

Post-partum Reproductive Behavior Regarding Contraception and Breastfeeding in Rural Bangladesh

*Rukhsana Gazi
Fazlul Karim
AMR Chowdhury
Shah Noor Mahmud*

July, 1996

**Research and Evaluation Division, BRAC
66, Mohakhali C/A, Dhaka 1212**

Abstract :

The study was aimed to obtain information on knowledge of mothers about fecundity after childbirth and to explore the reproductive behavior of the mothers related to breastfeeding, post partum abstinence and contraceptive practices. This was a comparative study between the WHDP of BRAC (Bogra Sadar thana) and a non program (Joypurhat) area. Data was collected by five female interviewers retrospectively from a total of 400 randomly selected women who were in 6 to 12 week of their post partum period. Women are most unlikely to adopt contraception unless they resume menstruation as they believe that fecundity returns only after the resumption of menstruation. Whereas they tend to resume sexual activity within 40 days after childbirth. A significant higher proportion of women in the program area were found to have fed colostrum than in the non program area (92% vs 71%), they were unlikely to be breast feeding exclusively. Mothers are losing the contraceptive benefits of breastfeeding very soon after delivery and are at risk of subsequent conception. As reliance on lactational infertility alone is not advisable due to the early weaning and partial breast feeding, the program should increasingly promote the use of appropriate contraceptive methods from the early post partum period.

Table of contents	Page
1. Introduction.....	1
2. Study objectives.....	2
3.1 Methods and Materials.....	3
3.2 Data Analysis.....	4
4. Findings.....	4
4.1 Profile of the women.....	5
4.2 Breastfeeding Practices During Post Partum.....	5
4.3 Contraception During Post Partum.....	6
5. Discussion.....	7
6. Conclusions and Recommendations.....	11
7. Section for Tables	12
8. References.....	20

1. Introduction

Bangladesh is one of the most densely populated country in the world. Although a moderate decline in the crude birth rate has been achieved in the last decade, the gross reproductive rate (1.81) and the net reproductive rate (1.43) are still extremely high in Bangladesh¹. As in many developing countries, the socioeconomic and cultural circumstances in Bangladesh are not favorable for a change in reproductive behavior. In addition to the low literacy rates and the low per capita income of Bangladesh, the cultural factors are very important. For example; male children are highly preferred² as they are considered to be the guarantee of social and economical security³⁻⁴.

The promotion of breastfeeding and the achievement of adequate birth spacing are closely linked biologically as well as clinically⁵. One study done in Bangladesh estimated that the natural protection provided by lactational amenorrhea is about as effective as that offered by oral contraceptives or the barrier methods⁶. But there is a decline in the prevalence and duration of breast feeding reported in many developing countries⁷⁻⁸. As the total duration of breast feeding declines and as weaning foods are introduced at earlier age of infants, the mothers will be at greater risk of conception in the early post-partum period.

Lactating mothers maintain an anovulatory cycle by high levels of prolactin. Stimulation of the nipples is necessary to maintain prolactin production and milk supply⁹⁻¹⁰. In nonlactating women, prolactin gradually decreases, reaching reduced normal levels as early as three weeks post-partum⁹. Maternal age has been found to exert an influence on the duration of lactational amenorrhea in the Philippines¹¹, in India¹² and in Bangladesh⁶. Several studies have demonstrated that maternal nutritional status also has impact on the duration of lactational amenorrhoea¹³⁻¹⁴.

Cultural factors such as: the timing of weaning¹⁵, and the demand versus scheduled feeding¹⁶ also influence the duration of lactational anovulatory period.

The Women's Health and Development Program (WHDP) of BRAC has adopted a component of birth spacing and contraception for women. The village based health workers (Shastho Shebikas) function as depot holders within the village. They motivate couples for contraception, supply oral contraceptives and condoms to the acceptors, and also refer clients seeking IUDs, injectables and sterilization to the government sources. In addition to that, BRAC is promoting exclusive breast feeding as a natural contraception after childbirth. But, it is not known by BRAC whether the program has any impact on breastfeeding practices which are important for birth spacing. It is also not known by BRAC what the reproductive behavior of the mothers is in terms of resumption of sexual activity and contraceptive practices immediately after childbirth. Very little research has focused on reproductive behavior of the mothers during their post-partum periods in Bangladesh. The present study is designed better understand mother's knowledge about post-partum fecundity and to obtain information on the practices related to breast feeding and post-partum contraception in the program area of BRAC.

2. Study objectives

2. 1. To obtain information on mother's knowledge about fecundity after childbirth.
2. 2 To obtain information on breastfeeding and contraceptive practices during the post-partum period.

3.1 Methods and Materials

BRAC have been providing antenatal and postnatal care to mothers in ten thanas of rural Bangladesh and trying to ensure safe delivery through trained traditional birth attendants (TBAs). In the Women's Health and Development Program of BRAC, the program organizers and TBAs identify the pregnant mothers during their household visits to provide basic ante and post natal care through the Satellite Clinics or Antenatal Care Centers (ANCC). The ANCC is organized in a village once a month to deliver services to the mothers. High risk pregnancies are identified and referral care is also provided. The program organizers have the overall responsibility of organizing the maternal health care at the village level. They are assisted by the trained TBAs, Shasthya Shebikas (SSs) and the members of the village committees. The Program Organizers are supervised by the senior POs, area managers, area coordinators and medical officers. The women are regularly informed of contraception, breastfeeding and weaning through different meetings and forums. But it is not known what impact these health related messages have on breastfeeding practices and post-partum contraception behavior among mothers in the program areas.

This study was designed to explore the knowledge of the mothers about post-partum fecundity and to obtain information on the practices related to breastfeeding and post-partum contraception. This was a comparative study between the program (Bogra Sadar thana) and non-program (Joypurhat) areas. The mothers, who were in 6 to 12 weeks of their post-partum period were selected randomly from the existing records.

A total of 400 women were interviewed (200 from program area of BRAC and 200 from non program). Data was collected by seven trained female interviewers using structured questionnaire. In the program areas migrants from non program areas were

excluded from the study sample. Study was conducted during the period of January - February 1996.

3.2 Data Analysis

After manual coding the data was entered into the computer using SPSS package. The data was then cleaned and edited for analysis. Single variate analysis was done using simple frequencies and percentages by the SPSS package. Chi -square tests were done to show the differences between program and non program areas and also to find the relationship between socio-demographic factors of the mothers and the outcome variables.

4. Findings: (Tables are attached at the end of the report)

4.1 Profile of the mothers

Table -1 shows the socio-demographic factors of the mothers in the program and non program areas. It reported that 62% of women in the program area and 54.5% of women in the comparison area were TG. The majority of the women in the study sample were in the 21-30 years age group, (61.5% of those were in the program area and 56.5% of those were in non program areas). The most common occupation of the household heads was daily laborer, and the second most common was cultivators. Thirty per cent of women in the program and twenty per cent women in the non program areas had a primary level of education. Whereas, 19% of women in the program area and 16.5% women in the non program areas had a secondary or higher level of education. About 50% of the husbands of the women were not educated. Most of the mothers in the program and the non program areas were the multigravida and

multiparas (Table-2). Six to 8.5% mothers had previous history of abortion and about 10% had previous history of stillbirth. About twenty three percent of the women in the program area and 24% in the non program area had complications during their last delivery.

4.2 Breast feeding practices during post-partum

Over ninety three percent women were breastfeeding their babies. There were no statistically significant difference between program and comparison areas in terms of breastfeeding (Table-3). About 90% of mothers who did not breast feed said that the neonates could not suck due to weakness. Significantly higher proportion of women in the program (91%) area fed colostrum than the non program area (71%)(Table-3). This difference was most significant in the age <25 years than in age >25 years, in non educated group than in the educated group and in multipara mothers than in the primipara mothers (Table-9).

Significantly higher proportion of women in the program area (66%) were giving early supplementation to their baby than in the non program area (39%) (Table-3). The most common additional foods were cereals (Table-4). The other common foods were animal milk, sugar, boiled rice water and banana. The difference between program and non program area regarding the practice of giving additional food was more significant in the age group >25 than in the age group, in TG mothers than in the NTG mothers, in educated group than in non educated, in multipara than in the primipara mothers (Table-10).

4.3 Contraception during post-partum

A significantly higher proportion of women (80.5 %) in the program area resumed sexual activity than in the non program area (64%) (Table-3). The majority started cohibiting within 31 to 40 days after delivery (Table-5). Of those who resumed sexual activity, 25% in the program area and 34% in the non program area resumed sexual activity within one month after delivery.

But, the difference between the program and comparison area regarding resumption of sex was not significant in the age group >25, but significant in the age group <25 (Table-11). This difference between program and non program areas regarding resumption of sex was more significant among the TG mothers, than in NTG mothers among non educated mothers than in the educated mothers and among multipara mothers than in the primipara mothers.

Although, a higher proportion of women in the program area used contraceptives, this difference between the program (16.5%) and comparison area (8.9%) was statistically not significant (Table-3). There was no relationship between the above mentioned socio-demographic factors of the mothers and post partum contraception as the numbers were small (Table-12). Among the 27 contraceptive users in the program area, 10 used oral pill, 11 used condoms, 4 received injections and 2 mothers took herbal medicines (orally)(Table-6). Of 12 mothers in the non program area, who adopted a contraceptive method during post partum, 5 took oral pills and 7 used condoms (Table-6).

The majority of the mothers (65% in program area, 74.5% in comparison area) believed that after childbirth the fertility would come back after resumption of menstruation (Table-7). Ten per cent of the mothers thought that the fecundity might be returned

As reliance on lactational infertility alone is not thought to be an advisable individual method for effective post-partum contraception, other methods should be taken into account. In fact, contraceptive choice for lactating mothers is one of the major concerns for family planning program implementors. Steroid contraceptives are highly effective, easy to administer and often preferred by women. But the issue of whether or not to provide breast feeding mothers with hormonal contraceptives is a public health dilemma as the results are often conflicting. Different research protocols have used different steroidal preparations and dosages, time of initiation of contraception, choice of control group and outcome measures and length of observation. Several studies using the mother's subjective evaluation of adequacy of lactation²³⁻²⁵ and milk constituents²⁶⁻²⁷ recorded a negative effect of combined oral contraceptives, other studies, however, reported no deleterious effect²⁸⁻²⁹. Using infant growth pattern as an outcome measure, infants of mothers receiving combined oral contraceptives had decreased weight gain^{27,30}. By contrast, Kamal et al, 1969, found no effect of combined oral contraceptives on growth curves of the infants²⁴. Whereas, studies have shown no deleterious effects of continuous low-dosage progestogens on lactation³¹. Again, the action of Depo-Provera, in enhancing milk volume and duration of lactation is well established by several studies³¹⁻³³. A review of post-partum contraception³⁴ indicated that the IUD is safe to be used during lactation. IUDs are unacceptable or unavailable, however, to many women in our rural communities. Acceptability is also a problem with the rural areas. Interestingly, in the program area, forty percent of the clients were using contraceptives during post-partum period preferred condoms. This finding probably reflect the increasing efforts made by the program towards the promotion of condom use in the early post-partum period.

A major policy question is how best to encourage lactation while introducing safe and acceptable contraception which would provide optimal infant feeding and maximize birth intervals. At present, the family planning programs generally follow the following basic strategies recommended for post-partum contraception.

I. Reliance on the contraceptive protection of lactation alone for the first 6-8 weeks, followed by the use of low dose progestogen or IUD³⁵, or a long acting method such as Depo provera³⁶ during continued lactation.

II. The use of estrogen-free contraception followed by a switch over to the more effective combined estrogen-progestogen preparations when menstruation resumes³⁷.

The best post-partum strategy might be that which is flexible enough in timing and methods to meet the different needs during different stages of post-partum. An example of such a flexible program was found in a family planning clinic in Iran³⁸. In this program couples were encouraged to use condoms during the period of amenorrhea. After the return of menses, they were encouraged to continue condom use or to have an IUD inserted. Oral contraceptives were recommended only after breastfeeding had been terminated.

In sum, it is widely held that hormonal preparations containing estrogen should be avoided during either the early or the entire period of lactation.

In WHDP of BRAC the program organizers provide three post natal visits for the mothers; at the first week, the third week and the sixth week after delivery. Condom use might be promoted increasingly in the second post-natal visit. In the last post-natal visit, the mothers might be encouraged to switch over to low dose progestogen or IUD or Depo provera. The Program must discourage the early weaning and partial breastfeeding and encourage the continuation of practice of breast feeding while

simultaneously promote the use of appropriate contraceptive methods during post-partum which will definitely affect fertility.

6. Conclusions and recommendations:

Although, a significantly higher proportion of women in the program area are found to be feeding colostrum than in the non program areas, the majority of them are not exclusively breast feeding their babies. As they are partially breast feeding and weaning so early, they are at risk of subsequent conception soon after delivery.

In the program area the mothers who are giving additional foods to the baby are significantly more likely to be TG, older mothers and with multiparity. Therefore, we think that the program should give more emphasis to educating older and multipara mothers regarding the proper timing of weaning and to discouraging the partial breast feeding practices.

In general, women are most unlikely to adopt contraception until they resume menstruation as they believe that fecundity returns only after the resumption of menstruation.

As reliance on lactational infertility alone is not thought to be advisable for effective post partum contraception due to early weaning and partial breast feeding practices, our program should promote the use of appropriate contraceptive methods from the earliest post partum period. The condom might be promoted increasingly at the first or second post natal visit and during the last post natal visit the mothers should be encouraged to switch over to low dose progesterone or IUD or Depo provera.

7. Section for Tables:

Table -1

Profile of the Mothers (socio-demographic factors)

	Program (%) N= 200	Non program (%) N=200
<u>Age in years</u>		
<20	53 (26.5)	58(29)
21-30	123 (61.5)	113(56.5)
31+	24 (12.0)	29(14.5)
<u>Socio-economic Status</u>		
TG	124 (62)	109 (54.5)
NTG	76 (38)	91 (45.5)
<u>Occupation of household head</u>		
Agriculture	59 (29.5)	68 (34)
Daily labour	79 (39.5)	96 (48)
Business	34 (17)	18 (9)
Service	26 (13)	14 (7)
Others	2 (1.0)	4 (2)
<u>Education</u>		
No education	102	127
Primary	60	40
Secondary	38	33
<u>Husband's education</u>		
No education	97 (48.5)	100 (50)
Primary	42 (21)	54 (27)
Secondary	61 (30.5)	46 (23)

Table-2

Reproductive Background of the mothers

	Program (%) N=200	Non program (%) N=200
<u>Gravidity</u>		
1	78 (39)	77 (38.5)
2-3	74 (37)	83 (41.5)
4+	48 (24)	40 (20.0)
<u>Parity</u>		
1	83 (41.5)	85 (42.5)
2-3	80 (40)	83 (41.5)
4+	37 (18.5)	32 (16)
<u>Previous abortion</u>		
yes	12 (6)	17 (8.5)
No	188 (94)	183 (91.5)
<u>Previous stillbirth</u>		
yes	18 (9)	21 (10.5)
no	182 (91)	179 (89.5)
<u>Last Delivery</u>		
Normal	154 (77)	152 (76)
Complicated	46 (23)	48 (24)

Table-3 Distribution of the mothers by breast feeding, feeding of colostrum, early supplementation, resumption of sex, and post partum contraception

Outcome variables	Program (%) N=200	Non program (%) N=200	Both (%) N=400	Remark p value
Breast feeding	186(93.5)	188 (95.9)	374 (94.7)	.38
Colostrum feeding	182 (91.9)	142 (71)	324 (81.4)	.00
Early Supplimentation	124 (66)	73 (39)	197 (52.5)	.00
Resumption of sex	161(80.5)	128 (64)	289 (72.3)	.00
Contraception	27(16.5)	12(8.9)	39 (13)	.07

Table- 4 Types of supplementary food given

Additional foods	Program (%) N=124	Non Program (%) N=73	Both (%) N=197
Cereals	124 (100)	47 (64.4)	171 (86.8)
Animal milk	23 (18.5)	30 (41.1)	53 (26.9)
Sugar	9 (7.3)	5 (6.8)	14 (7.1)
Water	1 (0.8)	-	1 (0.5)
Banana	1 (0.8)	1 (1.4)	2 (1.0)
Boiled rice water	-	5 (6.8)	5 (2.5)

Note : multiple answers considered

Table-5

Distribution of the mothers by time of resumption of sexual activity after childbirth by the program and comparison area

Days	Program (%) N=161	Non program (%) N=128	Both (%) N=289
7-30	40 (24.8)	43 (33.6)	83 (28.7)
31-40	81 (50.4)	53 (41.4)	134 (46.4)
41+	40 (24.8)	32 (25.0)	72 (24.9)

Table-6 Distribution of the contraceptive users by type of methods used

Contraceptives	Program N=27	Non program (%) N=12	Both (%) N=39
Oral pill	10 (37.1)	5 (41.7)	15 (38.5)
Condom	11 (40.7)	7 (58.3)	18 (46.1)
Injection	4 (14.8)	-	4 (10.3)
Herbal Medicine	2 (7.4)	-	2 (5.1)

Table -7

Knowledge of the mothers about the timing of resumption of fertility after childbirth

	Program (%) N=200	Comparison (%) N=200	Both (%) N=400
Within one month since delivery	20 (10.0)	13 (6.5)	33 (8.3)
After one month	21 (10.5)	17 (8.5)	38 (9.5)
After resumption of menstruation	131 (65.5)	149 (74.5)	280 (70.0)
After one year	12 (6.0)	7 (3.5)	19 (4.8)
After three months	2 (1.0)	-	2 (0.5)
After four months	1 (0.5)	-	1 (0.2)
When God wishes	-	1 (0.5)	1 (0.2)
Do not know	13 (6.5)	13 (6.5)	26 (6.5)

Table: 8 Factors associated with breastfeeding

	Program (%)	Non Program (%)	All (%)	Remarks chi sq (p)
Age				
<25	131 (92.3)	126 (94.0)	257 (93.1)	.11 (.73)
>25	55 (96.5)	62 (100.0)	117 (98.3)	.59 (.4)
Socio-economic status				
TG	113 (91.9)	101 (94.4)	214 (93.0)	.24 (.6)
NTG	73 (96.1)	87 (97.8)	160 (97.0)	.03 (.8)
Education				
Non-educated	92 (91.1)	117 (95.1)	209 (93.3)	.87 (.35)
Educated	94 (95.9)	71 (97.3)	165 (96.1)	.002 (.95)
Parity				
Primi	78 (95.1)	81 (96.4)	157 (95.8)	.001 (.97)
Multi	108 (92.3)	107 (95.5)	215 (93.9)	.55 (.45)

Table:9 Factors associated with colostrum feeding

Factors	Program (%)	Non Program (%)	All (%)	Remarks chi sq (p)
Age				
<25	130 (92.2)	94 (69.6)	224 (81.2)	21.5(.0000)
>25	52 (91.2)	48 (73.8)	100 (82.0)	5.08(.02)
Socio-economic status				
TG	111(91.0)	71 (65.1)	182 (78.8)	21.4(.0000)
NTG	71 (93.4)	71 (78.0)	142 (85.0)	6.55(.01)
Education				
Non-educated	88 (88.0)	81 (63.8)	169 (74.4)	16 (.0001)
Educated	94 (95.9)	61 (83.6)	155(90.6)	6.1 (.013)
Parity				
Primi	73(89.0)	60 (70.6)	133 (79.6)	7.6 (.005)
Multi	109 (94.0)	82 (71.3)	191 (82.7)	19.1 (.0000)

Table: 10 Factors associated with early supplementation

Factors	Program (%)	Non Program (%)	All (%)	Remarks chi sq (p)
Age				
<25	34 (61.8)	28 (69.6)	224 (81.2)	21.5(.0000)
>25	130 (92.2)	48 (73.8)	100 (82.0)	5.08(.02)
Socio-economic status				
TG	111(91.0)	71 (65.1)	182 (78.8)	21.4(.0000)
NTG	71 (93.4)	71 (78.0)	142 (85.0)	6.55(.01)
Education				
Non-educated	88 (88.0)	81 (63.8)	169 (74.4)	16 (.0001)
Educated	94 (95.9)	61 (83.6)	155(90.6)	6.1 (.013)
Parity				
Primi	73(89.0)	60 (70.6)	133 (79.6)	7.6 (.005)
Multi	109 (94.0)	82 (71.3)	191 (82.7)	19.1 (.0000)

Table:11 Factor associated with resumption of sex during post partum

Factors	Program (%)	Non Program (%)	All (%)	Remarks chi sq (p)
Age				
<25	121(84.6)	87 (64.4)	208 (74.8)	132.9(.0002)
>25	40 (70.2)	41 (63.1)	81 (66.4)	.40 (.52)
Socio-economic status				
TG	77(67.0)	36 (35.6)	113 (52.3)	19.8(.0000)
NTG	47(64.4)	37 (43.0)	84 (52.8)	6.39(.0114)
Education				
Non-educated	62 (66.0)	46 (39.7)	108 (51.4)	13.3 (.0003)
Educated	62 (66.0)	237(38.0)	89 (53.9)	11.6 (.0007)
Parity				
Primi	48 (61.5)	28 (34.6)	76 (47.8)	10.5 (.0012)
Multi	76 (69.1)	45 (42.5)	121 (56.0)	14.4 (.0001)

Table: 12 Factors associated with post-partum contraception

Factors	Program (%)	Non Program (%)	All (%)	Remarks chi sq (p)
Age				
<25	22 (17.9)	11 (11.7)	33 (15.2)	1.13(.28)
>25	5 (12.2)	1 (2.4)	6 (7.3)	1.6 (.2)
Socio-economic status				
TG	19 (18.4)	8 (10.7)	27 (15.2)	1.4 (.22)
NTG	8 (13.1)	4 (6.7)	12 (9.9)	.77 (.37)
Education				
Non-educated	8 (9.8)	6 (6.8)	14 (8.2)	.17 (.6)
Educated	19 (23.2)	6 (12.8)	25 (19.4)	1.4 (.2)
Parity				
Primi	15 (21.4)	8 (14.0)	23 (18.1)	.71 (.3)
Multi	12 (12.8)	4 (5.1)	16 (9.3)	2.1 (.1)

8. Reference:

1. BBS (Bangladesh Bureau of Statistics). Statistical Yearbook of Bangladesh, 1994, Dhaka, Bangladesh.
2. Mohsin M, Bhuiya a, Ahmed S M, Chowdhury A M R, Khan S R. Gender Preferences and Practice of Contraceptives by Selected Socio-demographic Characteristics in a Rural Bangladesh. Asian Profile, 1995; vol. 23, no.6: 489-501.
3. Cain M T. The economic activities of children in a village in Bangladesh. Population and Development Review, 1977; 3(3): 201-27.
4. Mason K A. The Status of Women: A Review of its Relationship to fertility and Mortality, 1984; New York. The Rockefeller Foundation.
5. Simson-Hebert M and Huffman S L. The Contraceptive Effect of Breast Feeding. Studies in Family Planning, 1981; vol 12, no 4, 125-133.
6. Chen L C et al (1974). A prospective study of birth interval dynamics in rural Bangladesh. Population Studies, 1974; 28, no.2 :277-297.
7. Walia B N S, Gambhir S K, Srea S R, Vhounrdharys (1987). Decline in Breastfeeding in the urban population of Chandigarh during a decade. Indian Pediatrics, 1987; 24: 879-887.
8. Talukder M Q K, Feroz A S M, Yusuf F H and Nafza A. Breastfeeding trends in the Dhaka Urban Affluents. Bangladesh Medical Journal, 1983; 12: 1.
9. Bonnar J et al (1975). Effect of Breastfeeding on pituitary ovarian function after childbirth. British Medical Journal, 1975; 4:82-84.
10. Tyson J E et al(1978). Nursing mediated prolactin and Luteinizing hormone secretion during puerperal lactation. Fertility and Sterility, 1978; 30, no.2 154-162.
11. Jain A K and Sun T H (1972). Inter- relationship between socio-demographic factors, lactation and post partum amenorrhea. Demography India, 1972; 1, no. 1:3-15.
12. Potter R G et al. Application of field studies to research on physiology of human reproduction: Lactation and its effects upon birth intervals in eleven Punjab villages. India. Journal of Chronic Diseases, 1965;18: 1125-1140.
13. Bongaarts J. Does malnutrition affect fecundity: A summary of the evidence. Science, 1980; 208:564-569.
14. Mosley WH. The effects of nutrition on natural fertility. In Patterns and Determinants of Natural fertility, edited by J Menken et al 1979, Liege: Ordina.

15. El-Minawi, M F, and M S Foda. Postpartum lactation amenorrhea. American Journal of obstetrics and Gynecology , 1971; III, no. 1:17-21.
16. Kippley S k and J F Kippley (1972). The Tyhe relationship between breast feeding and amenorrhoea: Report of asurvey. Journal of Obstetric, Gynecological, and Nutritional Nursing , 1972;1, no 4: 15-21.
17. Gioisa, R 1964. Breast feeding and child Spacing. Child and Family , 1964; 3: 1-8.
18. Perez a et al. First ovulation after childbirth:The effect of breastfeeding. American Journal of Obstetrics and Gynecology , 1972; 114, no. 6:1041-1047.
19. Tolis G et al. Breast feeding effects on the hypothalamic pituitary gonatal axis. Endocrine Research communications , 1974;1, no .3 :293-303.
20. Kwon E H, Kang K W, Hong J W, Park C M, Yun B J, Whang K H. A Study on the relationship between post partum Family Planning and Maternity Cares. Journal of Population Studies; 1972; no.15, 174-184.
21. Winikoff B and Mensch B. Rethinking post partum family planning. Studies in Family Planning , 1990; 22 (5) : 294-307.
22. Gazi R, Goodburn E, Chowdhury AMR, Karim F. Case studies on practices during post partum period in rural Bangladesh. The paper presented at Annual Conference of the population Association of America held in Washington D C in 1997.
23. Bhiraleus P T, Chiemprasert and S Koetsawang. Effects of oral gestagens upon lactation. In: post partum Family planning : A Report on the International Program, 1970 Ed. G I Zatuchni. New York : Mc Graw- Hill. 345-356.
24. Kamal I et al (1969). Clinical, Biochemical and experimental studies on lactation.II. clinical effects of gestagens on lactation. American Journal of Obstetric and Gynecology , 1965;105, no. 3: 324-334. (1 October).
25. Borglin N and Sandholm. Effect of oral contraceptives on lactation. Fertility and Sterility , 1971; 22:39-41.
26. Abdel-Kader MM et al. Clinical, biomedical, and experimental studies on lactation. III. Biomedical changes induced in human milk by gestagens. American Journal of Obstetrics and Gynecology , 1969; 105:978.
27. Barsivala V and K D Virkar. The effect of oraql contraceptives on concentration of various components of human milk. Contraception , 1973; 7:307-312.
28. Ramadan M et al. The effect of oral contraceptive Ovosiston on the concomposition of human milk. Journal of Reproductive Medicine , 1972; 9,no.2 : 281-283.
29. Campodonico G I et al. Effect of a low-dose oral contraceptives on lactation. Clinical Therapeutics , 1978;1, no.6 :454-459.

30. Miller G and Hughes L. Lactation and gennital involution : Effects of a new low dose oral contraceptive on breast-feeding mothers and their infants. Obstetric and Gynecology, 1970; 35, no. 1: 44-50.
31. Hefnawi F, Fawzi G and Badraoui. Effect of some progestational steroids on lactation in Egyptian women. I. Milk yield during the first year of lactation. Journal of Biosocial Science , 1976; 8: 45-48.
32. Guiloff E et al . Effect of contraception on lactation. American Journal of Obstetrics and Gynecology, 1974;118, no. 1: 42-45.
33. Koetsawang S, Chiemprasert T and Kochananda P. The effect of injectable contraceptives on lactation. In Clinical Proceedings of IPPF Southeast Asia and Oceania Regional Scientific Congress, Sydney, Aug. 14-18 (1972) Australia and New Zealand Journal of Obstetrics and Gynecology, 1972; 84-90.
34. Laukaran V H. Contraceptive Choice for Lactating women: suggestion for post-partum family planning. Studies in Family Planning, 1981; vol. 12, N.4, April (1981)
35. Chopra J G. Effect of steroidal contraceptives on lactation. American Journal of Clinical Nutrition, 1972, 25, no. 11: 1202-1214.
36. Jelliffe D B and E F P Jelliffe. Lactation, contraception, and the nutrition of the nursing mother and child. Journal of Pediatrics , 1972; 81.no. 4:829- 833.
37. Rosa F W. Resolving the public health dilemma of steroid contraception and its effects on lactation. American Journal of Public Health , 1976; 66,no. 8 : 791-7792.
38. Simpson-Hebert M (1980). Post-partum bleeding and contraceptive practice among Iranian breast feeding women, 1980. (Unpublished manuscript).