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Utilization of maternal health services and post-partum contraception among Bangladeshi women attending a district level hospital

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ABSTRACT

Utilization of maternal health services and postpartum contraception help to decrease rates of maternal and infant morbidity and mortality by preventing unintended, high risk pregnancies and also by delaying subsequent pregnancies. A cross-sectional study was conducted to find out the utilization of maternal health services and its association with post-partum contraception among Bangladeshi women in a hospital in Gazipur district. A total of 344 women were randomly selected who had delivered at least one child within last one year and completed 12 months post-partum period. Uni-variate and bi-variate analyses were used as statistical methods. Mean age of the respondent was 21.5 years (Mean \pm SD, 21.5 \pm 6.634). Nuclear families (61.30%) were predominant in number. Most of them were illiterate (44.8%). Antenatal care was significantly associated with socio-demographic factors like respondents' and their husbands' education, husbands' income and types of family. Only 17% illiterate respondents received antenatal care for four or more times whereas 52.38% who graduated or above received the same. Most of the deliveries occurred at home (54.4%). These deliveries were performed by non-skilled personnel (54.6%) while the rest were performed by skilled personnel. This study also found that postnatal care was significantly associated with respondents' and their husbands' education, and husbands' income. This study is expected to help program planners, policy makers to design interventions for their programs to enhance the use of maternal health services as well as postpartum contraception among Bangladeshi women.

KEY WORDS: *Maternal health services; contraception; antenatal care; postnatal care; Bangladesh*

INTRODUCTION

Maternal health issues are the leading causes of morbidity and mortality among women of reproductive age. Maternal health services (MHS) include antenatal care (ANC), place of delivery, skilled birth attendant (SBA) and post-natal care (PNC). Postpartum contraception is also an important component of maternal health care. Maternal health care services provide a

significant opportunity to inform and educate women about post-partum contraception. Prevention of high-risk pregnancies as well as reduction of the risks of maternal death can be achieved through utilization of MHS and appropriate post-partum contraception. Contraceptive use by women during the first year after delivery is low resulting in unwanted pregnancies and childbearing.¹

Pregnancy, labor and post-partum period are predisposed to develop complications. Maternal health care provides opportunities for disseminating health information and services. The high levels of maternal mortality and morbidity in developing countries and causes of maternal deaths reveal the need for antenatal care and availability of trained personnel to attend women during delivery.^{2,3} ANC gives an opportunity to encourage deliveries with the help of a skilled birth attendant at home or at healthcare facilities and for discussion on available contraceptive options.⁴ Most maternal deaths occur during early postnatal period. Apart from managing these complications, routine PNC service include counseling on family planning services.

For women who are not breastfeeding, pregnancy can occur within 45 days of giving birth highlighting the importance of postpartum contraception.⁵ Unintended pregnancy is a major cause of abortion worldwide particularly in the developing world. Adopting appropriate post-partum contraception methods will decrease the number of unsafe abortions. It is considered an effective way of improving the health of mothers and children including reduction in the risk of miscarriage, low birth weight, neonatal death, maternal death, preterm birth, anemia, and premature rupture of membranes.⁶

In developing countries, counseling for family planning during the antenatal period

is offered to a fraction of women and postpartum family planning counseling is infrequently provided.^{7,8} In the scenario where home deliveries are common and postnatal care is considered below standard, only few opportunities are available for postpartum contraception counseling. Moreover, national family planning programs of many developing countries are inadequate to meet these issues.⁹

Demographic and Health Survey (DHS) data regarding contraceptive usage during the post-partum period from 17 countries between 2003 and 2007 demonstrated rates of unmet need ranging from 50% in Bangladesh to 88% in Mali. Postpartum women are more likely to have an unmet need for family planning than married women in general.¹⁰ The Health Population Nutrition Sector Development Program in Bangladesh has a plan to increase the use of contraception to 72% by 2016.¹¹ Currently married women in Bangladesh have 0.7 children more than expected and 14% of them have an unmet need for family planning services.¹² This suggests the need to increase the access to family planning services to women especially in post-partum period.

METHODOLOGY

Study design

A cross sectional study was conducted to see the utilization of maternal health services and post-partum contraception among Bangladeshi women attending a district level hospital.

Study place

The study was carried out at Tongi 50 bedded hospital in Gazipur district, located immediately north of Dhaka. This is a peri-urban area with a large population. This healthcare facility caters to local residents. Transport options include rickshaw, auto-

rickshaw (locally known as CNG) and commuter buses.

Study population

The study population was women who had delivered at least one child within last one year and completed 12 months after delivery and who had attended department of gynecology and obstetrics for treatment purpose of personal health issues, Expanded Program for Immunization (EPI) centers for vaccination for children, out-patient department for treatment purpose of their babies.

Study period

The study was conducted over a period of 12 months from October 2014 to September 2015.

Sample size

A total of 344 subjects were estimated. This study followed this formula to calculate the sample size. The sample size was determined using the formula:

$$n = z^2 pq / d^2$$

Here, n= desired sample size with assumed non-response 5%; z= the standard normal deviate usually set as 1.96, which corresponds to 95% confidence level; p= prevalence rate of ANC (4 visits) is 31%. (According to Bangladesh Demographic and Health Survey Report 2014)¹³; q=1-p, here, 1-.31=.69; d= degree of accuracy desired, usually .05%

So sample size was:

$$n = (1.96 \times 1.96) \times 31 \times .69 / (.05)^2 = 328$$

As assumed non-response was 5%, so = 328 x 5 / 100 = 16.4. Ultimately sample size (n) was = 328 + 16 = 344

Sample size and procedure

A total of 344 subjects were estimated randomly. Per day every second patient was selected.

Data collection instruments

A semi-structured questionnaire was adopted for data collection. At first it was prepared in English and later translated to Bangla. The questionnaire was constructed in simple language as far as possible. Items in the questionnaire included socio-demographic factors like education, marital status, place of residence etc. Questions on utilization of maternal health services like antenatal care, place of delivery, skilled birth attendant, post-natal care and post-partum contraception usage were also included.

Pretesting of questionnaires was performed to gather information about the understandability, time consumed by each question, consistency among related variables and acceptability. After reviewing the outcome of pretesting changes were incorporated accordingly.

Data collection procedure

Data were collected by face-to-face interview method using a set of semi-structured questionnaires. A brief introduction was given verbally to each respondent at the beginning of the interview describing the importance of the study. Data were collected by trained interviewers who had a minimum of secondary level education. An orientation about the questionnaires and instructions about their applications was conducted among interviewer prior to the actual data gathering procedure start.

Data analysis

After collection, all data were checked thoroughly for consistency and completeness. Data were cleaned, edited and verified daily to exclude any error or inconsistency before coding and entering them into a database. Data were analyzed using Statistical Package for Social Studies (SPSS) version 16. The analyzed data is presented in tables and charts. Chi-square

test had been done to assess the relationships between selected variables.

Ethical aspects

The Ethical Review Committee of Bangladesh University of Health Sciences (BUHS) approved the study protocol. Written informed consent was obtained from all the participants prior to inclusion in the study. Ethics has been respected throughout the study period.

RESULTS

Mean age of the respondent was 21.5 years (Mean \pm SD, 21.5 \pm 6.634) (Table 1). Majority (91.27%) of the respondents was Muslims and most of them belong to nuclear families (61.30%). Most of them were illiterate followed by those who completed primary education. Near about half (43.6%) of the respondents were engaged in service.

Table 1: Socio-demographic characteristics of study population (n=344)

Variables	Number	(%)	Mean \pm SD
Age			
15-24	134	39	
25-34	124	36	21.5 \pm 6.634
35-44	86	25	
Education			
Illiterate	154	44.8	
Primary	102	29.7	
Secondary	66	19.2	
Graduated/above	22	6.4	
Occupation			
Housewife	105	30.5	
Service	150	43.6	
Business	89	25.9	
Income			
Up to BDT 5000 (US\$ 63)	150	43.6	
BDT 5001-10000 ((US\$ 63-125)	153	44.5	7325 \pm 4463.827
>10000 BDT (US\$ 125)	41	11.9	
Religion			
Muslims	314	91.27	
Hindus	30	8.72	
Types of family			
Nuclear	211	61.30	
Joint	133	38.70	
Decision making member			
Husband	210	61.00	
Father in law/mother in law	91	26.50	
Own	43	12.50	

It was found that only 17% illiterate respondents received ANC for four or more times whereas 52.38% who graduated or above received the same (**Table 2**). The difference shows respondents' education is significantly associated with ANC ($p<.001$). Husbands' education is also found to be significantly associated with ANC ($p<.001$). The respondents' husbands with an education level of graduation or above were more likely to encourage their wives for ANC related service. Being in a nuclear family provided more opportunities for care for the pregnant. This study found that respondents who lived in nuclear family (36.05%) received better ANC care ($p<.001$). We found that respondents education was significantly associated with PNC ($p<.001$) (**Table 3**). Those respondents who graduated (46.99%) received more PNC than those who were illiterate. The difference is statistically significant ($p=.001$). Like ANC husbands' education and income

were found to be significantly associated with PNC ($p=.001$).

Our study revealed that respondents who received ANC four or more times during their delivery of last child, use more 44.89% post-partum contraceptive methods than respondents who received less than four ANC visits 26.18% (**Table 4**). ANC is significantly associated with post-partum contraception ($p=.001$). Similarly half of the respondents who received PNC used post-partum contraception indicating PNC is significantly associated with post-partum contraception ($p<.001$).

Table 4 also shows that respondents who had home delivery the rate of using post-partum contraceptive method is only 24.06% whereas respondents whose delivery occurred in medical institute the rate of using post-partum contraceptive method is 42.67%. Post-partum contraception is significantly associated with place of delivery ($p=.002$).

Table 2: Association between socio-demographic characteristics and ANC

Respondents' education	ANC		Chi value	p value
	<4 times	>4times		
Illiterate	117 (82.39%)	25(17.60 %)	24.616	<.001
Primary	71(69.60%)	31 (30.39%)		
Secondary	35 (53.03%)	31(46.96%)		
Graduated or above	10(47.61)	11 (52.38%)		
Husbands' education				
Illiterate	72 (80%)	18(20 %)	37.42	<.001
Primary	108(76.59%)	33 (23.40%)		
Secondary	46 (64.78%)	25(35.21%)		
Graduated or above	07(24.13)	22 (50.8%)		
Type of family				
Nuclear family	133 (63.94%)	75(36.05 %)	11.175	0.001
Joint family	100 (81.03%)	23 (18.69%)		

Table 3: Association between socio-demographic characteristics and PNC

Respondents' education	PNC		Chi value	p value
	Yes	No		
Illiterate	38 (24.67%)	116 (75.32%)	19.701	<.001
Primary	50 (49.01%)	52 (50.98%)		
Secondary	31 (45.96%)	35 (53.03%)		
Graduated or above	10 (46.99%)	11 (52.38%)		
Husbands' education				
Illiterate	20(20%)	80(80%)	20.051	.001
Primary	61(42.65%)	82(57.34%)		
Secondary	36 (43.5%)	35(49.29%)		
Graduated or above	12 (45%)	18(60%)		
Husbands' income				
Up to BDT 10000 (US\$ 125)	13(13.82%)	81(86.17%)	13.88	0.001
>10000 BDT (> US\$ 125)	116(46.4%)	23 (18.69%)		

Table 4: Association between contraceptive methods and ANC, PNC and delivery performer

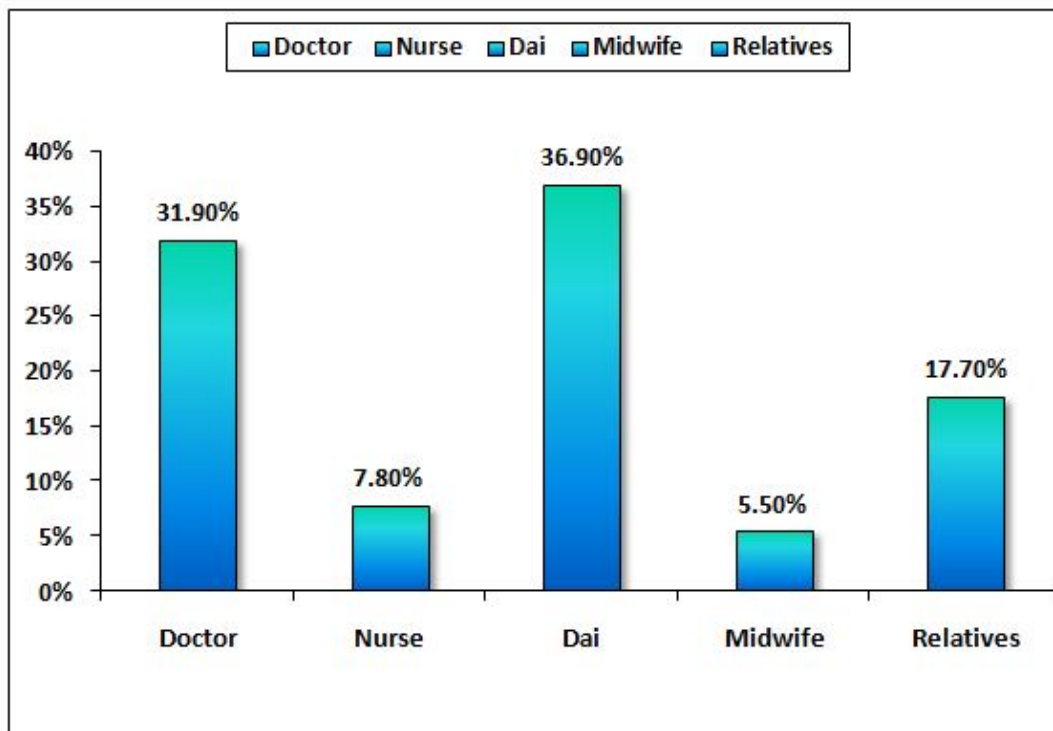
ANC	Are you currently using any contraceptive methods		Chi value	p value
	Yes	No		
<4 times	61 (26.18%)	172 (73.81%)	11.159	0.001
>4 times	44 (44.89%)	54 (55.10%)		
PNC				
Yes	65(50.38%)	64(49.61%)	29.881	<.001
No	47(21.86%)	168(78.13%)		
Delivery performer				
Skilled	64 (40.25%)	95(59.74%)	7.970	.005
Non-skilled	48 (25.94%)	137(74.05%)		

This study demonstrated that one third 36.90% of respondents' deliveries were

performed by *dai* (traditional birth attendants), whereas 31.90% performed by

doctors, 17.70% performed by relatives, 7.80% by nurses and only 5.50% by midwives respectively (Figure 1).

Figure 1: Delivery performers of the respondents during delivery of their last child



DISCUSSION

In this study the mean age of the respondents was 21.5 years and maximum 39% of them were in the age group of 15 to 24 years. Maternal age was not significantly associated with maternal health services (ANC and PNC) in current study. This result is consistent with another study as in Nigeria. In Nigeria most of the studies have shown no association between age and maternal health care.¹⁴ A possible explanation for it could be strong influence of cultural beliefs and practices on pregnancy and child birth.¹⁵

Most of the respondents were Muslims in this study. Though religion plays a vital role in utilizing maternal health care and post-partum contraception, surprisingly there was no significant association between

religion and maternal health care in this study.

Majority of the respondents came from nuclear families. Our study found family type is significantly associated with WHO recommended ANC visit. This result is consistent with a study in Nigeria, which found that women from large families underutilize various health care services because of their involvement in household chores. Larger families suffer from resource constraints, which have a negative effect on maternal health care utilization.¹⁶

According to this study women with primary and above education level were more likely to visit health care centers for ANC than those with no education. Similarly women with primary and above educated husbands received more ANC than those with illiterate husbands. Multiple studies showed

that women's education increases the maternal health services utilization. In Nepal one study found that women with more than primary education level were more likely to use ANC than those with no education while in Turkey it was found that women with 6 years of schooling were more likely to use ANC than those with no education.^{17,18} Furthermore it was found that women with partners who had a secondary or higher education had two times higher chance to use maternal health care (ANC, PNC, SBA, institutional delivery) utilization.¹⁹

Our study revealed that education also is associated with PNC. This shows women with primary or above education received more PNC than illiterate women. Women whose husbands had an education level of primary or above received more PNC than those who were illiterate. A study done in Nepal revealed that women with secondary school education have 6.49 times more chance of receiving postnatal care than illiterate. Similarly women with primary and above educated husband had significantly greater chance to have postnatal care than those with illiterate husbands.¹⁷

In this study majority of women were employed and a sizeable number of them were housewives. Most of the husbands of the respondents were engaged in service. No significant association was seen between women and their husbands' occupation with ANC and PNC. A possible explanation for it could be lack of knowledge and practice regarding maternal health services.

This study found that mean monthly income of the respondents was 7325.5 BDT (US\$ 92) whereas mean husbands income was 13098.83 BDT (US\$ 164). This study found that women received four or more ANC (32.91%) when their husbands' income was more than ten thousand BDT (US\$ 125) whereas 20.87% women received ANC four or more times when their husbands' income

was less than BDT 10,000 (US\$ 125). Similarly women received more PNC (46.4%) when their husbands' income was more than BDT 10,000 (US\$ 125). A significant association was present between husbands' income, ANC and PNC. But no significant association was found between respondents' own income, ANC and PNC. The study finding illustrated that these women worked but had no control over the use of their earnings. Having influence over money earned further improved use of skilled antenatal and delivery care.²⁰

We examined the effect of maternal health services on use of contraception in the postpartum period. The study revealed that about 29.36 % of the respondents sought at least one ANC from health care providers. However, a considerable number do not make the minimal number of visits (four) as recommended by the WHO for their most recent birth. The finding of this study is comparable with those conducted in Jimma town (90%), in Jijiga town (82%) and in Hadiya zone (86%) of Ethiopia respectively.²¹⁻²³ The primary reasons given by participants of our study for not attending ANC services included financial difficulties (84.61%) followed by decision by their family members (15.38%).

It was found that the use of contraception in post-partum period is significantly associated with place of delivery ($p=0.002$). Contraceptive use was higher (42.67%) among the females who delivered their babies at a hospital/health center as compared to those who delivered at home (24.06%). This can be attributed to post-partum contraception advice received by the females during prenatal and postnatal care. The place of delivery was found to be a significant predictor of the use of contraception in the postpartum period. This finding is similar to research done in Mexico which reported that women who delivered in government or private facilities were more likely to use a contraceptive

method postpartum than those who delivered at home (41%).²⁴

Delivery care should involve skilled attendant who can provide normal delivery care, recognize and manage pregnancy complications when they occur. This study found that more than half of the pregnant women (54.6%) were attended by the unskilled personnel (traditional birth attendants locally known as *dai* and relatives) while 45.4 % were attended by skilled personnel (doctor, nurse, midwife) during delivery (Figure-1). This study also revealed that SBA is significantly associated with use of contraception in postpartum period ($p=.005$) (Table-4). Similar result was seen in Uganda, which reported that SBA significantly increases utilization of postpartum family planning. The current study found that PNC and postpartum contraception use were statistically significant ($p=.001$). Women who received PNC had higher rate of using postpartum contraception. This is expected because the motivation to use contraception and discussion with clinicians is usually high in the immediate postpartum period.²⁵

The findings of this study showed that the use of contraception during the postpartum period is significantly associated with use of maternal health services. This suggests that maternal health services remain important windows of opportunity to provide access to family planning messages and to offer women various contraceptive methods during postpartum period. Apart from the maternal health services education, empowerment of women and providing economic opportunities can help to make informed choices. This indicates that raising the level of education is one effective strategy of promoting contraceptive use. Research done on this issue has consistently shown that better educated, wealthier women are more likely to use contraception in the postpartum period.²⁶

CONCLUSION

Bangladesh has achieved important healthcare related success over the last decade. Progress is still slow in the area of utilization of maternal health services and post-partum contraception. The findings presented in this study suggest that contraceptive use among postpartum women will significantly increase if more women utilize antenatal care and postnatal care. It is likely that further improvement of these services would help increase the uptake of family planning during the critical postpartum period.

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REFERENCES

1. WHO and USAID. Repositioning Family Planning: Guidelines for Advocacy Action. 2008. Available at http://www.who.int/entity/reproductiv_ehealth/publications/family_planning/f_p_advocacytool_kit.pdf Accessed on 3rd December 2016.
2. Fauveau V, Koenig MA, Chakraborty J, Chowdhury AI. Causes of maternal mortality in rural Bangladesh, 1976-1985. *Bull World Health Organ.* 1988;66(5):643-51.
3. Fortney JA, Susanti I, Gadalla, S, Saleh S, Feldblum PJ, Potts M. Maternal mortality in Indonesia and Egypt. *Int J Gynaecol Obstet.* 1988;26(1):21-32.
4. Bergsjö P. What is the evidence for the role of antenatal care strategies in the reduction of maternal mortality and morbidity? In: De Brouwere V, Van Lerberghe W, editors. Safe motherhood

- strategies: a review of the evidence. *Studies in Health Services Organization and Policy*, Belgium: ITG Press. 2001;35.
5. Jackson E, Glasier A. Return of ovulation and menses in postpartum no lactating women: a systematic review. *Obstet Gynecol*. 2011;117:657-62.
 6. Conde-Agudelo A, Belizán JM, Lammers C. Maternal-perinatal morbidity and mortality associated with adolescent pregnancy in Latin America: cross-sectional study. *Am J Obstet Gynecol*. 2005;192:342-9.
 7. Piaggio G, Ba'aqeel H, Bergsjö P, Carroli G, Farnot U, Lumbiganon P. et al. The practice of antenatal care: comparing four study sites in different parts of the world participating in the WHO Antenatal Care Randomised Controlled Trial. *Paediatr Perinat Epidemiol*. 1998;12 (Suppl 2):116-41.
 8. Vernon R. Meeting the family planning needs of postpartum women. *Stud Fam Plann*. 2009;40(3):235-45.
 9. RamaRao S, Lacuesta M, Costello M, Pangolibay B, Jones H. The link between quality of care and contraceptive use. *Int Fam Plan Perspect*. 2003;29(2):76-83.
 10. Borda M, Winfrey W, McKaig C. Return to Sexual Activity and Modern Family Planning Use in the Extended Postpartum Period: An Analysis of Findings from Seventeen Countries. *Afr J Reprod Health*. 2010;14(4):75-82.
 11. HPNSDP. Health Population Nutrition Sector Development Program. Program Implementation Plan. Available at http://www.mohfw.gov.bd/index.php?option=com_docman&task=doc_download&gid=1641&lala=en Accessed on 8th December 2016.
 12. National Institute of Population Research and Training (NIPORT). Bangladesh Demographic and Health Survey 2011. Dhaka, Maryland, NIPORT, Mitra and Associates, ICF International, 2013. Available at <https://dhsprogram.com/pubs/pdf/fr265/fr265.pdf> Accessed on 13th December 2016.
 13. National Institute of Population Research and Training (NIPORT). Bangladesh Demographic and Health Survey 2014. Dhaka, Maryland, NIPORT, Mitra and Associates, ICF International, 2016. Available at <https://dhsprogram.com/pubs/pdf/FR311/FR311.pdf> Accessed on 18th June 2017.
 14. Nwakoby BN. Use of obstetric services in rural Nigeria. *J R Soc Health*. 1994;114(3):132-6.
 15. Wall LL. Dead mothers and injured wives: the social context of maternal morbidity and mortality among the Hausa of northern Nigeria. *Stud Fam Plann*. 1998;29(4):341-59.
 16. Wong EL, Popkin BM, Guilkey DK, Akin JS. Accessibility, quality of care and prenatal care use in the Philippines. *Soc Sci Med*. 1987;24:927-44.
 17. Matsumura M, Gubhaju B. Women's status, household structure and the utilization of maternal health services in Nepal. *Asia-Pacific Population J*. 2001;16(1):23-44.
 18. Celik Y, Hotchkiss DR. Socio-economic determinants of maternal health care utilization in Turkey. *Soc Sci Med*. 2000;50(12):1797-806.

19. Shahabuddin ASM, Delvaux T, Abouchadi S, Sarker M, De Brouwere V. Utilization of maternal health services among adolescent women in Bangladesh: a scoping review of the literature. *Trop Med Int Health*. 2015;20(7):822-9.
20. Furuta M, Salway S. Women's Position within the household as a determinant of maternal health care use in Nepal. *Int Fam Plan Perspect*. 2006;32:17-27.
21. Jira C, Belachew T. Determinants of Antenatal care utilization in Jimma Town, Southwest Ethiopia. *Ethiop J Health Sci*. 2005, 15 (1): 49-61.
22. Abosse Z, Woldie M, Ololo S. Factors Influencing Antenatal Care Service Utilization in Hadiya Zone. *Ethiop J Health Sci*. 2010;20(2):75-82.
23. Zewdie Z. Determinants of Antenatal and Delivery care utilization in Jijiga Town, Somali regional state. Addis Ababa University, 2009;63.
24. Barber SL. Family planning advice and postpartum contraceptive use among low-income women in Mexico. *Int Fam Plan Perspect*. 2007;33:6-12.
25. Zerzavy FM. Use of intrauterine contraceptive devices in the postpartum period. *Am J Public Health*. 1967;57:28-3.
26. Gebreselassie T, Rutstein SO, Mishra V. Contraceptive use, breastfeeding, amenorrhea and abstinence during the postpartum period: an analysis of four countries. DHS Analytical Studies No. 14. Maryland, Macro International, 2008.