

Research Article

Post-Partum Insusceptibility as a Proximate Determinant of Fertility amongst Abagusii of South West Kenya

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Abstract

Post-partum insusceptibility is the combined effect of lactational amenorrhea and post-partum sexual abstinence on fertility. Post-partum insusceptibility (PPI) is one of the five proximate determinants of fertility which relate total fertility to potential fertility in the Stover model (1998). The practice of breast-feeding influences post-partum amenorrhea while post-partum abstinence prevents conception, two crucial elements of the index of PPI. It is calculated as the average birth interval in the absence of breast-feeding, divided by the average length of the interval when breast-feeding takes place: $C_i = 20/(18.5+i)$, where: i average duration of post-partum amenorrhea and post-partum abstinence. In this study, the value found was 0.63. From the recorded value and its comparison to other areas, it can be inferred that post-partum insusceptibility has a strong inhibiting effect on the fertility of the Abagusii women. Furthermore, the fact that the PPI index for Kisii had a value of 0.63 and the value for women's sexuality was 0.698 indicates that PPI has a higher inhibiting effect than women's sexuality in depressing the fertility of Abagusii women. This is because according to the Bongaarts model, the lower the value of the index, the higher the depressing effect.

Keywords: Post-Partum; Insusceptibility; Proximate; Determinant; Fertility Abagusii and Kenya.

Introduction

All women are insusceptible to pregnancy for the first two months after childbirth and most societies have developed cultural practices that are designed to space children below this biological maximum (Pison 1995:96). Two such practices common in Sub-Saharan Africa are prolonged breastfeeding and post-partum sexual abstinence, even in remote areas, African women recognize the importance of birth-spacing for the sake of the health of their children. In fact, women who fail to observe this practice in some societies may find themselves targets of ridicule or scorn from other members of the community [1]. The practice has been used to attain what Africans consider the ideal - a large number of healthy children.

In [2] it is asserted that in much of Africa, breastfeeding has been on the increase whereas post-partum sexual abstinence is on the decline. They further state that long periods of post-partum sexual abstinence have been difficult to practice in the Kenyan context for two reasons. First, increased levels urbanization makes it difficult and uneconomical for a woman to return

to one's village for the birth of her child as used to be the case in previous years. Secondly, women reduce the periods of post-partum sexual abstinence in order to prevent their husbands from seeking sexual satisfaction with other women.

In traditional Abagusii society, there were checks on unrestrained [3]. Prolonged breastfeeding, post-partum sexual abstinence and social censure are examples of [4]. Breastfeeding lasted for approximately two years, and sexual abstinence lasted for the duration of the breastfeeding period. Cultural mores required the husband to be separated from his wife during breastfeeding, and during that time he would spend time away from the homestead herding cattle or be sexually involved with his other wives until the nursing period was over. It was up to the woman to send a signal to her husband to indicate she was ready to resume sexual intercourse once more. Sending her youngest child to deliver a bowl of porridge to the husband was such a signal. Thus abstinence was normative women until their last-born child was weaned. The result was that the interval between births was of the order of 36 months [5]. If a

woman became pregnant too soon after her last birth, this was frowned upon and she was considered to lack sexual discipline [7].

It is in this general context that this paper examining the current effect of post-partum insusceptibility (PPI) on the life fertility among members of Abagusii women. PPI is major proximate determinant fertility in this community.

Materials and methods

Two methods are commonly used to determine the duration of PPA in a population. The first which is used in this study is a regression equation developed by Bongaarts and [8] as follows: $A=1.753e^{0.1396*A-0.00187*B}$ where: A = Mean or median duration of PPA in months and B = Mean or median duration of breastfeeding in months. In [9] they derived this equation by investigating data from both developed and developing countries to correlate the mean and median lengths of breastfeeding and PPA. They fitted several regression curves to the data and the best fitting curve was provided by the above equation.

The other method is based on the relationship between the lengths of PPA breastfeeding. On average, PPA lasts 60% to 70% of the length of breastfeeding [10]. This study uses the regression equation developed by [3] in determining the duration of PPA in Kisii and Kenya. Before considering a discussion of PPA and breastfeeding associated with the sample of women drawn from Kisii, figures for Kenya as a whole will be given. This serves to create a context for the Kisii findings.

Results and discussion

In Kenya, the PPA duration of women who do not breastfeed are shorter than those who fully or partially breastfeed. For example, [7] indicate that only 20% of women who did not breastfeed were amenorrheic after 12 months. The equivalent figure for breastfeeding women was 20 months. However, the average length of PPA in Kenya in the early I 980s was 19 months Two decades later, the KDI IS (2003:99) indicated that the length of PPA was only 9.7 months - a significant decline. Indications are that this decline is as a result of greater levels of education and higher levels of full-time employment away from home.

Table 1. Amenorrheaic and Breastfeeding Periods for Selected Studies

Study	Amenorrehaic period		Breast feeding Period	
	Mean	Median	Mean	Median
Chogoria (1985)	9.2	8.0	19.8	21.0
KDHS (1989)	10.9	10.9	19.4	19.0
KDHS (1998)	-	8.9	-	-
KDHS (2003)	11.7	9.7	-	-
Kisii (2007)	9.78	8.0	25.5 7	18.0

Source Chogoria (1985); KDHS (1989, 1998, 2003,); Author ('2007,)

The difference in the amenorrheaic period between Kisii data of this study and KDHS was about two months. This implies that after childbirth, Kisii women start being exposed to the risk of conception two months earlier than the average Kenyan woman. Generally, PPI is an important proximate determinant variable in both Kisii and Kenya. For instance according to the KDHS 2008/00, PPI is the most important proximate determinant of fertility in Kenya. In most traditional Kenyan communities women were expected to breastfeed and abstain from sex for long durations.

This practice was emphasized in order to take care of the health of the mother and child. Even if PPI is the most important proximate determinant of fertility in Kenya. its effect is declining. Amongst the Abagusii. PPI used to be the key proximate determinant but its effect has slowed down to the extent that there is need for greater contraceptive use to depress fertility in this region. For example, PPI in Kisii is shorter than of Kenya by 3 months reinforcing the need for increased contraceptive use.

Table 2 shows the duration in months of amenorrhea following child birth by percentage of women from Kisii. From the table below, it is clear that the duration of PPA of the Abagusii is similar to the national average where almost all women are amonorrheaic two months after child-birth. In Kisii 90.3% of women are amenorrheaic after child –birth in the first month, 83.3% after the second month, and 54.4% by the sixth month.

Table 2. Duration in months of amenorrhea following child birth by percentage

Duration (Months)	Number	Percentage
0	4	0.0
1	914	90.3
2	849	83.8
3	798	78.8
4	690	68.0
5	602	59.4
6	551	54.4
7	426	42.0
8	386	38.1
9	287	27.4
10	175	17.2
11	118	11.6
12	97	9.5
15	25	2.5
18	13	1.3
24	8	0.0
Total	1012	100

Source: Compiled from own field work data

The proportion of amcnorrhoeaic women decreases significantly after the ninth month (27.4%), hut there arc extreme cases where some are still anienorrhoeaic even after 1 8 months and beyond. However, this proportion is very small (13%).

As far as breastfeeding is concerned, the data for Kisii can only be compared with the Chogoria study and the KDHS. The mean length of breastfeeding of the Abagusii women is 25.57 months, and as such, is slightly higher than the findings of the comparative studies. From this it is clear that this community breastfeeds for long duration. A detained discussion on breastfeeding in Kisii follows.

The above values imply that the length of breast feeding in this community which is 25.57 was high. It is clear that none of the respondents breastfed for less than 6 months, while only 8.91% breastfed for less than a year. By contrast, 80.3% breastfed their children for up to 2 years. However, the percentage of women who breastfed beyond 24 months, totaled 9.62%. Survey data also revealed that solids were introduced at an average time period of 5.9 months, a length very close to the six month period recommended by health experts [5]. The frequency of breastfeeding is also substantial - an average of 8.47 times during the day and 676 times at night was recorded.

Further probing revealed that 32.4% of the respondents felt that employment interfered with breastfeeding while 67.3% did not (Table 3).

Table 3. The Effect of Employment on Breast feeding

Level of Effect	Percentage	No. of respondents
Some Effect	32.4	384
No effect	67.3	797
N/R	0.3	4
TOTAL	100.0	1185

Source: Compiled from own field work data

Comparing data derived from Table 2 with the KDHS data in Table 1, it is clear that the Abagusii breastfeed for longer than the national average. For example, the KDHS data show that, 95% of the babies in Kenya were breastfed. 01' these, the durations are as follows: over 95% for at least 2-3 months, 80 % for 12 months, and 75% for up to 18 months. Thus, breastfeeding continues to play a key role in fertility regulation among Abagusii women. However, it is worth noting that above figures are sensitive to the methods of estimation used to derive them. In the first instance, some methods assume a linear relationship between breastfeeding and post-partum amenorrhea whereas the relationship changes substantially after the first year of breastfeeding. Secondly, there are dating and reporting errors as well as selectivity biases. Because it is difficult to correct these and also to assess their magnitude, the prevalence method has been suggested by [9] and this is considered more reliable. This method requires data on the number of women breastfeeding at the time of the interview as well as on the number of births in the preceding 12 months. By dividing the number of births in the preceding 12 months by 12, average births per month are obtained. Dividing the number of women who were breastfeeding at the time of the interview by the average number of births per month gives the estimated mean length of breastfeeding. Applying this method to the Kisii data, Chogoria data and the KCPS data respectively, the following mean lengths of breastfeeding were derived: 26 months, 25.89 months and 21.36 months. Substituting the values in the equation $1.753e^{0.139*B-0.001872*B^2}$ gives a length of 19 months for PPA in Kisii, 18.56 months in Chogoria and 14.70 months for the Kenya [2]. These values are unacceptably high partly because of under-reporting of births in the 12

months preceding the survey interviews. Furthermore, there is also a chance of over-reporting of breastfeeding in Kisii and Chogoria, but it is not easy to ascertain this. Because of these difficulties, the mean length of PPA was derived from the length as reported by the respondents 12 months preceding the survey. In the computation of PPA, the mean length was attained from question 92 of the questionnaire where the analysis was restricted to those whose children were less than a year by the day of the survey. This was used to derive the index of C, as follows:

$$C_i = 20 / (18.5 + i_i)$$

Where:

i_i = Average infecundability caused by breastfeeding and post-partum sexual abstinence whichever is larger

Post- partum amenorrhoea = 9.78 months (data from field work)

Post – Partum sexual abstinence = 3.58 months (data from fieldwork)

Therefore $I = 9.78 + 3.58 = 13.36$

$$\begin{aligned} C_i &= 20 / (18.5 + 13.36) \\ &= 20 / 31.86 \\ &= 0.63 \end{aligned}$$

This result indicates that the depressing effect of post-partum in susceptibility on the fertility of the Abagusii women is 24%, the second most significant proximate determinant in depressing the fertility of these women. Its significance is further shown by comparisons with Chogoria in (0.72) and the KCPS of (0705).

Data from recent Demographic and Health Surveys show that the mean length of post-partum abstinence in Kenya has changed little over the last 20 years Every 2.5 months of abstinence prolongs protection against conception by one month [9]. In West Africa where post-partum sexual abstinence is still widely practised, it is justified by the belief that sperm poisons the mother’s breast milk and therefore damages the health of the nursing [2]. More scientifically, its contribution to the mother’s health may also be recognized [3]. Despite the fact that the measure of post-partum sexual abstinence has been downplayed, other studies emphasize its fertility inhibiting effect. For instance, [8] states, that in the modification of his model, post-partum abstinence should be added to the effects of lactation to arrive at post-partum insusceptibility. In this context therefore

post-partum sexual abstinence’s role in influencing the inhibiting effects of post-partum insusceptibility is captured.

The practice of post-partum sexual abstinence in traditional Abagusii society briefly at the beginning of the chapter and highlighted two aspects. First, abstinence lasted for the duration of breastfeeding, and second, men (being in polygamous relationships) satisfied their sexual desires with their other wives. Changes in contemporary Abagusii society have affected these practices, For example, by far the majority of the men are now in monogamous unions. Secondly the HIV and AIDS pandemic makes it difficult for men to indulge in indiscriminate extra-marital sex. The result is that there is considerable pressure on the wives to resume sexual relations during what would be considered the abstinence period with the concomitant risk of pregnancy. At present, the duration of post-partum sexual abstinence in this community is short due to socio-economic changes. Table 4 shows the mean and median lengths of post-partum sexual practices in Kenya and Kisii. From the table, it is noted that mean duration of sexual abstinence in Kisii 2007 was 3.58 months and a median of 2.0 months. The national average for Kenya in 2003 was a mean of 6.9 months and a median of 2.9 months. Thus, the figures for Kisii are lower than that of Kenya as a whole.

Table 4. Duration of Post-partum Sexual Abstinence (Months)

Data Source	Post- partum Abstinence	
	Mean	Median
KDHS (1998)	-	3.1
KDHS (2003)	6.9	2.8
Kisii (2007)	3.58	2.0

Source: KDHS (1998, 2003); Author (2007)

From the Kisii data, it can be seen that almost all women are insusceptible to pregnancy within the first two months following childbirth, but after the second month the contribution of abstinence to insusceptibility is greatly reduced because on average almost all women resume intercourse after the third month after childbirth. Asked why they were abstaining post-partum, 77.5% of the respondents said that it was because they were either too weak or too tender (Table 4,5). Other reasons such as fear of pregnancy seemed far less important. The length of PPI is determined by the duration

of breastfeeding, post-partum abstinence and PPA. In most traditional societies, it is the duration of PPI that played a key role in spacing births and, consequently, in determining the fertility of women of such societies. Table 5

shows measures of the duration (mean and median) of post-partum breastfeeding, PPA, postpartum abstinence and insusceptibility for Kisii data of this study.

Table 5. Duration of Insusceptibility and Underlying Factors, Kenya and Kisii (Months)

Data Sources	Amenorrhoeic		Breastfeeding		Abstaining		Insusceptible	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
KCPS (1984)	-	11.5	14.23	15.0	-	-	-	-
CHOGORIA (1985)	9.2	8.0	19.8	21.0	-	-	-	-
KDHS (1989)	10.9	10.9	19.0	19.0	5.9	-	12.6	11.6
KDHS (1998)	-	8.9	-	-	-	3.1	-	11.1
KDHS (2003)	11.7	9.7	-	-	6.9	2.9	-	11.8
KISII (2007)	9.78	8.0	25.5	18	3.58	2.0	9.79	8.0

Sources: KCPS (1984); Chogoria (1985); KDHS (1989, 1998, 2003); Author (2007).

From the results of Table 5, it is clear that the duration of PPA in Kisii is shorter than that for Kenya by about two months. Generally speaking, women’s insusceptibility after child birth is influenced by the length and intensity of breastfeeding and the length of post-partum sexual abstinence. The table shows that the length of breastfeeding is high in both Kisii and Kenya. This underscores the significance of PPI as a proximate determinant in both Kisii and Kenya.

The mean birth interval of the women respondents in this study was 31.94 months and the median birth interval was 33 months. This implies that the mean and median birth intervals were almost 3 years. Breastfeeding has an impact on the post-partum amenorrhea and thus on the length of birth interval. The mean length of breastfeeding in Kisii is about 2557 months with a median length of 18 months according to the data collected by the author.

Once a woman ceases being amenorrhoeic, she is then at risk of conceiving. Actually, once a woman’s menses resume after childbirth, then her body mechanisms are ready to resume the process of child bearing. This period is referred to as the waiting time to conception. According to the findings of this study, women wait for an average of 22.94 months after giving birth to conceive.

Conclusions

In summary, this paper has discussed PPI as a proximate determinant of fertility among the Abagusii women. It has shown that post-partum insusceptibility has a strong inhibiting effect on

the fertility of its members. It has shown that in the traditional Abagusii society the durations of breastfeeding and post-partum sexual abstinence were long. Using the Bongaarts proximate determinant model the value of the PPI index was determined as 0.63.

Conflicts of Interest

Authors declare no conflict of interest.

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