

# **BREAST-FEEDING AND ANOVULATORY CYCLE IN SOME RURAL COMMUNITIES IN NIGERIA**

**S.A. IGWE**

**ABSTRACT:** A randomised prospective study of 150 breast-feeding and 100 non-breast-feeding postpartum women was conducted in some rural communities in Nigeria, to determine the relationship between breast-feeding and anovulation. Non-breast-feeding postpartum controls experienced early return of menses, ovulation and ultimate pregnancy whereas in the breast-feeding mothers, these parameters were delayed much longer (menses, ovulation and pregnancy more than 12 months). Breast-feeding is shown to be a method of family planning and child spacing among the ruralities covered in the study. In the rural areas of developing countries, where contraceptive use is either low or non-existent, active promotion of breast-feeding is needed to reinforce the traditional method of breast-feeding so as to retain its child spacing as well as maternal and child health benefits. [Ethiop. i. Health Dev. 1993;7(2):93-00]

## **INTRODUCTION**

There are several rural communities and settlements in Nigeria and the rural disposition of each community or settlement depends on its remoteness from the urban or semi-urban settlements. Most of these rural communities lack standard hospitals. Some have Health Centres but these are usually managed by qualified nurses from other centres. Once in a while mobile doctor service is extended to the Health Centres. Such Health Centres located in most part of the country's rural settlements offer services ranging from maternal and child health, simple primary health care guide, personal hygiene and environmental sanitation to referrals. In each case, modern family planning techniques have not been practised by the ruralities and available information shows that they have depended solely on breast-feeding as their only method of child spacing and birth control.

Nigeria is a developing country and there are no accurate statistical data on family planning practices among the population. With this background, breast-feeding has come to play an essential role in child health, child nutrition and child spacing where the standard of living of the rural communities is generally below western average.

Breast-feeding has been known to be the best traditional way to feed infants among the rural communities. According to WHO expert committee, its multiple benefits for the health of the infant and the mother greatly outweighs bottle-feeding (1,2). Breast-feeding also delays the resumption of ovulation and thus induces a considerable length of infecundity beyond that resulting from normal postpartum amenorrhoea (3, 4). The contraceptive effect of breast-feeding has been known for several generations, but it has been only in recent times that researchers have attempted to quantify its role regarding birth interval and relative importance compared with the other determinants of fertility.

Breast-feeding averts more births in the developing countries than all modern methods of family planning combined (5). Today among the developing countries, breast-feeding still plays a more

important role in spacing births than does modern contraception (6). This study was conducted in order to establish the relationship between ovulation in lactating and breast-feeding mothers; and fertility and breast-feeding habits among rural communities of Nigeria. This study will also determine the onset of the first postpartum ovulation during breast-feeding and its relationship to the first postpartum menses so as to predict guidelines for determining child spacing and offer effective advice on family planning techniques to the communities.

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College of Medicine and Health Sciences

## **METHODS**

A randomised sampling of 1,000 adult female volunteers from 20 rural communities or settlements with an averaged age of 22-30 years was conducted. Each has little, if any formal education and all are full-time house wives. None had used any family planning techniques to this or other pregnancies before they were recruited for this study. Information about them were initially obtained from the records at the Health Centres and those with history of previous abortions were discharged as well as those not willing from partaking in the study. They were then divided into two groups.

In the first, were breast-feeding others (150) and parturient, having had one or more children previously. All deliveries were normal. The group chosen intended to breast-feed as long as possible, that is about 12 months.

The second group consists of mothers who had still birth at term or whose babies died after delivery (100), and were enlisted in the study to serve as postpartum comparative group. The objective of the study was carefully explained and interpreted to the volunteers as they had no formal education, and their full consent to participate was obtained.

Each subject provided an early morning urine sample daily and pregnancy tests were conducted using pregnancy latex test (Agglutination inhibition slide test, B subunit specific, CBL), creatinine level was assayed using standard methods by Jaffe (7) while radio immunoassay for pregnanediol-3- $\alpha$ -glucuronide was performed according to WHO specifications. It was assumed that ovulation has occurred if a sustained rise in urinary pregnanediol per gm creatinine exceeded 1.0mg and was followed either by vaginal bleeding or conception. The women remained involved in the study until pregnancy was established or until the end of the 12 months post-partum.

## **RESULTS**

150 breast-feeding women and 100 non-breast-feeding controls were used. All received ante-, intra-, and post-partum care at the Health Centres. All the participants were residents in the same rural community being served by the Health Centre. The controls were marginally older (mean age 26.2) see Table 1.

The mean time until the first postpartum coitus for the non-breast-feeding controls was 2.1 months. There was no coitus in the breast-feeding and lactating mothers because cultural norms prohibited intercourse during breast-feeding in the community.

The median time to first menses was 1.5 months for the controls and 8.0 months for the breast-feeding women. The difference was highly significant ( $p < 0.001$ ). An controls menstruated by postpartum day 51. Ovulation preceded menses in 20 of the 100 non-beast- feeders and ovulation did not precede menses in the breast-feeders.

Table 1: Characteristics of the rural volunteer women

	Breast-feeding	Control
Total Sample	150	100
Age at delivery		
Mean	25.6	
Range	22.3	
Sex of infant		
Male	40.7%	-
Female	53.3%	-
No. of live births		
Male	40.0%	50%
Female	60.0%	50%
Husband's occupation		
Peasant farmer	26.7%	40.0%
Black smith	33.3%	60.0%
Carpenter	40.0%	-
Want more children		
No	-	-
Yes	100	100%
No. of previous abortions	-	-
Number or previous still births	13.3%	20%
Number or previous per week range	0.1	2-5
Family planning method in use	-	-
Reason for termination from study		
Pregnant	-	60%
More than twice ovulation	-	40%
1 year in study	100%	-
Others	-	-

Table 2: Range of breast-feeding episodes at first ovulation among the rural women:

Time of First		Per Day	Per Night	Per 24
Ovulation (Months)	N	Time	Time	Hours
1-3				
4-6	30	10-20	4-6	14-18
7-9	80	13-15	4-6	17-21
10-12	40	9-12	4-5	13-17
Total	150	9-15	4-6	13-21

However, only 20% of breast-feeding mothers experienced their first postpartum bleeding in the first 6 months and all the controls ovulated during the study. The median times to first ovulation (2.1 months for controls and 11.0 months for the breast-feeding mothers), were significantly different between the two groups ( $p > 0.001$ ). By the 4' month postpartum, all the controls had ovulated at least once whereas only 7% of the breast-feeding mothers had done so. The earliest ovulation among the non-breast-feeding mothers occurred at postpartum day 30 while for those breast-feeding women it occurred at postpartum day 60. Thereafter, this percentage of the mothers ovulated and menstruated at regular intervals. In spite of ovulation there was no pregnancy in the breast-feeding mothers because cultural belief prevented intercourse during breast-feeding. Furthermore, there was no supplements by the early ovulators.

## DISCUSSION

From this study, it has been discovered that these rural women breast-feed for upwards of 12 months and this duration of breast-feeding is therefore a substantial interval of avoiding pregnancy since most family incomes are low, child nutrition inadequate and there is no application of any modern family planning technique. Breast-feeding which suppresses ovulation is therefore the major means of child spacing among the rural women. The result also shows that supplementals are not given until about the 10' month and this does not reduce the frequency of suckling episode.

Though not investigated, it is believed that the fertility rate among the child bearing women in the rural communities is high.

However, significant difference also existed in time durations for first postpartum ovulation and menses to occur between the breast-feeding mothers and the controls. Breast-feeding frequency was related to the time when fertility returned in nursing mothers. It is therefore responsible for the prolonged an ovulation observed in the rural women. The difference in conception rate between the controls and the breast-feeding women is not a matter of interest for the investigator and very natural because since for the controls who were not breast-feeding cyclic menses appeared much sooner and there was no restriction to coitus among the group.

Breast-feeding is a universal and an acceptable method of child nutrition among nursing mothers in most of Nigeria's rural settlements and the health workers at the Health Centres emphasize that "breast is best" to all mothers during the ante-, pre-, and post- natal clinics. Perhaps, local beliefs about breast-feeding account for long durations of breast-feeding practices among the rural women. For instance, breast-feeding mothers do not have intercourse because it is said that if otherwise the breast-fed child dies and no mother or couple would want to lose their child through such an 'unwholesome' practice. It is believed that lactational infertility occurs in two phases, -a period of complete infertility which occurs during lactational ammenorrhoea when ovulation is suppressed, followed by a variable period of lowered fecundity after the resumption of ovulation and menstrual cycles (8), perhaps combinations of these two phases play additive roles to account for the prolonged anovulatory cycle among the breast-feeding mothers in the population studied. Furthermore, full and on-demand breast-feeding as practised by ruralities may play a role in lengthening the anovulation while the introduction of supplementary foods is often associated with a more rapid return of ovulation (9). This lactation induced ammenorrhoea inhibits an average of about four potential births during reproductive span of women in developing countries (8). It therefore conforms that breast-feeding is a natural means of controlling fertility (10). Experts have shown that breast milk is a potent guardian of infant health because the maternal antibodies found in the human milk protect the baby from diseases such as gastroenteritis, diarrhoea, etc, (8).

Furthermore, the enteromammary circulation ensures that appropriate immunoglobulins are secreted into the breast milk within hours of exposure of mothers gut-associated lymphoid tissue to a potential pathogen (11). Mild substitutes are known to lack this immunological protection and may even exacerbate the situation by being bacteriologically contaminated during preparation and often incorrectly formulated (8). Weaning food in the rural communities consists of carbohydrate with little or no protein and do not serve as breast substitute unlike the cases of western infant formula. The key to short and long term success of lactation as a contraceptive method is therefore the frequency with which afferent neural inputs generated by the babies stimulation of the nipples reach the hypothalamus (12,13) due to the frequent breast-feeding and common occurrence among rural women. Not only do these neural inputs regulate, but the elevated prolactin levels stimulate the long-term synthesis and secretion of milk in the breast while the suckling induced discharge of oxytocin alveoli are not repeatedly emptied through frequent suckling, milk production will be inhibited through a feedback mechanism and lactogenesis will cease (14) and ovulation may occur and if coitus takes place, pregnancy might result. This explains in part, what happens in the non-breast-feeding controls.

The knowledge about the likelihood of ovulation based on infant feeding habit among rural dwellers will be a great asset to family planning providers whenever such services are to be extended to such rural areas. This is important in order to avoid double protection with other family planning methods while they are naturally infertile during the breast-feeding periods. Furthermore, in most rural areas where access to family planning is non-existent or difficult, a comprehensive method should be adopted. For instance breast-feeding should be exclusively encouraged for upwards of 12 months because of increasing awareness among rural women that infant formulas are inferior to breast milk.

The community health workers at the Health Centres should as a matter of urgency be made to inculcate family planning as the first element of primary health care and this can go a long way in improving maternal and child health. The success story of expanded programme on immunization and oral rehydration therapy in the rural communities has drastically reduced infant mortality and morbidity hence the need for more children or frequent birth is no longer necessary. It is therefore suggested that strategies for postpartum contraception should be devised and introduced in order to further maximise the benefits arising from breast-feeding infecundity .

In Nigeria, the Better Life for Rural Women programme and the National Council of Women Societies have been making some impacts in this direction and more education has been responsible in instilling in the rural

women the need to space births, long period of breast-feeding (12-18 months) late supplementals (10-12 months), etc. Breast-feeding indeed has acted as nature's contraceptive and birth control method among the rural communities studied.

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