Determinants of Maternal Health Care Utilization in Bangladesh

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Abstract: Utilization of maternal health care services and maternal health seeking behaviors is a complex phenomenon in Bangladesh due to various factors. It is found that a complex set of relationship exists among the various socioeconomic, cultural, behavioral and demographic events, which affect the utilization of maternity care in Bangladesh, which can only provide us a preliminary idea of how important each variable is by itself. Result shows that maternal education, mother's age at birth, present place of residence, access to mass media and NGO and wealth quintile significantly increase the utilization rates for antenatal care, delivery care and postnatal care. Findings need to be scientifically utilized in developing suitable programs addressing the case of maternal health care services in the developing countries as well as in Bangladesh.

Key words: Maternal health, antenatal care, post natal care, health professional, delivery period, delivery assistance

INTRODUCTION

Utilization of maternal health services has been identified in a number of studies as an important factor determining maternal, infant and child mortality (Holian, 1989; Bhandari et al., 1989; Paul, 1991). Utilization of MCH services also has strong effects on subsequent contraceptive use (Hotchkiss et al., 1999) and thus, help reduce the fertility. In this regard, questions about the process of seeking and using services are of important. However, the use of health services is a complex behavioral phenomenon. It is related to the organization of the health delivery system and is affected by the availability, quality, cost, continuity and comprehensiveness of services; social structure and health beliefs also affect use (Kroeger, 1983). For preventive services like prenatal care or immunizations, the perception of need is more complicated than in the case of disease recognition and involves beliefs about susceptibility, consequences and effectiveness of the intervention (Rosenstock, 1966). Empirical studies of preventive services have often found that use of services is more strongly correlated with demographic and socio-economic characteristics than with health beliefs (Hingson et al., 1976). Many studies in developing nation have fond a strong effect of maternal education on use of maternal and child health services (Rutstein et al., 1990; Canovas, 1991).

Mothers in the third world countries with their limited resources and cultural background, rarely give priority to their own health problems except when there is a life threatening danger (Brady and Winkoff, 1992; Bhatia and Cleland, 1995). Hence, it is not surprising that such women are also reluctant to admit having health problems or hesitate to seek medical help, especially if the ailment is related to reproductive health (Bang et al., 1989; Jejeebhoy, 1994). Problems that are specific to women occurring during pregnancy, delivery and the puerperium, referred to in the medical literature as obstetric (maternal) morbidity (Graham and Campbell, 1991). Most of the mothers are not utilizing antenatal care services mainly due to socio-cultural barriers (Islam, 1994). Around 12-74% of all pregnant women receive antenatal care in Bangladesh (Juncker and Vanneste, 1994). Women's status affects women's access to health services by directly affecting the decision to seek care (Okojie, 1994).

Utilization of maternal health care services and maternal health seeking behaviors is a complex phenomenon in Bangladesh due to various factors. Utilization of basic health services in Bangladesh has remained poor even though, there has been increasing public and private expenditure on the provision of advanced health care. The low utilization seems to be due to low levels of household income, high illiteracy and ignorance and a host of traditional factors. On the other hand, despite substantial public investments in health infrastructure the supply of such services continues to be inadequate and of poor quality. In addition, several inefficiencies such as an over emphasis on secondary and tertiary hospital care, skewed distribution of health services favoring urban areas (Naylor et al., 1999) and gender discrimination in access to health care are all pervasive (Shariff, 1999). This study is an attempt to study the existence and influencing factors of the maternal health care services in Bangladesh.

Objectives: To understand the inherent peculiarities about the matter of the maternal health care services of the respondents this study is carried out with the following objectives:

- To observe the socio-demographic backdrops of the respondents
- To identify more influential factors that are affecting maternal health care services and treatment seeking behaviour

MATERIALS AND METHODS

This study is based on secondary data from the Bangladesh Maternal Mortality Survey (BMMS, 2001). We have performed univariate classification analysis in order to find the percentage of occurrence of the respondents. Finally, a multivariate technique named as logistic regression analysis is used for determining factors that are affecting the maternal health care services of the respondents.

RESULTS AND DISCUSSION

Socio-demographic backdrops: In order to study, the socio-demographic characteristics (Table 1), it is required to have a glance on the percentage distribution of the selected variables, because this shows the pattern of distribution and observations in different groups and would help to decide whether an individual variable is concentrated in a particular group. From Table 1, we see that about 3 of 5 women are in middle age (20-33) group, which contains 61.5%. Family member is an important component to the utilization of maternity care. A mother gets more maternity care in small size family. In the study, 29.7% of mothers have come from <5 members family, 45.6% from 5-7 and others 24.6% from >7 members family size.

Maternal education is strongly associated with maternity care. It is obviously that higher educated mother are more conscious than illiterate mother and they are more likely to receive maternal health care service during pregnancy period. Table 1 shows about half of mothers (47.3%) are illiterate, 17.4% of mothers did not complete primary education, 29.0% with primary education and only 6.2% of mother with at least secondary education. Place of residence has been included in the analysis to capture the degree of availability and accessibility to health care facilities. It is well known that urban mother get more health facilities than rural mothers. In the study area, high portions (84.6%) of mothers live in rural areas. Bangladesh is divided into 6 divisions.

Table 1: Percentage distribution of the respondents by selected socio-demographic variables

Demographic characteristics	Frequency	Percentage
Mother's age at birth		
13-19	12901	31.1
20-33	25545	61.5
34+	3103	7.5
No. of family member		
1-4	12357	29.7
5-7	18966	45.6
8+	10226	24.6
Mother's education		
No education	19662	47.3
Primary incomplete	7246	17.4
Primary complete	12051	29.0
Secondary and higher	2590	6.2
Residence		
Rural	35144	84.6
Urban	6405	15.4
Division		
Barisal	4108	9.9
Chittagong	8380	20.2
Dhaka	10859	26.1
Khulna	5765	13.9
Rajshahi	7239	17.4
Sylhet	5198	12.5
Access to NGO		
Yes	10329	24.9
No	31215	75.1
Listens to radio		
Yes	15161	36.5
No	26388	63.5
Watched TV		
Yes	14336	34.5
No	27201	65.5
Wealth quintile		
Poorest	10766	25.9
Poor	9247	22.3
Middle	7865	18.9
Rich	7222	17.4
Richest	6442	15.5

Barisal division contains the lowest proportion of mother (9.9%) followed by Sylhet (12.5%), Khulna (13.9%), Rajshahi (17.4%), Chittagong (20.2%) and Dhaka (26.1%). In Bangladesh, a large number of NGO have played an important role to develop socio-economic condition of people. Table 1 shows that quarter of mothers (24.9%) access to NGO. In the study, we observed that only 36.5% of mothers listen to radio. It is observed from Table 1 that only 34.5% of mothers watch TV and 65.5% don't watch TV. Table 1 shows, the classification of wealth quintile of resplendence according to their durable goods. It shows, a decline trends over wealth quintile. About 25.9% of mothers are poorest, 22.3% are poor and so on.

Results of logistic regression analysis on Antenatal Care (ANC) services: In the BMMS data, women were asked if they had received any antenatal care during their pregnancy. If they received any care during pregnancy, from whom, when and how many times they had received ANC during the last 3 years preceding the survey date. For the convenience of present study, we divided eligible

respondents (women) by 3 groups: who received antenatal care at least three antenatal visits during the first 3 months pregnancy from medically trained persons (doctors/medical assistant/nurse/midwife) are considered as adequate ANC care, who received any one antenatal care except adequate are considered as inadequate ANC care and who didn't receive any antenatal care are considered as the category none. Since, the dependent variable (ANC received) is a trichotomus variable being their mutually exclusive categories (none, inadequate and adequate), we have employed a multinomial logistic regression model. The results are shown in Table 2.

Mother's age at birth is an important factor to determine the use of antenatal care. Middle age of mothers is 1% more likely to receive adequate ANC but 2% less likely to receive inadequate ANC. Adolescent mothers is 40% less likely to receive adequate ANC and

25% less likely to receive inadequate ANC than older age mother. The higher the number of family member the lower the receiving adequate and inadequate ANC. Mother from low member family 37 and 13% and mother from middle member family 31 and 16% are more likely than mother from higher family member to receive both adequate and inadequate antenatal care, respectively. Mother's Education appeared as important predictor of ANC. Mothers with no education and primary education had received adequate ANC 0.12 and 0.23 times less than mothers with secondary and higher educated. The corresponding figures for inadequate ANC are 0.21 and 0.31. Result of the multivariate analysis for the country as a whole reinforces the importance of place of residence as the most important determinants of antenatal care. Mothers residing in rural area received 0.66 and 0.77 times less adequate and inadequate ANC than their counterpart urban area.

Table 2: Results of logistic regression analysis on receiving antenatal care from medically trained personnel

Background characteristics	Adequate[a] (RC = none)		Inadequate[b] (RC = none)		
	Odd ratio	Coefficient of B	Odd ratio	Coefficient of B	Total
Mother's age at birth					
13-19	0.60***	-0.51	0.75***	-0.28	12901
20-34	1.01***	1.17E-02	0.98	-1.74E-02	25545
34+ (RC)	1.00	-	1.00	-	3103
Number of family member					
1-4	1.37***	0.32	1.13**	0.12	12355
5-7	1.31***	0.27	1.16**	0.15	18963
8+ (RC)	1.00	-	1.00	-	10224
Mother's education					
No education	0.12***	-2.11	0.21**	-1.57	19662
Primary	0.23***	-1.46	0.31**	-1.19	19297
Secondary+ (RC)	1.00	-	1.00	-	2590
Place of residence					
Rural	0.66***	-0.41	0.77**	-0.26	35144
Urban (RC)	1.00	-	1.00	-	6405
Division					
Barisal	0.29***	-1.26	0.28**	-1.29	4108
Chittagong	0.36***	-1.03	0.40**	-0.93	8380
Dhaka	0.54***	-0.62	0.65**	-0.44	10859
Khulna	0.49***	-0.71	0.76**	-0.28	5765
Rajshahi	0.40***	-0.91	0.52**	-0.65	7239
Sylhet (RC)	1.00	-	1.00	-	5198
Access to NGO					
No	0.80***	-0.23	0.72**	-0.33	31215
Yes (RC)	1.00	-	1.00	-	10329
Listen to radio					
No	0.86***	-0.15	0.86**	-0.15	26388
Yes (RC)	1.00	-	1.00	-	15161
Watched TV					
No	0.55***	-0.59	0.69**	-0.37	27201
Yes (RC)	1.00	-	1.00	-	14336
Wealth quintile					
Poorest	0.18***	-1.74	0.33**	-1.10	10766
Poor	0.26***	-1.35	0.41**	-0.89	9247
Middle	0.31***	-1.17	0.47**	-0.75	7865
Rich	0.48***	-0.73	0.61**	-0.49	7222
Richest (RC)	1.00	-	1.00	-	6442

RC: Reference Category and significance level; ***: $p<0.01$, **: $p<0.05$ and *: $p<0.1$; [a]Received at least three antenatal visits during the first 3 months pregnancy from medically trained persons and [b]Received antenatal care except category

Table 2 also indicates variation that different region of the country has different level of utilization of antenatal care. The women of Barisal, Chittagong, Dhaka, Khulna, Rajshahi divisions receive adequate and inadequate ANC less than Sylhet division. Women who did not access to NGO received 0.80 and 0.72 times less adequate and inadequate ANC than who accessed to NGO. Table 2 also shows that a radio set in the community increased the livelihood of receiving the adequate and inadequate ANC by 0.86 and 0.86 times, respectively. Like a radio in the community, TV sets in the community appears significant for mothers to receive adequate and inadequate antenatal care. Mothers who did not watch TV are 0.45 and 0.31% less likely than who watched TV to receive adequate and inadequate ANC, respectively. Wealth quintile as measured by household possession of durable items shows significant positive effect on receiving both adequate and inadequate antenatal care. Poorest mother is 82 and 67%; poor mother is 74 and 59%; middle mother is 69 and 53% and rich mother is 52 and 39% less likely than richest mother to receive adequate and inadequate ANC, respectively.

Results of logistic regression analysis on delivery care services: This variable is classified into 3 categories: modern delivery care (who delivered their baby at hospital or clinic and received assistance from health professional person); satisfactory delivery care (who delivered their baby at hospital or clinic and received assistance from non health professional person or who delivered their baby at home and received assistance from both health professional and non health professional person) and traditional delivery care (who delivered their baby at home and received assistance from non health professional person) as the dependent variable and the results are shown in Table 3.

Mother's age at birth is an important factor to determine the use of delivery care. From Table 3, it has been observed that upper age's mothers are more likely to receive both modern and satisfactory delivery care than other counterpart. Number of family member has a little significant impact on the use of both modern and satisfactory delivery care. The higher the number of family member shows the lower the receiving modern and satisfactory delivery care. Mother from low member family 13 and 11% are more likely than mother from higher family member to receive both modern and satisfactory delivery care, respectively. Mother from middle family member are 1.04 times more likely and 0.99 times less likely than higher family member's mother to receive modern and satisfactory delivery care, respectively. Mother's Education appeared as important predictor to determine

receiving modern and satisfactory delivery care. Table 3 shows mothers with no education and primary education had received modern delivery care 0.24 and 0.40 times less than mothers having at least secondary education. The corresponding figures for satisfactory delivery care are 0.39 and 0.54. Result of the multivariate analysis for the country as a whole reinforces the importance of place of residence as the most important determinants of delivery care. Mothers residing in rural area received 0.61 and 0.63 times less modern and satisfactory delivery care than their counterpart urban area.

Table 3 indicates the variation that different region of the country has different level of utilization of delivery care. The women of Chittagong, Dhaka, Khulna, Rajshahi divisions receive modern delivery care more than Sylhet division except Barisal division. Although, access to NGO shows positive trends of other maternal health care services, negative trends are observed in case of both modern and satisfactory delivery care. Women, who did not access to NGO received 1.27 and 1.05 times more modern and satisfactory delivery care, respectively than who accessed to NGO. Table 3 shows that a radio set in the community increased the livelihood of receiving both modern and satisfactory delivery care by 1.23 and 1.01 times, respectively. Like a radio in the community, TV sets in the community appears significant for mothers to receive modern and satisfactory delivery care. Mothers, who did not watch TV are 24 and 25% less likely than who watched TV to receive modern and satisfactory delivery care, respectively. Wealth quintile as measured by household possession of durable items shows significant positive effect on receiving both modern and satisfactory delivery care. Poorest mother is 76 and 61%; poor mother is 67 and 57%; middle mother is 66 and 48% and rich mother is 56 and 34% less likely than richest mother to receive modern and satisfactory delivery care, respectively. Received antenatal care has the greatest effect of all other explanatory variables to use both modern and satisfactory delivery care. Table 3 shows that mother who received adequate antenatal care is 6.28 and 3.67 times more likely to receive modern and satisfactory delivery care, respectively than who didn't receive any antenatal care. The same result has been observed in case of those mothers who received inadequate antenatal care. The corresponding figures are 3.85 and 2.60 times, respectively.

Results of logistic regression analysis on postnatal care services: The dependent variable is categorized into three levels according to the source of postnatal care: those who received postnatal care from health professional

Table 3: Results of logistic regression analysis on receiving delivery care

	Moderate[a] (RC = traditional)		Insufficient[b] (RC = traditional)		
Background characteristics	Odd ratio	Coefficient of B	Odd ratio	Coefficient of B	Total No.
Mother's age at birth					
13-19	0.28***	-1.28	0.50***	-0.70	12901
20-34	0.59***	-0.53	0.70**	-0.36	25545
34+ (RC)	1.00	-	1.00	-	3103
No. of family member					
1-4	1.13**	0.13	1.11	0.11	12355
5-7	1.04*	3.93E-02	0.99	-1.12E-02	18963
8+ (RC)	1.00	-	1.00	-	10224
Mother's education					
No education	0.24***	-1.44	0.39***	-0.94	19662
Primary	0.40***	-0.91	0.54***	-0.61	19297
Secondary+ (RC)	1.00	-	1.00	-	2590
Place of residence					
Rural	0.61***	-0.49	0.63***	-0.46	35144
Urban (RC)	1.00	-	1.00	-	6405
Division					
Barisal	0.99	-1.33E-02	0.99	-5.06E-03	4108
Chittagong	1.17	0.16	0.98	-2.07E-02	8380
Dhaka	1.37***	0.32	0.78**	-0.25	10859
Khulna	1.77***	0.57	1.07	6.26E-02	5765
Rajshahi	1.62***	0.49	0.73**	-0.32	7239
Sylhet (RC)	1.00	-	1.00	-	5198
Access to NGO					
No	1.27***	0.24	1.05	4.37E-02	31215
Yes (RC)	1.00	-	1.00	-	10329
Listen to radio					
Yes	1.23***	0.21	1.01	3.16E-03	26388
No (RC)	1.00	-	1.00	-	15161
Watched TV					
No	0.76***	-0.27	0.75***	-0.28	27201
Yes (RC)	1.00	-	1.00	-	14336
Wealth quintile					
Poorest	0.24***	-1.41	0.39***	-0.95	10766
Poor	0.33***	-1.10	0.43***	-0.85	9247
Middle	0.34***	-1.07	0.53***	-0.64	7865
Rich	0.44***	-0.81	0.67***	-0.41	7222
Richest (RC)	1.00	-	1.00	-	6442
Received ANC					
Adequate	6.28***	1.84	3.672***	1.30	2117
Inadequate	3.85***	1.35	2.601***	0.96	17173
No (RC)	1.00	-	1.00	-	22259

RC: Reference Category and significance level; ***: $p<0.01$; **: $p<0.05$ and *: $p<0.1$; [a]Who delivered their baby at hospital or clinic and received assistance from health professional person; [b]Who delivered their baby at hospital or clinic and received assistance from non health professional person or who delivered their baby at home and received assistance from both health professional and non health professional person

person (doctors/medical assistant/nurse/midwife), those who from non health professional persons (family welfare visitors/trained and untrained birth attendant) and those who didn't receive any one or others. Results based on multinomial logistic regression analysis shown in Table 4.

From Table 4, we observe that the higher the mother's age at birth, the higher likely received postnatal care by health professional and non-health professional. Mother from less family member is more likely to receive delivery care from health professional than mother from that of high family member. Mother from 1-4 family member 18 and 8% and mother from 4-7 family member 13 and 4% more likely than mother from al least 7 familyz member to receive postnatal care from health professional

person and non-health professional person, respectively. Mother's education has a positive effect on the utilization of postnatal care after delivery. Illiterate mother is 75 and 26% and mother with primary education is 59 and 10% less likely than mother with at least secondary education to receive postnatal care from health professional person and non-health professional person, respectively.

The extent of variation in the use of postnatal care from health professional person by residence is strictly. Table 4 shows that rural mothers are 0.76 times less likely and 1.38 time more likely than urban mothers to receive assistance from health professional and non-health professionals persons, respectively. The women of Barisal, Chittagong, Dhaka, Khulna, Rajshahi divisions

Table 4: Results of logistic regression analysis on receiving postnatal care from medically trained personnel

| | Health professional (RC = others) | | Non-health professional (RC = others) | | |
Background characteristics	Odd ratio	Coefficient of B	Odd ratio	Coefficient of B	Total No.
Mother's age at birth					
13-19	0.50***	-0.68	0.80**	-0.22	12901
20-34	0.81**	-0.21	0.87	-0.14	25545
34+ (RC)	1.00	-	1.00	-	3103
Number of family member					
1-4	1.18**	0.16	1.08	7.57E-02	12355
5-7	1.13**	0.12	1.04	4.37E-02	18963
8+ (RC)	1.00	-	1.00	-	10224
Mother's education					
No education	0.25***	-1.38	0.74**	-0.29	19662
Primary	0.41***	-0.89	0.90	-9.76E-02	19297
Secondary+ (RC)	1.00	-	1.00	-	2590
Place of residence					
Rural	0.76***	-0.27	1.38***	0.33	35144
Urban (RC)	1.00	-	1.00	-	6405
Division					
Barisal	0.15***	-1.87	0.15***	-1.87	4108
Chittagong	0.19***	-1.64	0.14***	-1.95	8380
Dhaka	0.47***	-0.77	0.68***	-0.39	10859
Khulna	0.51***	-0.67	1.04	4.39E-02	5765
Rajshahi	0.15***	-1.87	0.11***	-2.22	7239
Sylhet (RC)	1.00	-	1.00	-	5198
Access to NGO					
No	0.93**	-7.55E-02	0.93	-7.39E-02	31215
Yes (RC)	1.00	-	1.00	-	10329
Listen to radio					
No	0.92**	-8.19E-02	0.82***	-0.19	26388
Yes (RC)	1.00	-	1.00	-	15161
Watched TV					
No	0.78***	-0.25	0.98	-1.38E-02	27201
Yes (RC)	1.00	-	1.00	-	14336
Wealth quintile					
Poorest	0.29***	-1.25	1.06	6.17E-02	10766
Poor	0.41***	-0.90	1.14	0.13	9247
Middle	0.47***	-0.75	1.12	0.11	7865
Rich	0.59***	-0.53	1.07	6.85E-02	7222
Richest (RC)	1.00	-	1.00	-	6442

RC: Reference Category and significance level: ***: $p<0.01$; **: $p<0.05$; *: $p<0.1$

received less postnatal care after delivery than Sylhet division by health professional and non-health professional except Khulna division.

Table 4 also shows that women who did not access to NGO are 0.93 and 0.93 times less likely to receive postnatal care after delivery by health professional and non-health professional's person, respectively. It has been observed that listen radio has significant positive effect on receiving postnatal care after delivery from health professional person. Women who do not listen radio are 0.8 and 0.18 times less likely to receive postnatal care from health professional and non-health professionals person, respectively. Watched TV has significant and positive effect on the utilization of delivery care from both health professional and non-health professional person. A TV set in the community increased the livelihood of receiving postnatal care after delivery by the health professional and non-health professional person by 0.22 and 0.20 times. There are marked differentials in use of health professionals after

delivery by wealth quintile. Table 4 shows that wealth quintile has significant and positive effect on utilization of postnatal care from health professional person and but negative effect from non-health professional person. Poorest mother is 72%; poor mother is 59%; middle mother is 53% and rich mother is 41% less likely than richest mother to receive postnatal care after delivery from health professional person. It is 0.06, 0.14, 0.12 and 0.07% for poorest, poor, middle and rich mother, respectively more likely than richest mother for non-health professional person.

CONCLUSION

Utilization of maternal health care services is poor in Bangladesh. In this study, an attempt has been made to observe the issues associated with the determinants of maternal health care services including antenatal care, delivery care, postnatal care, composite index of maternal health care services at regional and national levels in

Bangladesh using nationally representative data from Bangladesh Maternal Health Services and Maternal Mortality Survey (BMMS, 2001). From above discussion, we observed that the middle age of mother, mothers from low family member, higher educated, mother in urban areas, exposure to radio and TV and highest wealth quintile are more likely to receive all maternal health care service than other counterparts. It has also been observed that mothers who accessed to NGO are more likely to receive antenatal care, to be assisted from non-health professional person, to deliver their baby at home and to receive postnatal care from non-health professional person. It may be appeared that the mothers who access to NGO are poorer than others. Because in Bangladesh, women access to NGO to receive credit and they have not enough money to deliver their baby with health facility. Urban residential, wealth quintile and education are directly related with each other. Though primary education are open for all but higher education are limited to rich due to financial support and it is well known that urban residence are more educated and financial proficiency is better than rural residence. Rural mothers are to work at home but most of urban mothers have enough time to access to mass media (TV, radio and newspaper etc.) and it has a great role to encourage people to receive proper health care. So, we can say that maternal education and economic status of households are most important factors to differential the utilization maternal health care service. It is hoped that the result of this study will improve policymakers understanding of the determinants of maternal mortality and morbidity in the country and serve as an important tool for any possible intervention aimed at improving the low utilization of maternity care services in Bangladesh.

REFERENCES

Bang, R., A. Bang, M. Baitule, Y. Chaudhary, Y. Sarmukaddams and O.T. Tale, 1989. High prevalence of gynecological diseases in rural Indian women. Lancet, 1: 85-88.

Bangladesh Maternal Mortality Survey (BMMS), 2001. Mitra and ACPR, (NIPORT), ORC Macro, Johns Hopkins University and ICDDR, B.

Bhandari, B., S. Mandowara and A. Kumar *et al.*, 1989. Under utilization of MCH services-the major factor for very high IMR in rural Rajasthan. Indian Pediat., 26 (3): 228-233.

Bhatia, J.C. and J. Cleland, 1995. Determinants of maternal care in a region of South India. Health Trans. Rev., 5 (2): 127-142.

Brady, M. and B. Winkoff, 1992. Rethinking postpartum health care, New York. The Population Council.

Canovas, C.J.E., 1991. Family, household and utilization of child health services: The case of Mexico, paper presented at demographic and health surveys world conference. Washington DC, August 5-7.

Graham, W. and O.M.R. Campbell, 1991. Measuring maternal health: Defining the issues, Report No. 1. London School of Hygiene and Tropical Medicine.

Hingson, R., N. Lin and R.A. Hingson, 1976. Achieving higher immunization receptivity. Pub. Health Rev., 6: 93-117.

Holian, J., 1989. Infant mortality and health care in Mexican communities. Soc. Sci. Med., 29 (5): 677-679.

Hotchkiss, D.R., R.J. Magnani, J.J. Rous, M. Azelmat, T.A. Mroz and J. Heikel, 1999. The effects of maternal-child health service utilization on subsequent contraceptive use in Morocco. J. Biosoc. Sci., 31: 145-165.

Islam, A.M., 1994. Expansion and provision of quality MCH-FP services. Paper presented in National conference on Safe Motherhood, Dhaka.

Jejeebhoy, S.J., 1994. Maternal morbidity and mortality in South Asia: Priorities for social science research. Paper Presented at the Workshop on Reproductive Health in South Asia, New Delhi.

Juncker, T. and A.M. Vanneste, 1994. Emergency obstetric care: Experience from Abhoynagar and Matlab, Paper presented at National conference on Safe Motherhood, Dhaka.

Kroeger, A., 1983. Anthropological and socio-medical health care research in developing countries. Soc. Sci. Med., 17: 147-161.

Naylor, C.D., P. Jha, J. Woods and A. Shariff, 1999. A Fine Balance: Some options for private and public health care in Urban India, Washington DC: World Bank, pp: i-ix and 1-38.

Okojie, C.E.E., 1994. Gender inequalities of health in the third world. Soc. Sci. Med., 39: 1237-1247.

Paul, B., 1991. Health service resources as determinants of infant deaths in rural Bangladesh: An empirical study. Soc. Sci. Med., 32: 43-49.

Rosenstock, L.M., 1966. Why people use health services. Milbank Memorial Fund Quart., 44, 3, Pt 2: 94-120.

Rutstein, S.O., A.E. Sommerfelt and J. Schoemaker, 1990. Who uses maternal and child health services? Evidence from the demographic and health surveys in child survival programs: Issues for the 1990s. Baltimore: Johns Hopkins University.

Shariff, A., 1999. India: Human development report, New Delhi: Oxford University Press, pp: i-xiii and 1-370.