DETERMINANTS OF NATURAL FERTILITY STUDY

Volume One

Methods and Descriptive Tables for
the Prospective Study 1975-1978

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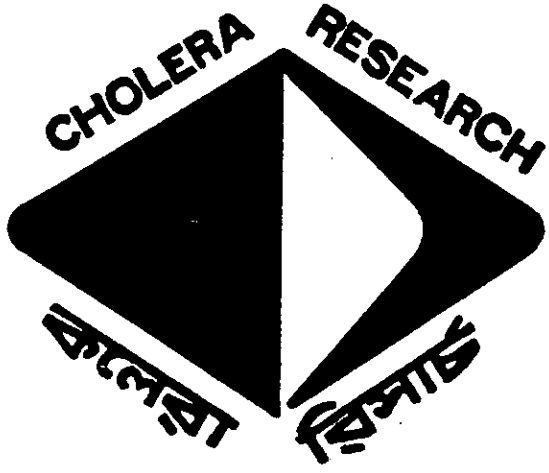

INTERNATIONAL CENTRE FOR
DIARRHOEAL DISEASE RESEARCH, BANGLADESH
Dacca, Bangladesh

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PREFACE

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is an autonomous, international philanthropic and non-profit centre for research, education and training as well as clinical service. The Centre is derived from the Cholera Research Laboratory (CRL). The activities of the institution are to undertake and promote study, research and dissemination of knowledge in diarrhoeal diseases and directly related subjects of nutrition and fertility with a view to develop improved methods of health care and for the prevention and control of diarrhoeal diseases and improvement of public health programmes with special relevance to developing countries. ICDDR,B issues two types of papers: scientific reports and working papers which demonstrate the type of research activity currently in progress at ICDDR,B. The views expressed in these papers are those of authors and do not necessarily represent views of International Centre for Diarrhoeal Disease Research, Bangladesh. They should not be quoted without the permission of the authors.

ABSTRACT

Beginning in October 1975, married women in 14 villages near Matlab were questioned at monthly intervals about their reproductive status and related events. The data presented here covered the period up to March 1978. The purpose of the study was to accurately measure the parameters of the reproductive process in this natural fertility population. During the first year of the study anthropometric measures were taken and blood specimens were collected for biochemical analyses of the nutritional status of the women.

Analyses of the prospective data revealed a mean waiting time to conception of five months and a mean duration of amenorrhea after live birth of 12 months. Because of the turncation of the study, these are of course underestimates of the actual population values. (The medians for these two intervals were 7 and 15 respectively).

Nutritional status varied little between women in the various reproductive states but variation was found according to the age group of women, with older women having a lower weight, and arm circumference than younger women.

INTRODUCTION

The populations of the developing countries of the world are growing at a rate of two to three percent annually (1). By simple extrapolation, these rates imply that the populations will double every quarter of a century.

The cause of such high growth rates is discussed in classical demographi transition theory. Since the 1940's mortality rates have fallen drastically in most of the developing world. On the other hand until very recently birth rates, with few exceptions have been at a fairly constant and high level. Since the rate of natural increase is the difference between the birth and death rates, these are also high. An explanation of this phenomenon is that while reduction of mortality is universally desirable and can be accomplished by measures largely external to the individuals involved (e.g. community sanitation, vaccination programmes), fertility reduction is not universally recognized as desirable and it requires a major commitment from individuals.

For these reasons much research in the past 30 years has focused on the factors which determine levels of fertility. Blake and Davis (2) proposed a scheme of "intermediate fertility variables" through which any cultural or societal factors must operate. The scheme is:

I. Factors Affecting Exposure to Intercourse

A. Those governing the formation and dissolution of unions in the reproductive period.

1. Age of entry into sexual unions.
2. Permanent celibacy: proportion of women never entering sexual unions.
3. Amount of reproductive period spent after or between unions.
   a. When unions are broken by divorce, separation, or desertion.
   b. When unions are broken by death of husband.

B. Those governing the exposure to intercourse within unions.

4. Voluntary abstinence.
5. Involuntary abstinence (from impotence, illness, unavoidable but temporary separations.)

II. Factors Affecting Exposure to Conception

6. Fecundity or infecundity, as affected by involuntary causes.

7. Use or non-use of contraception.

   a. By mechanical and chemical means.

   b. By other means (3).

8. Fecundity or infecundity, as affected by voluntary causes (sterilization, subincision, medical treatment, etc.).

III. Factors Affecting Gestation and Successful Parturition

9. Foetal mortality from involuntary causes.

10. Foetal mortality from voluntary causes.

Henry (3), focusing on fertility within marital unions, called fertility "natural" when there is no deliberate birth control. Control is evident if couples alter their behaviour affecting fertility according to the number of children already born to them. Thus factors which operate independent of parity are consistent with natural fertility. (In this sense even induced abortion could be consistent with natural fertility if the incidence did not depend on parity).

In reviewing data from populations in which fertility was presumed to be natural, Henry discovered a large variation in fertility and completed family size between populations. For example, the completed size of the Hutterites of North America was 10.9, while the corresponding figure for Hindu villagers in India was only 7.0 (3). Knowledge of these differences led to increased interest in the intermediate variables which determine the time interval between births. Henry had shown earlier that the fertility rate is equal to the inverse of the mean interval between births (4).

The live birth interval is composed of four distinct sub-intervals and three reproductive states. After a live birth, a woman enters the state of post-partum amenorrhoea. Then with the resumption of menses and ovulation the woman enters the menstruating or conception-wait interval. After a certain period a conception occurs and the woman enters the pregnant state. From this state of gestation the woman either has a pregnancy loss or a live birth. In the latter case the birth interval had three sub-intervals (post-partum amenorrhoea, menstruation and gestation). In the former case the woman begins again in the post-partum amenorrheic state and a fourth sub-interval is defined: viz. the time added due to the pregnancy loss. It should be noted that this time can become quite long in the case of consecutive pregnancy losses.

Thus between populations (as between women) the average duration of stay in each of the three states can vary, as can the chance of pregnancy wastage. However, it is known that in the human species there is little variability

between populations in the duration of gestation or (excluding induced abortion) in the risk of pregnancy loss. Therefore most of the variability in the birth interval is found in the menstruating and the post-partum amenorrhoea sub-intervals.

The principal biological factors affecting the length of the menstruating interval in natural fertility populations are: (a) The frequency and timing of sexual intercourse within the menstrual cycle and (b) the viability of sperm and the proportion of menstrual cycles which are ovulatory. The length of the postpartum amenorrhoea interval is largely determined by the outcome of the pregnancy and the frequency and duration of breastfeeding (5).

Also maternal nutrition may have some bearing on the reproductive sub-intervals. For example, it has been hypothesed that a minimum body weight for height, representing a critical body fat, is necessary for maintenance of regular menstrual function of women of reproductive age (6).

In addition many indirect factors have been shown to correlate with the length of the menstruating and postpartum amenorrhoea intervals. Two demographic variables, age and parity, correlate positively with the length of both menstruating and amenorrheic intervals (7,8). The lengths of these intervals may also vary between different socio-economic status groups (9). All such differences are of course mediated by differences in the biological factors (frequency of intercourse, duration of breastfeeding, etc.) between the several demographic and socio-economic groups.

Previous Research on Sub-intervals in Bangladesh

A study of the sub-interval compensents in 200 women was done in Matlab for a two year prospective period 1969-1971 (8). Several striking findings emerged from this study; first, the unusually long mean postpartum amenorrhoea interval of 19 months for women with surviving infants and second, the seasonal pattern of resumption of menses postpartum with a peak in November. By summing the components, the overall live birth interval was estimated as 34 months.

Later, a larger study of breastfeeding women was carried out in Matlab. With respect to postpartum amenorrhoea, only slight differences in the duration of the sub-interval were found according to nutritional status of the mother. Somewhat greater differences were found between socio-economic groups (22 months versus 19 months median duration).

STUDY DESIGN

The experience of population and health surveys conducted previously in Bangladesh were considered in designing this study. First, surveys have revealed that fertility is relatively homogeneous throughout the country.

Secondly, non-sampling errors are usually of greater concern than sampling errors. Thirdly, non-response rates are negligible in fertility surveys in Bangladesh.

It was decided that a sample of 2000 currently married women followed prospectively for three years would permit a detailed analysis of birth interval dynamics. All currently married women below age 50 in 14 villages (inclusive of parts of two villages) were selected. These villages are all situated near Matlab Bazar (Figure 1). Although some clustering effect may result from this selection of villages and respondents, this procedure had the following advantages (1) Extensive field checking could be maintained, from the central office in Matlab. (2) Fewer field workers were required than in a random sampling scheme. (3) The selected women felt less intimidated by the study because all women in the neighbourhood were sampled. Hence respondents probably gave more reliable responses, than would otherwise be the case. (4) With geographic clusters, better supervision and logistic support was possible. (5) The proximity of the sampled villages allowed the use of readily available and inexpensive country boats for the field workers instead of costly gasoline-driven speedboats.

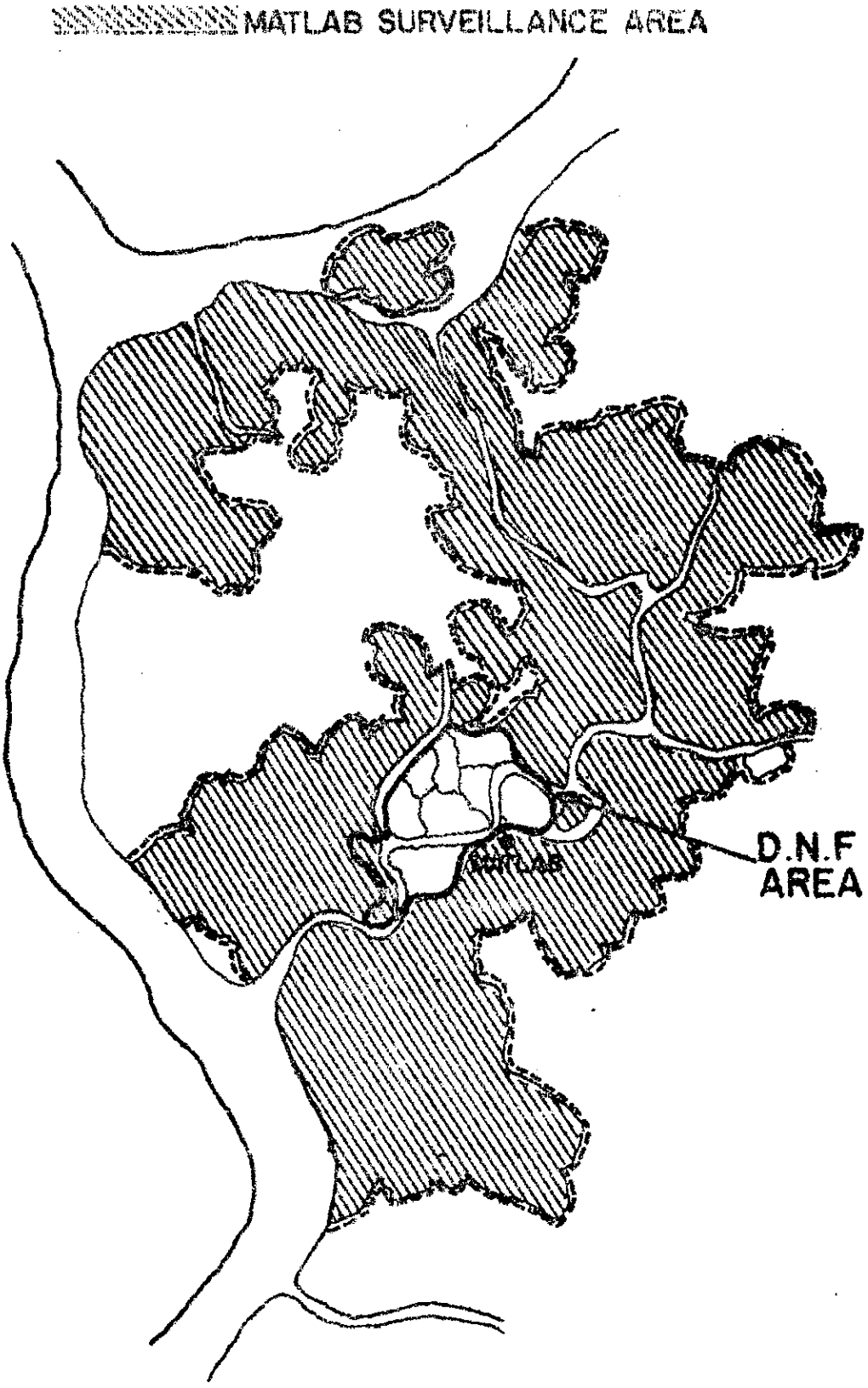
The prospective period of this study was October 1975 to April 1978. During this period women in these villages could enter the study by marriage, or leave the study by exiting from the currently married state. In addition women could leave the study by out-migration or refusal or menopause. Menopause was defined according to the woman's report or if the woman had not menstruated for six or more months and her youngest child was more than five years old. Women who received contraceptive sterilization were also excluded.

Five female field workers were selected and trained extensively for the work. They were all educated women of the locality. The training included the following: (1) Definition of reproductive terms relevant to the study and relation of those terms to local vocabulary. (2) Identification of response biases that might occur because of social prestige, fears, rumours, stigmas and superstitions. (3) Teaching of anthropometric measurement techniques and blood specimen collection. (4) Field testing of questionnaire. One female supervisor was assigned to perform routine checking in the field.

At the beginning of the study a short questionnaire was given covering retrospective reproductive events and socio-economic variables. (Form 1; Appendix A). The women were asked their education, the occupation of their husbands, the numbers of living children, dead children, stillbirths and miscarriages, the date and type of the last pregnancy termination, and present reproductive status. Women who entered the study after October 1975 were also given this questionnaire.

For the prospective work, each field worker was assigned approximately 20 women to interview in a given day. Visits to each woman were made at monthly intervals. If the respondent was absent the worker visited a second

FIGURE - 1



time in the same month to attempt to complete the interview. If the women were still absent, this was noted on the form and information for a two month interval was collected on the next round. If a woman was absent for more than six months continuously she was considered an out-migrant and excluded from the study from that point of time.

During the first year of study the field work had three components: the interviews, anthropometric measurements, and collection of blood samples. Information for all components was recorded on a monthly data sheet for each woman (Form 2; Appendix B). The interview had questions on reproductive status, breastfeeding status, absence (of either the husband of the respondent) in the past month, illness (of either spouse), and child death or marital status changes.

The reliability of the questionnaire data collected was checked independently by the field supervisor in a short study beginning in April 1978. On one day in each week for ten weeks, with the list of the previous day's respondents for each worker, the supervisor randomly selected four women to reinterview. A reinterview was completed and the responses were subsequently compared with those of the worker in the office. From this work it was found that the reliability of most of the variables was high (Table 1). The reporting of number of days absent in the past month for both husband and wife showed the greatest inconsistency. These data were reported differently in the two interviews by 9% and 8% of the women respectively.

Maternal nutritional data collected in the study was of two types. (1) Anthropometric measures, (height, arm circumference and weight). (2) Biochemical measures (Hematocrit level, serum protein, albumins and globulins). Height was taken only at the 1st month of the study and other anthropometry (weight and arm circumference) measures were taken in each month of the study. The biochemical measures were done bimonthly.

Because of the large size of the sample, 5 field workers were employed for these activities. It was necessary to ensure that the workers were taking measurements in the same way and obtaining similar results. This checking was done by using a regression equation: Weight=Constant + B_1 Height + B_2 Arm Circumference. The workers were trained until B_1 and B_2s for five workers were not significantly different.

Weighing started approximately two months after the beginning of the study. (Scales were not available earlier). Beam balance scales measuring in increments of 20 grams and with a range of 65 kg., were used. Scales were checked to ensure accurate measurements. Because of the rough field conditions and the sensitivity of the beam balance scales, each was tested before each weighing in the field with a standardized weight. All weights were taken with the women clothed as usual in saries, with no shoes or heavy ornaments.

Table 1: Results of Comparison of Field Worker Coding with Independent Checking by the Supervisor

Question	Number of responses different	Percent of responses different (N = 132)
Menstruation	0	0
Pregnancy	0	0
Pregnancy Termination	0	0
Breastfeeding	0	0
Supplementation	4	3.0
Husband's absence	12	9.1
Family Planning	0	0
Illness	6	4.5
Breakthrough Bleeding	1	.7
Husband's illness	3	2.3
Child Death	0	0
Absence (of wife)	11	8.3
Change in marital status	0	0

Heights were measured in centimeters with a stadiometer. The women stood with their backs against the vertical rod, with feed parallel and heels, buttocks, shoulders, and back of head touching the board. Measurements were taken to the nearest 1 cm.

Arm circumference was measured on the left arm. Using a plastic centimeter tape, the midpoint of the upper arm was determined with the arm bent at the elbow, and the point marked on the arm with a pen. This point is halfway between the tip of the olecranon process and the tip of the acromial process. With the arm hanging loosely at the side, its circumference was measured at this point.

Finger tip blood samples were taken from each woman every alternative month for biochemical analysis. Hematocrit level and total protein estimation was done by Goldberg Refractometer in the Field Station. Protein fractions were done by Beckman Microzone Electrophoresis within the 48 hours of collection of blood sample. Scanning of the different protein fractions was done by Beckman densitometer. The blood samples which were either hemolysed or insufficient were excluded from analysis.

After completion of the 29th round of the prospective study, the records were brought to the Statistics branch of the Dacca office for processing. All records for the same women were assembled and checked for completeness. A coding procedure was developed with multiple record types. (The records were variable length, depending on the number of events which a woman had) (Appendix B). The data were then punched on computer cards, verified, transferred to computer tape and edited with range and consistency checks.

RESULTS

Since the villages for the study were chosen without recourse to probability sampling, it is important to determine to what extent the populations of these villages are similar to the populations of other villages in the Matlab Demographic Surveillance Area, in Comilla district generally and in Bangladesh as a whole. Using DSS Census data for 1974 and national census data for the same year, it is possible to compare the age, sex and marital status distributions of these populations.

With respect to the age-sex distribution of the population, both the study villages and all the DSS villages have higher proportions in the age group 0-9 and lower proportions in the age group 10-19 than reported in the Comilla or total Bangladesh population counts (Table 2). It is probable that this reflects differences in the quality of the age data rather than true age distribution differences. In the DSS area exact ages are known for children born after 1966. On the other hand, the quality of the age date in the 1974 Bangladesh census was quite poor — Whipple's index of age heaping which ranges

Table 2: Population Age Sex Distribution in 1974 for Bangladesh, Comilla District the 233 Demographic Surveillance Villages and the 14 DNF Study Villages

Age (in years)	MALES				FEMALES			
	Bangladesh	Comilla	DSS	Study Village	Bangladesh	Comilla	DSS	Study Village
All ages	(3,70,70,726)	(30,11,775)	(1,37,427)	(8,048)	(3,44,07,027)	(2,80,701)	(1,29,080)	(7,748)
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0 - 9	34.0	34.2	31.5	30.4	36.5	36.0	31.2	30.3
10 - 19	22.0	21.9	26.7	26.9	20.2	19.2	26.1	26.4
20 - 39	23.8	22.5	21.4	20.9	25.7	26.1	24.6	24.2
40 - 49	14.0	14.2	14.5	15.4	12.5	13.3	13.2	14.0
60 +	6.0	7.2	5.9	6.3	5.2	5.4	4.9	6.1

from below 105 in highly accurate censuses to 175 and above in very rough data, had values of 338 and 354 for males and females respectively in the 1974 Bangladesh census (10 p.11).

The comparative marital status distributions of females are shown in Table 3. Of females 10-49 years of age fewer are reported as married in the DSS area than in Comilla or Bangladesh. Again this difference may be due to age mis-reporting in the young ages in the Bangladesh census of 974. Above age 20, the proportions in the various marital status groups are similar in all four populations. One difference is apparent however. For any given age group up to age 40, the proportion of women currently married in the study villages is consistently lower than the corresponding proportion in the whole DSS area. The proportions never married are higher in the study villages than in the whole area.

These differences may be due to the contribution of two factors; first age of young children in Bangladesh are generally overstated (11). Second in the study villages the age was first asked in the census of 1963 while in most of the other DSS villages censuses were not taken until 1966 or 1968. These census ages were merely updated to determine the 1974 age. Since women 10-19 in 1974 were either not born or were 0-8 years old in 1963 the proportion who would have overstated ages is less than in the other DSS villages where girls 10-19 in 1974 were 4-13 or 2-11 years in 1968 or 1966 respectively. Thus among women age 10-19 in 1974 the proportion unmarried is higher in the study villages.

The age-parity distribution of the women at the beginning of the study reveals the history of high fertility in this population* (Table 4). The mean (and median) number of children ever born to women over age 40 is eight. Even women age 30-34 have had an average of six live births. These figures are comparable with the mean parities of 6 and 7 found for ever-married women age 30-34, and above 40 respectively in the Bangladesh Fertility Survey (12).

The distribution of the study women according to selected socio-economic variables is shown in Table 5. In all 76 percent had no formal education. Nearly 90 percent were of the Muslim religion, the remainder were Hindu. About 40 percent of the husband's work in the agricultural sector. Other occupations with significant numbers were fishing, mill work, small business and service (office work). Over half of the households to which the women belonged, had one or more boats. Boats are an important possession since they provide virtually the only means of transport during the monsoon season.

Numbers of women by time of entry into the study and reason for exit are shown in Table 6. Twenty percent of the women in the study entered (mostly through marriage in the age group below 20) after November 1975. Eighty-seven percent of the women remained in the study until the time of truncation (March-April 1978). Among the reasons for early exit from the study, out-migration

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* In this and all subsequent tables, age is taken as the age at the time of entry into the study.

Table 3 : Marital Status Distribution of the Female Population Age 10-49 in 1974 for Bangladesh, Comilla District, the 233 Demographic Surveillance Villages and the 14 DNF Study Villages

Age Group	Area	Marital Status					
		All Statuses		Not Married	Currently Married	Widowed	Divorced
		Number	Percent				
10-49	Bangladesh	18384955	100.0	25.0	68.6	5.1	1.2
	Comilla District	1494746	100.0	25.2	69.2	4.6	1.0
	DSS Area	75551	100.0	33.2	60.7	4.7	1.4
	Study Villages	7748	100.0	35.1	59.0	4.4	1.5
10-19	Bangladesh	6958843	100.0	64.3	33.8	.5	1.4
	Comilla District	539672	100.0	67.8	30.7	.4	1.1
	DSS Area	33704	100.0	73.6	24.9	.1	1.4
	Study Villages	2043	100.0	77.1	21.4	.2	1.3
20-29	Bangladesh	5007581	100.0	2.1	94.1	2.2	1.6
	Comilla District	404884	100.0	2.1	94.6	1.9	1.4
	DSS Area	16624	100.0	1.6	94.4	1.6	2.4
	Study Villages	939	100.0	2.7	92.9	1.2	3.2
30-34	Bangladesh	3807109	100.0	.5	91.7	7.1	.7
	Comilla District	324863	100.0	.6	92.7	6.1	.6
	DSS Area	15123	100.0	.2	91.9	7.0	.9
	Study Villages	937	100.0	.3	91.4	7.4	.9
40-49	Bangladesh	2611422	100.0	.4	78.8	20.3	.5
	Comilla District	225327	100.0	.4	81.8	17.6	.3
	DSS Area	10100	100.0	.1	77.9	21.6	.5
	Study Villages	647	100.0	0	81.3	18.2	.5

Table 4: Study Women by Age and Parity at the beginning of the Study

Age group	All Parities	Parity											Median Parity	Mean Parity
		0	1	2	3	4	5	6	7	8	9	10+		
						Number of Women								
All ages	1895	195	253	212	191	175	183	188	158	135	84	121	4	4.4
<20	370	149	170	44	5	1	0	0	1	0	0	0	1	0.6
20 - 24	336	29	68	123	85	23	6	0	1	1	0	0	2	2.1
24 - 29	295	9	9	32	70	81	49	30	8	7	0	0	4	3.9
30 - 34	392	7	3	11	24	49	76	83	62	44	17	16	6	5.8
35 - 39	258	1	1	1	5	13	35	44	47	46	31	34	7	7.2
40 - 44	174	0	0	0	1	7	11	26	27	27	24	51	8	8.2
45 +	70	0	2	1	1	1	6	5	12	10	12	20	8	8.0
						Percent of Women								
All ages	100.0	10	13	11	10	9	10	10	8	7	4	6		
<20	100.0	40	46	12	1	-	-	-	-	-	-	-		
20 - 24	100.0	9	20	37	25	7	2	-	-	-	-	-		
25 - 29	100.0	3	3	11	24	27	17	10	3	2	-	-		
30 - 34	100.0	2	1	3	6	13	19	21	16	11	4	4		
35 - 39	100.0	-	-	-	2	5	14	17	18	18	12	13		
40 - 44	100.0	-	-	-	1	4	6	15	16	16	14	29		
45 +	100.0	-	3	1	1	1	9	7	17	14	17	29		

Table 5: Distribution of Study Women (N = 2379) by Selected Socio-economic Variables

Education (Years)	Percent of Women
0	76.2
1 - 5	20.3
6 - 10	3.3
11+	.2
Religion	
Muslim	88.7
Hindu	11.3
Number of Boats	
0	34.9
1	54.1
2	6.8
3+	1.7

Occupation of Husband	Percent of Women
Cultivator	30.0 -
Agriculture Labourer	7.3
Fishing	9.6
Milk Work	11.0 -
Unskilled Labour	3.6
Boatman	4.3
Business	12.9
Self-employed	4.3
Other (e.g. domestic labour, beggar, student, disabled)	5.0

Table 6: Time of Entrance into Study and Reason for Exit from Study for all Study Women

Age Group	Entrance into Study			Reason for Exit from Study						
	All Women	At beginning[a]	After beginning[b]	Truncation[c]	Refused	Change in Marital Status	Out-migration	Menopause[d]	Death	Other[e]
All ages	2373	1895	478	2065	47	80	128	41	9	3
<20	615	370	245	525	11	25	50	0	3	1
20 - 24	402	336	66	349	8	13	32	0	0	0
25 - 29	356	295	61	320	5	8	20	0	3	0
30 - 34	438	392	46	405	6	9	13	2	2	1
35 - 39	286	258	28	255	6	10	5	9	1	0
40 - 44	202	174	28	161	6	10	5	19	0	1
45 +	74	70	4	50	5	5	3	11	0	0

[a]The first round of the study was in October-November 1975

[b]These women entered by marriage or in-migration

[c]The truncation date was taken as March 1978

[d]See text for definition

[e]Sterilization or very long absence

was the major cause, accounting for 40 percent of exits. The second most common cause of early exit (26 percent) was change in marital status by divorce or widowhood. Out-migration and divorce were the important factors among the young women and widowhood and menopause were the major reasons for exit among older women.

In the subsequent presentation, three overlapping groups of women are distinguished according to the entry-exit status. The first group is all women who ever entered the study (2373 women). The second group is all women who were present at the beginning of the study (1995 women). The third group is all women who were present at both the beginning and end of the study (1660 women) 70 percent of all study women fall in the third group.

Reproductive Status and Events

The current reproductive status of women at the beginning of the study is shown in Table 7, and the type of last reproductive event is shown in Table 8. Forty-six percent of the women were in the menstrual interval; 38 percent were in post-partum amenorrhoea and 15 percent were pregnant at the beginning of the study.

The current status of a woman is determined by the type of her last reproductive last event. Women whose last event was a conception are pregnant; women whose last event was a pregnancy termination are in post-partum amenorrhoea, and women who have never had a conception or whose last event was a resumption of menstruation are in the menstruating sub-interval. However, the tables reveal that the correspondence between events is not exact in these data. The sum of the women who report their last event as a resumption of menstruation or who report no previous pregnancy is greater than the number who reported themselves currently in the menstruating interval. This is probably due to the fact that some of the young nulliparous women were amenorrheic and reported themselves in the amenorrhoea group.

In the age group 25-35 over half of the women were in the post-partum amenorrhoea state. Both the proportions menstruating and proportions amenorrheic have age patterns which are parabolic, with the proportion menstruating falling to a minimum in the age group 25-29 and the proportion amenorrheic rising to a maximum at age 25-35.

Regarding prospective reproductive events, sixty-four percent of women present during the 29 months of the study had at least one pregnancy termination and 59 percent had at least one live birth (Table 9). Among women below age 30, 81 percent and 77 percent had more than one pregnancy termination and one live birth respectively while for women age 30 and above the corresponding percentages were 46 and 39. This of course reflects known age differentials in fertility.

Table 7: Distribution of Women present at the Beginning of the Study by Age and Reported Reproductive Status

Age Group	Reproductive Status				
	All Statuses	Pre-Menarche	Menstruating	Pregnant	Postpartum Amenorrhea
			Number of Women		
All ages	1895	9	876	287	723
<20	370	9	194	64	103
20 - 24	336	0	123	73	140
25 - 29	295	0	79	63	153
30 - 34	392	0	140	49	203
35 - 39	258	0	144	28	86
40 - 44	174	0	134	10	30
45 +	70	0	62	0	8
			Percent of Women		
All ages	100	1	46	15	38
<20	100	2	52	17	28
20 - 24	100	-	37	22	42
25 - 29	100	-	27	21	52
30 - 34	100	-	36	13	52
35 - 39	100	-	56	11	33
40 - 44	100	-	77	6	17
45 +	100	-	89	-	11

Table 8 : Distribution of Women Present at the Beginning of Study by Type of Last Reproductive Event and Age

Age Group	All Women	Type of Last Event			
		No Previous Conception	Conception	Pregnancy Termination	Resumption of Menstruation
All Ages	1895	160	288	709	738
<20	370	114	63	104	89
20 - 24	336	25	74	135	102
25 - 29	295	10	63	149	73
30 - 34	392	8	50	199	135
35 - 39	258	2	27	84	145
40 - 44	174	1	10	30	133
45 +	70	0	1	8	61

Table 9 : Number of Women Present in the Study for the Entire Period by Age and by Number of Pregnancy Terminations and Number of Live Births in the Prospective Period

Age Group	All Women	No. of Pregnancy Terminations			Number of Live Births		
		0	1	2+	0	1	2+
All Ages	1660	30	943	122	684	925	51
<20	312	60	218	32	74	221	16
20 - 24	301	55	213	31	63	223	13
25 - 29	270	54	190	25	70	188	11
30 - 34	361	133	205	23	158	195	8
35 - 39	231	127	93	10	152	76	2
40 - 44	137	115	21	1	21	16	0
45 +	48	45	3	0	46	2	0

In distribution of women according to numbers of reproductive events and the sequence of those events are shown in Table 10. In all 11.78 percent of the women had one or more reproductive events during the 29 month period and 65 percent had two or more events. Thus totally prospective closed sub-interval data are available for 65 percent of the women. 43 percent of the women actually had three or more reproductive events in the prospective period.

These data are shown from a different perspective in Table 11 and 12. Of the 1300 women who had a first event, the type of event was resumption of menstruation for 48 percent of them (Table 11). The percentage of the women who resumed menses in the prospective period and then had their next conception, was 72. Similarly, of the 406 women whose conception was the first reproductive event, 97 percent had a pregnancy termination in the prospective period. Again, of 261 women who had a pregnancy termination as the first retrospective event, 86 percent resumed menses in the prospective period.

The total numbers of reproductive events of a given type, regardless of sequence, are shown in Table 12. Of the 3526 events recorded, the distribution by type was quite uniform across the age groups. The number of women who had events is also given for reference. These numbers of events have been converted to rates per women year in Table 13.

Breastfeeding, Birth Control, Illness Episodes and Absence of Spouse

The breastfeeding status of women observed for the entire study is summarized in Table 14. 64 percent of the women were breastfeeding at the beginning of the study and virtually the same percentage were breastfeeding at the end. In the less than 20 age group the proportion breastfeeding increased dramatically by the end of the study as many women married shortly before the study began, had a live birth and began breastfeeding by the end of the study. The proportion breastfeeding declines progressively with age. Among the breastfeeders, the relative proportions only giving breast milk, breast-feeding with liquid supplement and breastfeeding with solid supplement reflect the durations of time spend in these various states. (This is seen by considering the epidemiological formula: prevalence = incidence x duration).

Birth control practice among the study women was negligible. Only four percent of the women reported use of contraception at the beginning of the study and the same percentage reported use at the end of the study.

The method which had the most users at the beginning of the study was the pill (Table 15). By the end of the study the distribution of contraceptors by method used was very different. Injection was the method of choice of 45 percent of the users and 27 percent of the contraceptors had chosen contraceptive sterilization. Female sterilization was offered to women through the Matlab thana health facility. This change in pattern is the reflection of Family Planning Programme which started with only oral contraceptive and subsequently included sterilization injectables etc.

Table 10: Study Women Observed for the Entire Period by Number and Sequence of Prospective Reproductive Events

Number of Reproductive Events	Sequence of Events	Number of Women
All	--- - - - - - - - - -- - - - - - - -	1660
0	- - - - - - - - - - - - - - - - - --	360
1	All First Events only	224
	Resumption of Menses only (RM)	175
	Conception only (CN)	12
	Pregnancy Termination only (PT)	37
2	All Sequences	359
	RM - CN	49
	CN - PT	178
	PT - RM	132
3	All Sequences	465
	RM - CN - PT	283
	CN - PT - RM	148
	PT - RM - CN	34
4	All Sequences	146
	RM - CN - PT - RM	76
	CN - PT - RM - CN	31
	PT - RM - CN - PT	39
5 +	All Sequences	106
	RM - CN - PT - RM - CN...	50
	CN - PT - RM - CN - PT...	37
	PT - RM - CN - PT - RN...	19

Table 11: Reproductive Events to Women Present for the Entire Prospective Period and having Events, by Age, Type of First Event and the following Sequence of Reproductive Events

First Observed Event	Events in Reproductive Cycle					
	Resumption of Menses	Conception	Pregnancy Termination	Resumption of Menses	Conception	Pregnancy Termination
			Number of Women			
Resumption of Menses	633	458	409	126	50	28
Conception	-	406	394	216	68	37
Pregnancy Termination	-	-	261	224	92	58
			Percent of Women Having a First Event			
Resumption of Menses	100	72	65	20	9	4
Conception	-	100	97	53	17	9
Pregnancy Termination	-	-	100	86	35	22

Table 12 : Total Number of Prospective Reproductive Events to Women having Events and Present for the Entire Study by Type of Event and Age of the Woman

Age Group of Woman	Number of Women with Events	Type of Event			
		All Types	Resumption of Menses	Conception	Pregnancy Termination
All Ages	1299*	3526	1243	1093	1190
<20	290	803	250	273	280
20 - 24	278	813	275	255	283
25 - 29	241	698	249	211	238
30 - 34	296	777	292	235	250
35 - 39	147	345	134	98	113
40 - 44	41	79	38	18	23
45 +	6	11	5	3	3

*One case was lost in the creation of this file

Table 13 : Rates (Per 1000) of Occurrence of Reproductive Events for Women Present for the Entire Period by Type of Event and Age

A g e	Total Women Years of Observation	Type of Event		
		Resume Menstruation	Conception	Pregnancy Termination
All Ages	4011.7	310	272	297
<20	754.0	332	362	371
20 - 24	728.4	378	350	389
25 - 29	653.4	381	323	364
30 - 34	873.6	334	269	286
35 - 39	559.0	240	175	202
40 - 44	331.5	115	54	69
45 +	116.2	43	26	26

Table 14 : Breastfeeding Status at the Beginning and End of the Study for Women Observed the Entire Period by Age

Age at Beginning of Study	All Women	Breastfeeding Status at the Beginning of Study					Breastfeeding Status at End of Study				
		Not Breast Feeding	Breast Feeding				Not Breast Feeding	Breast Feeding			
			All Breast Feeding Women	Only Breast Feeding	With Supplement Only Liquids	With Supplement Solids		All Breast Feeding Women	Only Breast Feeding	With Supplement Only Liquids	With Supplement Solids
					Number of Women						
All Ages	1659	604	1055	197	27	849	581	1078	217	51	810
<20	312	162	150	39	7	104	58	254	65	13	176
20 - 24	301	79	222	47	6	169	56	245	60	10	175
25 - 29	270	66	204	36	3	165	64	206	35	14	157
30 - 34	360	92	268	33	9	226	125	235	39	7	189
35 - 39	231	90	141	15	2	124	126	105	17	5	83
40 - 44	137	78	59	8	0	51	108	29	1	2	26
45 +	48	37	11	1	0	10	44	4	0	0	4
					Percent of Women						
All Ages	100	36	64	11	2	51	35	65	13	3	49
<20	100	52	48	13	2	33	19	81	21	4	56
20 - 24	100	26	74	16	2	56	19	81	20	3	58
25 - 29	100	24	76	13	1	61	24	76	13	5	58
30 - 34	100	26	74	9	3	63	35	65	11	2	53
35 - 39	100	39	61	6	1	54	55	45	7	2	36
40 - 44	100	57	43	6	-	37	79	21	1	1	19
45 +	100	77	23	2	-	21	92	8	-	-	8

Table 15: Number of Women Observed for the Entire Study and Practicing of Contraception at the Beginning, or End of the Study by Method of Contraception Used

Method of Contraception Used	Time Period of Practice			
	Beginning of the Study		End of Study	
	Number	Percent	Number	Percent
All Methods	61	100	64	100
Pill	38	62	16	25
Injection	19	31	29	45
Condom	-	-	2	3
Sterilization	-	-	17	27
IUD	4	7	-	-

1658 illness episodes were reported by women during the study. The majority of the women reported no illness during the 30 month study period (Table 16). The proportion reporting illness increased with increasing age. Among women less than 20 years of age, 31 percent reported illness while among women above 45 years of age, 66 percent reported at least one illness.

There is a large amount of short term migration especially among young males in the Matlab population (13). Thus, in order to study the risk of conception, it was necessary to know how many days spouses were separated (Table 17). In the 30-month prospective period 23 percent of the women were separated from their husbands more than 14 months. Only 13 percent reported no days of separation from their husbands during the study. For the young age group 30 percent of the husbands were absent more than 14 months and only 2 percent of the husbands were at home for the entire period.

Anthropometric and Biochemical Measures

Nutritionists have put forward a hypothesis that maternal nutritional status affect the duration of amenorrhoea and fecundity. Frisch and McArthur have suggested that minimal percentage of body weight as fat may be necessary to attain, restore and maintain menstruation. The question concerning the role of nutrition in lengthening periods of amenorrhoea and lowering the fecundity is especially relevant to Bangladesh, where low level of nutrition prevailing for the majority of rural population. A logical assumption is that long amenorrhoea low fecundity, high perinatal deaths noted in Bangladesh may be partly due to maternal malnutrition. It will be of interest in the determination of the significance of maternal nutritional status in the components of birth interval.

It is important to note that the time period during which nutritional data were collected was an abnormal period in Bangladesh, January 1976 was the period of recovery from the 1975 famine (1).

Women in the study in January 1976 had a mean height of 147.8 cm. (Table 18). No differences in heights according to reproductive status were observed.

The weight of older women was significantly less than that of younger women (Table 19). Women in the menstruating and postpartum amenorrhoea sub-intervals have approximately the same weight. Pregnant women were 3.3 kg. heavier than other women.

The arm circumference mean for study women in January 1976 was 21.8 cm. (Table 20). Again, this measure shows a significant decline with increasing age of the women. There were no differences in mean arm circumference between reproductive status groups.

Table 16: Distribution of Women Observed for the Entire Study by Number of Days Separated from her Husband and Age

Age Group	All Women	Number of Days of Separation									
		0	1-29	30-59	60-119	120-179	180-239	240-399	300-359	360-419	420+
						Number of Women					
All Ages	1645	212	281	192	204	120	87	72	55	49	371
<20	309	0	15	16	40	37	24	31	22	22	96
20 - 24	296	18	22	31	44	33	19	19	12	9	89
25 - 29	268	28	43	41	37	21	14	8	5	3	68
30 - 34	359	60	77	55	50	18	16	7	9	6	61
35 - 39	229	58	61	28	14	5	12	4	7	4	36
40 - 44	137	30	44	17	15	4	2	2	1	4	18
45 +	47	12	19	4	4	2	0	1	1	1	3
						Percent of Women					
All Ages	100.0	13	17	12	12	7	5	4	3	3	23
<20	100.0	0	5	5	13	12	8	10	7	7	31
20 - 24	100.0	6	7	10	15	11	6	6	4	3	30
25 - 29	100.0	10	16	15	15	14	5	3	2	1	25
30 - 34	100.0	17	21	15	4	5	4	2	3	2	17
35 - 39	100.0	25	27	12	6	2	5	2	3	2	16
40 - 44	100.0	22	32	12	11	3	1	1	1	3	13
45 +	100.0	26	40	9	9	4	0	2	2	2	6

Table 17: Distribution of Study Women Observed for the Entire Period by Number of Illness Episodes and Age

Age Group	All Women	Number of Illness Episodes			
		None	One	Two	Three or More
		Number of Women			
All Ages	1658	996	422	165	75
<20	312	217	65	21	9
20 - 24	301	205	72	18	6
25 - 29	270	162	66	25	17
30 - 34	360	192	96	58	14
35 - 39	230	126	68	22	14
40 - 44	137	73	39	15	10
45 +	48	21	16	6	5
		Percent of Women			
All Ages	100.0	60	25	10	5
<20	100.0	70	21	7	3
20 - 24	100.0	68	24	6	2
25 - 29	100.0	60	24	9	6
30 - 34	100.0	53	27	16	4
35 - 39	100.0	55	30	10	6
40 - 44	100.0	53	28	11	7
45 +	100.0	44	33	13	10

Table 18: Mean Height (cm) of the Study Women by Age and Reproductive Status in January, 1976

Age Group	Reproductive Status											
	All Statuses			Menstruating			Pregnant			Postpartum Amenorrhea		
	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n
All Ages	147.8	5.3	1517	147.7	5.2	779	148.4	5.3	274	147.6	5.4	464
<20	148.1	5.1	247	147.9	5.1	115	148.4	5.1	63	148.3	5.2	69
20 - 29	148.1	5.3	522	148.2	5.3	196	148.4	5.1	127	147.9	5.5	199
30 - 39	147.4	5.3	541	147.4	5.2	290	148.2	5.5	77	147.2	5.4	174
40 - 49	147.5	5.2	207	147.5	5.2	178	152.6	6.6	7	145.5	5.2	22

Table 19: Mean Weight (kg) of the Study Women by Age and Reproductive Status in January, 1976

Age Group	Reproductive Status											
	All Statuses			Menstruating			Pregnant			Postpartum Amenorrhea		
	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n
All Ages	40.6	4.9	872	39.9	5.0	447	43.3	4.3	160	40.1	5.1	265
<20	41.5	4.2	140	41.7	4.3	57	42.7	4.3	44	39.9	4.1	39
20 - 29	41.7	4.9	308	40.9	4.7	122	43.8	4.9	74	41.1	5.1	112
30 - 39	39.8	4.9	308	39.6	4.8	170	41.3	4.4	38	39.5	5.3	100
40 - 49	38.0	5.3	116	38.1	5.5	98	-	-	4	37.1	3.1	14

Table 20: Mean Arm Circumference (cm) of Study Women by Age and Reproductive Status in January, 1976

Age Group	Reproductive Status											
	All Statuses			Menstruating			Pregnant			Postpartum Amenorrhea		
	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n
All Ages	21.8	1.6	1470	21.8	1.6	765	22.0	1.5	255	21.6	1.6	450
<20	22.1	1.4	245	22.5	1.4	116	22.1	1.5	59	21.4	1.4	70
20 - 29	22.0	1.5	500	22.0	1.5	192	22.2	1.3	119	21.8	1.7	189
30 - 39	21.7	1.6	529	21.7	1.6	286	21.8	1.5	71	21.6	1.6	172
40 - 49	21.5	1.8	196	21.6	1.8	171	20.7	1.8	6	21.1	1.6	19

The biochemical measures of this study were used to detect two kinds of nutritional deficiency - anemia and protein malnutrition. The mean hematocrit level for all study women was 35.6 percent (Table 21). The standard deviation of the hematocrit level was high indicating that about 8 percent of the women of reproductive age and hematocrit levels below 30 percent. Pregnant women have the lowest hematocrit levels.

Table 22 shows the mean serum protein (g/100 ml) by age and reproductive status of the women. Non-pregnant women had a mean serum protein level of 8.5 g/100 ml. Pregnant women had a mean level of 7.9 g/100 ml. The serum protein among the pregnant women was lower because of their lower level of serum albumin. Non-pregnant women had a mean albumin level of 3.8 g/100 ml compared to 3.3 g/100 ml of pregnant women (Table 23). As the standard deviations for both serum protein and albumin are low there are few cases with serum protein less than 6 g/100 ml or albumin less than 2.5 g/100 ml. The population seems to have neither low serum protein nor low serum albumin. However, this does not necessarily imply a satisfactory state of maternal nutrition. These levels may occur at the expense of tissue proteins, may have reflected by the decrease in body weight with increasing age as noted before.

Reproductive Sub-intervals

Of the women in the study for the entire period, 78 percent had one or more prospective reproductive events and 64 percent had two or more such events. It is thus possible to calculate medians and means for the birth interval components.

For reproductive sub-intervals which began and ended in the prospective period, mean durations are available. However, since the time period is truncated, there is obviously a selection bias toward short intervals. One way to gauge the magnitude of the bias is to compare means and medians for the same sub-intervals, though such a comparison is also affected by the any skewness in the distributions.

For all women who conceived during the study period, the distribution by duration of gestation at termination is shown in Table 24. Nearly half of the women terminated their pregnancy in the tenth 30-day month after their last menstrual period. However, among women above age 30, 60 percent had pregnancy terminations before the 10th month. The corresponding percentage for women below age 30 was 45. This may reflect the high rate of fetal losses occurring to older women. The mean duration of pregnancy at termination was 9.0 30-day months for all women. The mean also declined with increasing age (Table 24).

For the postpartum amenorrhoea and conception sub-intervals, life table l_x values were calculated for women who terminated a pregnancy or resumed menstruation during the study (Table 25). The median

Table 21: Mean Hemotocrit Level (Percent) of Study Women by Age and Reproductive Status in January, 1976

Age Group	Reproductive Status											
	All Statuses			Menstruating			Pregnant			Postpartum Amenorrhea		
	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n
All Ages	35.6	4.0	1250	36.1	3.9	662	34.0	4.1	202	35.6	4.0	386
<20	35.7	4.1	216	37.0	3.8	105	34.4	4.3	49	34.7	4.4	62
20 - 29	35.7	3.6	439	36.3	3.5	173	34.0	3.7	100	36.0	3.7	166
30 - 39	35.4	4.2	432	35.8	4.2	240	33.9	4.4	51	35.4	4.1	141
40 - 49	35.5	3.9	163	35.5	3.9	144	-	-	2	35.4	3.6	17

Table 22: Mean Serum Protein (gm/100ml) of Study Women by Age and Reproductive Status in January, 1976

Age Group	Reproductive Status											
	All Statuses			Menstruating			Pregnant			Postpartum Amenorrhea		
	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n
All Ages	8.4	.75	1224	8.5	.75	644	7.9	.79	197	8.4	.72	383
<20	8.4	.77	207	8.6	.73	98	8.1	.90	48	8.4	.73	61
20 - 29	8.4	.73	436	8.5	.72	172	7.9	.72	99	8.5	.75	165
30 - 39	8.4	.73	423	8.4	.74	234	7.9	.83	48	8.5	.69	141
40 - 49	8.4	.77	158	8.4	.80	140	-	-	2	8.2	.45	16

Table 23: Mean Serum Albumin (gm/100ml) of Study Women by Age and Reproductive Status in January, 1976

Age Group	Reproductive Status											
	All Statuses			Menstruating			Pregnant			Postpartum Amenorrhea		
	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n	$\bar{x}$	σ	n
All Ages	3.7	.43	1032	3.8	.41	541	3.3	.53	169	3.7	.40	322
<20	3.7	.45	172	3.8	.34	79	3.4	.58	41	3.7	.47	52
20 - 29	3.7	.42	384	3.8	.36	154	3.3	.53	86	3.8	.40	144
30 - 39	3.6	.42	352	3.7	.43	197	3.3	.49	42	3.7	.37	133
40 - 49	3.8	.45	124	3.8	.46	111	-	-	-	3.7	.32	13

Table 24: Proportion of Women Terminating the Gestation Interval by Completed Months since Last Menstrual Period and Age

Completed Months since LMP	Age Group			
	All Ages	<20	20 - 29	30 and above
All Months	1.00	1.00	1.00	1.00
0 - 2	.02	.01	0	.03
3 - 5	.09	.05	.08	.18
6	.01	.01	0	.02
7	.01	.01	.01	.02
8	.08	.06	.08	.12
9	.28	.31	.28	.21
10	.44	.47	.47	.38
11	.07	.06	.08	.02
N	541	219	172	150

Table 25: Life Table Proportion (l_x) of Women in Post-partum Amenorrhea by Month Since Live birth and Age

Months Since Live births (x)	Age Group			
	All Ages	<20	20 - 29	30 and above
0	1.00	1.00	1.00	1.00
3	.88	.86	.87	.93
6	.76	.68	.76	.83
9	.69	.60	.72	.73
12	.60	.52	.64	.61
15	.49	.32	.55	.56
18	.38	.22	.43	.45
21	.29	.17	.31	.38
24	.17	.14	.18	.18
N	328	92	151	85
Median	15	13	16	17

duration of post-partum amenorrhoea was 15 months for all women, and increased from 13 months for women below age 20 to 17 months for women above age 30. These levels correspond closely with values found in the prospective study of 200 women in 1969-71 (8).

The median duration of post-partum amenorrhoea had different age pattern. For all women completing the sub-interval, the mean was 12 months. Women less than 20 years of age had a mean interval of 9 months; the mean interval increased to 14 months for women age 25-29; it then decreased to 12 months for women above age 35.

The median duration of the waiting time to conception sub-interval was 7 months (Table 26). The pattern by age was curvilinear. For women below age 20, the median was 9 months, it decreased to 4 months for women age 20-29 and then increased to 12 months for women above age 30. Differences in the waiting time to conception reflect variations in fecundability between the three age groups.

The mean intervals reflect the similar pattern as observed by the median values of three sub-intervals (Table 27).

Table 26: Life Table Proportion (l_x) of Women in the Menstruating Interval by Month since Resumption of Menses and Age

Months Since Resumption of Menses	Age Group			
	All Ages	<20	20 - 29	30 and above
0	1.00	1.00	1.00	1.00
3	.68	.75	.56	.75
6	.53	.65	.38	.61
9	.44	.50	.31	.55
12	.38	.46	.23	.49
15	.32	.34	.17	.45
18	.29	.28	.14	.42
21	.27	.27	.11	.41
24	.25	.25	.08	.41
N	785	137	313	335
Median	7	9	4	12

Table 27: Means and Medians of Prospective Reproductive Intervals for Study Women

Age Group		Type of Subinterval		
		Resumption of Menses to Conception	Conception to Live birth	Live birth to Resumption of Menstruation
All Women	Mean	5.3	9.0	11.7
	(n)	440	323	199
	Median	7	10.	15.
	(n)	785	541	328
<20	Mean	5.7	9.1	9.1
	(n)	67	110	47
	Median	9.	10.	13.
	(n)	137	219	92
20 - 29	Mean	4.8	9.1	12.5
	(n)	216	122	90
	Median	4.	10.	16.
	(n)	313	172	151
30 +	Mean	6.3	8.8	11.7
	(n)	40	39	25
	Median	12.	10.	17.
	(n)	335	150	85

SUMMARY

The reproductive events of approximately 2000 women were recorded prospectively from 1975 to 1978. Checks of data quality revealed quite accurate data. In addition the population studied was similar to the general population of Matlab, Comilla district and Bangladesh as a whole with respect to age, sex and marital status distributions. The study women were largely Muslim and had a low level of education.

The high fertility of the population was revealed by both the age-parity distribution and the rates of birth events in the prospective period. A mere three percent of the study women reported any practice of contraception.

Over sixty percent the women were breastfeeding at any point in time during the study. The long duration of breastfeeding as documented previously in this population, explains the 15-month median length of postpartum amenorrhoea found.

The mean delay from resumption of menstruation to conception was five months. This represents a probability of conception during a give cycle of .19 which is high considering the long periods of absence of many of the husbands of the study women.

With regard to nutritional and morbidity status of the women, reported illness was quite low in the population.

The anthropometric measurements revealed very few differences between women according to reproductive status. Differences were apparent between age groups, however, with older women having lower weight, height and arm circumference than younger women.

APPENDIX A (Form 1)

BIRTH INTERVAL DYNAMICS - 1

Village _____ Bari _____

Husband's Name _____ Respondent's Name _____

ID Number	1966	
	1970	
	1974	
Age on November 1975		
Estimated From /Census/ /MIG-In/ /Others/		
Husband's Education		
Husband's Occupation		
Respondent's Education		
Total Floor Space		
Religion		
Number of Living Children	(a) Male	
	(b) Female	
Number of children born alive now	dead	
Number of children born dead	(a) Miscarriage	
	(b) Stillbirth	
Total Pregnancies		
Date of last pregnancy termination		
Result /Live Birth/ /Stillbirth/ /I. Abortion/ /S. Abortion/		
[For Never Pregnant Woman] Date of Marriage		
Present Fecundity Status		
1. Menses in last month 2. No menses in last month		
If No, does it because of (a) Post-partum		
or Lactational amenorrhoea (b) Pregnancy (c) irregularity		
of menses (d) Other kinds of amenorrhoea (e) Menopause		
(f) Others (not classified above) _____		
Name of Field Worker _____		

BIRTH INTERVAL DYNAMICS—2

VILLAGE_____ BARI_____

NAME_____ CENSUS NO._____

PERIOD COVERED, FROM_____ TO_____

Event during the period Covered	Other details If Yes	Code
1. Menstruation ? No ☐ DK ☐ Yes ☐	(Date, Days)	
2. Pregnant ? No ☐ DK ☐ Yes ☐	(Date, Days)	
3. Preg. Term! ? No ☐ DK ☐ Yes ☐	(LB, SB. MIS, Sex, Date)	
4. Breast feeding ? No ☐ Yes ☐	(Days, Date)	
5. Supplementation ? No ☐ Yes ☐	(Days, Date, Type of food)	
6. Husband away ? No ☐ Yes ☐	(Days, Date)	
7. Practicing F. P. ? No ☐ NR ☐ Yes ☐	(Days, Date, Method)	
8. Illness ? No ☐ Yes ☐	(Days, Symptoms) IC ? / No / Yes / NR /	
9. Break-through Bleeding ? No ☐ Yes ☐	(Days, Date)	
10. Husband Illness ? No ☐ Yes ☐	IC ? / No / Yes / NR /	
11. Child Death ? No ☐ Yes ☐	(Sex, Date, Age)	
12. Absent ? No ☐ Yes ☐	(With or without husband)	
13. Changed M. status ? No ☐ Yes ☐	(Kind, Date)	

14. Wt._____ Wt ♀ Infant_____ Wrist Circum_____

Arm Circum_____

15. Name of the worker_____ Date_____

APPENDIX C.

Name of the Workers Participated in the DNF Study

Supervisors:

1. Suraiya Begum

Field Workers and Coders:

1. Swapna Das
2. Lutfunnahar
3. Khaleda Begum
4. Rasheda Akhter
5. Khorshed ara
6. Aroja Begum
7. Kohinoor Begum
8. Dil Khorsheda
9. Nargis Akhter
10. Dewan Kamrun Nessa
11. Gul-e-Noor
12. Monisha Chakraborty
13. Hosne ara (lily)
14. Maksuda Hossain
15. Nasema Akhter
16. Shamsun Nahar
17. Zabun Nessa
18. Nurun Nahar Islam
19. Hosne ara Begum
20. Saleha Begum
21. Lutfun Nahar

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CRL Annual Report 1977.

CRL Annual Report 1978.

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