast-feeding for six months. This indicates that if the husband is to be at home they will breast for a shorter time than when he is not around. Employment status shows that children of mothers who worked before being married are likely to be breast-feeding for six months than otherwise. Mothers who were attended to by nurses and midwives during delivery have the greater probability to breast-feed for six months than the reference category. The various factors are significant at different levels of 5 per cent and 10 per cent.

Place of delivery is an important factor for durations nine and twelve months. The result shows that children delivered in both private and traditional birth homes have higher probability of breast-feeding for duration 9 and 12 than those who delivered in the government hospitals. This raises curiosity to call for the need to investigate the overall role of health services in the determination of breast-feeding duration and practice. Polygynous marriages have negative effects on both higher durations.

The relationship is also examined further controlling for place of residence. The result of the logistic analysis shows that the predictor factors in the rural place for duration of six months are education (tertiary), marital separation, location of work, higher number of children living,

Table 5: Summary of predictor variables for the three peak durations

<i>Variables</i>	<i>Breast-feeding decision</i>	<i>Six Mon-ths</i>	<i>Nine Mon-ths</i>	<i>Twelve Mon-ths</i>
Education		0	0	0
Age		0	0	0
Residence	0	0	0	0
Marital Separation	0		0	0
Occupation Type		0	0	
Location of work place	0	0	0	0
Children ever born	0	0	0	0
Number of living children	0	0	0	0
Polygyny		0		0
Sex of the Child	0	0		0
Religion	0	0		0
Place of delivery		0	0	
Delivery Assistant			0	0
Desire for more children	0	0	0	0
working status				

antenatal care services, place of delivery, desire for more children. There is no single statistically significant factor in duration of nine months, though they are in the expected direction. The partial correlation (R0 values also support this, though their effects are small in the model. Also the determinants for breast-feeding for 12 or more months in the rural area are education, working status, employment status, place of delivery.

For the urban area, the predictor variables for six-month breast-feeding duration include education, employment status, children ever born, delivery assistants. Those in education levels or primary, secondary and tertiary in the urban area are less likely to breast-feed for six months than those without education. In other words, those with no education will breast-feed for more than six months. Working status and delivery assistants have positive probability of breast-feeding for six months than those in the reference categories. In the urban segment, there are only six determinants for the nine months duration. These are employment status, children ever born, sex of the child, place of delivery, postnatal care and desire for more children.

DISCUSSION

This paper examines the factors that influence the decision to breast-feed and to breast-feed for particular peak durations of six, nine and twelve months. The analysis clearly

identified that the best predictors of the decision of whether or not are education, age, working and occupational status, sex of the child, place of delivery and delivery assistants. The higher the level of education, the higher the probability of a mother breast-feeding the child. This has the reverse affect in the rural area where it is shown that education decreases the probability of ever breast-feeding the child.

In all the models, the effect of modernization variables and health care variables are noted. The result of our analysis shows that each of the factors identified exerts an independent effect on the duration of breast-feeding. The consistency of the health factors demand explanation. It has been explained that women who receive prenatal care from physicians and trained nurses and/or experience labour and delivery in a hospital are less likely to initiate breast-feeding and more likely to terminate breast-feeding early. This may be because the nurses or hospital personnel do not explain to the nursing mothers the role of breast-feeding and for a longer time in the health status of their children. This finding has indeed supported an earlier one (Odimegwu, 1994).

POLICY IMPLICATION

This analysis presents supporting evidence of the effect of modernization (proxied by education and employment) on breast-feeding behaviour and duration. This tends to mean that with the increase in the level of female education and with it urban migration and employment, there is bound to be further decline in the duration of breast-feeding. So while increase in female education and employment is a good indicator of economic development, they encourage women away from the tradition of breast-feeding. This implies that in the design and implementation of government policies, there should be a safeguard against undesirable consequences of otherwise positively valued programmes.

Because education is a single most important factor that influences the duration of breast-feeding increase in the number of females educated will continue to be a threat to the level of

breast-feeding practice in the area. If the government policy-makers believe that breast-feeding has important implications for the health of the infants, efforts should be made to develop policies that will inform women especially the educated and working women about the benefits of breast-feeding. Population education should include increasing the social awareness of the benefits of breast-feeding.

The effect of employment on breast-feeding is also noted. This calls for the need to make policies that will encourage longer maternity leave for nursing mothers who are in the public sector. There is need also to develop cottage industries that will employ the women so that they will be nearer home. Alternatively, government should establish day care centres and creches very close to ministries and public places so that the babies can be kept in these places for the mothers to breast-feed them at work. For the working mothers, it is better to give longer maternity leave until supplementary feeding of non-milk products is advisable. While the immediate target of policies should be the urban, educated mothers working outside the home, the scope of these policies should be broadened to include other segments of the female population.

In the case of the role of health care personnel, studies should be conducted to fully investigate how delivery place and delivery assistants affect the duration of breast-feeding and the decision to breast-feed. The health sector occupies an important place in breast-feeding campaign and so the health care personnel should be involved in the campaign. The current Baby Friendly Hospital Initiative is a good one and the extent of the support it is receiving from the hospitals should be investigated. The principal goal of the initiative is to mobilize health care systems and health workers to promote and support breast-feeding and to create a demand by women for hospitals that encourage breast-feeding. The WHO and UNICEF with the support of world leaders, health experts and NGOs undertook the Initiative to convince hospitals, health services and parents that breast-feeding gives babies the best possible start in life. The various women-in-development programmes in the country should incorporate aspects of breast-feeding.

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