

Breastfeeding: Its Effect on Birth Interval in Chuuk

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Introduction

The purpose of this paper is to assess and evaluate the role that breastfeeding plays in child-spacing (birth interval) among women in Chuuk (formerly Truk). Prior to specific discussions on the purpose, however, it is best to present an overall picture of demographic conditions in Chuuk and an overview of breastfeeding practices and values of the Chuukese society.

DEMOGRAPHIC HISTORY OF CHUUK

During the 19th century, Chuuk experienced depopulation with the advent of foreigners and their diseases, such as tuberculosis, venereal diseases, polio, and measles. Prior to their advent, Chuuk had a stable population, equilibrated by both high birth rates and high death rates.¹ Extensive inter-island warfare, deterioration of native diets due to imported trade goods, overindulgence in liquor, disturbances of traditional sex and marriage customs, and the practice of abortion and infanticide also encouraged depopulation.² By the end of World War I, Chuuk's population was estimated at 15,000.³

After World War II, Chuuk's population experienced appreciable increases due to public health and medical interventions; quarantine measures; growing immunity to the introduced diseases; lack of birth control measures; banning of abortion and infanticide; and the declining death rates with commensurating high fertility rates.⁴

Today the population of Truk is growing at an annual rate of 3.9%. The gross reproductive rate averages 145 per 1000 women within the child-bearing age of 15-44 years. The median age of the population is approximately 16.4 years. Average number of living children per women is about 8.4. The crude birth and death rates are 28.5 and 4.4 per 1000 population. Given the annual

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growth rate of 3.9%, Chuuk can double its present population in less than 20 years.^{5,6}

The demographic situation in Chuuk presents a very dismal picture of high fertility, lower death rate (low mortality), low socioeconomic status, high rate of natural increase, and a continual young population base (46.7% falls between the age group of 0-14 years). All these factors, plus the recent decline in breastfeeding practices, have compounded the demographic future of the Chuukese society. The synergistic effect(s) and consequences of all these demographic variables of Chuuk will continue to influence the current and future population growth patterns of this particular island.

BREASTFEEDING PRACTICES AND VALUES

By physical nature, breastfeeding is supposed to be a routine, a socially acceptable and necessary activity of all mothers of infants.⁷ Chuuk is no exception to this belief. Chuukese society expects its female members to breastfeed the newly born infants for extended periods of time. Duration depends on several factors: the mother's milk supply, the availability of supplemental baby foods and formulas, the mother's (or child's) health, and another pregnancy. It is a commonly held belief

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among Chuukese mothers that the value of breastfeeding lies only in curbing the infant's hunger and not in any nutritional values of the breast milk per se. A minority of these mothers indicated that if they breast feed for extended periods of time (usually between 12-24 months), their chances of getting pregnant is lower than if they breastfeed for shorter periods. In general, Chuukese mothers fail to realize just how nutritionally important the breast milk actually is for their infants. According to Alan Berg:

"breastfeeding is the traditional and ideal form of infant nutrition, usually capable of meeting the child's nutritional needs for the first four to six months of life. Even after the essential introduction of supplemental foods, human milk can serve as an important continuing source of a child's

nutritional well-being. For most infants in low-income countries prolonged breastfeeding is vitally necessary for growth and survival, as it represents the only easily available source of good quality protein with all the essential amino acids."⁸

Although breastfeeding is being indicated as a birth-spacing method by a very small minority of the Chuukese mothers, its actual practice is, nevertheless, on the decline. The decline in lactation is not uniquely a Chuukese phenomenon. It is occurring all over the world. According to Charles Hirschman:

*"In recent decades there was a substantial decline in the proportion of mothers who have breastfed their children. The decline occurred in most socioeconomic and cultural groups but was greater among poor women, black women, and women with fewer years of education than among other women."*⁹

"... if decreased breastfeeding is not counter-balanced by the use of contraceptives, the result may be a reduction in birth intervals and an unwanted increase in fertility."

The above quotation especially holds truth for the Chuukese society, where the majority of the populace are illiterate, poor, and have a very low level of socioeconomic status. Some factors that contribute to the decline in breastfeeding include:

- a) lack of support available to new mothers due to a breakdown in networks that could traditionally have assured them help, advice and encouragement;
- b) increased participation of women in the labor force;
- c) many hospitals do not encourage breastfeeding since the hospital routine is easier and simpler if infants are bottlefed, and bottles are routinely administered even to breastfed infants, which results in a reduction of suckling by the infants and discourages the breastfeeding mothers;
- d) women sometimes fear that breastfeeding will alter breast shape;
- e) fear of exposure of the breast and consequent embarrassment in public;
- f) free distribution of milk samples and advertisements, sometimes through clinics;
- g) feelings of inadequacy on the part of the mothers; and
- h) bottle feeding has been widely publicized as the more modern method of infant feeding.¹⁰

Physiology of Breastfeeding

The practice of breastfeeding, in general, lengthens the time between pregnancies by delaying the return of ovulation. The underlying mechanism is believed to operate through the anovulatory effect of prolactin and other hormones secreted in response to the infant's suckling.¹¹ The infant's suckling stimulates nerve endings in the nipples which then transmit impulses to the pituitary glands which, in turn, secrete the prolactin hormone. Thus, the intensity and the duration of suckling increase and maintain prolactin concentrations in the bloodstream, which inhibits levels of estrogen and progesterone in the blood. The normal mid-cycle peak of luteinizing hormones prior to ovulation is interrupted, and ovulation stops.¹²

Normally, estrogen and progesterone levels in the blood stimulate the hypothalamic cells to produce luteinizing releasing factors which, in turn, stimulate the anterior pituitary to secrete follicular stimulating hormones and luteinizing hormones. Thus, prolactin interferes with the normal ovulatory processes by blocking the hypothalamic mechanism responsible for the episodic secretion of LH as well as inhibiting the positive feedback of estrogen on LH secretion.¹³

The interaction of prolactin with the ovary and hypothalamus is apparent in the post-partum period. In breastfeeding women the return of the ovulatory cycles and menses is delayed, and fertility is reduced in comparison to women who bottle-feed their infants.¹⁴ Studies on the contraceptive effects of lactation indicate that as much as 50 percent of the females who bottle feed got pregnant within three months while those who breastfeed conceived as late as 18 months.¹⁵ The average completed birth interval afforded by breastfeeding is approximately 30 months for full-lactating mothers and 23.4 months for partial or non-lactating mothers.¹⁶

A decline in median rates of breastfeeding from 20 to 15 months potentially encourages a larger fertility increase, than a decrease from 25 to 20 months. Thus, if decreased breastfeeding is not counter-balanced by the use of contraceptives, the result may be a reduction in birth intervals and an unwanted increase in fertility.¹⁷ Above median intensity and duration of breastfeeding may prevent as many as 20 percent of the births that would occur if there is no lactation at all.

Widespread breastfeeding activities in high fertility societies probably are one factor that prevent birth rates from rising even higher.¹⁸ According to Knodel:

"Substitution of bottlefeeding for breastfeeding in the absence of any practice of birth control would reduce the

average birth interval by 14 percent in a population where nutrition is ample and where breastfeeding extends amenorrhea by a little more than five months on the average. In contrast, in a population where nutrition is marginal and amenorrhea among nursing mothers averages 17 months, the average birth interval would be reduced by 40 percent. Reductions in the average birth interval by these amounts are equivalent to raising fertility by 16 and 60 percent respectively."¹⁹

Intervention Possibilities

Breastfeeding practices in Chuuk have been changing toward an increase in bottle-feeding. As many as 30 percent of all mothers bottle-feed their babies.²⁰ The percentage is expected to increase during the 1980s as bottle-feeding becomes more popular among young mothers and mothers-to-be. Reasons for this growing popularity include the following conditions in Chuuk:

- a) retail stores are making available infant formula and infant foods in larger quantities each year;
- b) present medical practices in the maternity and infant care wards encourage the use and adoption of infant formulas;
- c) Chuukese misconceptions that formula milk is better than breast milk continue to prevail; and
- d) higher socioeconomic status is associated with baby formulas because they require money.

As breastfeeding continues to decline and fertility control measures are not utilized by the Chuukese society, birth rates can be expected to increase.

Several other conditions prevail in Chuuk today which restrict contraceptive use: religious opposition (about 50 percent of the Chuukese people are Roman Catholics), traditional family norms and values of children, reported side-effects of contraceptive methods, inaccessibility of family planning services, and inadequate counseling activities in family planning and health education within local communities. For example, many parents believe that a large number of children provides guaranteed social security (psychological, physical, and financial as well) during parental old age. Thus, the value of children is exceedingly strong.

Only about 1 percent of all Chuukese eligible couples use artificial contraception.²¹ One reason for this low percentage is that rumors about the negative side-effects of certain "pills" and the IUDs have been rampant. A much larger proportion, though unsubstantiated, use the natural birth control methods such as rhythm method, calendar method, billing method, breastfeeding or none at all. Although prolonged breastfeeding is traditionally the norm for every mother, its spacing effect (effect on

birth interval) is largely an unconscious phenomenon. Much of the birth spacing effects are due, in large part, to a combination of post-partum amenorrhea, breastfeeding and sexual abstinence. Under these conditions, breastfeeding may prove to be the "crucial factor limiting fertility"²² in Chuuk.

Any public health and family planning program to encourage continuance of breastfeeding must be targeted at women, 15 to 64 years old. For women 15 to 44 years old, the program must be direct intervention. Topics for educational material should include the following:

- a) values of breastfeeding;
- b) the relationship between breastfeeding and ovulation;
- c) the relationship between lactation and population growth, and
- d) the effects of population growth on the quality of life.

For women, 45 to 64 years old, the program must educate grandmothers to encourage their daughters to breastfeed rather than bottle-feed their infants.

An additional course of action is multi-directional: to legislate infant formula and bottle feeding requirements, to revise in-hospital endorsement of bottle-feeding, to provide in-service training for medical and health person-

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nel in community education of family planning, and to incorporate breastfeeding information in existing family planning programs.

Conclusion

There is absolutely no reason why breastfeeding should be abandoned in Chuuk. Since the beginning of recorded history breastfeeding has assumed a pivotal role in the infant's life. Through the mother's milk the infant receives immunological agents and the simplest, least expensive nutrition that protect it during the first few months of life. Psychological evidence that the physical intimacy of breastfeeding between the mother and the child is an emotional derivation needs to be emphasized as a form of necessary nurturance for emotional growth of children.

It is through this physical bond that the mother and the child experience a satisfying wellbeing.

It is doubtless that breastfeeding has many valuable contributions to both the mother and the child, and thereby reinforcing the stability of the family. On the other hand, in terms of its contraceptive effect, breastfeeding does not offer a very effective birth control method, as compared with modern contraceptives available today. According to Ron H. Gray:

*"the contraceptive protection afforded by breastfeeding is only partial; it diminishes with the longer duration of lactation and with the introduction of supplementary feeds."*²³

In spite of the limited protection afforded by lactation, breast-feeding continues to play a major role in birth spacing (fertility control) in the developing countries where efficient contraceptive use is not being utilized. According to Mary Mederios Kent:

*"in the developing countries where contraception use is low and inefficient, prolonged breastfeeding is responsible for more couple years protection than family planning programs."*²⁴

According to publications from the United Nations:
"lactation amenorrhea provides one-third more protec-

To offset the growing popularity of artificial feeding and to return to breastfeeding in a place like Chuuk, health educators and family planning counselors must stress the nutritional, as well as, the contraceptive value of lactation, as a means of protecting the woman's ability to breastfeed. Studies have indicated that

*"the total-female-years protection against pregnancy provided by breastfeeding in the Third World is quite substantial and may be larger than the amount of contraceptive protection achieved by the Family Planning Programs."*²⁶

This is a recognition of a crucial need in Chuuk.

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"... many parents believe that a large number of children provide guaranteed social security (psychological, physical, and financial as well) during parental old age. Thus, the value of children is exceedingly strong."

*tion than family planning contraceptives. As much as 40 percent live births would have occurred if post-partum amenorrhea were to be eliminated by mothers changing from breastfeeding to artificial feeding without practicing other contraceptive methods."*²⁵

The recent decline in breastfeeding in Chuuk poses a serious problem in terms of health and fertility. As lactational amenorrhea diminishes in conjunction with the abandonment of post-partum sexual abstinence, birth intervals would become shorter and shorter, resulting in an increase in fertility.

This situation is more likely for Chuuk since the majority of its eligible couples do not use any efficient contraception. However, in many developing countries, such as Chuuk, mothers instead choose bottle-feeding for other social and economic priorities, such as status in bottle-feeding or misconceptions about the nature of breastfeeding.

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