

BREAST-FEEDING, POSTPARTUM AMENORRHOEA AND
POSTPARTUM ABSTINENCE IN BANGLADESH

By

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DECLARATION

Except where otherwise indicated, this thesis
is my own work

December, 1984.

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ABSTRACT

This study of breast-feeding, postpartum amenorrhoea and postpartum abstinence is based on two sub sets of data obtained from the 1976 Bangladesh Fertility Survey. The focus of the study is the measurement of the durations of breast-feeding, postpartum amenorrhoea and postpartum abstinence and to examine differentials in the three postpartum variables.

The index of duration of postpartum variables used in this thesis are the median and prevalence incidence mean. Differentials in postpartum variables are examined in terms of selected demographic and socio-economic characteristics of the ever married women and their current/last husband's socio-economic background.

Breast-feeding is universal in Bangladesh. 98 per cent of mothers breast-feed their children at birth. Female children are generally breast-fed for a substantially shorter durations than male children. Differentials in the duration of postpartum variables by place of residence were also discerned. Maternal level of education and parity were found to be inversely related with the durations of breast-feeding and postpartum amenorrhoea.

The results of this study suggest that continued modernization and urbanization would be detrimental to the traditional custom of breast-feeding if action is not taken to prevent further decline.

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CHAPTER 1

Introduction

1.1 Importance of the Study

Breast-milk is highly nutritious. It is the most appropriate fluid to supply, in abundance, those nutrients needed for the main requirement of the newborn human, that is rapid growth in the size and complexity of the brain (Jelliffe, 1976:232). Jelliffe and Jelliffe (1974:557) noted that malnutrition has its greatest effect on physiologically vulnerable groups, especially young children, who make up over ten per cent of the world's population. Even though breast milk has a relatively low protein concentration, it satisfies the demand of the growing infants (Mata, 1978:2059).

Breast milk not only provides the necessary nutritional needs for infants, it also transmits certain antibodies from the mother to her child (Kent, 1981:5). Breast-fed babies are less likely to suffer from rickets and iron deficiency (Ahamed and Khuda, 1984:1). Jelliffe (1976:233) noted that the advantages of breast milk not only include the composition of the milk, but also the method of supply and the protection given to the young offspring appropriate to the perils and needs of the particular species. There is a lower risk of incidence of diarrhoeal disease among babies if weaning is delayed to an older age. Deaths from diarrhoea associated with weaning are markedly reduced if the child is breast-fed for 18 months or more (Ghaffar, 1979:165). Breast milk is protective, due to its composition and its content of immunologic substances, against bacterial infection of the gastro-intestinal tract, allergies, obesity and certain metabolic and

other disorders (Buchanan, 1975:J-49). It acts as a prophylactic against food allergy among infants and represents the only available source of protein of the finest quality containing all the amino acids (Ahamed and Khuda, 1984:1). Mata (1978:2059) claims those that inhibit or destroy intestinal bacteria and viruses are most relevant.

Breast-feeding helps to avoid dental caries caused by children sleeping with bottles in their mouths, it promotes normal facial development, and it improves speech development of the infant (McCann et al. 1981:J-532). Mata (1978:2059) mentions that the breast-fed infant has less trouble meeting his water needs than does the artificially fed baby.

Breast-feeding is highly economical. It does not require any extra money. The economic significance of breast-feeding is very important to developing countries, both at the family and the national levels. Breast milk saves scarce resources otherwise spent on importing enormous quantities of powdered milk formulas. The baby who is breast-fed through the first two years of life receives an average of 375 litres of breast-milk. This would cost each family about US\$ 65 in 1973 a very substantial portion of most family incomes in developing countries (Berg, 1973, cited in Ahamed and Khuda, 1984:2). Rashid (1981, cited in Ahamed and Khuda, 1984:2) estimated that the cost of purchasing powdered milk formulas in Bangladesh amounts to about TK. 36m. per annum (ie roughly US\$ 1.8 m per annum). They noted that in addition, there are other costs involved in the purchase of bottles and nipples, cooking utensils, fuel and medical care. Jelliffe and Jelliffe (1974:558) remarks that in developing countries to purchase an adequate quantity of formula is impossible for the

majority of families, as it requires one-quarter to one third of a worker's income. The cost of artificial feeding is much greater than the cost of the extra calories needed by the mother to secrete the volume of milk required by the infant.

It is also psychologically beneficial to the mother and infant because of an early and increased physical contact. Many doctors suggest putting the infant to the breast immediately after the baby is delivered, as when the infant sucks it causes contraction of the mother's uterus and the expulsion of the placenta. These muscle spasms serve also to close the uterus after delivery, lessening the chance of haemorrhage (Raphael, 1973:83). McCann et al. (1981:J-532) mentioned that for the well-nourished woman, breast-feeding helps to restore a slimmer figure by utilizing body fat accumulated during pregnancy, and by hastening involution of the uterus. Prolonged breast-feeding gives the mother a better chance to recuperate from pregnancy and delivery, and to pay undivided attention to the infant (Lesthaeghe et al. 1981a:7).

Bottle feeding is an urban phenomenon. Wade (1974:46) noted that there is a strong tendency in towns for women to follow the example of a small, westernized elite. But bottle feeding is extremely harmful for the majority of mothers and infants. In Chile during 1969-70, 1712 rural mothers were interviewed to assess the effects of feeding practices on the health of infant, it was found that when bottle feeding commenced before the age of three months the

mortality was three times than that of breast-fed babies (Ebrahim, 1978). Biddulph, (1981:169) says,

"While the educated, affluent section of the community, living under conditions of good hygiene, can bottle-feed their babies reasonably safely, most mothers in developing countries have neither the knowledge, money, time, sanitary conditions, or basic facilities to bottle-feed their babies safely. For many of these mothers the feeding bottle is indeed a baby killer, lack of hygiene and education allow the feeding bottles to become heavily polluted with bacteria causing the baby to have frequent episodes of diarrhoea. In addition, the expense of milk forces the mother to dilute the milk mixture, causing the baby to slowly starve".

Bottle feeding mothers may become pregnant before restoration of their normal strength, which might be harmful for them. Rosa (1976:10-13) noted that the birth rate of Canadian Eskimos in one area increased from 40 to 64 per thousand with the introduction of bottle feeding.

Breast-feeding acts as a natural contraceptive for the mothers. It delays the resumption of menstruation and ovulation up to a certain period after child birth. Rosa mentions (1979:213) that for women who do not breast-feed, the mean duration of postpartum amenorrhoea is three to four months. In Bangladesh (Jones, 1982:20) it was found that on average 29 months breast-feeding added about nine months to the average birth interval, while the use of contraception added less than one month. Rosa (1979:214) estimated 35 million annual couple years of protection associated with breast-feeding in developing countries. In contrast, the number of couples continuing to be protected by contraceptive methods provided by family planning programmes in the same area was calculated to be 27 million (Rosa 1974, cited in Rosa 1979:214). Wade (1974:46) noted that prolonged lactation in a highly fertile community could prevent up to 20 per cent of births.

Different studies have noted that after the birth of a child, the fecundity of breast-feeding mother is lower than that of a non breast-feeding mother (Buchanan, 1975:J-56, Van Ginneken, 1977:41-42). Gray (1981:101-102) noted that at the time of delivery, prolactin concentrations are very high, but in the absence of breast-feeding, serum prolactin declines rapidly to pre-pregnant levels within approximately one week. Suckling of the infant leads to the release of prolactin. This not only plays an important role in milk production, but also inhibits the release of gonadotrophins, which initiate resumption of the menstrual cycle (Tyson et al. 1976, Thomas et al. 1975, cited in Van Ginneken, 1978:179-180, Buchanan, 1975:J-52, Kent, 1981:7).

Postpartum sexual abstinence is also advantageous to both the mother and the baby. It can help to sustain a high level of lactation by preventing the occurrence of a new pregnancy, which would lead to a reduction in milk output (Gray, 1981:107).

1.2 Objectives and Scope of the Study

Breast milk is the best food for infants for the first few months of life, and it also has a significant fertility reducing effect. Modernization and pseudo modernization in developing countries are significantly affecting the prevalence and duration of breast-feeding, especially in urban areas. The urban habit of shorter breast-feeding is gradually eroding the rural custom of prolonged breast-feeding. Natural infant feeding is vulnerable to socio-economic pressure, and this vulnerability constitutes to be a threat to infant nutrition in

poor communities. The high infant morbidity and mortality in Bangladesh is a serious problem (Ghaffar, 1979:165).

There are few studies of breast-feeding, postpartum amenorrhoea and abstinence in Bangladesh. Those that are available are generally based on small samples and are not representative of the whole population.

In view of the importance of breast-feeding in children's nutritional status and its fertility reducing effects, the present study is envisaged with the following major objectives.

(1) To study the prevalence of breast-feeding and the duration of breast-feeding, postpartum amenorrhoea and postpartum abstinence among Bangladeshi women.

(2) To examine the differentials in the three postpartum variables by various demographic and socio-economic characteristics of women and their husbands.

The final aim of the study is to provide family planning and health planners of the country with information on recent breast-feeding, postpartum amenorrhoea and postpartum abstinence, which is basic information for the intensification of family planning programs and the improvement of infant health and nutrition.

1.3 Demographic and Socio-Economic Background of the Population

1.3.1 Geographical Setting

Bangladesh emerged as an independent country in the year 1971. Prior to that date it was part of Pakistan. Bangladesh is bounded on the west, north and east by a long land border with India, continued to the south east by a short land and water border with Burma. To the south is a highly irregular deltaic coast line, fissured by many rivers and streams flowing into the Bay of Bengal (Nyrop et al. 1975:55). The three main seasons in a year of Bangladesh are Winter, Summer and Monsoon. The average maximum and minimum temperatures of Bangladesh are 94° and 69° F respectively (BBS, 1982:82). The climate is warm-temperate to tropical and humid. The principal food crop in Bangladesh is rice, and the major cash crop is Jute.

1.3.2 Population Size and Density

Bangladesh is one of the world's most densely populated countries. The total land area is 55, 598 square miles. The total population at the latest census was 87, 052 thousands (Census, 1981). Its density of 1675 per square mile is only surpassed by Hongkong and Singapore in this region (ESCAP, 1981:19). Average household size in Bangladesh is 5.75 and land area per head is 0.38 acres. The annual growth rate of the population is 2.36 per cent per year (Census, 1981).

The main demographic characteristics responsible for high fertility in Bangladesh are a youthful age structure, early age at marriage for women, the custom of large family size, the desire for

children for old age security, and low levels of literacy in this rural and traditional society (Mosley and Hossain, 1973:10). Miranda (1982:53) mentions that the sort of population growth rates which have become so characteristic of Bangladesh's demographic profile, are in fact, a fairly recent feature which has characterized only a single generation.

The population is not only growing rapidly, but is also very young: the 0-14 year old age group has constituted more than 45 per cent of the total population since the 1960s (Hong, 1980:9). Rapid population growth will continue in the future because of this youthful age structure. Bangladesh also has an unusually high dependency ratio, 83 per cent in 1980 (World Development Report, 1984:194).

1.3.3 Literacy and Education

Education plays a vital role in economic development efforts. Various censuses in Bangladesh have defined the concept of literacy differently, so it is difficult to compare literacy at different points in time. The overall literacy rate in Bangladesh is 20.2 per cent for both sexes: with male literacy 27.6 per cent and female literacy 12.2 per cent (BBS, 1982:84). Thus the great majority of the population is unlettered, with female literacy much less than male literacy.

1.3.4 Religious Communities

Religion plays a vital role in the day to day life of Bangladeshis. The main religious communities are: Muslim (85 per cent), Hindu (13 per cent) and Others (2 per cent). Other includes Buddhists, Christians and some tribal people. Most people believe that natural calamities, such as flood, drought, cyclone and epidemic are due to their non-adherence to religion.

The majority of Muslims believe that God determines the number of children they have and also feel that having and raising children is a sacred responsibility. It is also believed that a baby brings its own food into the world. In a study of 152 village professionals (Maloney et al. 1981:35) it was found that 74.5 per cent of the people have faith that a child does bring its own sustenance. The Hindu concept of fate is more involved with the concept of Karma (one's deeds), and the complex forces of nature or the universe rather than with an omnipresent, personal deity (Maloney et al. 1981:41).

1.3.5 Urbanization

Bangladesh is a predominantly rural country. Considering the size and population of the country there are not many small towns in Bangladesh. About urbanization in Bangladesh, Ahmad (1976) mentions that although in the last 25 years opportunities for employment have grown in urban areas through industrialization, still the dependence on agriculture, limited communications, and the meagre proportions of modern industry have kept people tied to the rural economic base. In 1960 the urban population of Bangladesh was five per cent. It had

increased to only 11 per cent by 1980 (World Development Report, 1981:172).

1.3.6 Birth Rates and Death Rates

The vital registration system in Bangladesh is not accurate, in terms of coverage and adequacy. Birth and death rates in Bangladesh are obtained from nationally representative sample surveys and censuses and from other small sample surveys. However the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B) maintains continuous recording of vital events in its field stations Matlab, Comilla and Teknaf, Chittagong. Though not nationally representative, ICDDR, B data are of high quality in terms of their coverage and accuracy.

The Population of Bangladesh is characterized by a high and relatively constant birth rate, a declining but still high mortality rate, and a very high infant and child mortality rate (Khan, 1981:147). In 1983, the crude birth rate (CBR) in Bangladesh was estimated at 49 births per thousand. In the same year, the crude death rate was 18 per thousand (Anon, 1984:12). More than half of all deaths in Bangladesh occurred in children under the age of 5 years (Hirschhorn and Chen, 1973:6). The infant mortality rate in Bangladesh was estimated in 1977-1978 as 148 per thousand live births (Anon, 1984:12). Except in the neonatal period, and at ages more than forty five, female mortality in Bangladesh is higher than male mortality. D'Souza and Chen (1980:259) reported that during 1974-77 the crude death rate for females was 16.7, whereas the corresponding figure for males was 16.1 per thousand.

1.3.7 Health and Nutrition

The prevalence of illness in Bangladesh is extremely high. This is due to a multiplicity of virulent pathogens, difficult living conditions and impaired host resistance (Hirschhorn and Chen, 1973:3). They mentioned that the three main health problems of Bangladesh were over population, malnutrition and communicable diseases. The health programme in Bangladesh is urban biased. Although the government has accepted the national objective, "Health for all by 2000 A.D.", minimum health care has not yet reached the rural areas. Of 8,500 doctors available in the country, fewer than ten per cent are in the rural areas, and out of 15,485 hospital beds, only 3,800 beds (24.5 per cent) are in the rural areas (Second Five Year Plan, 1980). In its recent report, World Bank mentions that 63 per cent of rural dispensaries have no doctors (World Bank, 1983:104).

The nutritional status of the population of Bangladesh is gradually declining.

"Numerous factors such as poverty, inadequate food supply, inequitable food distribution, low income and low purchasing power, faulty dietary practices owing to lack of knowledge, and infectious diseases due to lack of adequate preventive health care facilities contribute to the prevailing state of malnutrition. Environmental sanitation and potable water supply play an important role in affecting health and nutritional status of the people. Bad housing contributes to the spread of infectious disease like tuberculosis and other air borne respiratory diseases. Large scale morbidity and mortality, often a consequence of the synergistic interplay of malnutrition and infection are invariable consequences of malnourishment (Abdulla, 1979:25-26)".

In comparison with 1962-64, during 1975-76 the average dietary intake in Bangladesh decreased by four per cent and average calorie intake decreased by seven per cent (Nutrition Survey, 1977:196). The most

widespread nutritional problem in Bangladesh is protein deficiency (Rosenberg, 1973:42). The 1977 Bangladesh nutrition survey (1977:198) observed that all boys and girls up to 6 years of age have deficient calorie and protein intake. Similarly, lactating and simultaneously lactating and pregnant mothers are also deficient, both in calorie and protein intake. The nutrition survey (1977:203) had also reported that the degree of malnutrition has been exacerbated by firstly, inadequate primary health services, secondly, lack of sanitation and hygienic conditions in daily life, and thirdly, a general apathy and acceptance of lifestyle.

1.3.8 Family Planning Programme

The family planning programme in Bangladesh began in 1965, but it did not achieve any substantial progress in contraceptive practice among eligible couples. The use of health and family planning facilities is very low. Roughly 42 per cent of the population received services from rural centres in 1977, and eight per cent from urban centres (World Bank, 1983:108). Despite a huge investment in the family planning sector, the demand for family planning is generally low. This is because the user's needs, including referral and follow up care, are not adequately reflected in the service delivery system (Khan, 1981:155). Contraceptive practice is still very low in Bangladesh, with only eleven per cent using an efficient method, and eight per cent using traditional methods (Anon, 1984:12). In Bangladesh the gap between knowledge and practice of family planning is great, although more than 80 per cent of Bangladeshi women of reproductive age know about family planning (Hong, 1980:74).

1.3.9 The Economic Situation of Bangladesh

The economy of Bangladesh is overwhelmingly dominated by agriculture. About 90 per cent of the population depend either directly or indirectly upon agriculture for subsistence (Anon, 1984:12). Agriculture contributes over two-thirds of the gross domestic product (Chen and Choudhury, 1975:201). About 50 per cent of the agricultural farms in Bangladesh are no greater than one hectare, and there is also an intense fragmentation of the farmer's land (Farouk, 1974:36). About half of the rural population (about 90 per cent of the total) is landless (Anon, 1984:12). The production of two major crops, rice and jute, mostly depends on nature. Very often flood, drought, cyclones in collaboration with tidal bores, cause crop damage and lead to famine and economic scarcity.

Under normal environmental conditions Bangladesh's agricultural production lags far behind the rate of population growth. As a consequence, per capita availability of food grain is declining, and the government has to import food grain at the cost of hard earned foreign exchange (ESCAP and Choudhury, 1981:210). The vast majority of the people live in poverty, and a substantial number of them live in severe poverty (Islam, 1974:1). Unemployment problems are acute in both the agricultural and non agricultural sectors. There is not only obvious urban unemployment and a large landless rural labour force, but also under-employment, wide-spread low productivity and under-utilization of labour throughout the economy (Farouk, 1974:2). The present situation in all sectors may have worsened since these observations were made.

1.4 Data Source, Methodology of the BFS and Limitations of the Current Study

1.4.1 Data Source

This study of breast-feeding, postpartum amenorrhoea and postpartum abstinence is based on the primary analysis of two sub-sets of data obtained from the Bangladesh Fertility Survey (BFS) conducted in 1975-76 by the Ministry of Health, Population Control and Family Planning of the Government of Bangladesh in collaboration with the International Statistical Institute (ISI) as a part of the World Fertility Survey program. The methodology of the survey is briefly discussed in section 1.4.2.

1.4.2 Methodology of the BFS

The aims objectives and methodology of the BFS has been discussed in detail in the first country report. Some of the issues such as sample design, sample size, criteria for selection of the eligible respondents are discussed here briefly.

The Sample Design

A three-stage sample design was adopted for both rural and urban strata. The first two stages were area selection and the ultimate stage was household selection. In the first two stages selection was by probability proportional to size (pps) and in the last stage the selection was done with probability inversely proportional to the number of households. This selection procedure made the sample self-weighting within each stratum. A total of 6,145 (unweighted)

households, 4,626 in 160 rural villages and 1,519 in 80 urban blocks were selected. In the rural areas 4,437 (unweighted) households and in the urban areas 1,418 (unweighted) households were successfully interviewed. The distribution of the sample villages/blocks from which the households were selected are shown in Figure 1.1.

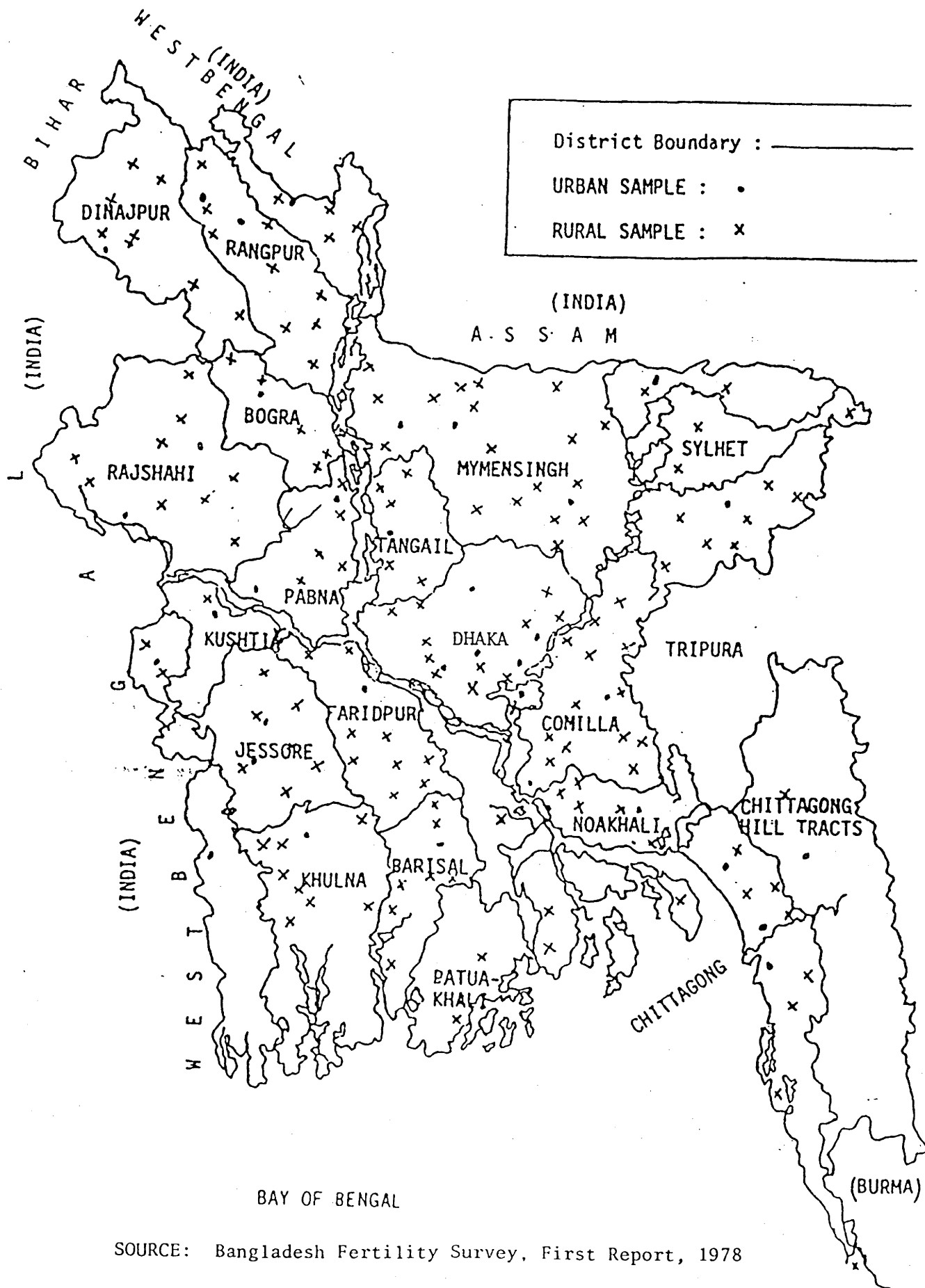
Selection of the Eligible Respondents

After the household interview, ever-married women aged below 50 years who slept in the household on the night preceding the survey were selected as eligible respondents for the individual interview. The individual interview was conducted on a de facto basis. The de facto criterion was preferred in order to avoid selecting usual members who were absent from the households. It was also assumed that the number of visitors would be approximately equal to the number of absentee usual household members. The number of women identified as eligible for interview was 5,123 (unweighted) in rural areas and 1,525 (unweighted) in urban areas. Of those 5,024 rural and 1,489 urban women were successfully interviewed. The rural and urban non-response rate in the individual schedule was 1.9 per cent and 2.4 per cent respectively.

1.4.3 Data obtained for this Study

The question on breast-feeding was asked in the pregnancy history section of the individual questionnaire. Breast-feeding information was sought for the last child and the last but one child. This was to reduce errors due to memory lapse and misunderstanding of questions. In the same section questions on resumption of sex and resumption of

Figure 1.1 Bangladesh Fertility Survey: Scatter of Sample Points



SOURCE: Bangladesh Fertility Survey, First Report, 1978

menstrual period after the birth of the last child were asked. The socio-economic variables related to breast-feeding, postpartum amenorrhoea and postpartum abstinence are taken from the following sections of the BFS questionnaire. Section 1-Respondent's background, Section 4-Knowledge and use of contraceptives, Section 5-Fertility regulation, Section 6-Work history, Section 7-Current (Last) husband's background, Section 9-Assets and expenditure.

1.4.4 Limitations of the Study

Retrospective information collected in any survey in most developing countries is affected by memory lapse and digit preference. Breast-feeding information is collected retrospectively. The event may refer to a period of time which may be difficult to remember.

Information on breast-feeding obtained from the last closed birth interval alone can result in underestimation of breast-feeding length. The age of women, whenever used, is current age (age at the time of survey) and not at the time of birth of the child. It may give rise some errors in the estimation of the duration of breast-feeding by age of mother.

The data on occupation of women refer to the most recent occupation of women since marriage. It may not be the occupation of the women at the time of the births of the children under consideration. It might be possible that the women had given up the occupation before the birth of her penultimate child or her last child. Similarly, women who were working at the time of interview, may have had a different work status when breast-feeding. Consequently, in the present analysis the effect of women's work

status on duration of breast-feeding is treated with caution.

The independent variables which are taken into consideration for analysing the duration of and differentials in postpartum variables are intercorrelated. One variable considered in the analysis of duration of postpartum variables might have been affected by another or by some other independent variable. The findings should therefore be interpreted with caution.

Information on frequency, duration and full or partial breast-feeding is not available, so a detailed analysis of breast-feeding and postpartum amenorrhoea is not possible. Supplementation has a relationship with the duration of postpartum amenorrhoea. No information on supplements to the infant is available from the BFS. Therefore, the relationship between infant supplementation and postpartum amenorrhoea cannot be studied.

Questions on the resumption of the menstrual period and resumption of sexual intercourse were asked for the open birth interval. Postpartum amenorrhoea and postpartum abstinence can continue indefinitely if postpartum amenorrhoea turns out to be amenorrhoea of the menopause and postpartum abstinence into terminal abstinence. Therefore whether postpartum amenorrhoea and postpartum abstinence have ended may not always be clear, especially for older women. In a small number of cases amenorrhoea may also have continued into a subsequent pregnancy which is unreported.

The effect of biological and physiological factors on the duration of postpartum variables is beyond the scope of the present study. Differentials in the duration of postpartum variables by

various demographic and socio-economic variables might also be influenced by biological and physiological factors.

The study does not show any close correspondence between the duration of postpartum amenorrhoea and breast-feeding. It may be due to errors in measurement in either or both of the variables. Further, it may also be due to lack of complete information on breast-feeding and the influence of other relevant but unmeasured variables.

Mother's nutritional status may affect the duration of postpartum amenorrhoea. The present data are not adequate to study the differentials in postpartum variables by nutritional status of mother.

1.4.5 Organisation of the Present Study

There are four more chapters in this thesis. Chapter two presents a review of relevant literature and socio-economic characteristics of the respondents. Chapter three presents the median duration of and differentials in breast-feeding by selected demographic and socio-economic characteristics. Chapter four presents the durations of and differentials in postpartum variables by selected demographic and socio-economic characteristics derived from the prevalence incidence technique and chapter five draws the summary and conclusion.

CHAPTER 2

A REVIEW OF LITERATURE, SOCIO-ECONOMIC CHARACTERISTICS OF
THE RESPONDENTS

2.1 Differences in Duration of Breast-feeding

2.1.1 Age of Woman

Maternal age may be correlated with the duration of breast-feeding. Different studies found a positive relationship between the duration of breast-feeding and the age of the mother, that is the older the mother the longer the lactation period (Thomas, 1977:209; Misra, 1979:37; Bergman and Feinberg, 1980:246; Kamal et al. 1969:315; Jain and Bongaarts, 1980:8, Jain and Sun, 1972-73:81). Jain et al. (1970:264) in another study in Taiwan found that the average period of lactation for Taiwanese mothers increased monotonically with the mother's age, rising from 14 months for women under 25, to 20 months for women over 40. In Brazil (Anderson et al. 1983:212) it was found that the prevalence of breast-feeding was positively correlated with the age of the mothers. In Korea (KIF, 1973:63) it was also found that the average periods of lactation increased significantly with upward changes of age at interview, from 12.2 months for the 20-24 group, to 26 months for the 40-49 age group. An Indian study by Ghosh et al. (1976:828) noted that the modal duration of breast-feeding in mothers younger than 20 years old was seven to twelve months, while for mothers 40 years and older it was less than six months. The study found that the difference in the duration of breast-feeding between

young and old mothers was statistically significant at the five per cent level. Another urban study in India by Prema et al. (1979:1299) did not find any effect of age on the duration of breast-feeding.

2. 1. 2 Number of Children Ever Born

The number of children ever born may have an important bearing on the duration of breast-feeding. Some studies noted that parity was positively related with the duration of breast-feeding (Bergman and Feinberg, 1980:246; Jain and Bongaarts, 1980:8, Jain and Sun, 1972-73:81; Jain et al. 1970:264; Bracher and Santow, 1982:422, Kent, 1981:22, Thomas, 1977:209). kamal et al. (1969:315) found in Egypt that during the first three lactation periods there was no significant difference with respect to weaning age. However, they reported that the fourth and fifth periods were prolonged by an average of 5.2 months, and, beginning with the sixth child, the lactation duration decreased, but remained appreciably higher than that of the first three periods. Some other studies noted that no relationship existed between parity and duration of breast-feeding (Prema et al., 1979:1299; West, 1980:326).

2. 1. 3 Sex of the Child

A few studies have found a relationship between duration of breast-feeding and sex of the child, but the findings are contradictory. Two Indian studies found that on the average male children were breast-fed for a longer period than female children (Saxena, 1977:50, Muthia, 1984:25-32). In contrast, in the Yemen Arab Republic, Goldberg et al. (1983:77) found that young female children

were breast-fed for longer than young male children.

2. 1. 4 Place of Residence

Place of residence is correlated with the duration of breast-feeding. In developing countries urban women usually breast-feed for a shorter duration than rural women. Gradually the urban custom is encroaching on the rural areas. Knodel (1977:1111) mentions

"Prolonged breast-feeding is still usual in rural areas, but improving communication and transportation systems increase the chances that city habits and life-styles, possibly including the shift away from breast-feeding, will penetrate the country side, Even without a change in habits among rural women, however, the substantial migration from rural to urban areas now under way will assure a further reduction in the proportion of mothers in the contemporary Third World who practise extended breast-feeding".

The question naturally arises, why do the urban women breast-feed for a shorter duration? Popkin (1978:470) mentions that in urban areas, jobs may be less compatible with child care, home production may be less valuable, and the greater presence of milk industry advertising and other types of social inducements, may discourage the continuation of breast-feeding. The psychological stress and strain on the urban women is also greater, and the psychological support may be minimal. Jelliffe (1962:27) states that among urban groups, the early cessation of breast-feeding is due to the need for the mother to go out to work all day, and the real or imaginary inadequacy of lactation. Buchanan (1975:J-54-J-55) noted that urban women generally abandon breast-feeding for two reasons: their convenience and their perception of the social acceptability of breast-feeding. Another important reason may be that in developing countries most of the

educated women reside in urban areas and they usually tend to breast-feed for shorter durations.

In Korea (KIF, 1973:63) it was observed that the average duration of lactation decreased to 17.6 months for the women living in Seoul, compared with 22.1 months for women resident in medium sized cities, or 27.7 months for rural women. Some other studies also noted shorter durations of breast-feeding in urban areas (Thomas, 1977:208; Jain and Bongaarts, 1980:9, Misra, 1979:37; Knodel et al., 1982:309-310; Shah, 1980:37; Zurayk, 1981:239; Goldberg et al. 1983:78, Gaisie, 1984:29, Knodel and Lewis, 1983:11).

2. 1. 5 Level of Education of Woman

Different studies in developing countries found that maternal education is negatively related to the duration of breast-feeding (Jain and Bongaarts, 1980:9; Butz and Bavanzo, 1981 cited in Nag, 1983:66; Anderson, et al., 1983:212-213; Thomas, 1977:209; Prema and Philips, 1980:543; Sudarshan et al. 1982:270; Hull, 1983:9; Ojofetimi, 1982:165, Page et al. 1982:34, Gaisie, 1984:30). In Indonesia, Bracher and Santow (1982:421-422) found that at 420 days after delivery, women with at least primary education were 7.7 times more likely to wean their babies than women with no education, and four times more likely to do so than those with incomplete primary schooling. Knodel and Devavalya (1980:364-65) found that for both rural and urban Thai women there was no important difference in breast-feeding between women with less than four years schooling and those who had completed four years. The Thai study also noted that respondents who have more than the basic four years of education

reported distinctly shorter breast-feeding than their less educated counterparts.

In the Philippines Osteria (1978:420) observed that those mothers who acquired a high school or college education breast-fed for much shorter intervals than those with elementary education. In Pakistan Shah (1980:38) found that women with secondary or higher education breast-fed three months shorter than women with only primary education. In a retrospective study among the Hausa women in Nigeria (Rehan and Abasiya, 1981:234) it was observed that women with primary/secondary education breast-fed for 17.9 months, with Arabic education for 18.6 months, and with no education continued breast-feeding for 19.9 months. A study in Israel (Bergman and Feinberg, 1980:246) found positive correlation between breast-feeding and year of education.

2. 1. 6 Use of Contraception

Different studies have tested the hypothesis that mothers currently using contraception breast-feed for a shorter duration than mothers who do not use contraception. In Korea it was found that the average period of lactation was shorter, being 21.4 months for women who had ever used contraception, compared with 24.4 months for women who had not (KIF, 1973:63). Jain and Bongaarts (1980:7) found that the average duration of breast-feeding among those who used contraception was generally lower than among those who did not use contraception in the last closed birth interval. McCann et al. (1981:J-539) mention that in Thailand, Ghana, Lebanon and the Philippines oral contraceptive users breast-feed for several months shorter than women

who used IUD or other contraceptive methods. Among Thai women (Knodel and Devavalya, 1980:375) it was observed that contraceptive users breast-fed for a shorter duration than non-users. The study also reported that women using the pill tended to breast-feed for a shorter period than other contraceptive users. In North Eastern Brazil, Anderson et al. (1983:213) noted a strong negative relationship between current use of contraception and current breast-feeding status. In Indonesia, Bracher and Santow (1982:422) observed that women who had ever used contraception (excluding lactation and abstinence) at some time before the birth of the reference child, tended to wean much sooner than non-contraceptors. But they did not find any significant differential when contraception use was controlled for education.

2. 1. 7 Work Status of Woman

Various studies have tried to establish the relationship between work status and duration of breast-feeding. In India, Ghosh et al. (1976:828) observed that only 60 of the 802 mothers surveyed were working outside the home; and of those more than one third stopped breast-feeding after less than six months, compared to 22 per cent of the non-working mothers. Differences might also exist in the duration of breast-feeding in developing countries for rural and urban working mothers. In developing countries employment of rural women usually includes agricultural labour and cottage industries, which do not take them far from home. But urban employment is usually different from rural employment. Piepmeier and Adkins (1973:511) mention that the conditions of working women in urban areas in developing countries differ from those in rural areas in three main ways: job

opportunities become slightly extended to include domestic and factory work; employment shifts from the category of unpaid to paid workers; and the home is no longer the centre of economic activity.

Rehan and Abasiya (1981:234) did not notice any relationship between duration of breast-feeding and occupation of women among Hausa women of Nigeria. Other studies reported that maternal work status was negatively correlated with duration of breast-feeding (Martiez and Dodd, 1983:168, Langford, 1978:395).

2. 1. 8 Occupation of Husband

The occupation of the husband may influence the duration of breast-feeding, as it is correlated with other demographic and socio-economic variables. It may also have an independent effect on the duration of breast-feeding. Jain and Bongaarts (1980:11), analysing World Fertility Survey data, concluded that the husband's occupation seems to have a consistently independent affect on the breast-feeding behaviour of the women.

2.1.9 Relationship between Breast-feeding and postpartum Amenorrhoea

Different studies have found that there exists a relationship between breast-feeding and postpartum amenorrhoea: the longer the duration of breast-feeding, the longer the period of postpartum amenorrhoea. In the United Arab Republic, Kamal et al. (1969:319) found that the shorter the duration of lactation, the earlier is the resumption of menstruation. In Taiwan, Jain et al. (1970:259) found that breast-feeding made a substantial difference in postpartum amenorrhoea. They observed that women who did not breast-feed resume

menstruation about four months after the birth on average, whereas breast-feeding delayed the resumption of menstruation by about seven months. In another study in Taiwan (Jain and Sun, 1972-73:80) it was found that a very weak association existed between the period of amenorrhoea and the length of lactation, in cases where the length of lactation was less than six months or more than 21 months. However, they found an almost linear relationship if the length of lactation was between six and 21 months. They further noticed that the length of lactation explained about 21 per cent of the variance in the period of amenorrhoea.

In Korea (KIF, 1973:57) it was found that the average period of postpartum amenorrhoea among women who did not breast-feed their children was 7.6 months (median 4.5 months), and the period among the women who weaned before the interview date, was 13.5 months (median 11.1 months). The Korean study (KIF, 1973:65) further observed that on the average, the resumption of menstruation was delayed by about one month by prolonging the period of lactation by four months. In rural Bangladesh, Chen et al. (1974:287) found that women who did not nurse their infants experienced significantly shorter durations of amenorrhoea, with a median length of two months, whereas the median length of amenorrhoea for women with a surviving breast-fed child was about 17 months.

In India, Saxena (1977:48-49) found that the correlation coefficient between lactation and postpartum amenorrhoea was 0.275 in the case of a first birth, and 0.257 in the case of a second birth. Another Indian study (Prema and Philips, 1980:544) also observed that the longer the duration of lactation, the longer was the duration of

lactational amenorrhoea. Other Indian studies have also reported a positive correlation between lactation and postpartum amenorrhoea (Sudarshan et al. 1982:270; Gangadharam et al. 1982:67-68). In Nigeria, Ojofeitimi (1982:164-165) found that the duration and frequency of breast-feeding were positively related to the length of postpartum amenorrhoea.

2.2 Differences in Duration of Postpartum Amenorrhoea

Postpartum amenorrhoea is related to breast-feeding and one might thus expect similar explanatory variables to be important.

2.2.1 Age of Woman

Maternal age has a significant effect on the duration of postpartum amenorrhoea. Different studies found that maternal age was positively correlated with the duration of postpartum amenorrhoea, with older women being amenorrhoeic longer than their younger counterparts (Potter et al., 1965:85; Salber et al. 1966:349-351; Jain et al. 1970:264; Jain and Sun, 1972-73:81, KIF, 1973:63; Prema and Philips, 1980:539).

2.2.2 Number of Children Ever Born

The length of postpartum amenorrhoea may be affected by the number of children ever born. Various studies found that parity was positively related with the duration of postpartum amenorrhoea (Jain and Sun, 1972-73:81, Ojofeitimi, 1982:164-165). Prema and Philips (1980:539) in their research in India, observed that lactational amenorrhoea was of a shorter duration in the primi para. The study

further noted that apparently two interrelated factors, age and parity affected the duration of lactational amenorrhoea. When the effect of age was tested after eliminating the affect of parity, the correlation between age and duration of lactational amenorrhoea was poor. On the other hand when the effect of parity was tested after eliminating the effect of age, there was still a significant correlation.

2.2.3 Place of Residence

Place of residence has a very significant effect on the duration of breast-feeding, so it may also affect the duration of postpartum amenorrhoea. Jain et al. (1970:265) in their Taiwanese study, noted that urban residence was related to shorter periods of amenorrhoea even after adjusting for the effect of age and parity. A Korean study (KIF, 1973:57) found that the average duration of postpartum amenorrhoea among women who weaned their babies was shorter in women residing in Seoul (11.7 months) than the women in medium sized cities (13.3 months) and women in rural areas (15.3 months). The Korean study (KIF, 1973:68) further noted that place of residence has a direct relationship to lactation but not to amenorrhoea, so it affects amenorrhoea mainly by its effects on length of lactation. Some other studies also noted shorter durations of postpartum amenorrhoea in urban areas (Gaisie, 1984:29, Knodel and Lewis, 1983:6-7).

2.2.4 Level of Education of Woman

Different studies have found that maternal education is negatively related with the duration of postpartum amenorrhoea (KIF, 1973:63-68, Sudarshan et al. 1982:270). In Nigeria it was found (Ojofeitimi, 1982:165) that the higher the level of education of the mother, the shorter the length of postpartum amenorrhoea. The study further reported that the number of years the mother spent in school was negatively correlated with the length of postpartum amenorrhoea.

2.2.5 Seasonality in the Resumption of Menstruation in Bangladesh

In rural Bangladesh the period of postpartum amenorrhoea was found to be affected by seasonality. In a longitudinal study in rural Bangladesh, Chen et al. (1974:282) found an unusual peak in the termination of lactation amenorrhoea in the month of November, with a concentration over the next four months. In another longitudinal study in rural Bangladesh Huffman et al. (1978:254) observed that there was a higher probability of resuming menstruation during the months of September to December. In Bangladesh this season corresponds to the largest annual harvest of rice. They mentioned that a nutritional factor may be operating through increased availability of the staple food and also other factors, such as a change in the occupational activities of women related to the harvest, may influence breast-feeding practices at this time. In another study Huffman et al. (1980:342) noted that the duration of postpartum amenorrhoea was about 22 months for February births, and 17 months for September births.

2.3 Differences in Duration of Postpartum Abstinence

Postpartum abstinence is related to breast-feeding. Of the functions that abstinence has, those that are most readily perceived by the individuals concerned, and most frequently cited as reasons for observing abstinence, centre on the maintenance of child health, and particularly on the relationship between breast-feeding and child health (Page et al. 1982:8-9). Therefore, like breast-feeding, similar types of variables might cause variations in the durations of postpartum abstinence.

2.3.1 Age of Woman

In Indonesia, Hull (1975:271-72) found that the period of postpartum abstinence increased with age. Among women who gave birth in the three years previous to the survey, the mean periods of abstinence for the age groups 15-24, 25-34 and 35-44 years were 8.9 months, 10.3 months and 11.6 months respectively, she also noted that after both the first and second births, women currently aged 35-44 had considerably longer mean abstinence periods, and a much larger proportion among them abstained for 18 months and longer. In their study in rural Bangladesh, Ruzicka and Bhatia (1982:411) observed a positive relationship between maternal age and duration of postpartum abstinence for Hindus.

2.3.2 Number of Children Ever Born

The number of children ever born may affect the period of postpartum abstinence. In Ibadan (Santow and Bracher, 1981:208) it was found that young nulliparous women approved of slightly shorter abstinence durations than women who had actually a child, although they had the same pattern of age and education-related differences.

2.3.3 Level of Education of Woman

Different studies tested the hypothesis that educated mothers abstain for a shorter duration than uneducated mothers. In their study of the Yoruba of Nigeria, Caldwell and Caldwell (1977:207) found that the length of the abstinence period was inversely related to education. In Lagos, Nigeria (Lesthaeghe et al. 1981b:155) it was found that women with secondary education abstained for a period of 6.7 months, the duration for uneducated women was 18.7 months.

Another study in Ibadan, Nigeria (Santow and Bracher, 1981:205) found that 70 per cent of the illiterate women aged 15-29, abstained for at least 18 months, but this figure dropped to 44 per cent among those with primary, and to only 25 per cent among those with secondary education. They also noted that in the 30-39 year age group, 76 per cent of the illiterate, but only 50 per cent of those with primary education, and 20 per cent of those with secondary education, abstained more than 18 months. Comparable figures for women aged 40-59 years were 85, 55, and 38 per cent.

2.3.4 Use of Contraception

Mothers using contraception may be less likely to abstain for a longer duration. Caldwell and Caldwell (1981:185) found in Ibadan city, Nigeria, that practically all groups of women practising family planning, had abstinence periods shorter by several months than those who did not. In their study of Ibadan Santow and Bracher (1981:213) also found that the use of contraception was negatively related with the duration of postpartum abstinence.

2.4 Socio-economic Characteristics of the Respondents

Rural Urban Place of Residence

The total number of respondents in the Bangladesh Fertility Survey (BFS) were 6509. For the survey the country was classified into rural and urban. The rural sample consists of 5994 respondents whereas the urban sample consists of 515 respondents, that is, 92.1 per cent of respondents come from rural areas and 7.9 from urban areas (Table 2.1). In addition, information was collected on their childhood place of residence and the childhood place of residence of their husbands. The variable, childhood place of residence, has been selected on the assumption that people who grow up in the countryside may have a different value system, norms and socialization experience from those raised in towns or cities. Therefore breast-feeding behaviour might also differ between them. Again, a large proportion of current urban

residents have a rural childhood background. Whether women currently residing in the urban areas but reared in rural areas differ in their postpartum characteristics from indigenous urban women will also be investigated.

Religion

83 per cent of the respondents were Muslims and the rest non-Muslim. This proportion is very close to the proportion of the population Muslim in the whole country. The non-Muslims are Hindus, Christians, Buddhists and some other people with Hindus being the largest group.

Education

In the individual questionnaire of the BFS, respondents were asked about the highest level of school they and their husbands attained. Of the respondents 18.3 per cent (Table 2.1) had five or fewer years of education and 5.3 per cent had more than five years education. In contrast 23.5 per cent husbands had five or fewer years of education and about 20.7 per cent husbands had more than five years education. More than five years education includes high school, college and university. From Table 2.1 it can be seen that husbands are generally better educated than wives.

Table 2.1 Socio-economic Characteristics of the Respondents (BFS 1976)

Socio-economic Characteristics.	Number	Percentage of Total
Total Respondents	6509	
Current Place of Residence:		
Rural	5994	92.1
Urban	515	7.9
Childhood Place of Wife		
Rural	6234	95.8
Urban	271	4.2
Not Stated	4	.06
Childhood Place of Husband		
Rural	6225	95.6
Urban	215	3.3
Not Stated	69	1.1
Religion:		
Muslim	5404	83.0
Non-Muslim	1103	17.0
Not Stated	2	.03
Education of Wife:		
No Education	4946	76.0
Five or Less	1189	18.3
More than Five	343	5.3
Not Stated	29	0.4
Education of Husband:		
No Education	3510	54.0
Five or Less	1532	23.5
More than Five	1350	20.7
Not Stated	117	1.8
Work Status of Wife:		
Not Working	5634	86.6
Working	827	12.7
Not Stated	48	0.7
Place of Work		
Family Farm, Other Farm		
At Home,	344	5.3
Away from Home	530	8.1
Did not Work	5334	86.6
Occupation of Husband:		
Professional, Clerical, Sales, Services	1237	19.0
Agriculture, Household Skilled-Unskilled Labours	3765	57.8
Not Stated	1365	21.0
Not Stated	141	2.2
Method of Contraception Used in the LCBI:		
Modern Method	102	2.2*
Other Methods	112	2.4*
Non Users	4426	95.4*

Note: The sub totals may not add up to the total because of rounding errors.

* Percentage of the number of women in the Last Closed Interval.

Work Status of the Respondent

In the work history section of the individual questionnaire respondents were asked to report whether they had done any job for cash or kind in addition to their usual household work since marriage. If the reply was affirmative they were asked about the kind of work. The work categories as reported by the respondents were professional, clerical, sales, services, agriculture, household and skilled/unskilled labours. Women who worked sometime after marriage and who were working at the time of the survey were also included in the working category. Very small proportions of women were found to be engaged in the different types of occupations. Because of the small number of women in each working category it is not possible to test the possible effect of various types of occupations on durations of breast-feeding. In this thesis the respondents are divided into two categories, working and non-working. The working category is only 12.7 per cent of the total respondents. It covers all types of work. Though not exact, it might give some idea about the possible effect of work on the breast-feeding behaviour of women.

The respondents were also asked about their place of work since marriage. The places of work as reported are family farm, other farms, at home, away from home. From this variable the effect of working away from home on duration of breast-feeding can be examined, although its impact to a considerable extent depends on when a woman worked and the ages of her children at that time (Ferry and Smith, 1983:19). As only a few women had worked since marriage, this variable has been recoded into two groups, women who worked on the family farm, another farm or at home in one group, and those who worked outside the home in the other group. The first group consists

of 5.3 per cent of the respondents (Table 2.1) and the second group consists of 8.1 per cent of the respondents. The variable place of work since marriage does not coincide with the variable occupation since marriage because of non-stated cases in the latter variable.

Husband's Occupation

The respondent was asked to report the type of work her husband was doing at the time of the interview or before the interview. If the husband was retired or unemployed she was asked to report the latest occupation of her husband. The occupation categories as reported are professional, clerical, sales, agriculture, household, services and skilled/unskilled labours. The skilled/unskilled category consists of craftsman, transport workers, workers and labourers. The unclassified category includes new workers seeking employment, workers with unidentifiable or inadequately described work and those without work. The unclassified category contains only 110 husbands and only 31 are non-working husbands. In this thesis they will not be taken into consideration. Table 2.1 shows that 19 per cent of the husbands worked in professional, clerical, sales and service occupations, 57.8 were employed in agriculture and household work, and 21 per cent were skilled/unskilled labourers.

Method of Contraception Used in the Last Closed Birth Interval

In the fertility regulation section of the BFS questionnaire, any respondent who was not pregnant at the time of interview, married, fecund and who had ever used a contraceptive method and who had two or

more live births at the time of the survey was asked whether at any time during the interval between her last two births she or her husband were using a method to keep her from getting pregnant. If the answer was "Yes" the respondent was asked to report the name of the method they were using in that interval. The methods as reported by the respondents were classified into two groups. Pill, IUD and condom are regarded as "modern methods" and rhythm, withdrawal, douche, abstinence and other methods are classified as "other". Only 102 respondents used modern methods and 112 respondents used other methods in the last closed birth interval.

The size of urban population in Bangladesh is very small compared with the rural population. In order to get a representative sample the Bangladesh fertility survey increased the selection probability fourfold in the urban areas. That is, in urban areas the population was over sampled. To obtain a national estimate of any fertility related measure weighting is necessary to minimize the bias of the estimate. In the present thesis appropriate weight is used for national estimates. Except where otherwise indicated, all the figures presented are weighted. Some detailed data may not add up to the total due to rounding errors. In addition the totals in different tables may vary due to the exclusion of "not stated" cases.

CHAPTER 3

DURATION OF BREAST-FEEDING IN THE LAST CLOSED BIRTH INTERVAL

3.1 Introduction

In this Chapter the duration of breast-feeding in the last closed birth interval will be studied. An attempt will be made to show whether the duration of breast-feeding varies with different demographic and socio-economic characteristics of the respondents and households. The demographic and socio-economic variables which will be considered are: (a) Current age of the respondent, (b) Number of children ever born, (c) Sex of the penultimate child, (d) Place of Residence, (e) Level of Education of the Respondent, (f) Method of Contraception used in the last closed birth interval, (g) Work status of the respondent, (h) Occupation of the husband. As it is difficult to disentangle the effects of demographic variables from those of socio-economic variables, both types of variables will be considered together.

In the Bangladesh Fertility Survey (BFS) the questions on breast-feeding were asked as core questions in the individual questionnaire. The questions on breast-feeding were limited to the last and the last but one, child (See Appendix-C) : that is for the last closed birth interval (the period between the birth of the last but one child, and the last child) and the last open birth interval (the period between the last live birth and interview.)

All analysis in this chapter will be based on information from the last closed birth interval. Generally speaking, only women with at least two children can therefore contribute information on breast-feeding in the last closed birth interval. (Although breast-feeding is related to the durations of postpartum amenorrhoea and postpartum abstinence, no questions on postpartum amenorrhoea and postpartum abstinence were asked for the last closed birth interval.) The World Fertility Survey (WFS) defines the duration of breast-feeding for the last closed birth interval as the length of breast-feeding of the next to last child for women not currently pregnant, and of the last child for women currently pregnant. Information on breast-feeding for children surviving to weaning is obtained from the extra standard recode variable of the Bangladesh Fertility Survey. Ferry, (1981:10), analysing the WFS data, observes that the inclusion of currently pregnant women does not affect to any meaningful extent the results in the closed interval, as the mean length of breast-feeding varies by only one per cent with the inclusion or exclusion of these women. Shah (1980:13) observes that the WFS definition of last closed birth interval yields results very similar to those obtained using the definition that considers the length of breast-feeding of the next to last child, irrespective of the pregnancy status of the women. He found identical median durations of breast-feeding for both definitions. In the analysis of data in this chapter the WFS definition of closed birth interval will be used, on the assumption that the pregnancy status of women will have an insignificant effect on the median duration of breast-feeding.

Different indices can be used to measure the length of breast-feeding. Among others these include the mean and the median. In this case, the mean as an index of breast-feeding is not as meaningful as the median, because the mean will be affected substantially by the longest and shortest durations of breast-feeding of some women. Therefore, to measure the duration of breast-feeding the median is used.

3.2 Prevalence and Duration of Breast-feeding

Breast-feeding is virtually universal in Bangladesh. 98 per cent of mothers breast-fed their penultimate children from birth. In rural Bangladesh only two per cent of children are not breast-fed from birth, whereas in the urban areas three per cent of children are not breast-fed from birth. No difference in the initiation of breast-feeding is observed when only the children surviving to weaning are considered in comparison with all children.

Prolonged breast-feeding in rural Bangladesh is in accordance with social custom and religious belief. Islam is the religion for 83 per cent of the people. They abide by the doctrine of Islam, and in the Koran there are explicit references to a period of breast-feeding for two years. The mean and median durations of breast-feeding in Bangladesh for all children are 22.2 and 23.8 months respectively. When child mortality is taken into consideration, that is if only the children surviving to weaning are considered, the mean and median durations of breast-feeding rise to 24.4 and 24.0 months respectively.

Figure 3.1 shows the distribution in single months of the durations of breast-feeding in the last closed birth interval of ever married women. The durations of breast-feeding are highly concentrated on multiples of six months, with a mode of 24 months in accordance with the Koranic injunction. Nevertheless, it is difficult to establish whether the duration 24 months is exactly 24 months, or less than or more than 24 months. Some women would have breast-fed their children many years ago, and might not remember the exact duration, but because of social custom or religious belief they might respond that they breast-fed for two years.

Figure 3.2 depicts the distribution in six month intervals of the durations of breast-feeding in the last closed birth interval of ever married women for all children and for children surviving to weaning. It is seen that 6.1 per cent of mothers breast-fed their children for four to nine months when all children are considered, but when only children surviving to weaning are considered, only 3.8 per cent mothers breast-fed for a duration of four to nine months. This indicates that a large proportion of cases of very short breast-feeding durations were caused by the infant's death, rather than weaning as such.

3.3 Duration of Breast-feeding by Different Demographic and Socio-Economic Characteristics

Different studies at home and abroad have found that the duration of breast-feeding varies with different demographic and socio-economic characteristics of the households. In the following paragraphs the effect of different demographic and socio-economic factors on the

Figure 3.1 Percentage distribution in single months of the duration of breast - feeding in the last closed birth interval of ever married women.

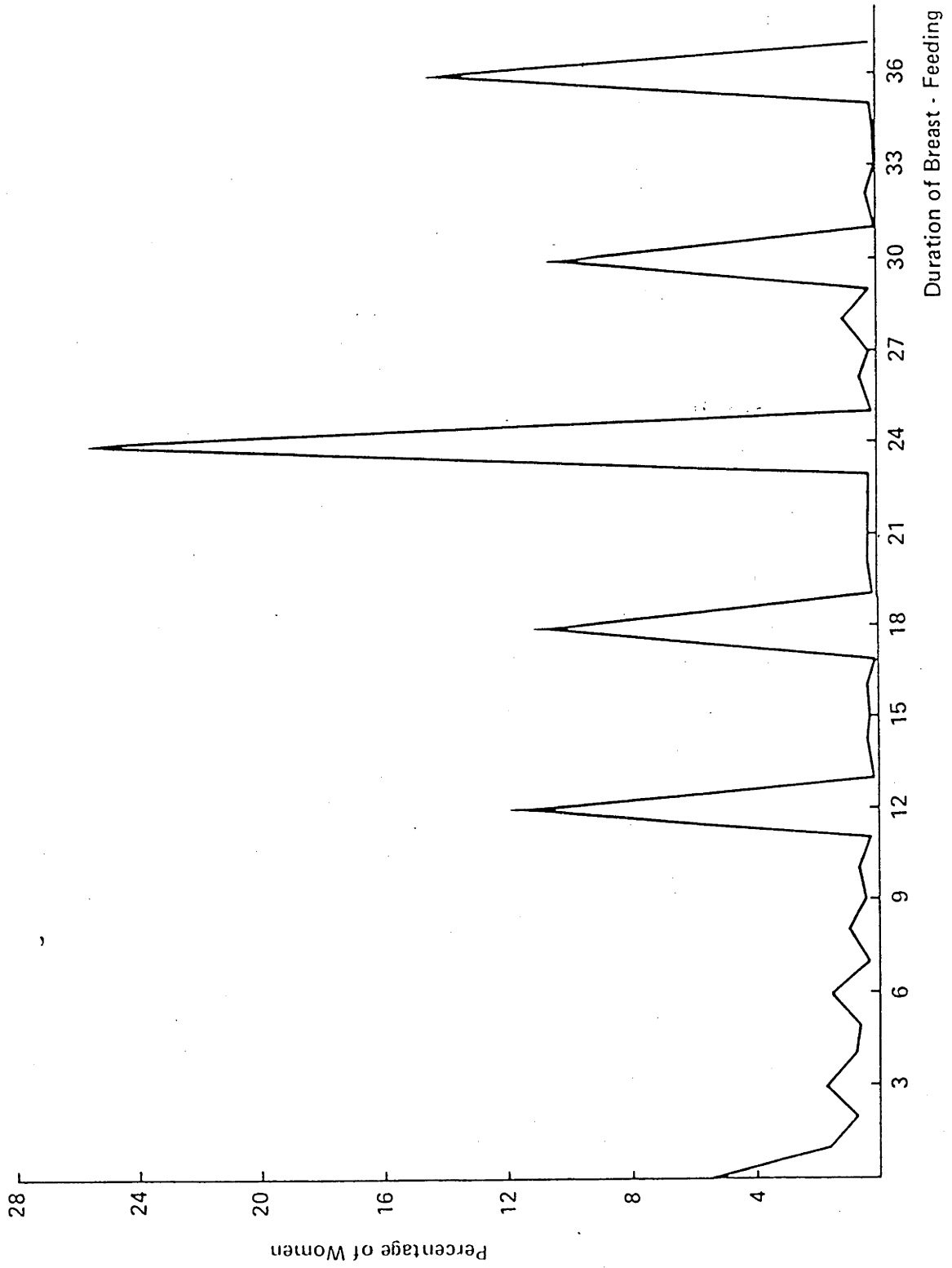
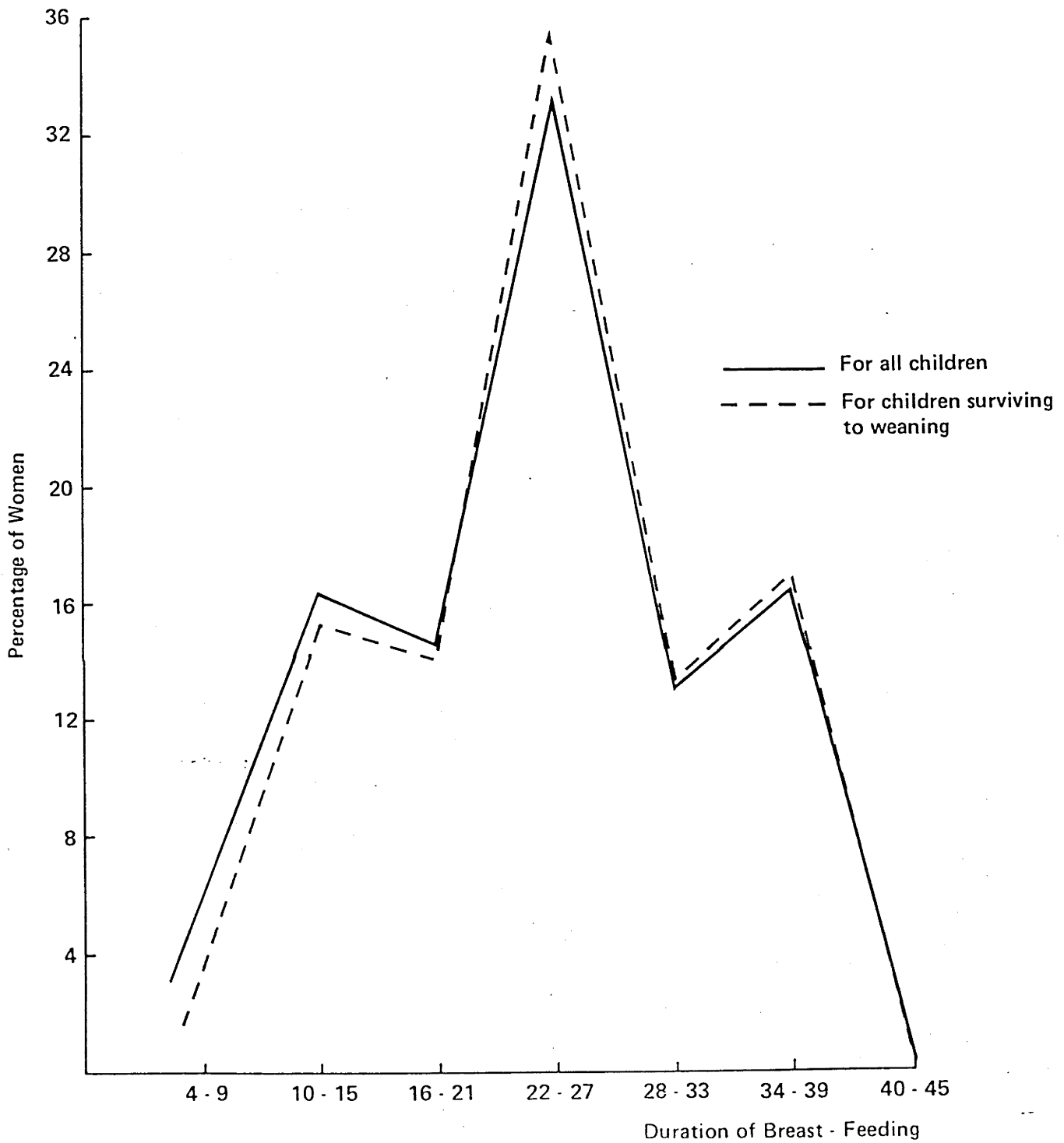


Figure 3.2 Percentage distribution in six month intervals of the durations of breast - feeding in the last closed birth interval of ever married women.



duration of breast-feeding will be examined.

It is worthwhile to note here that information on breast-feeding has been obtained from World Fertility Survey standard recode variables and an extra country-specific variable relating to whether the duration of breast-feeding was reported as "until child died". Women with one live birth and a current pregnancy have no value on the country-specific variable. For pregnant women in general, it recodes the months that the second to last live birth was breast-fed, while the standard variable recodes the months that the last birth was breast-fed.

3.3.1 Current Age of the Respondent

In developing countries it is usually believed that the mother's age has a positive relationship with the duration of breast-feeding. The older the mother the longer would be the duration of breast-feeding. Table 3.1 shows the mean and the median durations of breast-feeding by current age of women. It shows that the median duration rises from 18 months at ages less than 20, to 24.0 months at older ages, and remains virtually constant from ages 20 to 49. In rural Bangladesh, Khuda and Choudhury (1982:5) observed that the mean duration of breast-feeding rises with the age of mother and finally falls at 40 years of age. In the Philippines, Go (1983:52) found that the total and full breast-feeding durations increased with increasing age of the women. In a prospective study in India Muthiah (1984:22) also found that older women breast-fed for significantly longer durations than younger women. From Table 3.1 the only marked differential in the median duration of breast-feeding is thus seen between ages less than 20 and

more than 20.

Table 3.1 Mean and Median Durations of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Current Age

Age Group	Duration in Months	
	Mean	Median
15 - 19	18.2	18.1 (275)
20 - 24	21.1	23.7 (963)
25 - 29	22.2	23.8 (1024)
30 - 34	22.8	23.8 (732)
35 - 29	23.3	24.0 (636)
40 - 44	22.8	24.0 (571)
45 - 49	23.3	24.0 (439)
ALL	22.2	23.8 (4640)

Source: BFS Tape 1976.

Table 3.2 Mean and Median Durations of Breast-feeding in the Last Closed Birth Interval of Children Surviving to Weaning for Ever Married Women Aged 15-49, by Current Age

Age Group	Duration in Months	
	Mean	Median
15 - 19	21.6	23.6 (156)
20 - 24	23.5	23.9 (802)
25 - 29	24.1	24.0 (880)
30 - 34	24.4	24.0 (640)
35 - 39	25.5	24.1 (550)
40 - 44	25.0	24.1 (497)
45 - 49	25.5	24.1 (380)
ALL	24.4	24.0 (3903)

Source: BFS Tape 1976.

Nortman (1974:37) observed a degree of excess risk of neonatal and infant mortality among offspring of teenage mothers compared with that among offspring of mothers in their twenties. She found that at birth order one, neonatal and infant deaths are over 25 per cent higher for babies of teenagers than for babies of mothers in their twenties. The

high infant mortality for young mothers in Bangladesh may have shortened the duration of breast-feeding and created the differential observed in Table 3.1. Indeed, this difference in the duration of breast-feeding is lessened when only children surviving to weaning are considered (Table 3.2).

3.3.2 Number of Children Ever born

The number of children ever born to a mother may be correlated with the duration of breast-feeding. Table 3.3 represents the median duration of breast-feeding by current age and number of children ever born. There is no pronounced variation in the median duration of breast-feeding from parity one to nine, but for parity ten and above the median duration of breast-feeding drops from 23.7 to 18.1 months. In the Philippines, Go (1983:47) found a positive relationship between the duration of breast-feeding and parity up to six children. After that she found constant relationship. In Indonesia, Singarimbun and Manning (1976:176) noted little variation in the duration of breast-feeding for successive births, observing that mean durations for the first to eighth child varied between 26.8 and 25.4 months. The Table also shows that the median duration of breast-feeding of mothers of age group 20-24 with four to five children, is about five months shorter than that of mothers with less than four children of the same age group. It is seen that within each age group, mothers with higher parities tend to have shorter durations of breast-feeding.

Table 3.3 Median Duration of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Current Age and Number of Children Ever Born

Age Group	Children Ever born				
	Median				
	1-3	4-5	6-7	8-9	10+
15 - 19	18.2 (265)	*	-	-	-
20 - 24	23.9 (679)	18.2 (265)	*	-	-
25 - 29	24.1 (300)	23.9 (466)	18.4 (217)	17.7 (38)	*
30 - 34	24.2 (87)	24.0 (230)	23.9 (265)	21.8 (128)	17.6 (22)
35 - 39	24.0 (46)	24.2 (114)	24.3 (224)	23.8 (168)	17.8 (85)
40 - 44	24.2 (50)	23.8 (82)	24.2 (160)	23.8 (177)	18.4 (101)
45 - 49	24.4 (45)	29.5 (67)	23.9 (133)	23.9 (99)	23.5 (96)
ALL(4641)	23.9 (1473)	23.8 (1234)	23.9 (1017)	23.7 (610)	18.1 (307)

Source: BFS Tape 1976.

* Fewer than 20 cases.

For example, in the age group 30-34, mothers with ten or more children breast-fed for a median duration of 17.6 months, whereas mothers with 8-9 children breast-fed for a median duration of 21.8 months and mothers with 6-7 children breast-fed for a median duration of 23.9 months. Similarly in the age group 35-39, mothers with ten or more children breast-fed for a median duration of 17.8 months, on the other hand mothers with 8-9 children breast-fed for a median duration of 23.8 months and mothers with 6-7 children breast-fed for a median duration of 24.3 months. A weak declining trend in the median duration of breast-feeding among mothers of age group 25-29, 30-34 after parity one to three can also be seen from the Table. In a natural fertility population women of very high parity could not have breast-fed for very long periods or they would not have achieved that parity. This trend disappears when attention is restricted to children who survived to weaning (Table 3.4).

Table 3.4 Median Duration of Breast-feeding in the Last Closed Birth Interval of Children Surviving to Weaning for Ever Married Women Aged 15-49, by Current Age and Number of Children Ever Born

Age Group	Children surviving to weaning				
	Median				
	2-3	4-5	6-7	8-9	10+
15 - 19	23.6 (150)	*	-	-	-
20 - 24	24.0 (573)	23.6 (217)	*	-	-
25 - 29	24.3 (258)	24.0 (407)	23.6 (185)	17.9 (29)	-
30 - 34	24.4 (79)	24.0 (209)	24.0 (227)	23.6 (106)	*
35 - 39	29.6 (40)	24.4 (104)	24.3 (208)	23.9 (140)	23.6 (58)
40 - 44	24.5 (42)	23.9 (71)	24.4 (143)	23.9 (156)	23.7 (85)
45 - 49	32.2 (35)	29.9 (58)	24.0 (118)	24.0 (89)	23.7 (80)
ALL(3903)	24.1 (1177)	24.0 (1071)	24.0 (892)	23.8 (521)	23.6 (242)

Source: BFS Tape 1976.

* Fewer than 20 cases.

The only marked difference in the median duration of breast-feeding is observed between mothers of age group 25-29 with six to seven and eight to nine children. In this age group the median duration of breast-feeding is about five months shorter for mothers with eight to nine children than for mothers with six to seven children. The Table also shows that women of age group 45-49 with four to five children breast-fed their children about 2.3 months shorter median duration than women with two to three children. A comparison of Table 3.3 and Table 3.4 therefore indicates that most of the differentials in the former Table are related to infant and child mortality, since children who die young are obviously breast-fed for shorter periods than those who survive.

3.3.3 Sex of the Penultimate Child

In developing countries most parents depend on their sons for old age security. In this context it is to be expected that male children would be breast-fed for longer durations than female children. The data do not show any sex differences in the median duration of breast-feeding (See Appendix A). A median duration of 23.8 months is found for male and female when all children are considered. A median duration of 24.0 months is found when only children surviving to weaning are considered.

3.3.4 Place of Residence

Urbanization is an important factor influencing the prevalence and duration of breast-feeding in developing countries. In the urban areas artificial infant feeding formulae are readily available. Most of the urban women in the developing countries think that breast-feeding is a traditional habit that is bad for their own health and beauty, and may also spoil their figures. One urban study (Ghaffar, 1979:169) conducted in two districts of Bangladesh, Dhaka and Khulna, found that the main reason for disliking the practice of breast-feeding was the mother's figure consciousness. The study also observed that 42.4 per cent women in metropolitan Dhaka and 44.8 per cent in urban Khulna considered the practice as disgusting and immodest.

In this context one can hypothesize that urban women would breast-feed for a shorter duration than rural women. Table 3.5 shows the mean and the median durations of breast-feeding by current and childhood place of residence of women. The median duration of

breast-feeding of those women who are currently residing in rural areas, but who grew up in urban areas, is as long as for indigenous rural women. This might be because women reared in urban areas have completely adjusted to the rural way of living where prolonged breast-feeding is a social norm.

Table 3.5 Mean and Median Durations of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Current and Childhood Place of Residence (For All Children and For Children Surviving to Weaning)

Place of Residence	Duration of Breast-feeding			
	All Children		Surviving Children	
	Mean	Median	Mean	Median
Currently Rural				
(a) Grew up in Rural	22.4	23.8 (4193)	24.7	24.0 (3519)
(b) Grew up in Urban	20.8	23.7 (75)	24.0	23.9 (60)
Currently Urban				
(a) Grew up in Rural	20.5	23.5 (254)	22.1	23.8 (220)
(b) Grew up in Urban	18.0	17.9 (114)	18.7	18.0 (102)
Current Residence				
Rural	22.4	23.8 (4272)	24.7	24.0 (3581)
Urban	19.7	18.4 (368)	21.0	23.6 (322)
Childhood Residence				
Rural	22.3	23.8 (4447)	24.6	24.0 (3738)
Urban	19.1	18.3 (189)	20.7	23.5 (162)
ALL	22.2	23.8 (4640)	24.4	24.0 (3903)

Source: BFS Tape 1976.

The median duration of breast-feeding of urban women reared in urban areas is about 5.6 months shorter than urban women reared in rural areas. In Thailand Knodel and Debavalya (1980:362-371) found that indigenous urban women breast-fed for a shorter duration than rural reared urban women. The Thai study also confirmed that previous urban residence and frequent visits to major urban centres were both associated with less breast-feeding. When current urban residence is taken into consideration, it is seen (Table 3.5) that the median

duration of breast-feeding of urban women is about five months shorter than for rural women. Go (1983:54) found that the duration of breast-feeding was significantly shorter among urban than among rural dwellers. She observed that the median duration of breast-feeding among all breast-feeding women in rural areas, was twice that of breast-feeding women in Metro Manila, a striking difference of 9.2 months. By analysing the WFS data for 29 countries, Ferry and Smith (1983:22) also found that for nearly every country urban women breast-fed their children for a shorter duration than rural women. When the childhood place of residence of women is considered, Table 3.5 also shows that the median duration of breast-feeding for women with an urban background is about five months shorter than for women with a rural background. It is seen that the rural-urban differential in the median duration of breast-feeding reduces when only children who survived to weaning are considered. Table 3.6 represents the median duration of breast-feeding by current age and current place of residence of women.

Table 3.6 Median Duration of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Current Age and Current Place of Residence

Age Group	Place of Residence	
	Rural	Urban
15 - 19	18.2 (250)	12.3 (26)
20 - 24	23.7 (882)	18.2 (81)
25 - 29	23.8 (944)	18.5 (79)
30 - 34	23.9 (671)	22.0 (61)
35 - 39	24.0 (587)	23.7 (49)
40 - 44	23.9 (530)	23.7 (41)
45 - 49	23.9 (407)	18.4 (32)
ALL (4640)	23.8 (4272)	18.4 (368)

Source: BFS Tape 1976.

It is seen that for almost all ages of mothers the median durations of breast-feeding in urban areas are shorter than in rural areas. Urban mothers of age group 15-19 have a median duration of breast-feeding about six months shorter than rural mothers. Similarly the median duration of breast-feeding of urban mothers of age group 20-24 is about five months shorter than that of rural mothers. Again urban mothers of age group 25-29 have a five months shorter median duration of breast-feeding than the rural mothers. When children surviving to weaning are considered (Table 3.7) differences are markedly narrowed though all mothers currently residing in urban areas breast-feed their children for a shorter median duration than their rural counterparts.

Table 3.7 Median Duration of Breast-feeding in the Last Closed Birth Interval of Children Surviving to Weaning for Ever Married Women Aged 15-49, by Current Age and Current Place of Residence

Age Group	Place of Residence	
	Median	
	Rural	Urban
15 - 19	23.6 (142)	*
20 - 24	23.9 (731)	23.5 (71)
25 - 29	24.0 (806)	23.6 (74)
30 - 34	24.0 (583)	21.5 (57)
35 - 39	24.2 (506)	23.7 (43)
40 - 44	24.1 (462)	23.8 (35)
45 - 49	24.1 (351)	23.6 (29)
ALL (3903)	24.0 (3581)	23.6 (322)

Source: BFS Tape 1976.

* Fewer than 20 cases.

The only marked difference in the median duration of breast-feeding between rural and urban areas is seen (Table 3.7) in the age group

30-34. In this age group the median duration of breast-feeding of urban mothers is about 2.5 months shorter than the rural mothers.

A comparison of Table 3.6 and Table 3.7 shows that most of the differentials in Table 3.6 are related to infant and child mortality, since children who die young are breast-fed for shorter durations than those who survive.

When the effect of place of residence is controlled by the possession of modern objects in the household (motor bicycle, refrigerator, radio, television set, sewing machine etc.), it is found that the median duration of breast-feeding of urban women with at least one modern object, is about six months shorter than the median duration of breast-feeding of rural women with at least one modern object (See Appendix-B). It is also found that the rural urban differential in the median durations of breast-feeding are confined to Muslims (See Appendix-B).

3.3.5 Level of Education of the Respondent

There is a general hypothesis that duration and prevalence of breast-feeding decrease with increasing levels of maternal education. Different studies in developing countries have tested this hypothesis. In the Philippines (Go, 1983:55) it was found that the average duration of breast-feeding varied significantly by two to three months between breast-feeders in different education groups. Table 3.8 shows the median duration of breast-feeding by current age and level of education of women.

Table 3.8 Median Duration of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Current Age and Level of Education

Age Group	Level of Education Median		
	No Education	<=5 years	>5 years
15 - 19	18.1 (200)	20.0 (55)	12.8 (20)
20 - 24	23.7 (674)	23.7 (221)	17.8 (61)
25 - 29	23.8 (780)	23.9 (203)	18.2 (37)
30 - 34	23.9 (592)	23.5 (117)	23.8 (21)
35 - 39	23.9 (527)	24.2 (95)	*
40 - 44	23.9 (482)	24.0 (76)	*
45 - 49	23.9 (374)	24.1 (51)	*
ALL (4622)	23.8 (3628)	23.8 (819)	18.1 (175)

Source: BFS Tape 1976.

* Fewer than 20 cases.

It is seen that the median duration of breast-feeding of mothers with more than five years education is about five months shorter than the median duration of breast-feeding of mothers with five or fewer years of education and mothers with no education. Ferry and Smith (1983:23) found that mothers with four to six years education breast-fed three months shorter than mothers with one to three years education. In India, Ghosh et al. (1976:828) found that the mean duration of breast-feeding was 15.7, 13.7, 10.8 and 8.9 months for the "illiterate, undermatric, matriculate and graduate" mothers respectively. In rural Bangladesh, Khuda and Choudhury (1982:5) observed that among mothers who had been to school, the duration of breast-feeding was negatively associated with their educational levels. The major difference in the median duration of breast-feeding is seen (Table 3.8) between women with five or fewer years of education, and women with more than five years education. The difference between the two groups decreases with age. For example

women of age group 20-24 with more than five years education, have a median duration of breast-feeding about six months shorter than women with five or fewer years of education, whereas women of age group 25-29, with more than five years education have about five months shorter median duration of breast-feeding than women with five or fewer years of education.

Table 3.9 Median Duration of Breast-feeding in the Last Closed Birth Interval of Children Surviving to Weaning for Ever Married Women Aged 15-49, by Current Age and Level of Education

Age Group	Level of Education		
	Median		
	No Education	<=5 Years	>5 Years
15 - 19	23.6 (112)	23.5 (33)	*
20 - 24	24.0 (561)	23.9 (181)	23.5 (54)
25 - 29	24.0 (657)	24.0 (185)	18.5 (35)
30 - 34	24.0 (511)	23.7 (106)	23.9 (21)
35 - 39	24.1 (456)	24.5 (79)	*
40 - 44	24.1 (415)	24.2 (69)	*
45 - 49	24.1 (325)	24.4 (43)	*
ALL (3887)	24.0 (3037)	24.0 (695)	23.3 (155)

Source: BFS Tape 1976.

* Fewer than 20 cases.

When only children who survive to be weaned are considered, Table 3.9 shows that the median duration is slightly shorter among mothers with more than five years education. In the Table the only marked variation in the median duration of breast-feeding is seen for the age group 25-29. In this age group mothers with five or fewer years education breast-fed for a median duration of 24 months and mothers with more than five years education breast-fed for 18.5 months.

Comparing Table 3.8 and Table 3.9 the only pronounced difference in the median duration of breast-feeding is seen for mothers of age group 15-19 with five or fewer years of education and with no education. This high differential might also be because of high infant mortality.

From Table 3.8 and Table 3.9 it is seen that there is no pronounced variation in the median duration of breast-feeding of mothers with five or fewer years of education and mothers with no education. In the following analysis instead of considering these two categories independently, they will be collapsed into one group as an uneducated category. Table 3.10 shows the median duration of breast-feeding by place of residence and level of education of women.

Table 3.10 Median Duration of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Current and Childhood Place of Residence of Wife and Husband and Level of Education of Wife

Place of Residences.	Level of Education of Wife.	
	Uneducated	Median Educated
Current.		
Rural	23.8 (4141)	19.0 (116)
Urban	23.5 (307)	15.2 (59)
Wife's Childhood.		
Rural	23.8 (4303)	18.5 (128)
Urban	23.6 (141)	12.2 (47)
Husband's Childhood.		
Rural	23.8 (4291)	18.5 (137)
Urban	18.5 (114)	11.8 (37)
ALL(4623)	23.8 (4448)	18.1 (175)

Source: BFS Tape 1976.

When the effect of level of education is controlled the median duration of breast-feeding for an educated mother is 18.1 months, compared with 23.8 months for uneducated mothers. If the childhood residence of women is considered, the median duration (Table 3.10) of

breast-feeding for educated women with an urban background is about eleven months shorter than that of their uneducated counterparts. Educated women whose husbands have an urban background breast-fed for a median duration of 11.8 months. On the other hand uneducated women whose husbands have an urban background breast-fed for a median duration of 18.5 months.

The effect of wife's education might be modified by husband's education, as most of the wives are dependent on their husbands. Table 3.11 shows the median duration of breast-feeding by level of education of husband and level of education of wife.

Table 3.11 Median Duration of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Level of Education of Husband and Level of Education of Wife

Husbands' Level of Education.	Wife's Level of Education	
	Median Uneducated	Median Educated
Uneducated	23.9 (3599)	18.2 (26)
Educated	23.6 (760)	18.1 (149)
ALL(4623)	23.8 (4448)	18.1 (175)

Source: BFS Tape 1976.

The median duration of breast-feeding of educated women with uneducated husbands is about five months shorter than that of uneducated women with uneducated husbands. The Table also reveals that educated women with educated husbands breast-fed for a median duration of 18.1 months, whereas uneducated women with educated husbands breast-fed for a median duration of 23.6 months. From the

above finding it can be concluded that the husband's level of education does not have any significant effect on the duration of breast-feeding.

3.3.6 Method of Contraception Used

Mothers using modern contraceptives might be less likely to breast-feed their children for a longer duration than mothers who do not use modern contraceptives. In the Philippines (Go, 1983:57) it was found that sterilized women and those using the pill, injectable, IUD and other female scientific methods breast-fed the shortest period, but the attrition was heavier among the sterilized women during the few months postpartum. Table 3.12 shows the mean and the median durations of breast-feeding by method of contraception used in the last closed birth interval of women.

Table 3.12 Mean and Median Durations of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Method of Contraception Used in the Last Closed Birth Interval

Method Used	Durations in Months	
	Mean	Median
Modern Methods	21.3	23.6 (102)
Other Methods	25.0	24.0 (112)
No Method	22.1	23.8 (4426)
ALL	22.1	23.8 (4640)

Source: BFS Tape 1976.

It is seen that modern methods (pill, condom, IUD) users breast-fed for a slightly shorter median duration than non users and other method users. This may be because of the side effects of pill, or those women who use modern methods have already attained their desired family size. They may not be sure about the fertility reducing effect of breast-feeding. So instead of breast-feeding for a longer time they may use modern contraceptives. Another interesting finding from Table (3.12) is that the median duration of breast-feeding for other method users is slightly longer than non-users and modern method users.

It is necessary to mention here that the Bangladesh Fertility survey found that only 102 women used modern methods and 112 women used other methods in the last closed birth interval. When they are distributed among different sub groups the cell frequencies become very small. It is thus not meaningful to try to identify further sub group differences.

3.3.7 Work Status of the Respondent

The effect of work status of women on the duration of breast-feeding is a controversial issue. No general conclusions have been reached about the effect of work status of women on duration of breast-feeding. In order to understand the relation between women's work and breast-feeding, an important distinction should be made between work that requires regular, sustained separation of mother and infant, and work that does not (Esterik and Greiner, 1981:185).

Esterik and Greiner (1981:185) mention that the understanding of the impact of women's work on breast-feeding has been obscured by over-generalizations and poorly interpreted data. They say that a careful examination suggests that the importance of work as a cause of decline in breast-feeding has been exaggerated, while insufficient attention has been given to enhancing the compatibility of breast-feeding and work. In Finland, there was no significant difference between the breast-feeding duration of employed and non-employed women at one month (78% at home, 80% employed), three months (29% at home, 32% employed), or six months (8% at home, 7% employed) (Hultin et al. 1976, cited in Esterik and Greiner, 1981:185). In the city of Ibadan, Nigeria, employed mothers were found to be more likely to breast-feed than non-employed mothers, although mixed feeding patterns were also common (Orwell and Murray, 1974:207).

In rural areas of Bangladesh work includes some agricultural activities and cottage industries, whereas urban work includes clerical, factory and professional jobs. In the present analysis it will be hypothesized that mothers who work outside the home breast-feed for a shorter duration than mothers who do not work. Table 3.13 shows the median duration of breast-feeding by work status and current age of women. It can be seen that there is no difference in the median duration of breast-feeding of working and non-working women for all children. The median duration of breast-feeding for non-working women is either slightly longer than or equal to the median duration of breast-feeding for working women. In the age group 30-34, the working women breast-fed for a slightly longer median duration than non-working women.

Table 3.13 Median Duration of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Current Age and Work Status

Age Group	Work Status of Women	
	Non-Working	Working
15 - 19	18.2 (258)	*
20 - 24	23.7 (866)	23.7 (90)
25 - 29	23.8 (872)	23.6 (143)
30 - 34	23.8 (608)	24.0 (120)
35 - 39	24.0 (518)	23.9 (112)
40 - 44	23.9 (473)	23.9 (89)
45 - 49	23.9 (362)	23.8 (74)
ALL (4603)	23.8 (3958)	23.8 (645)

Source: BFS Tape 1976.

* Fewer than 20 cases.

In the Philippines, Go (1983:50) found that the longest duration of breast-feeding was among farm workers. One Indian study (Muthiah, 1984:31) also found that mothers who worked as agricultural labourers breast-fed for longer durations than mothers who were housewives or who worked but not as agricultural labourers. It is pertinent to note here that among working women all types of works are included. This might be because most of the working women of age group 30-34 are in agricultural occupations. By controlling for the effect of place of work by current age of women, it is evident that (Table 3.14) the median duration of breast-feeding for women who work on family farms, other farms and at home is virtually the same as that of mothers who work away from home, or who do not work.

Table 3.14 Median Duration of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Current Age and Place of Work

Age Group	Place of Work of Women Median		
	Not Working	Family Farm Other Farms At Home	Away From Home
15 - 19	18.2 (258)	*	*
20 - 24	23.7 (866)	24.0 (39)	18.2 (58)
25 - 29	23.8 (872)	23.7 (61)	23.6 (90)
30 - 34	23.8 (608)	24.0 (51)	24.0 (73)
35 - 39	24.0 (518)	24.1 (49)	23.9 (69)
40 - 44	23.9 (473)	23.9 (35)	23.9 (63)
45 - 49	23.9 (362)	23.9 (24)	23.7 (53)
ALL (4641)	23.8 (3958)	23.9 (268)	23.8 (415)

Source: BFS Tape 1976.

* Fewer than 20 cases.

The Table also shows that the median duration of breast-feeding of mothers of age group 20-24, who work away from home, is about six months shorter than that of mothers who work on a family farm, another farm or at home. For mothers of age group 25-29, the Table shows a weak declining trend in the median duration of breast-feeding with change of place of work. It can be concluded that except for a particular age group of mothers, place of work does not have any significant effect on the duration of breast-feeding.

3.3.8 Occupation of the Husband

The occupation of the husband is one of the important determinants of the socio-economic status of a family. In some developing countries like Bangladesh, most of the wives are dependent on their husbands. In their day to day life they follow the advice of their husbands. In Bangladesh women infrequently go outside the home for

paid employment. Ahmed (1978:45) noted that the roles of housewife and mother as sanctioned by the society, and the dominance of husbands over the wives in decision-making, prevent them from doing outside work. One can hypothesize that the duration of breast-feeding would be influenced by the occupation of husbands.

The analysis of Bangladesh data shows that white collar occupations of husbands have a weak negative effect on the duration of breast-feeding (See Appendix-B). Ferry and Smith (1983:27) also found very short durations of breast-feeding among the wives of white collar workers.

3.3.9 Summary

Breast-feeding is universal in Bangladesh. 98 per cent of mothers breast-fed their penultimate children from birth. High neonatal and post neonatal mortality in Bangladesh curtail the duration of breast-feeding. The mean and median durations of breast-feeding when all children are considered are 22.2 and 23.8 months respectively. When children surviving to weaning are considered, the mean and median durations of breast-feeding rises to 24.4 and 24.0 months respectively.

Maternal age does not have any significant effect on the duration of breast-feeding. The only pronounced differential in the median duration of breast-feeding exists between mothers of age group less than 20 and more than 20. This is because of high infant mortality for the young mothers. No marked variation in the median duration of breast-feeding is seen among mothers up to parity nine. For parity ten and above the median duration of breast-feeding reduces to 18.1

months. No sex differential in the median duration of breast-feeding was found.

Urban women breast-fed for a reasonably shorter median duration than rural women. The median duration of breast-feeding in urban areas is 18.4 months, whereas in rural areas the median duration is 23.8 months. Urban rural differentials are confined to Muslim women.

If mothers have had five or more years of education this has a significant negative effect on the duration of breast-feeding. The median duration of breast-feeding of mothers with five or more years education is about five months shorter than that of mothers with five or fewer years of education and of mothers with no education. Both in urban and in rural areas education has a negative effect on the duration of breast-feeding. The level of education of the husband does not seem to have any independent effect on the duration of breast-feeding.

Retrospective information collected at the time of interview on postpartum variables may be affected by memory lapse and digit preferences. These might reduce the precision of the estimated durations of postpartum variables. In the next chapter a technique which is not affected by digit preference will be used to estimate the durations of and differentials in postpartum variables. It is expected that the technique will improve the estimated durations of and differentials in postpartum variables.

CHAPTER 4

DURATIONS OF POSTPARTUM VARIABLES (USING THE PREVALENCE INCIDENCE
TECHNIQUE)

4.1 Introduction

Retrospectively reported durations of postpartum variables are subject to bias. Women's recall may not be reliable. Older women might have breast-fed their last children ten or even twenty or more years prior to the interview. They may round off their responses to questions on desired intervals. Kent (1981:11), analysing World Fertility Survey data, observed that women in most developing countries responded that they breast-fed their children for 6, 12, 18 or 24 months even though these probably did not reflect their actual behaviour. Analysing the Bangladesh Fertility Survey data, Ferry (1981:13) observed that 78 per cent of the durations of breast-feeding were for 6, 12, 18, 24, 30 and 36 months. This is illustrated in Figure 3.1. Even though there are some explanations for this, such as cultural preference or norms to breast-feed for 12 or 24 months, it seems unlikely that such a high per centage of women had breast-fed for a duration of exactly six or a multiple of six months. Again, censoring effects might cause bias in the duration of breast-feeding in the last closed birth interval.

This chapter will examine the durations of breast-feeding, postpartum amenorrhoea and postpartum abstinence, using a technique which is less affected by memory lapse and censoring effects and is desirable for studying the duration of and differentials in postpartum variables, namely, the prevalence incidence technique. In order to

get rid of heaping of responses and memory lapse, the status of each woman at the time of interview, that is, whether the woman is still breast-feeding, still abstaining and still in an amenorrhoeic condition, will be taken into consideration in studying the differentials in and duration of the three postpartum variables.

4.2 Methodology

The prevalence incidence technique will be used for measuring the durations of postpartum variables and their sub-group differentials. The method assumes that the number of births per month preceding the survey has been roughly constant. It also assumes stability in postpartum amenorrhoea and postpartum abstinence. If W is the number of births for which the mother is still in the postpartum condition (irrespective of when those births occurred) and K is the average monthly number of births, then the prevalence incidence mean D can be defined as $D=W/K$. The numerator of the technique does not require any information on dates. The denominator requires the date of birth of the children, which can be calculated from births in the year preceding the survey, or from two years, three years or four years preceding the date of interview. Any misreporting of date of birth of children will affect the estimate only if the misreporting transfers births across the boundary of the period chosen (Page et al. 1982:31). It is important to note here that the prevalence incidence mean refers to the children not to the mothers.

Any period which minimizes the telescoping of events can be used. Estimates based on the number of births occurring in the last 12 month showed that there was a tendency to telescope events occurring in the

distant past into the 12 months period. It was also found that a duration of two or three years did not give an adequate number of births for the older women. A period of four years gives sufficient births for the older women. Information on demographic and socio-economic variables which are expected to affect the durations of postpartum variables was collected at the time of the survey. Over a longer period the effect of these variables might have been different. It is assumed that within the four year period there would not have been any major change in these variables. Four years also reduces memory bias and heaping and gives a sufficient number of births.

The prevalence incidence mean is very simple and easy to calculate. The data used in this technique are not affected by digit preference as are retrospectively reported durations for the postpartum variables. It is also rather robust, because it is relatively insensitive to errors in the reported dates of birth for the children (Page, et al. 1982:31). Different studies found that the prevalence incidence method is very consistent with other methods of estimation of the duration of postpartum variables (Page et al. 1982:31, Ferry and Smith, 1983:9).

4.3 Limitations of the Technique

The assumption of a constant flow of births might be incorrect for the youngest and the oldest women, leading to an overestimate of the prevalence incidence mean for the youngest and an underestimate for the oldest women. Again, the assumed stability in postpartum amenorrhoea and postpartum abstinence may not be realistic. The technique does not take into account multiple births for which the

mother is still in a postpartum condition, which might have an effect on the duration of postpartum variables. The use of events in open interval may lead to some overestimates of the durations. However, there is no reason why this bias should be different for different sub-groups. Women with long durations of breast-feeding are more likely to be located in the open interval than the closed interval.

4.4 Duration of Postpartum Variables

The analysis of current status data shows that the mean duration of breast-feeding in Bangladesh is 27.3 months. The mean duration of postpartum amenorrhoea is 16.0 months. Kabir (1981:8) estimated a median duration of postpartum amenorrhoea of 16.5 months for Bangladesh. Chen et al. (1974:287) found that the median length of amenorrhoea for women with a surviving, breast-fed child is about 17 months in rural Bangladesh. The present analysis shows a mean duration of 4.5 months postpartum abstinence. Ruzicka and Bhatia (1982:411) found a mean duration of three months of postpartum abstinence in Bangladesh.

4.5 Durations of Postpartum Variables by Different

Demographic and Socio-economic Characteristics

4.5.1 Current Age of Mother

Table 4.1 shows the mean durations of postpartum variables by current age of mother. Children born to mothers of age group 15-19 are breast-fed for a mean duration of 24.7 months, whereas children born to mothers of age group 45-49 are breast-fed for a mean duration

of 32.5 months. For Pakistan, using the prevalence incidence technique, Page et al. (1982:31) found that children born to women 15-24 years of age were breast-fed about five months shorter on average than children born to women aged 35-49. It is seen that the overall mean duration of breast-feeding increases with age of mother. Table 3.1 (Chapter Three) showed no such relationship between breast-feeding and age of women. Lack of association between breast-feeding and age of women might be attributed to reporting errors in the duration of breast-feeding.

Table 4.1 Mean Durations of Postpartum Variables (in Months) Following Live Births in The Last Four Years by Current Age of Mother

Age Group	Breast-feeding	Postpartum Amenorrhoea	Postpartum Abstinence	Total Births in the 4 Years
15 - 19	24.7	16.7	3.9	854
20 - 24	26.0	15.3	3.3	1523
25 - 29	26.4	14.6	3.6	1222
30 - 34	29.5	16.2	5.1	687
35 - 39	27.8	17.9	7.0	438
40 - 44	28.3	16.6	9.1	217
45 - 49	32.5	28.5	19.5	59
15 - 49	27.2	16.0	4.5	4998

Source: BFS Tape 1976.

The estimated mean duration of postpartum amenorrhoea varies between 14.6 and 28.5 months. It can be observed that postpartum amenorrhoea remains fairly constant with age of women, the only increase is seen in the 45-49 age group and the very big jump is almost certainly due to women who have reached the menopause. In rural Bangladesh Chen et al. (1974:288) found that women aged 29 years or under had a significantly shorter mean duration of postpartum amenorrhoea than their older counterparts (16.4 compared with 23.2 months).

The estimated duration of mean postpartum abstinence ranges from 3.3 months to 19.5 months. A slight increasing trend in the duration of postpartum abstinence with age of women is noticed from the Table. A sudden increase in the duration of postpartum abstinence occurs in the 45-49 age group. This perhaps suggests that women of age group 45-49 are abstaining terminally. In Ghana Gaisie (1984:23-24) found a general trend towards an increase in average duration of abstinence with increasing age. The mean durations ranged from between nine and ten months among births to the relatively younger generations to between 11 and 13 months among births to the oldest cohorts with the mean difference between the two groups being two months. Among the Yoruba women of Nigeria (Orubuloye, 1979:669) it was found that the average duration of postpartum abstinence was about 21 months among women under 25 years of age to about 30 months among those 45 or more years of age.

Women of age group 45-49 have a mean duration of postpartum amenorrhoea of 28.5 months. This might be because most of the women of this age group are in a state of menopausal amenorrhoea. Similarly, the mean duration of postpartum abstinence of women of age group 45-49 is 19.5 months, which is about 15 months longer than the average duration of postpartum abstinence. This might be because most women of this age group are abstaining terminally.

4.5.2 Sex of the Surviving Last Child

In a recent study in rural Bangladesh, Bhuiya (1983:45) observed that more female children are malnourished than males. One of the possible reasons for higher malnourishment among female children might be that they are not breast-fed as long as males. Table 4.2 shows the duration of breast-feeding by sex of the child.

Table 4.2 Mean Duration of Breast-feeding (in months) Following Live Births in the Last Four years by Sex of the Surviving Last Child

Sex	Mean	Total Births in the 4 Years
Male	26.8	2500
Female	21.7	2517

Source:BFS Tape 1976.

It is seen that female children were breast-fed for about five months shorter than male children. In India Muthiah (1984:25-32) also found that male babies were breast-fed for two months longer than female babies. Therefore, the present analysis supports the hypothesis that male children are reared more carefully than female children, in the hope of future or old age security. Table 4.2 shows that a strong sex bias in nursing of children exists in Bangladesh. In the earlier analysis (Chapter Three) no such sex bias in nursing of children was noticed. This might be because the earlier analysis was affected by response and other types of sampling errors.

4.5.3 Number of Children Ever Born

Table 4.3 shows the mean duration of breast-feeding and postpartum amenorrhoea by current age and number of children ever born.

Table 4.3 Mean Durations of Breast-feeding and Postpartum Amenorrhoea (in Months) Following Live Births in the Last Four Years by Number of Children Ever Born and Current Age of Mother

Age Group	Breast-feeding					Total Births in the Last Four Years				
	1-3	4-5	6-7	8-9	10+	1-3	4-5	6-7	8-9	10+
15 - 19	28.1	*	-	-	-	831	-	-	-	-
20 - 24	27.5	23.5	17.1	-	-	1020	460	42	-	-
25 - 29	29.9	26.4	24.7	19.1	*	279	559	311	68	-
30 - 34	33.5	32.8	30.1	26.6	19.7	33	174	268	173	39
35 - 39	*	29.1	33.0	27.6	22.0	-	38	141	141	109
40 - 44	*	*	25.5	33.4	25.5	-	-	49	79	79
45 - 45	*	*	*	*	27.9	-	-	-	-	-
15 - 49	28.1	26.2	27.7	27.2	23.4	2177	1265	816	477	263
PostPartum Amenorrhoea										
15 - 19	16.7	*	-	-	-	831	-	-	-	-
20 - 24	15.3	15.2	16.0	-	-	1020	460	42	-	-
25 - 29	15.3	14.9	14.8	7.8	*	279	559	311	68	-
30 - 34	23.3	14.6	17.2	16.6	8.6	33	174	268	173	39
35 - 39	*	16.4	21.8	17.7	13.7	-	38	141	141	109
40 - 44	*	*	19.6	20.7	9.7	-	-	49	79	79
45 - 49	*	*	*	*	10.8	-	-	-	-	-
15 - 49	16.0	15.3	17.6	16.8	11.5	2177	1265	816	477	263

* Fewer than 20 cases.

Source: BFS Tape 1976.

A major change in the mean duration of breast-feeding of children takes place among children who were born to mothers with ten or more children. Children born to mothers with parity eight to nine were breast-fed for a period of 27.2 months. In contrast, children born to mothers with parity ten or more were breast-fed for 23.4 months. The Table also shows that though not a perfect correlation, breast-feeding tends to decline with increasing parity for mothers of age group

20-34, when age is controlled. A comparison of Table 4.3 and Table 3.3 (Chapter Three) shows that the declining trend in the duration of breast-feeding among women of age groups 25-29 and 30-34 in Table 4.3 is stronger than in Table 3.3. This weak relationship as revealed by Table 3.3 might be due to memory lapse and digit preference.

The same pattern in the duration of postpartum amenorrhoea is observed following births to women after parity eight to nine. In Taiwan, Jain et al. (1970:264) found that the period of amenorrhoea increased monotonically with increasing parity. The present analysis does not show any such monotonic increase or decrease in the duration of postpartum amenorrhoea. The mean duration of postpartum amenorrhoea after births to women with ten or more children is 11.5 months. In contrast the mean durations of postpartum amenorrhoea following births to women with eight to nine children and six to seven children are 16.8 and 17.6 months, respectively. The Table also shows that among women of age group 25-29, the duration of postpartum amenorrhoea declines with parity.

4.5.4 Place of Residence

Table 4.4 demonstrates the mean durations of postpartum variables by current and childhood residence of mothers. Children born to urban reared women who are currently residing in urban areas are breast-fed for about three months shorter than children born to rural reared urban women. It is seen that rural children are breast-fed for a mean duration of 27.6 months, whereas urban children are breast-fed for a duration of 24.0 months.

Table 4.4 Mean Durations of Postpartum variables (in Months)
Following Live Births in The Last Four Years by
Place of Residence of Mother

Place of Residence	Breast-feeding	Postpartum Amenorrhoea	Postpartum Abstinence	Total Births in the 4 Years
Currently Rural				
(a) Grown up in Rural	27.6	16.4	4.6	4492
(b) Grown up in Urban	25.6	13.0	2.6	92
Currently Urban				
(a) Grown up in Rural	25.2	13.8	4.3	282
(b) Grown up in Urban	21.9	8.1	3.5	149
Current Residence				
Rural	27.6	16.3	4.6	4586
Urban	24.0	12.8	4.1	432
Childhood Residence				
Rural	27.5	16.2	4.6	4774
Urban	23.3	11.8	3.2	241

Source: BFS Tape 1976.

In Pakistan (Page et al. 1982:34) it was found that the average duration of breast-feeding of children born to urban women was systematically shorter by 3.5 months. When the childhood residence of mother is taken into consideration, it is found that irrespective of current place of residence, children born to urban reared women are breast-fed about four months shorter than children born to rural reared women. A comparison of Table 4.4 and Table 3.5 (Chapter Three) indicates that the greater differentials in the median durations of breast-feeding in the latter Table are perhaps related to memory lapse and digit preference.

The mean duration of postpartum amenorrhoea of rural reared women who are currently urban residents is 13.8 months. In contrast, the duration of postpartum amenorrhoea of urban reared urban women is 8.1 months only. Rural women experience a 16.3 months duration of postpartum amenorrhoea. Mosley et al. (1977:99) reported that during

1967-71 and 1974-75 the median duration of lactational amenorrhoea in rural Bangladesh extended beyond 18 months in both periods.

The mean duration of postpartum amenorrhoea of urban women is about 3.5 months shorter than rural women. In Thailand Knodel et al. (1982:313) found that the return of menstruation was later for rural than for urban women. Urban reared women also have a shorter (11.8 months) duration of postpartum amenorrhoea than rural reared women (16.2 months). Following births to urban reared rural women abstain two months shorter than following births to rural reared rural women.

Table 4.5 shows the mean durations of breast-feeding and postpartum amenorrhoea by current age and current place of residence of mothers. Children born to rural mothers of all age groups are breast-fed for longer durations than children born to urban mothers of all age groups. Rural urban differentials in the duration of breast-feeding of children born to women of different age groups varies from 0.6 to 4.2 months. The highest rural urban differential in the mean duration of breast-feeding of children is seen among mothers of age group 20-24. Children born to urban mothers of this age group are breast-fed for 4.2 months shorter than children born to rural mothers of this age group. Urban mothers of this age group might be more guided by the western idea of infant rearing than rural mothers. Furthermore, it might be due to the fact that most urban mothers of this age cohort work away from home and their place of work might not be compatible with breast-feeding the children.

Table 4.5 Mean Durations of Breast-feeding and Postpartum Amenorrhoea (in Months) Following Live Births in the Last Four Years by Current Age and Place of Residence of Mother

Age Group	Breast-feeding Mean		Total Births in the 4 Years	
	Rural	Urban	Rural	Urban
15 - 19	28.0	25.3	780	74
20 - 24	26.4	22.2	1378	145
25 - 29	26.7	23.3	1114	107
30 - 34	29.8	26.5	629	58
35 - 39	28.0	27.4	409	28
40 - 44	28.6	*	203	-
45 - 45	32.0	*	54	-
15 - 49	27.5	24.0	4568	430
Postpartum Amenorrhoea				
15 - 19	17.0	14.3	780	74
20 - 24	15.6	12.6	1378	145
25 - 29	14.9	11.7	1114	107
30 - 34	16.8	9.9	629	58
35 - 39	18.3	12.0	409	28
40 - 44	16.6	*	203	-
45 - 49	26.7	*	54	-
15 - 49	16.3	12.6	4568	430

Source: BFS Tape 1976.

* Fewer than 20 Cases.

The rural urban differential in the mean duration of breast-feeding reduces with the increase in age of mothers after 20-24. A comparison of Table 3.6 (Chapter Three) with Table 4.5 shows that the greater differentials in the former Table might be related to misreporting of the duration of breast-feeding.

It is seen that rural women in all age groups experience a longer mean duration of postpartum amenorrhoea, than urban women. The rural urban differential in the mean duration of postpartum amenorrhoea varies from 2.7 months to about seven months. Urban women of age group 30-34 experience the highest differential in postpartum amenorrhoea. This might be because of a smaller number of births to

urban women in this age group. No pronounced differential in the mean duration of postpartum abstinence following births to rural and urban women of different age groups was found.

4.5.5 Level of Education of Mother

Table 4.6 shows the mean durations of breast-feeding and postpartum amenorrhoea by current age and level of education of mother. Children born to mothers with more than five years education are breast-fed for shorter durations than children born to mothers with five or fewer years of education and with no education. In Pakistan (Page et al. 1982:34) a small decline in breast-feeding was noticed as mothers moved from the lowest level to primary education. In India (Muthiah, 1984:34) it was found that mothers with at least five years of schooling breast-fed for only a year while mothers with less than five years of schooling did so for 16 months and illiterate mothers breast-fed for 22 months. Among women with no education children are breast-fed for about 3.7 months longer than children born to women with more than five years education. Children born to mothers of age group 15-19 with five or fewer years of education are breast-fed about 2.8 months longer than children born to mothers of the same age group with no education or with more than five years education. This might be because mothers of this age group with five or fewer years of education are more aware of the impact of breast-feeding on children's health. Again, most of the youngest mothers with this education may live in rural areas, where prolonged breast-feeding still exists.

Table 4.6 Mean Durations of Breast-feeding and Postpartum Amenorrhoea (in Months) Following Live Births in the Last Four Years by Current Age and Level of Education of Mother

Age Group	Breast-feeding Mean			Total Births in the Four Years.		
	No Edu.	<=5 Years	>5 Years	No Edu.	<=5 Years	>5 Years
15 - 19	27.0	29.8	27.0	585	193	73
20 - 24	26.9	24.1	22.9	1049	350	113
25 - 29	27.0	25.1	21.1	918	247	50
30 - 34	30.2	27.0	*	542	130	-
35 - 39	27.4	32.0	*	361	63	-
40 - 44	27.6	30.4	*	179	30	-
45 - 49	32.9	*	*	51	-	-
15 - 49	27.6	26.5	23.9	3684	1020	273
Postpartum amenorrhoea						
15 - 19	16.9	17.2	13.8	585	193	73
20 - 24	17.0	12.6	8.9	1049	350	113
25 - 29	15.4	12.4	11.5	918	247	50
30 - 34	16.9	13.7	*	542	130	-
35 - 39	17.7	22.1	*	361	63	-
40 - 44	18.5	4.8	*	179	30	-
45 - 49	30.1	*	*	51	-	-
15 - 49	16.9	14.0	10.5	3684	1020	273

Source: BFS Tape 1976

* Fewer than 20 Cases

A tendency for women of age groups 20-24, 25-29, 30-34 to breast-feed for shorter periods as their education increase can be observed from Table 4.6. For example, among women in the 25-29 age group with more than five years education children are breast-fed for four months shorter than children born to women with no education. In the same age group women with five or fewer years of education breast-fed their children about two months shorter than women with no education. Various factors might cause this declining trend in breast-feeding. First, these younger mothers may not want to bear children throughout the entire reproductive period. They might want to attain their desired family size as early as possible, so they may

have shorter birth intervals which do not permit them to breast-feed their existing children for longer durations. Second, most educated mothers of these age groups might be urban residents where prolonged breast-feeding is gradually disappearing with modernization and westernization. Third, these educated mothers might be of higher socio-economic status, who can afford to buy infant formula. Finally, a number of mothers of these age cohorts might have occupations which may not be compatible with infant rearing.

Table 4.6 shows a tendency for children born to women of age groups 20-24, 25-29, 30-34 to be breast-fed for shorter durations with changes in the level of education of women, whereas, Table 3.8 (Chapter Three) did not show any such tendency among women with changing levels of education. This lack of correspondence between duration of breast-feeding and level of education of women might be attributed to response errors.

It is seen that the mean duration of amenorrhoea ranges from 10.5 months after births to women with more than five years education to 16.9 months after births to women with no education. In Ghana (Gaisie, 1984:29) it was found that the mean duration of amenorrhoea ranged from ten months after births to women with secondary or more formal education to 15 months after births to women with no schooling. There exists a declining trend in the duration of postpartum amenorrhoea after births to women of age group 20-24, 25-29 with the movement of women from the lowest level to the highest level of education. Shorter durations of breast-feeding might contribute to this declining trend in postpartum amenorrhoea. Women of age group 20-24 with more than five years education have a period of postpartum

amenorrhoea of 8.9 months whereas the same age group of women with five or fewer years of education and with no education have durations of amenorrhoea of 12.6 and 17.0 months, respectively. In the age group 25-29, women with five or fewer years of education have a three months shorter duration of amenorrhoea than women with no education. No marked variation in the mean duration of postpartum abstinence following births to women with different levels of education was found.

Table 4.7 shows the mean durations of breast-feeding and postpartum amenorrhoea by place of residence of parents and level of education of mother. Children born to urban educated mothers are breast-fed for a mean duration of 20.5 months, whereas children born to urban uneducated mothers are breast-fed for a period of 24.7 months. Children of urban reared educated women are breast-fed for a duration of 20.0 months. On the other hand, children of urban reared uneducated women are weaned after 24.9 months. It can also be seen that children of educated women with urban reared husbands have about four months shorter duration of breast-feeding than children of uneducated women with urban reared husbands. Therefore, it seems that mother's education is more influential in determining the duration of breast-feeding than father's childhood place of residence. Again children born to uneducated urban mothers are breast-fed three months shorter than children born to uneducated rural mothers. In contrast, children born to educated urban mothers are breast-fed for about 4.6 months shorter than children born to educated rural mothers.

Table 4.7 Mean Durations of Breast-feeding and Postpartum Amenorrhoea (in Months) Following Live Births in the Last Four Years by Place of Residence of Parents and Level Education of Mother

Place of Residence	Breast-feeding		Total Births in the 4 Years	
	Uneducated	Educated	Uneducated	Educated
Current				
Rural	27.7	25.1	4376	191
Urban	24.7	20.5	348	82
Wife's Childhood.				
Rural	27.6	25.0	4554	202
Urban	24.9	20.0	166	72
Husband's Childhood.				
Rural	27.5	24.7	4551	212
Urban	24.6	20.3	125	59
ALL	27.4	23.9	4724	273
	Postpartum Amenorrhoea			
Current				
Rural	16.5	11.3	4376	191
Urban	13.7	8.8	348	82
Wife's Childhood.				
Rural	16.4	11.6	4554	202
Urban	13.6	7.3	166	72
Husband's Childhood				
Rural	16.5	11.3	4551	212
Urban	12.7	8.1	125	59
ALL	16.3	10.5	4724	273

Source: BFS Tape 1976.

Therefore, it can be said that the effect of education of women might be stronger than the effect of place of residence on breast-feeding. Comparing Table 4.7 with Table 3.10 (Chapter Three) it is observed that Table 3.10 shows higher differentials in the median duration of breast-feeding between uneducated and educated women by place of residence than in Table 4.7. These higher differentials might also be caused by errors in reporting.

Table 4.7 also shows that the mean duration of postpartum amenorrhoea of uneducated women is about 5.8 months longer than educated women. The duration of postpartum amenorrhoea after births to the educated rural women is 5.2 months shorter than that of rural uneducated women. Again, urban educated women remain amenorrhoeic for a period of 8.8 months, while urban uneducated women experience a duration of amenorrhoea of 13.7 months. A drastic fall of 6.3 months in the duration of amenorrhoea was observed following births to educated urban reared women. Educated women with husbands reared in urban areas, have a 4.6 months shorter period of amenorrhoea than uneducated women with husbands reared in urban areas.

No pronounced difference in the mean duration of postpartum abstinence between educated and uneducated women by current and childhood residence as well as husbands childhood residence was revealed by the analysis.

Table 4.8 represents the mean durations of breast-feeding and postpartum amenorrhoea by level of education of parents. It is observed that children born to educated women with educated husbands were breast-fed about 2.5 months shorter than children born to uneducated women with educated husbands. In Pakistan Shah (1980:61) found that the education of the husband when the wife is illiterate has no important bearing on the breast-feeding behaviour of a woman. In India (Muthiah, 1984:35) it was also observed that the wife's literacy status had a stronger association with breast-feeding than the literacy status of the husband. The mean duration of postpartum amenorrhoea of educated women with educated husbands is about three months shorter than that of uneducatd women with educated husbands.

Table 4.8 Mean Durations of Breast-feeding and Postpartum Amenorrhoea (in Months) Following Live Births in the Last Four Years by Level of Education of Father and Mother

Father's Education	Mother's Education		Total Births in the 4 Years	
	Uneducated	Educated	Uneducated	Educated
	Breast-feeding			
Uneducated	27.8	24.6	3758	37
Educated	26.1	23.6	902	234
ALL	27.4	23.9	4724	271
	Postpartum Amenorrhoea			
Uneducated	17.2	14.3	3758	37
Educated	13.1	10.1	902	234
ALL	16.3	10.5	4724	271

Source: BFS Tape 1976.

Therefore, it seems that women's education is more effective in causing variations in the duration of breast-feeding and postpartum amenorrhoea than the husband's education. But it is difficult to conclude that women's education per se is responsible for these variations in breast-feeding and postpartum amenorrhoea. Various other factors such as place of residence, socio-economic status, availability of infant formula and access to modern contraception or women's nutritional status might also interact with education to cause variations in the durations of breast-feeding and postpartum amenorrhoea. A comparison of Table 3.11 (Chapter Three) and Table 4.8 shows that greater differentials in the former Table might be due to misreporting of duration of breast-feeding. The data do not show any pronounced variation in the mean duration of postpartum abstinence between educated and uneducated women with educated and uneducated husbands.

4.5.6 Work Status of Mother

Table 4.9 represents the mean duration of breast-feeding of children by work status of mother. The overall duration of breast-feeding of children born to working mothers is slightly longer than that of children born to non-working mothers. However Children born to working mothers of age groups 15-19, 20-24 are breast-fed for shorter mean durations than children born to non-working mothers of these age groups. Children born to working mothers of age group 15-19 are breast-fed about 6.8 months shorter than children born to non-working mothers of this age group. This might be because most of the working mothers in this age group are well educated urban residents engaged in modern occupations who might find it inconvenient to breast-feed their children on demand. Furthermore, these young working mothers might have easy access to hormonal contraceptives, which may reduce the quantity of breast milk. The Table also shows that at older ages working women breast-fed their children for a longer duration than non-working women of the same age groups. This might be because most of the working women of these age groups are uneducated rural poor and employed in low status jobs. As they are more influenced by traditional custom they might breast-feed their children for longer durations than working women of younger age groups. Children born to working mothers of 30-34 age group are breast-fed about 4.4 months longer than children born to non-working mothers of the same age group. Table 3.13 (Chapter Three) showed that the median duration of breast-feeding for working women of 30-34 age group was only 0.2 months longer than the median duration of breast-feeding for non-working women of 30-34 age group.

Table 4.9 Mean Duration of Breast-feeding (in Months)
Following Live Births in the Last Four Years
by Work Status and Current Age of Mother

Age Group	Non-working	Working	Total Births in the 4 Years	
			Non-Working	Working
15 - 19	28.1	21.3	800	54
20 - 24	25.9	25.6	1394	120
25 - 29	25.7	30.5	1074	140
30 - 34	29.1	33.5	598	83
35 - 39	27.4	29.8	378	58
40 - 44	29.4	26.2	188	22
45 - 49	32.3	*	52	-
15 - 49	27.0	28.6	4483	484

Source: BFS Tape 1976

* Fewer than 20 Cases.

This insignificant difference in breast-feeding (Table 3.13) might be attributed to memory lapse and digit preference.

4.5.7 Use of Contraception

Table 4.10 shows the mean durations of breast-feeding and postpartum amenorrhoea following births to women by ever use of contraception and current age. The overall mean duration of breast-feeding of children born to ever users is longer than children born to never users. But children born to younger ever users are breast-fed for shorter durations than those born to younger never users. This might be because most of the younger ever users are highly educated urban residents who might not trust the contraceptive effect of prolonged breast-feeding. It is seen that at ages over 25 years ever users breast-fed for a longer mean duration than never users. In Bangladesh many women breast-feed their children right up to the next pregnancy.

Table 4.10 Mean Durations Breast-feeding and Postpartum Amenorrhoea
(in Months) Following Live Births in the Last Four Years
by Current Age and Ever Use of Contraception

Age Group	Breast-feeding		Total Births in the 4 Years	
	Never used	Ever Used	Never Used	Ever Used
15 - 19	28.1	24.5	760	94
20 - 24	26.0	25.5	1270	252
25 - 29	26.1	28.1	1033	188
30 - 34	28.5	33.6	555	133
35 - 39	26.9	31.7	344	94
40 - 44	26.4	35.0	169	48
45 - 45	34.6	*	50	-
15 - 49	26.9	28.5	4182	816
Postpartum Amenorrhoea				
15 - 19	17.3	11.7	760	94
20 - 24	16.4	10.1	1270	252
25 - 29	15.3	10.7	1033	188
30 - 34	17.3	11.5	555	133
35 - 39	18.4	15.8	344	94
40 - 44	18.5	10.0	169	48
45 - 45	31.7	*	50	-
15 - 49	16.9	11.3	4182	816

Source: BFS Tape 1976.

* Fewer than 20 Cases.

One speculation is that the use of contraception may delay the next conception thus allowing breast-feeding to continue for longer than would be possible if it had been terminated by pregnancy. Ever users of all age groups experience shorter mean durations of postpartum amenorrhoea than never users. The largest differential in the mean duration of postpartum amenorrhoea between ever users and never users is seen for women of age group 40-44. Ever users in this age group experienced a 8.5 months shorter duration of postpartum amenorrhoea than never users in this age group. No marked variation in the duration of postpartum abstinence by current age and ever use of contraception is found.

Overall, the Tables in Chapter Three did not show any relationship between the duration of breast-feeding by current age of women and her level of education. A weaker declining trend in the duration of breast-feeding was only observed among women with the increase of parity, whereas Tables in the present chapter show stronger declining trends in the duration of breast-feeding by current age of women, her level of education and with parity. Analysis of Chapter Three did not also show any sex differential in the median duration of breast-feeding, whereas the current analysis shows that female children were breast-fed for a shorter duration than male children. Almost all other Tables in Chapter three showed greater differentials than those of the present Chapter. Greater differentials as well as lack of association between breast-feeding and some of the independent variables might also be due to response errors.

It can therefore, be concluded that the use of the prevalence incidence technique has improved the estimated durations of breast-feeding.

4.5.8 Summary

The prevalence incidence technique was used throughout the chapter. The analysis shows that the mean durations of breast-feeding, postpartum amenorrhoea and postpartum abstinence were 27.3, 16.0 and 4.5 months, respectively. Durations of breast-feeding and postpartum abstinence were positively related with the age of women. Most women of age group 45-49 were menopausal and abstaining terminally. Female children were found to be breast-fed about five months shorter than male children.

Children born to mothers with higher parity tended to be breast-fed for shorter mean durations than children born to mothers with lower parity. Durations of breast-feeding of children born to mothers of age groups 20-24, 25-29, 30-34 declined with increasing parity.

Children born to urban mothers of all age groups were breast-fed for shorter durations than children born to rural mothers of all age groups. Different factors such as education, availability and advertisement of formula, easy access to hormonal contraception, type of urban job, antenatal hospital policy, the nuclear family system, and the modern way of living might contribute to breast-feeding for shorter durations in urban areas. Children of urban poor mothers and rural children are affected by this pattern of breast-feeding. Urban women of all age groups experienced shorter durations of postpartum amenorrhoea than rural women of all age groups.

Durations of breast-feeding and postpartum amenorrhoea were found to decrease with the increase of education. A tendency among children born to women of age groups 20-24, 25-29, 30-34 to be breast-fed for shorter durations with increases in the level of education of mother is observed. This declining trend in the duration of breast-feeding among educated mothers is perhaps due to the lack of proper knowledge about the usefulness of prolonged breast-feeding. This tendency of educated mothers might influence the uneducated mothers. In a society like Bangladesh, where contraceptive practice is very low in comparison with other countries of this region, this pattern of breast-feeding would help increase the levels of fertility as well as infant mortality and morbidity. A declining trend in the duration of postpartum amenorrhoea among women of age groups 20-24, 25-29 with

upward changes in levels of education is also observed.

Children of urban educated mothers were breast-fed about 4.2 months shorter than children of urban uneducated mothers. Children born to educated women with husbands reared in urban areas were breast-fed about four months shorter than children of uneducated women with husbands reared in urban areas. Rural educated women experienced about 5.2 months shorter periods of postpartum amenorrhoea than rural uneducated women.

Children born to uneducated women with educated husbands were breast-fed about 2.5 months longer than children born to educated women with educated husbands. Woman's education had a stronger effect on the duration of breast-feeding than husband's education. It can be inferred that with the intensification of a female education programme a further decline in breast-feeding would be likely. Educated women with educated husbands also experienced about three months shorter durations of postpartum amenorrhoea than uneducated women with educated husbands. Children of working mothers were breast-fed for a slightly longer duration than children of non-working mothers. Women who had ever used contraception experienced about 5.6 months shorter durations of postpartum amenorrhoea than women who had never used contraception.

CHAPTER 5

SUMMARY AND CONCLUSION

5.1 Summary

This study is based on two sub sets of data obtained from the Bangladesh fertility survey which was conducted from mid-December 1975 to March 1976. The main objectives of the study were firstly, to find the prevalence and duration of breast-feeding and the durations of postpartum amenorrhoea and postpartum abstinence in Bangladesh; and secondly, to determine whether the durations of postpartum variables (breast-feeding, postpartum amenorrhoea, postpartum abstinence) vary with certain demographic and socio-economic variables. Differentials by current age, parity, sex of the child, place of residence, level of education, work status, place of work, use of contraception and occupation of current husband were examined.

Breast-feeding is universal in Bangladesh. Ninety eight per cent of mothers breast-fed their penultimate children from birth. By analysing the last closed birth interval information it was found that the mean and the median durations of breast-feeding were 22.2 and 23.8 months (p 41) respectively, whereas the analysis of current status information showed that the mean durations of breast-feeding, postpartum amenorrhoea and postpartum abstinence were 27.3, 16.0 and 4.5 months (p 69) respectively. The duration of postpartum amenorrhoea tended to be longer than the duration of postpartum abstinence. Durations of breast-feeding and postpartum abstinence were positively correlated with the age of mother (p 70). According

to the prevalence incidence method male children were breast-fed for longer durations than female children (p 72), but no differences were observed between median durations derived from experience during the last closed birth interval (Appendix A).

Mothers with higher parity were found to breast-feed their children for shorter durations (p 73). A declining trend in the duration of breast-feeding was discerned among mothers of age groups 20-24, 25-29 and 30-34 with increasing parity (p 73). Duration of postpartum amenorrhoea was also found to decrease with the increase of parity among women of age group 25-29.

Place of residence was found to have a significant effect on the durations of postpartum variables. Rural areas were characterised by the longest durations in respect of all three postpartum variables (p 75). The mean duration of breast-feeding of urban children was about 3.6 months shorter than the mean duration of breast-feeding of rural children according to the prevalence incidence technique (p 75), and 5.4 months shorter according to median durations (P 51) during the last closed birth interval. However this last difference was reduced to only 0.4 months when children surviving to weaning were considered. Mother's childhood background was also found to influence the duration of breast-feeding.

Maternal education had a depressing effect on the duration of breast-feeding as well as on the duration of postpartum amenorrhoea and this was observed for both methods of derivation (p 55, p 79). The greatest change in the durations of breast-feeding and postpartum amenorrhoea occurred among mothers with five or fewer years of education or no education and mothers with more than five years

education.

Children born to mothers of age groups 20-24, 25-29, 30-34 tended to be breast-fed for increasingly shorter durations with increasing maternal education. A decreasing trend in the duration of postpartum amenorrhoea among women of age cohorts 20-24, 25-29 was also observed (p 79). Husband's level of education had little effect on the duration of breast-feeding according to both methods (p 58, p84) but it seems that husband's level of education had a stronger impact on the duration of postpartum amenorrhoea than on breast-feeding. A possible reason is that the socio-economic conditions of families of educated husbands are usually better than those families with uneducated husbands. It is possible that their wife's nutritional status might also be better. This might contribute to their shorter durations of postpartum amenorrhoea.

Working women breast-fed their children for a slightly longer duration than non-working women (p 86). Women's place of work did not have any significant effect on the duration of postpartum variables except for women of age group 20-24 who worked away from home (p 63). This cohort of working women were found to breast-feed their children for a somewhat shorter duration. Women who used modern contraception in the last closed birth interval were found to breast-feed for slightly shorter durations than women who were not using any form of contraception at that time (p 59). Women who had ever used contraception experienced shorter postpartum amenorrhoea (p 87).

5.2 Concluding Remarks

Breast milk is the best food for infant during the first few months of life. It provides complete nutritional requirement and reduces the chance of gastrointestinal disease. Breast-feeding increases the probability of surviving infancy (Gold berg et al. 1984:113). The contraceptive effect of breast-feeding is also very important in developing countries like Bangladesh where there is very little use of modern contraception.

The following discussion of policy implications will be directed to breast-feeding which in turn will also influence postpartum amenorrhoea and postpartum abstinence. This study has shown that breast-feeding is almost universal in Bangladesh, and its duration is still long. With increases in education, urbanization and industrialization there is a chance of further breakdown of the traditional custom of prolonged breast-feeding. Without improvement in health situation and socio-economic condition women might become more modern in their infant feeding practices. The level of contraceptive use in Bangladesh is very low. The BFS found that only 4.2 per cent were currently using efficient methods. Without an increase in contraceptive use a further decline in the duration of breast-feeding would increase the levels of fertility and infant and child mortality in the present socio-economic situation. Therefore, programmes related to infant nutrition and supplementation should be formulated in such a way that the present pattern of breast-feeding continues in Bangladesh.

It was observed that mothers of the youngest age cohort (15-19) breast-fed for shorter durations than mothers of all other age cohorts. This is partly because of high infant and child mortality among the youngest mothers. Mothers of this age group may be less equipped to breast-feed their children. Attention should be focused on mothers of this age group. An appropriate environment for these mothers to establish and continue breast-feeding should be provided by the family, the community and the government at large.

The study revealed that in urban areas the duration of breast-feeding is significantly shorter than in rural areas. A large segment of the urban population in Bangladesh is poor and they are an overflow of rural poverty into urban areas. Most of the urban poor mothers may not have access to uncontaminated water and medical facilities or adequate knowledge about mixing infant formula correctly. Therefore, the result of bottle feeding would be serious because of poverty and the general low standard of hygiene.

A vigorous campaign in urban areas through mass media by breast-feeding support groups may help to establish and prolong the duration of breast-feeding. Most urban lactating mothers are in close contact with health centres such as hospitals and health clinics. Programmes through health personnel, nurses in hospitals, maternity clinics and health care centres could be very effective for establishing and prolonging the durations of breast-feeding of urban women. Persons of these institutions usually have inadequate knowledge about the nutritional and contraceptive effects of breast-feeding. To remedy this intensive training in the utility of breast-feeding could be provided, with special reference to the

nutritional value and contraceptive effect, so that they can motivate mothers to establish and continue breast-feeding. Proper steps should be taken to reduce rural urban disparities, particularly economic and medical facilities.

In urban area most births take place in hospitals. Early separation of infant and mother in hospitals has a negative effect on the establishment and continuation of breast-feeding. In Thailand it was found that women who had delivered in medical facilities were less likely to breast-feed than women who delivered at home, even after controlling for region of residence and educational attainment (Knodel and Devavalya, 1980:372). In order to support breast-feeding this separation of infant and mother policy should be changed and steps should be taken for earlier mother/infant contact to detect and correct any problem related to breast-feeding. When the hospital policy in Guatemala was changed it was noticed that the mean duration of breast-feeding was significantly greater among women who breast-fed their infants immediately after delivery than those who did not meet their infants for 12 hours (Sosa et al. 1976:183).

This study has shown that the maternal level of education is inversely related to the duration of breast-feeding. That is, the higher the education of the mother the shorter the duration of breast-feeding. An area of policy intervention seems to be to establish a program to popularize breast-feeding among educated mothers. A campaign to promote breast-feeding may help to reverse this declining trend among the educated mothers. A long term policy may be to include the importance of breast-feeding in all nutrition components of curricula in medical, nursing, para medical and all

other educational institutions including primary schools.

There was some indication from the data that mothers who used modern contraception in the last closed birth intervals might breast-feed for a slightly shorter duration than mothers who did not use any form of contraception in that interval. But this should not be used to discourage family planning programs, because breast-feeding is not a reliable form of contraception on an individual basis. Immediately after resumption of first postpartum menstruation lactating mothers should be advised to use contraception. Different studies noted the adverse effects of hormonal contraception on breast-feeding (Laukaran, 1981:160, Gupta et al. 1977:123, Harfouch, 1977:165). Therefore, lactating mothers should be encouraged to use non-hormonal contraception.

In Bangladesh not much importance is placed on the contraceptive effect of breast-feeding in the family planning program. In order to reduce fertility its main objective should not be confined to offering contraceptives only. Promotion of breast-feeding should be a primary responsibility of family planning clinics considering its contraceptive effect as well as its importance for infant nutrition. Family planning workers should communicate the following principles to breast-feeding mothers (McCann et al. 1981:J-557). Firstly, breast-feeding is the best way to protect infant health and, even after supplementation begins, it remains an important element of infant nutrition. Secondly, the amount of infant suckling is the strongest influence on the amount of breast-feeding.

Although no empirical evidence can be cited, most of the rural and urban poor mothers in Bangladesh who breast-feed their children for longer durations look prematurely old. This is mainly because they breast-feed without having any extra nutrients, thus consuming their own body reserves. It is possible to improve the nutritional status of mothers by providing extra food which would cost much less than the market value of the milk. In Indonesia (Rohde, 1974:203) it was estimated that the cost of dietary raw materials for the mother was less than 30 per cent of the market value of the milk. This investment by contributing to the health of the mothers would encourage longer durations of breast-feeding and hence improve child survival.

Breast-feeding cannot be encouraged without discouraging infant formula. Advertisements and displays of infant formula should be prohibited in the whole country. Bottles, nipples and formula should be made available only on prescription. Health workers or physicians should be instructed to advise those mothers who must feed artificially about proper preparation and storage of formula.

Breast milk is a scarce resource. From its economic significance it is important at the family as well as the national level. In Indonesia in 1972-73 it was estimated that the net value to the economy of breast milk in the second year alone was US \$62 million. This was 80 per cent of the annual health budget for 1972- 1973 (Rohde, 1974:201). Bangladesh spends about US \$2m in importing powdered milk formula every year (Khuda and Chowdhury, 1982:10). Nevertheless, purchasing formula of sufficient strength is beyond the capacity of most of the urban poor and rural mothers. This situation

is worsening gradually with the increase in price of formula. This expenditure could be reduced by motivating mothers to breast-feed for longer durations.

5.3 Areas for Future Research

The relationship between work status of women and breast-feeding was not found to be in the expected direction. Further research in this area with a representative sample is necessary to study the effect of work status of women on breast-feeding.

It was observed that women of a particular age cohort (20-24) who worked away from home breast-fed for a significantly shorter duration than women who worked in family farms, other farms, at home and women who did not work. Further investigation in this area regarding the women, their place of residence, their level of education, their working conditions, the implications for breast-feeding, child care and time allocation within the household is recommended.

In-depth study of postpartum amenorrhoea and its relationship with fertility including frequency, intensity of breast-feeding and mother's nutritional status is recommended. Studies of the psychological determinants of breast-feeding and the relationship of breast-feeding and infant mortality are also recommended. The role of present medical, hospital and health policies which are closely related to breast-feeding should also be evaluated.

REFERENCES

- ABDULLA, M.
1979 "Nutrition Situation of Children and Mothers in Bangladesh" in Proceedings of the Third Bangladesh Nutrition Seminar Dhaka, March 22-24, 1979, Ahmad. K et al., (ed), Bangladesh. pp. 25-26.
- AHAMED, M and B. E. KHUDA.
1984 Breast-feeding in Developing Countries: Some Evidence, Unpublished Research Paper, Department of Demography, Australian National University, Canberra, pp. 1-2.
- AHMAD, N.
1976 A New Economic Geography of Bangladesh, Vikas Publishing House Pvt.LTD, New Delhi.
- AHMED, B.
1978 Differential Fertility in Bangladesh, Unpublished M.A. Thesis, Development Studies Centre, Australian National University, Canberra, Australia.
- ANDERSON, J., E. W. RODRIGUES and A. M. TAVARES THOME.
1983 "Analysis of Breast-feeding in Northeastern Brazil: Methodological and Policy Considerations", Studies in Family Planning, Vol. 14, No. 8, 9, pp. 210-213.
- ANON
1984 "SpotLight", Population Today, Vol.12, No.6, pp. 1-12.
- BANGLADESH BUREAU OF STATISTICS.
1981 Bangladesh Census 1981, Statistics Division, M/o. Planning, Government of the Peoples Republic of Bangladesh, Dhaka.
- BANGLADESH BUREAU OF STATISTICS(BBS).
1982 Statistical Pocket Book of Bangladesh 1980, Statistics Division, M/o. Planning, Government of the Peoples Republic of Bangladesh, Dhaka.
- BERGMAN, R., and D. FEINBERG.
1980 "Working women and Breast-feeding", in Human Milk: Its Biological and Social Value, Selected papers from the International Symposium on Breast-feeding, Tel-Aviv, February 24-28, Eidelman and Freler (ed), Excerpta Medica, Amsterdam, pp.245-47.

- BHUIYA, A.
1983 Levels and Differentials in Child Nutritional Status and Morbidity in a Rural Area of Bangladesh, Unpublished M.A. Thesis, Development Studies Centre, The Australian National University, Canberra, Australia.
- BIDDULPH, J.
1981 "Promotion of Breast-feeding: Experience in Papua New Guinea", in Advances in International Maternal and Child Health, Jelliffe and Jelliffe (ed). Vol. 1, Oxford University press, Oxford. pp. 169-174.
- BRACHER, M. D. and G. SANTOW.
1982 "Breast-feeding in Central Java" Population Studies, Vol. 36, No.3. pp. 421-422.
- BUCHANAN, M.
1975 "Breast-feeding Aid to Infant Health and Fertility Control", Population Reports, Series J, No. 4, Maryland, pp. J-49 - J-56.
- CALDWELL, J. C. and P. CALDWELL.
1977 "The Role of Marital Sexual Abstinence in Determining Fertility: A Study of the Yoruba in Nigeria", Population Studies, Vol.31, No.2, pp. 193-207.
- CALDWELL, J. C. and P. CALDWELL.
1981 "Cause and Sequence in the Reduction of Post Natal Abstinence in Ibadan city, Nigeria", in Child Spacing in Tropical Africa: Traditions and Change, Page and Lesthaeghe (ed), Academic press, London, pp. 185-186.
- CHEN, L., S. AHMED, M. GESCHE and W. H. MOSLEY.
1974 "A Prospective Study of Birth interval Dynamics in Rural Bangladesh", Population Studies, Vol. 28, No. 2, pp. 282-288.
- CHEN, L and R. H. CHAUDHURY.
1975 "Demographic Change and Food production in Bangladesh 1960-1974", Population and Development Review, Vol.1, No. 2, pp. 201-288.
- D'SOUZA, S. and L. CHEN.
1980 "Sex Differential in Mortality in Rural Bangladesh" Population and Development Review, Vol.6, No.2, pp.257-270.
- EBRAHIM, G. J
1978 Breast Feeding: The Biological Option, Catholic Fund for Overseas Development.

- ESCAP SECRETARIAT and R. H. CHAUDHURY.
1981 "Population, Food Supply and Nutrition"
in Population of Bangladesh:Country
Monograph Series No. 8.
Economic and Social Commission for Asia
and the Pacific, United Nations, New York,
pp. 210-288.
- ESCAP SECRETARIAT.
1981 "Size, Growth and Distribution of Population"
in Population of Bangladesh:Country
Monograph Series NO.8.
Economic and Social Commission for Asia and the
Pacific, United Nations, New York. pp. 10-19.
- ESTERIK, P. V and T. GREINER.
1981 "Breast-feeding and Women's Work:Constraints and
Opportunities", Studies in Family Planning,
Vol. 12, No. 4, pp.184-193.
- FAROUK, A.
1974 Economic Development of Bangladesh,
Research Monograph Series NO.1,
Bureau of Business Research, University
of Dhaka, Bangladesh, pp. 2-36.
- FERRY, B.
1981 Breastfeeding, Comparative Studies:Cross
National Summaries, No. 13,
London:World Fertility Survey, pp. 10-15
- FERRY, B and D. P. SMITH.
1983 Breastfeeding Differentials, Comparative
Studies, Cross National Summaries, No. 23.
London:World Fertility Survey. pp. 7-27.
- GAISIE, S. K.
1984 The Proximate Determinants of Fertility in Ghana,
Scientific Reports, No. 53, London:World Fertility
Survey. pp. 23-30.
- GANGADHARAM, V., B. V. S. REDDY and G. P. REDDY.
1982 "Subsistence Activities, Breast-feeding and Birth
Spacing Among the Chenchu:A Food Gathering
Community in Andhra Pradesh", The Journal of
Family Welfare, Vol.28, No. 3, pp. 67-68.
- GHAFFAR, S.
1979 "Studies on Practice of and Attitude Towards
Breast-feeding in Bangladesh" in the Proceedings
of the Third Nutrition Seminar, Dhaka,
March 22-24, 1979, Ahmad. K et al., (ed),
Bangladesh, pp. 165-169.

- GHOSH, S., S. GIDWANI, S. K. MITTAL, and R. K. VERMA.
1976 "Socio-Cultural Factors Affecting Breast-feeding and Other Infant Feeding Practices in an Urban Community", Indian Pediatrics, Vol.13, No. 11, pp. 827-832.
- Ø, M. Elizabeth.
1983 Breast-feeding in the Philippines: Levels and Differentials, Unpublished M.A. Thesis, Development Studies Centre. Australian National University, Canberra, Australia.
- ØLDBERG, H. I., J. E. ANDERSON., D. MILLER and O. DAWAM.
1983 "Contraception, Marital Fertility and Breast-feeding in the Yemen Arab Republic" Journal of Biosocial Science, Vol. 15, No.1, pp. 76-81.
- ØLDBERG, H. I., W. RODIGUES, A. M. T. THOME, B. JANOWITZ and L. MORRIS.
1984 "Infant Mortality and Breast-feeding in North-Eastern Brazil", Population Studies, Vol. 38, No. 1, pp. 105-115.
- GRAY, R. H.
1981 "Birth Interval, postpartum Sexual Abstinence and Child health", in Child-Spacing in Tropical Africa: Traditions and Change, Page and Lesthaeghe (ed), Academic Press, London, pp. 101-107.
- GUPTA, A. N., V. S. MATHUR and S. K. GARG.
1977 "Effect of Oral Contraceptives on the Production and Composition of Human Milk", Journal of Biosocial Science Supplement 4, pp. 123-133.
- HARFOUCHE, J. K.
1977 "Appearance of Contraceptive Steriods in Human Milk: Effects on the Child", Journal of Biosocial Science Supplement 4, pp. 165-179.
- HIRSCHHORN, N. and L. CHEN.
1973 "Prospects for Health in Bangladesh" in Disaster in Bangladesh, Chen, L. (ed), Oxford University press, New York, pp. 3-6.
- HONG, S.
1980 Demographic Characteristics of Bangladesh, Dhaka, Bangladesh.

- HULL, V. J.
1975 Fertility, Socio-economic Status, and the Position of Women in a Javanese Village, Unpublished Ph.D Thesis, Demography Department, Australian National University, Canberra, Australia
- HULL, V. J.
1983 Breast-feeding and Birth Spacing in Rural Java, Unpublished Research Paper, Demography Department, The Australian National University, Canberra, Australia. pp. 9-43.
- HUFFMAN, S. L., A. K. M. A. CHOWDHURY, J. CHAKRABORTY and W. H. MOSLEY.
1978 "Nutrition and Postpartum Amenorrhoea in Rural Bangladesh", Population Studies, Vol.32, No.2, pp. 251-260.
- HUFFMAN, S. L., A. K. M. A. CHOWDHURY, Z. M. SYKES.
1980 "Lactation and Fertility in Rural Bangladesh", Population Studies, Vol.34, No. 2, pp. 337-347.
- INSTITUTE OF NUTRITION and FOOD SCIENCE.
1977 Nutrition Survey of Bangladesh 1975-76, University of Dhaka, Dhaka, Bangladesh, pp.196-203.
- ISLAM, N.
1974 "The State and Prospects of the Bangladesh Economy" in The Economic Development of Bangladesh within a Socialist Frame Work, Proceedings of a Conference held by the International Economic Association at Dhaka, Robinson, E. A. G and K. Griffith (ed), pp. 1-2.
- JAIN, A. K., T. C. HSU., R.FREEDMAN and M. C. CHANG.
1970 "Demographic Aspects of Lactation and Postpartum Ammenorrhoea" Demography, Vol. 7, No. 2 pp. 259-265.
- JAIN, A. K. and T. H. SUN.
1972-73 "Inter-Relationship Between Socio-demographic Factors, Lactation and Post Partum Amenorrhoea" Demography (India), Vol. 1, No.1 , pp. 79-81.
- JAIN, A. K. and J. BONGAARTS.
1980 Socio-Biological Factors in Exposure to Child Bearing :Breast-feeding and its Fertility Effects, WFS Conference Paper No. 4, The Population Council, New york. pp. 8-24.
- JELLIFFE, D. B.
1962 "Culture, Social Change and Infant Feeding:Current Trends in Tropical Regions", American Journal of Clinical Nutrition, Vol. 10, pp. 19-45.

- JELLIFFE, D. B.
1976 "Community and Sociopolitical Considerations of Breast-feeding", in Breast-feeding and the Mother, Ciba Foundation Symposium 45 (New Series), North Holland Publishing Company in Amsterdam, pp. 232-242.
- JELLIFFE, D. B and E. F. P. JELLIFFE.
1974 "Human milk, Nutrition and the World Resource Crisis", Science, Vol.188, No. 4188, pp. 557-560.
- JONES, M.
1982 "The Biggest Contraceptive in the world", New Internationalist, The Baby Milk issue, pp. 20-21.
- KABIR, M.
1981 "Application of Logit System to the Estimation of Mean Duration of Breast feeding in Bangladesh" Journal of Statistical Studies, Vol.1, Department of Statistics, Jahangirnagar University, Dhaka, Bangladesh. pp. 1-8.
- KAMAL, I., F. HEFNAWI., M. GHONEIM., M. TALAAT., N. YOUNIS., A. TAGUI and M. ABDULLA.
1969 "Clinical, Biochemical and Experimental Studies on Lactation", American Journal of Obstetrics and Gynecology, Vol.105, No.3, pp. 315-319.
- KENT, MARY MEDERIOS.
1981 Breast-feeding in the Developing World :Current Patterns and Implications for Future Trends , WFS Report (2), Washington, D.C: Population Reference Bureau, PP. 5-22.
- KHAN, M. R.
1981 "Population Problems and Population Control in Bangladesh:Some observations" The Bangladesh Journal of Political Economy, Vol.5, No.1, pp. 147-155.
- KHUDA, B. E. and A. A. CHOWDHURY.
1982 Breastfeeding in Rural Bangladesh:A Study of Comilla Village, Study of Reproductive Behaviour:Working Paper No.5 (Unpublished), Bangladesh Institute of Development Studies, Dhaka, Bangladesh, pp. 3-10.
- KNODEL, J.
1977 "Breast-feeding and Population Growth", Science Vol.198, No. 4312, p. 1111-1115.

- KNODEL, J. and N. DEVAVALYA.
1980 "Breast-feeding in Thailand:Trends and Differentials 1969-79",
Studies in Family Planning, Vol.11, No.12,
pp. 355-377.
- KNODEL, J., P. KAMNUANSILPA and A. CHAMRATRITHIRONG.
1982 "Breast-feeding in Thailand:Data from the 1981
Contraceptive Prevalence Survey"
Studies in Family Planning, Vol.13, No. 11,
pp. 309-313.
- KNODEL, J and G. LEWIS.
1983
Contraceptive Prevalence Surveys Further Analysis
Report, Postpartum Amenorrhoea in Selected
Developing Countries:Estimates from Contraceptive
Prevalence Surveys, Westing House Health System,
Maryland, U.S.A., pp. 6-11.
- KOREAN INSTITUTE of FAMILY PLANNING (KIF)
1973 A Study on the Interrelationships Between
Lactation and Postpartum Amenorrhoea,
Korea, pp. 57-68.
- LANGFORD, C. M.
1978 "A Consideration of Some Retrospective Data on
Breast-feeding in Great Britain"
Journal of Biosocial Science, Vol.10, No. 4,
pp.394-395.
- IAUKARAN, V. H.
1981 "Contraceptive Choices for Lactating Women:
Suggestions for Postpartum Family Planning",
Studies in Family Planning, Vol.12, No. 4,
pp. 156-161.
- LESTHAEGHE, R., P. O. OHADIKE., J. KOCHER and H. J. PAGE.
1981a "Child Spacing and Fertility in Sub-Saharan Africa:
An Overview Of Issues" in Child Spacing in
Tropical Africa:Traditions and Change, Page and
Lesthaeghe (ed), Academic press, London, pp. 5-7.
- LESTHAEGHE, R., H. J. PAGE and ADEGBOLA.
1981 b "Child Spacing and Fertility in Lagos", in Child
Spacing in Tropical Africa:Traditions and Change,
Page and Lesthaeghe (ed), Academic press, London,
pp. 148-173.
- MATA, L.
1978 "Breast-feeding:Main Promoter of Infant Health",
The American Journal of Clinical Nutrition,
Vol. 31, pp. 2058-2061.

- MALONEY, C., K. M. A. AZIZ and P. C. SARKAR.
1981 Beliefs and Fertility in Bangladesh :Monograph
No.2, International Centre for Diarrhoeal Disease
Research, Dhaka, Bangladesh.
- MARTINEZ, G. A. and D. A. DODD.
1983 "1981 Milk Feeding Patterns in the United States
During the First 12 Months of Life", Pediatrics
Vol.7, No.2, pp. 166-169.
- MCCANN, M. F., M. S. LAURIE., S. LISKIN., P. T. PIOTROW., W. RINEHHART
and G. FOX.
1981 "Breast-feeding, Fertility and Family Planning"
Population Reports, Series J, No.24,
Maryland. pp. J-527 - J-557.
- MINISTRY of HEALTH and POPULATION CONTROL.
1978 Bangladesh Fertility Survey 1975:First Report,
Government of the Peoples Republic of Bangladesh,
Dhaka.
- MIRANDA, A.
1982 The Demography of Bangladesh,
Drap Publications, Norway.
- MISRA, R.
1979 "Breast-feeding and Weaning in Two Indian Villages"
in Breast-feeding and Food Policy in a Hungry
World, Raphael, D (ed), Academic press, New York,
pp. 37-42.
- MOSLEY, W. H. and M. HOSSAIN.
1973 "Population:Background and prospects" in
Disaster in Bangladesh, Chen. L (ed),
Oxford University press, New York, pp. 3-10.
- MOSLEY, W. H., T. S. OSTERIA and S. L. HUFFMAN.
1977 "Interactions of Contraception and Breast-feeding
in Developing Countries",
Journal of Biosocial Science Supplement 4,
pp. 95-101.
- MUTHIAH, A.
1984 Biological and Socio-demographic Correlates of
Fertility in Rural Tamil Nadu, India,
Unpublished Ph.D Thesis (Under Preparation),
Demography Department, The Australian National
University, Canbrrra, Australia.

- NAG, M.
1983 "The Impact of Socio Cultural Factors on Breast-feeding and Sexual Behaviour", in Determinants of Fertility in Developing Countries: Supply and Demand for Children, Rodelfoa et al., (ed), Academic press, pp. 65-66.
- NORTMAN, D.
1974 "Parental Age as a Factor in Pregnancy Outcome and Child Development" Reports on Population/Family Planning, No.16, The Population Council, New York, pp. 22-37.
- NYROP, R. F., L. B. BERYL., S. C. ANN., B. P. NEWTON., L. P. JAMES., S. RINN-SUP and S. MARY.
1975 Area Hand book for Bangladesh, Foreign Area Studies (FAS) of the American University, Washington, U.S.A.
- QJOFEITIMI, E. O.
1982 "Effect of Duration and Frequency of Breast-feeding on Postpartum Amenorrhoea", Pediatrics, Vol.69, No. 2, pp. 164-165.
- CRUBULOYE, I. O.
1979 "Sexual Abstinence Patterns in Rural Western Nigeria: Evidence from a Survey of Yoruba Women" Social Science and Medicine, Vol 13, No. A6. pp. 667-669.
- OSTERIA, T. S.
1978 "Variations on Fertility with Breast-feeding and Contraception in Urban Filipino Women: implications for a Nutrition program" in Nutrition and Human Reproduction, Mosley, W. H. (ed), Plenum Press, New York, pp. 411-432.
- ORWELL, S and J. MURRAY.
1974 "Infant Feeding and Health in Ibadan", Journal of Tropical Pediatrics, Vol. 20, No. 4, pp. 206-208.
- PAGE, H. J., R. J. LESTHAEGHE and I. H. SHAH.
1982 Illustrative Analysis: Breast-feeding in Pakistan Scientific Reports, No. 37, London: World Fertility Survey, pp. 8-34.
- PLANNING COMMISSION.
1980 The Second Five Year Plan (Draft) 1980-85, Government of the People's Republic of Bangladesh, Dacca.

- PIEFMEIER, K. B and T. S. ADKINS.
1973 "The Status of Women and Fertility", Journal of Biosocial Science, Vol.5, No.4, pp. 508-520.
- POPKIN, B. M.
1978 "Economic Determinants of Breast-feeding Behaviour:The Case of Rural Households in Laguna, Philippines" in Nutrition and Human Reproduction, Mbsley, W. H. (ed), Plenum Press, New York, pp. 461-480.
- ROTTER, R. G., J. JB. WYON., M. PARKER and J. E. GORDON.
1965 "A Case Study of Birth Interval Dynamics", Population studies, Vol.19, No.1, pp. 81-95.
- REMA, K., N. NAIDU and N. KUMARI.
1979 "Lactation and Fertility", The Americal Journal Of Clinical Nutrition, Vol.32, pp. 1298-1303.
- REMA, K. and F. S. PHILIPS.
1980 "Lactational Amenorrhoea:A Survey", Indian Journal of Medical Research, Vol.71, pp. 538-546.
- RAPHAEL, D.
1973 The Tender Gift of Breast-feeding, Prentice-hall, Engle wood Cliffs, New York.
- REHAN, N and A. K. ABASIYA.
1981 "Breast-feeding and Abstinence Among Hausa Women", Studies in Family Planning, Vol.12, No. 5, pp. 233-236.
- ROHDE, J. E.
1974 "Human Milk in the Second Year: Nutritional and Economic Considerations for Indonesia", Paediatrica Indonesia, Vol. 14, University of Gajah Mada, YogYakarta, Indonesia, pp. 198-207.
- ROSENBERG, I. H.
1973 "Nutrition:Food Production:Dietary Patterns and Nutritional Deficiencies" in Disaster in Bangladesh, Chen. L. (ed), Oxford University press, New York, pp. 42-43.

- ROSA, F. W.
1976 "Breast-feeding: A Motive for Family Planning",
People, vol.3, No. 1, pp. 10-13.
- ROSA, F. W.
1979 "Interrelationship Between Breast-feeding and
Birth spacing: Field Observation",
In Breast-feeding and Food Policy in a Hungry
World, Raphael, D (ed), Academic Press, New York,
pp. 213-214.
- HUZICKA, L. T. and S. BHATIA.
1982 "Coital Frequency and Sexual Abstinence in Rural
Bangladesh", Journal of Biosocial Science,
Vol.14, No.4, pp. 410-411.
- SHAH, I. H.
1980 Breast-feeding and Fertility in Pakistan,
WFS Conference Background paper No.5.
London, pp. 13-61.
- SALBER, E. J., M. FEINLEIB and B. MACMAHON
1966 "The Duration of Postpartum Amenorrhoea",
American Journal of Epidemiology,
Vol.82, No.3, pp. 349-351.
- SANTOW, G and M. BRACHER.
1981 "Patterns of Postpartum Sexual Abstinence and
their Implications for Fertility in Ibadan,
Nigeria", in Child Spacing in Tropical Africa:
Traditions and Change, Page and Lesthaeghe
(ed), Academic press, London, pp. 205-213.
- SINGARIMBUN, M and C. MANNING.
1976 "Breast-feeding, Amenorrhoea and Abstinence in a
Javanese Village: A Case Study of Mojolama"
Studies in Family Planning, Vol.7, No.6,
pp. 175-177.
- SOSA, R., J. H. KENNELL., M. KLAUS and j. j. URRUTIA.
1976 "The Effect of Early Mother Infant Contact on
Breast-feeding, Infection and Growth", in
Breast-feeding and the Mother, Ciba Foundation
Symposium 45 (New series), Elsevier, Excerpta
Medica. North-Holland, Amsterdam, pp. 179-193.
- SUDARSHAN, K., A. K. PRABHAKAR., A. GUPTA and N. L. SHARMA.
1982 "Interrelationship of Breast-feeding and
Educational Status in Lactation Amenorrhoea",
International Journal of Gynaecology and
Obstetrics, Vol.20, No. 4, pp. 269-272.

- SAXENA, P. C.
1977 "Breast-feeding: Its Effects on Post partum Amenorrhoea", Social Biology, Vol. 24, No. 1, pp. 48-50.
- THE WORLD BANK
1981 World Development Report 1981,: Nutritional and Industrial Adjustment, Oxford University Press, pp. 160-172.
- THE WORLD BANK
1983 Population and Family Planning in Bangladesh: A Survey of the Research, Staff Working Papers No. 557, The World Bank, Washington D.C., pp. 24-111.
- THE WORLD BANK
1984 World Development Report 1984, Oxford University Press, pp. 186-195.
- THOMAS, E. D. JR.
1977 "Breast-feeding and Abstinence Among the Yoruba" Studies in Family Planning, Vol.8, No.8. pp.208-209.
- VAN GINNEKEN, J. K.
1977 "The Chance of Conception During Lactation", Journal of Biosocial Science Supplement 4, pp. 41-42.
- VAN GINNEKEN, J. K.
1978 "The Impact of Prolonged Breast-feeding on Birth intervals and on Postpartum Amenorrhoea" in Nutrition and Human Reproduction Mbsley, W. H.(ed.), Plenum press, New york, pp. 179-204.
- WADE, N.
1974 "Bottle feeding: Adverse Effects of a Western Technology", Science, Vol. 184, No. 4132, pp. 45-46.
- WEST, C. P.
1980 "Factors Influencing the Duration of Breast-feeding" Journal of Biosocial Science, Vol.12, pp. 325-327.
- ZURAYK, H.
1981 "Breast-feeding and Contraceptive Patterns Post partum : A Study in South Lebanon" Studies in Family Planning, Vol. 12 , No.5, pp. 239-243.

APPENDIX-A

Table A1 Mean and Median Durations of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Sex of the Penultimate Child.

Sex of the Child	Mean	Median
Male	22.3	23.8 (2284)
Female	22.0	23.8 (2246)

Source: BFS Tape 1976.

Table A2 Mean and Median Durations of Breast-feeding in the Last Closed Birth Interval of Children Surviving to Weaning for Ever Married Women Aged 15-49, by Sex of the Child.

Sex of the Child	Mean	Median
Male	24.7	24.0 (1979)
Female	24.1	24.0 (1921)

Source: BFS Tape 1976

APPENDIX-B

Table B1 Mean and Median Durations of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Religion and Current Place of Residence

Religion	Mean		Median	
	Rural	Urban	Rural	Urban
Muslim	22.5	19.3	23.9 (3531)	18.3 (308)
NonMuslim	21.7	21.9	23.7 (740)	23.7 (59)
ALL	22.4	19.7	23.8 (4272)	18.4 (368)

Source: BFS Tape 1976

Table B2 Mean and Median Durations of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Possession of Modern Objects and Place of Residence

Possession of Modern Objects	Mean		Median	
	Rural	Urban	Rural	Urban
No Object	22.6	21.4	23.9 (3363)	23.6 (203)
Atleast one	21.6	17.6	23.7 (909)	17.8 (165)
ALL (4640)	22.4	19.7	23.8 (4272)	18.4 (368)

Source: BFS Tape 1976.

APPENDIX B-(Continued)

Table B3 Mean and Median Durations of Breast-feeding in the Last Closed Birth Interval of Ever Married Women Aged 15-49, by Occupation of Husband.

Occupation of Husband	Duration of Breast-feeding	
	Mean	Median
Professional,		
Clerical,		
Sales, Service	21.1	23.6 (879)
Agriculture and		
Household	22.4	23.8 (2712)
Skilled/Unskilled	22.3	23.8 (969)

Source: BFS Tape 1976.

APPENDIX-C

Questions Referring to Breast-feeding, Postpartum Amenorrhoea and
Postpartum Abstinence (BFS 1975).

Women whose last or next to last pregnancy resulted in live births were asked about their breast-feeding practices. The questions on resumption of menstruation and resumption of sexual intercourse were asked only for the last birth. Questions about breast-feeding, resumption of period and resumption of sexual intercourse after the last child was born were:

325. Did you ever breast-feed(NAME OF LAST CHILD)?

Yes

NO

(SKIP TO 328)

326. For how many months altogether did you breast-feed him/her?

..... MONTHS

STILL BREAST

UNTIL

FEEDING

CHILD

(If Less than 3 months,

DIED

skip, to 326a)

(SKIP to 327)

(SKIP to 327)

326a. Are you still breast-feeding him/her?

YES

NO

APPENDIX-C (Continued)

327. How many months old was the child when you began giving
him/her food other than breast-milk?

..... MONTHS	STILL BREAST	<input type="checkbox"/>	CHILD DIED
	FEEDING		BEFORE OTHER <input type="checkbox"/>
			FOODS GIVEN
	(SKIP TO 328)		(SKIP TO 328)

328. How many months after (the birth of this child, end of your
last pregnancy) did you first start having sexual relations?

..... MONTHS	NOT YET	
	STARTED	<input type="checkbox"/>

329. How many months after the birth of this child (termination of
pregnancy) did your period come back?

..... MONTHS	PERIOD NOT	
	BACK YET	<input type="checkbox"/>

The same questions on breast-feeding were also asked for the next to
the last child, except question 326a. Although a question on
supplementation was asked for the last live birth, it was discarded in
the coding process.