

Postnatal Care Services Utilization and Its Associated Factors Among Women Who Gave Birth in the Past One Year in Gulele Sub City, Addis Ababa, Ethiopia

Abera Shibrū¹ Ayalnesh Belihu² Gizachew Abdissa³

1. Alkan university college, Addis Abeba, Ethiopia

2. Ambo University, Collage Medicine and Health Sciences, Department of Public Health, Ambo, Ethiopia
P.O. Box 19

3. Ambo University, Collage Medicine and Health Sciences, Department of Midwifery, Ambo, Ethiopia
P.O. Box 19

Abstract

Introduction: Postpartum period is a critical period in which most maternal and infant deaths occur, especially in the first month after birth. Post natal care is one of the interventions for reducing larger proportions of maternal and neonatal deaths. But evidence shows utilization of post natal care services in Sub Saharan countries including Ethiopia is low. Therefore, it is essential to understand the factors that influence women's for utilization of post natal care services. **Objective:** To assess postnatal care service utilization and associated factors among women who gave birth in the past one year in Gulele sub city of Addis Ababa, Ethiopia, 2015. **Methods:** Community based Cross sectional study was conducted from February to June 2015 among 817 women who gave birth in the past one year prior to the study. Multistage sampling technique was employed. The data was collected through interview by using a pre-tested questionnaire. Data was entered into EPI info version 7 then exported to SPSS version 20.0 for further analysis. Descriptive statistics was done and both Bivariate and Multivariate analysis were applied to see the association between dependent variable and independent variables. **Results:** The study revealed that 729 (89.2%) of the respondents were utilized postnatal care services at least once in health facilities. Being married (AOR=4.34), have less than 4 family size (AOR=2.16), delivery assisted by Midwives (AOR=13.79) and Doctors (AOR=9.59), had no information about PNC (AOR=0.07), didn't received PNC counseling during delivery at health institution (AOR=0.36) and women who were under influence of their husband (AOR=0.21) were found to be significantly associated with postnatal care services utilization. **Conclusion and Recommendation:** The level of postnatal care service utilization is relatively higher compared to the previous studies. Women's marital status, assistance at delivery by health professionals, family size, heard information about PNC, counseling on PNC during delivery and those who are able to visit health institution without their husbands influence were significantly associated with utilization of PNC service. Therefore, Federal Ministry of health, Addis Ababa health Bureau together with other stakeholders need to work on women empowerment and strengthening communities' awareness through health education during Antenatal Care, labor and delivery and post natal care about the importance of having follow-ups after she gave birth to boost the postnatal care service utilization.

Keywords: -Post natal care, Utilization, Addis Ababa

Introduction

Maternal mortality remains unacceptably high across much of the developing world with an estimated 303,000 maternal deaths occurred globally in 2015, yielding an overall maternal mortality ratio (MMR) of 216 maternal deaths per 100,000 live births. Developing regions account for approximately 99% (302, 000) of the estimated global maternal deaths in 2015, with sub-Saharan Africa alone accounting for roughly 66% (201, 000), followed by Southern Asia (66,000). Sub-Saharan Africa has a very high MMR with a point-estimate of 546. With Ethiopia having an estimated 13, 000 maternal deaths in 2013 (1).

In 2013, 2.8 million newborn died during the neonatal period throughout the world and this represents nearly 44 % of all deaths of children under age of 5 year (2). Sub-Saharan Africa share for the same period is 1.07 million (38.2%) and Southern Asia 1.09 million (38.9%) of the world's neonatal death. Ethiopia lost 84 thousand (3.0% of the world) newborns death (3).

Despite the fact that the majority of maternal and newborn deaths occur within the first week of the postnatal period, thus providing effective care for mothers and newborns during the early postnatal period has the potential to generate the greatest gains in survival and health of maternal and new born (4).

Bleeding and infection pose the greatest risk to the mother's life during labor and immediately after giving birth (5). The long-term maternal complications due to lack of care in the postnatal period include chronic pelvic pain, impaired mobility, damage to the reproductive system and infertility (6). Regarding the newborn baby, preterm birth, low birth weight, asphyxia and severe infections pose greatest risk (7, 8). The first day and week are most critical for the survival of newborns, in 2013 almost 1 million newborns died on the day they were born,

and another 1 million died within the next six days of birth, some 0.8 million neonatal deaths occurred between day 7 and day 27 of life in the world (9). Access to postnatal care (PNC) services has a great deal of impacts on major causes of infant death and significantly affects trends in maternal mortality (10). Thus, the postnatal period is the most critical phase in the lives of mothers and newborn babies.

World Health Organization (WHO) strongly recommends postnatal care for the mother and her newborn baby at least for 24 hours in cases where the delivery has taken place in a health facility. The recommendation reiterates at least three additional postnatal contacts are recommended for all mothers and newborns, on day 3 (48-72 hours), between days 7-14 after birth, and six weeks after birth (11). The Ethiopian Federal Ministry of Health assumes that every delivery takes place in a health facility and recommends that postpartum visit has to take place on 3rd, 6th days and at six week after birth (12). This closely aligns with the WHO recommendation.

A number of individual, household and institutional characteristics affect women's decisions to seeking care, which include age, education, income, access to health facilities, functioning of services of the health care system, waiting time and clinical practice, interaction between parents and health workers (13). Strengthening PNC in existing programs requires multifaceted commitments, such as providing community based education and health promotion for families to adopt positive household practices and seek care, training health workers and supervisors to improve coverage and quality of PNC services (14).

Forty five to fifty percent (45-50%) of mothers and newborns die in the first 24 hours after birth, and 65-75% of the maternal and neonatal deaths occur within one week of birth (15). PNC services help to safeguard women from complications following delivery and provide important opportunities to assess the infants' development compelling evidence to promote optimum and integrated maternal and newborn care during the first few days after delivery (16). Low coverage of care in the postnatal period negatively influences other maternal, newborn, and child health (MNCH) programmes along the continuum of care (17).

In Ethiopia, PNC services utilization is very low. In 2005, EDHS showed that 6.3% of women with live birth received PNC (18). This rate slowly rose to 8.5% over the next five years in 2011 (19), reaching 17% over the continuing three years in 2014 (20). Despite the increasing PNC trend, 83% of delivering women in the country remained vulnerable to postnatal morbidity and mortality as late in 2014. This is low PNC coverage by any standard and is not expected to contribute to a meaningful reduction in a nationwide maternal morbidity and mortality. EDHS 2014 indicated that the most vulnerable section of the population with low level of education, high number of births and prone to complication due to under nutrition resultant to socio-economic factors were not accessing PNC care while women in the highest wealth quintile were utilize PNC services than poor. Access to maternal health service is free and transportation is much better than in rural and regional urban settings. Still, 43.4% and 46.3% of women with live birth did not get PNC service according to the 2005 and 2011 EDHS respectively. This rate is reduced to a low 17.2% in 2014 and 82.8% receiving the PNC services (18, 19, 20).

In Addis Ababa, despite the fact that PNC service is made accessible nearly in all woredas of the city administration (in most instances at lower or no cost), there were more than 17% of women with live birth that are not accessing PNC service in a city where there was a large childbearing age population. Therefore, assessing the extent to which women are making use of the PNC services utilization and associated factors among women who gave birth in the past one year in Gulele sub city, Addis Ababa, Ethiopia has paramount importance.

Methods and Materials

Community based cross sectional study was conducted among women in four Districts of Gulele Sub City of Addis Ababa from February to June 2015. According to the projected population of CSA 2007 report in 2014 G.C, the total population of Gulele sub city was estimated at 309,251 of which 149,477 were males and 159, 774 were females. Among the female population, 107, 125 (67%) were in the age range of 15-49 years, of which 6,150 live birth were expected. The sub city has 3 public and 1 private hospital, 10 health centers and Health Extension program is set up at District level (21).

The source population is all women who gave birth in the past one year prior to May 2015, living in Gulele sub city. All women who gave birth during the last 12 months prior to May 2015 and who lived in the study area for 6 months or more and who were randomly selected were included in the study. But subjects who were seriously ill (unable to give the required data) during the data collection period and women who had not given a live birth were excluded.

Sample size was calculated By using Epi-info for the associated factors, with the assumption of proportion P of attendance of ANC follow-up 4 & above during pregnancy of the last child 50.7%, Ratio- 1:1, power 80%, CI-95%, (22). By considering 10% none response rate and design effects of 2, the final sample size became 844.

Multistage sampling technique was used to select four out of ten Districts in Gulele sub cities by simple random sampling. The calculated total sample size of 844 women was distributed among the study woredas proportional to their expected number of live births. The lists of women who gave birth in the last one year were identified from district health offices. Systematic random sampling was used to select study participants. On the other hand, if there were two or more eligible women in the selected household, one of them were included by

using a simple lottery method. If the women in the selected house hold were not available at the time of data collection repeated attempt were made and the next house hold were selected in their absence.

Utilization of Postnatal care was the dependent variable and Socio- Economic and demographic factors, Access of health care services, and awareness of utilization of postnatal care services were the independent variables. Utilization of Postnatal services was defined in this study as at least one postnatal follow up visit provided to mother and new born baby within the first 42 days (six weeks) of birth.

Data was collected using a structured and pretested questionnaire via face-to-face interview at the participant's home. The questionnaire was developed through review of existing local and international literatures, and first prepared in English and then translated into local language (Amharic) by independent translators then translated back to English by other person to ensure consistency and in order to keep the sense and meaning of the questions. The questionnaires have four parts which consists of information on socio-Economic and demographic characteristics, reproductive history of women, awareness about postnatal care service and history of postnatal utilization. Two supervisor and the principal investigators were closely followed the day to day data collection process and ensured completeness and consistency of the collected data.

To ensure the quality of the data, two days training was given for six data collectors and two supervisors. Questionnaires were pretested on 5% of individuals at Yeka sub city and necessary corrections were made one week before actual data collection.

The collected data were checked, coded and entered into EPI info version 7 and analysis was done by using SPSS version 20. Descriptive data were presented in numbers, texts, percent, tables and figures. Variables having p value of less than or equal to 0.05 were fitted to multiple logistic regression. Crude and adjusted odds ratio with 95% CI and p- value of less than or equal to 0.2 on Bivariate and 0.05 on multivariate were calculated to determine the strength of association between outcome variable and predictor variables.

Ethical clearance was obtained from University of Gondar Ethical review committee. In addition, letter of permission was taken from Addis Ababa city administration and Gulele sub city administration before research activity was commenced. Verbal informed consent was obtained from each study subject prior to the interview. The purpose of the study was explained for each study participants. Participants was also be informed that they can withdraw from the study any time if they are not comfortable about the questionnaire, participation of respondents were strictly on voluntary basis. In order to keep confidentiality of any information provided by study subjects were kept anonymous.

Results

A total of 817 women of reproductive age who gave live birth in the last one year prior to the survey had participated making response rate of 96.8%.

Socio- demographic characteristics of participants

Among the total 817 study subjects, more than two third 569 (69.6%) of them were between 25-34 years of age, with the mean age of 28.02 with standard deviation of 4.55 years. Regarding their educational status, one third 258 (31.6%) of the participants attended secondary school and almost all 785 (96%) were married. Majority of the respondents 633 (77.5%) were Orthodox religion followers and 459 (56.2%) were housewife. Most of the respondents 514 (62.9%) have average monthly income of less than 500 birr. Regarding participant's partners, 306 (37.5%) of them have attended more than secondary school, and 378 (46.3%) of them were self-employed. Almost half of the study participants 391 (48%) had family size of less than 4 (**Table 1**).

Table 1: Socio-demographic characteristics of women who gave birth in the last one year in Gulele sub- city of Addis Ababa, Ethiopia, 2015

Variables	Number(n= 817)	Percent
Age (in years)		
15-24	165	20.2
25-34	569	69.6
35-49	83	10.2
Educational status		
No Education	151	18.5
Primary school	226	27.7
Secondary school	258	31.6
More than secondary	182	22.3
Marital status		
Married	785	96
Others ^a	32	4
Occupation		
House wife	459	56.2
Government employee	157	19.2
Self employed	122	14.9
Others ^b	79	9.7
Monthly income		
< 500 Ethiopian birr	514	62.9
500-1500 Ethiopian birr	187	22.9
>1500 Ethiopian birr	116	14.2
Religion		
Orthodox	633	77.5
Muslim	89	10.9
Others Christian ^c	95	11.6
Husband's Educational level		
No Education	83	10.2
Primary	145	17.7
Secondary	240	29.4
More than secondary ^d	306	37.5
Don't Know	43	5.3
Husband's occupation		
Government employee	226	27.7
Self employed	378	46.3
Others ^e	171	21
Don't Know	42	5
Family size		
<4	391	48
4	259	31.7
>4	167	20.4

^asingle, divorce, widowed ^bmerchant, house maid, daily laborer, student, ^ccatholic, protestant, ^ddiploma, first degree, above first degree ^emerchant, daily laborer, student, other

Awareness of ANC and PNC service utilization among women who gave birth in the last one year

Almost all 809 (99.0%) of respondents had utilized ANC services during their last pregnancy of which, 721 (89.1%) of them reported that they have visited for at least 4 and more times and 88 (10.9%) of them had 1-3 times ANC visits. The ages ranges of their current children were: 144 (17.6%) were 0-2 months, (28.9%) were 3-5months, 296 (36.2%) were 6-9months, 141 (17.3%) were from 9-12months of age. In majority of the respondents 716 (87.6%) their pregnancy were planned and wanted, and 101 (12.4%) of them were not planned or wanted.

Almost all 784 (96%) respondents reported that they have ever heard about PNC service, with health care providers 668 (81.8%) as their most common source of information. Majority of the respondents 766 (93.8%) said they have received counseling service about PNC during their pregnancy and 781 (95.6%) of them were also oriented about PNC service follow ups during their delivery (**Table 2**).

Table 2: Awareness of women about postnatal care services, in Gulele sub- city, Addis Ababa, Ethiopia 2015.

Variables	Number(N=817)	Percent
Ever heard about PNC service (information)		
Yes	784	96.0
No	33	4.0
Source of PNC information		
Health Care providers	668	81.8
Health extension workers	300	36.7
Voluntary	2	.2
Media*	60	7.34
Others**	16	1.95
PNC counseling during ANC		
Yes	766	93.8
No	51	6.2
PNC counseling during delivery		
Yes	781	95.6
No	36	4.4
Time taken to reach to the nearby Health Institution		
<30 Min	553	67.7
30-60 min	227	27.8
>60 Min	37	4.5
Waiting time to receive service		
<30 Min	305	37.3
30-60 min	452	55.3
>60 Min	60	7.3
Visited HIs without Husband's influence		
Yes	799	97.8
No	18	2.2
PNC visit acceptance on your religion		
Yes	814	99.6
No	3	.4

*TV, radio, newspapers, **family, school, friends

Utilization of postnatal care services among Respondents

From the total respondents, 729 (89.2%) of them utilized postnatal care service at least once at health facilities (hospitals and health centers) within 6 weeks of delivery and 88 (10.8%) of them reported they have never attended postnatal care service.

Out of women who had attended postnatal care service, about half of the respondents 372 (51%) visited the PNC service two times, 165 (22.6%) visited only once and 148 (20.3%) of them had visited three times.

Almost all, 797 (97.5%) of respondents had delivered at health facilities of which, 551 (67.4%) of them delivered at health centers and 246 (30.1%) at hospitals. More than two third, 576(70.5) of them were assisted by midwives during their delivery. The women provided various reasons for their postnatal checkup and the result revealed that more than half, 405 (55.6%) were visited for the sake of their infant and own health. The majority of participants, 619 (84.9%) were reported that midwives had provided the service during their visit. (**Table 3**)

Table 3: Utilization of postnatal care by the mothers in Gulele sub- city, Addis Ababa, Ethiopia, 2015 (n=817)

Variables	Number	Percent
Place of delivery (n=817)		
Home	20	2.4
Health center	551	67.4
Hospital	246	30.1
Who assisted on your delivery(n=817)		
Doctor	222	27.2
Midwifery	576	70.5
Nonprofessional attendant	19	2.3
Received PNC checkup within 6 weeks(n=817)		
Yes	729	89.2
No	88	10.8
Number of PNC visits within 6 weeks(n=729)		
Once	165	22.6
Twice	372	51.0
Three times	148	20.3
Four and above	44	6.0
Reason to PNC visit(n=729)		
For the sake of the infant's health	304	41.7
For the sake of my own health	20	2.7
For the sake of the health of both my child and myself	405	55.6
PNC delivered by(n=729)		
Doctor	83	11.4
Midwifery	619	84.9
Others®	27	3.7

®= Nurse, Public Health

Factors associated with Utilization of PNC services among Respondents

The mothers residence, educational status, marital status, occupation, husbands' education, family size, attendance of antenatal care visit, number of ANC visit, planned birth, place of delivery, assistants during delivery, information about PNC, counseling about PNC received during ANC, counseling about PNC received during delivery and husbands' influence found to be significantly associated with postnatal care service utilization on Bivariate analysis.

However, on multivariate analysis marital status, assistance during delivery, family size, information about PNC, received PNC counseling during delivery at health institution and able to visit health institution without husbands influence were significantly associated with utilization of PNC services.

This study revealed that respondents' marital status and family size were found to be significantly associated with utilization of PNC services. Those women who were married were 4.34 times more likely to utilize PNC service than those who were single, divorce and widowed (AOR=4.34, 95% CI: 1.77-10.61) and those women who have less than 4 family size were 2.16 times more likely to utilize PNC service than those who have more than 4 (AOR=2.16, 95% CI: 1.10-4.25). Women who were assisted by Midwives and Doctors were 13.79 and 9.59 times more likely to utilize PNC than those who were attended by non-health professionals (AOR=13.79, 95% CI: 4.58-41.49) and (AOR=9.59, 95% CI: 3.05-30.21) respectively.

This study indicated that information and counseling during ANC and delivery were important determinants of PNC service utilization. Those women who had no information about PNC service were 7% less likely to utilize than those who had (AOR=0.07, 95% CI: 0.03-0.17) and those women who haven't received PNC counseling during delivery at health institution were also 36% less likely to receive PNC service than who had (AOR=0.36, 95% CI: 0.13-0.96). Women who is under influence of their husband to visit health institution were 21% less likely to utilize PNC services than those who were who were not (AOR=0.21, 95% CI: 0.07-0.68) (Table 4).

Table 4: Factors associated with Post natal care /PNC/utilization services among respondents in Gulele sub- city, Addis Ababa, Ethiopia, 2015(n= 817)

Factors	PNC utilization		COR (95% CI)	AOR (95% CI)
	yes	No		
Women Educational status				
No education*	119	32	1.00	
Primary education	198	28	1.90 (1.09, 3.32)	
Secondary education	240	18	3.59 (1.93, 6.65) **	
More than secondary education	172	10	4.63 (2.19, 9.77) **	
Women's occupation				
House wife	406	53	2.10(1.14, 3.86)	
Government employee	149	8	5.11(2.09, 12.45) **	
Self employed	112	10	3.07(1.33, 7.12)	
Other* ^α	62	17	1.00	
Marital status				
Married	708	77	4.82(2.24, 10.37)**	4.34(1.77-10.61)***
Others * [®]	21	11	1.00	1.00
Husband's Occupation				
Government employee	208	18	3.61(1.53, 8.52)	
Self employed	337	41	2.57(1.18, 5.61)	
Others [©]	152	19	2.50(1.06, 5.88)	
Don't Know*	32	10	1.00	1.00
Place of delivery				
Home*	7	13	1.00	
Health center	506	45	20.88(7.93, 54.98) **	
Hospital	216	30	13.37(4.94, 36.17) **	
Assistance during delivery				
Doctor	194	27	13.34(4.89, 36.39) **	9.59(3.05, 30.21)***
Midwifery	528	48	20.43(7.78, 53.63) **	13.79(4.58, 41.49)***
Nonprofessional*	7	13	1.00	1.00
Family size				
<4	359	32	2.36(1.375, 4.044)	2.16(1.10, 4.25)***
4	232	27	1.81(1.026, 3.177)	1.35(0.68, 2.67)
>4*	138	29	1.00	1.00
Planned birth				
No	85	17	0.551(.310, .980)	
Yes*	644	71	1.00	1
Information about PNC/ever heard				
No	9	24	0.033 (.015, .075)**	0.07(0.03, 0.17)***
Yes*	720	64	1.00	1
Received PNC counseling during ANC visits				
No	33	18	.184(.099, .344)**	
Yes*	696	70	1.00	1
Received PNC counseling during delivery at (HI)				
No	18	18	.098(.049, .198)**	0.36(0.13, 0.96)***
Yes*	711	70	1.00	
Able to visit HIs without Husband's influence				
No	10	8	.139(.053, .363)**	0.21(0.07, 0.68)***
Yes*	719	80	1	1

Foot Note: -^α-merchant, house maid, daily laborer, student[®]- single, divorce, widowed [©]- merchant, daily laborer, student,* Reference group, ** Significant difference at p<0.001,*Enter Method for Bivariate and *** Significant difference at p<0.05, forward Stepwise (Likelihood Ratio) for multivariate logistic regression

Discussion

The study revealed that 729 (89.2%) had received postnatal care service at least once. Of the total women who visited PNC service, 372 (51%) of them received postnatal care service two times.

This result is almost comparable with study conducted by Afework et al (2014) that is about 88% of respondents reported that they had visited a health facility for postnatal care (23). The result is higher than the result of mini DHS 2014 in Addis Ababa (82.8%), Adwa (78.3%), Gondar Zuriya (84.39 %), Nepal (43.2%) (6,20,24,25). This is may be attributed to the difference in time, study setting and study subjects in which current study was conducted in Addis Ababa where the health care facilities were accessible and had better awareness about the services and in other studies done in Adwa, Gondar Zuriya and Nepals it involves both rural and urban residents.

Married women showed higher utilization of PNC service compared to women included in others (single or widowed or divorced). This could be due to their husbands might help them to be actively involved in seeking the best possible maternal care and who shared parental responsibility for their children's well-being.

Participants whose family size was less than four showed better utilization as compared to women whose family sizes were above four which indicates utilization of PNC service had decreased as family size increase. This might be because of those women having less than four might fear the health risks since they have less previous exposures, whereas mothers of larger number of children are more duty bound at home and have less time to visit health facilities for PNC. This result supported by the result of WHO (2004) described as huge family size tends to multiple demands on women's time (26).

Women who were assisted by Midwives and Doctors at birth were more likely to utilize PNC services as compared to women who were assisted by non-health professional. This finding is nearly similar with evidence from Nepal (8). This might be due to those who gave birth at health institutions were more likely to get health education and counseling regarding PNC services than who didn't, this is also supported by the finding of current study.

Women who had information about PNC were more likely to utilize PNC than those who didn't ever heard. This is consistent with studies done in Adwa, southern Ethiopia, Jabitena district Amhara region, Kenya and Nepal (6, 8, 26, 27, 28). This is because those who ever heard about PNC were more likely to know also the benefits of having PNC visits and health risks during this period than others.

As shown in the result, mothers who have decision making authority on health care utilization were more likely to utilize PNC as compared to mothers who were under their husbands' influence. This is consistent with the result of a study conducted in Gondar Zuria that stated as having decision-making authority for utilization was a factor found to be significantly associated with PNC utilization (25). It is also similar with the result of a studies conducted in Abi-Adi town Tigray and Jabitina district Amhara region (28, 29).

Conclusions

In this study the level of post natal care utilization were relatively higher compared to those previous studies. Women's marital status, assistance during delivery, family size, information about PNC, received PNC counseling during delivery at health institution and able to visit health institution without husbands influence were important predictors of utilization of PNC services.

Therefore Federal Ministry of health, Addis Ababa health Bureau together with other stakeholders need to work on family planning education to improve and limit family size and women empowerment in gender equality to boost the postnatal care service utilization and strengthen communities awareness on importance of postnatal care service utilization. Better if Health care providers working on Ante natal care, labor and delivery and post natal care provide health education or counseling about the importance of having post natal care services.

Conflicts of interest

The authors declare that there was free from any conflicts of interests.

Acknowledgements

We would like to express our deepest gratitude to the Institute of Public Health, College of Medicine and Health Sciences, University of Gondar and Alkan University College for their support. Also, our heartfelt thanks go to the study participants who spent their precious time in responding to all the questionnaires. Similarly we would like to thank all data collectors for their trustworthy and commitment on data collection process. In addition Special thanks also go to Addis Ababa City Administration Health Bureau, Gulele sub-city and woredas health office staff for their facilitation of the study process.

References

1. WHO. Trends in Maternal Mortality: 1990 to 2013: WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division estimates; 2014.
2. Shefali O. et al. Neonatal cause-of-death estimates for the early and late neonatal periods for 194 countries. Bull World Health Organ. 2000–2013;2015;93:19–28.
3. UNICEF. Levels & Trends in Child Mortality. Estimates Developed by the UN Inter-agency Group for

- Child Mortality Estimation; 2014.
4. Charlotte Warren. Opportunities for Africa's Newborns. 2010.
 5. Khanal V.et.al. Factors associated with the utilisation of postnatal care services among the mothers of Nepal: analysis of Nepal Demographic and Health Survey 2014.
 6. Hailerman.et.al. Utilization And Associated Factors Of Postnatal Care In Adwa Town, Tigray,Ethiopia- A Cross Sectional Study. ARPB. 2013;Vol 3.
 7. Salam R. et. al. Essential childbirth and postnatal interventions for improved maternal and neonatal health. Reproductive Health 2014;11.
 8. Khanal V.et.al. Factors associated with the utilisation of postnatal care services among the mothers of Nepal: analysis of Nepal Demographic and Health Survey 2014.
 9. UNICEF. Levels & Trends in Child Mortality.Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation; 2014.
 10. N Regassa. Antenatal and postnatal care service utilization in southern Ethiopia:a population-based study. African Health Sciences September 2011;Vol 11 No 3 (PMCID: PMC3260999).
 11. WHO. WHO recommendations on Postnatal care of the mother and newborn.2013. ISBN 978 92 4 150664 9.
 12. FMOH. Basic Emergency Obstetric & Newborn Care (BEmONC) training manual. Addis Ababa, Ethiopia: Federal Democratic Republic of Ethiopia Ministry of Health; 2013.
 13. Paudel.et.al. Determinants postnatal maternity care service utilization in rural Belgaum of Karnataka, India: A community based cross- sectional study. 2014.
 14. Sines.et.al. Postnatal Care: A Critical Opportunity to Save Mothers and Newborns. Washington, DC 20036 USA: Save the Children; 2007.
 15. University O. Postnatal Care at the Health Post and in the Community. Postnatal Care Module.2014.
 16. Agency CS. Ethiopia Demographic and Health Survey 2011. Central Statistical Agency. Addis Ababa: Ethiopia, ICF International Calverton, Maryland, USA; 2012
 17. Warren. CE. Exploring the quality and effect of comprehensive postnatal care models in East and Southern Africa. Belgium: International Centre for Reproductive Health 2015, Ghent (ICRH); 2015.
 18. Agency CS. Ethiopia Demographic and Health Survey 2005. Central Statistical Agency. Addis Ababa, Ethiopia: ORC Macro Calverton, Maryland, USA; 2006.
 19. Agency CS. Ethiopia Demographic and Health Survey 2011. Central Statistical Agency. Addis Ababa: Ethiopia, ICF International Calverton, Maryland, USA; 2012.
 20. Agency CS. Ethiopia Mini Demographic and Health Survey 2014. Addis Ababa, Ethiopia. Central Statistical Agency; 2014.
 21. Agency CS. Ethiopia Demographic and Health Survey 2007. Central Statistical Agency. Addis Ababa: Ethiopia, ICF International Calverton, Maryland, USA; 2007.
 22. Hailerman.et.al. Utilization And Associated Factors Of Postnatal Care In Adwa Town, Tigray,Ethiopia- A Cross Sectional Study. ARPB. 2013;Vol 3.
 23. Afework.et.al. Effect of an innovative community based health program on maternal health service utilization in north and south central Ethiopia: a community based cross sectional study. Reproductive Health. 2014;11:28.
 24. Khanal V.et.al. Factors associated with the utilisation of postnatal care services among the mothers of Nepal: analysis of Nepal Demographic and Health Survey 2014.
 25. Fikirte T et al. Knowledge, Perception and Utilization of Postnatal Care of Mothers in Gondar Zuria District, Ethiopia: A Cross-Sectional Study. Maternal and Child Health Journal. 2014;18(10): (PMCID: PMC4220106).
 26. Kinuthia. PM. Factors Affecting Utilization Of Postnatal Care Services In Kenya. South American Journal of Public Health. 2014;2,(3,).
 27. N Regassa. Antenatal and postnatal care service utilization in southern Ethiopia:a population-based study. African Health Sciences September 2011;Vol 11 No 3 (PMCID: PMC3260999).
 28. Yinager Gebeyehu Workineh DAH. Factors affecting utilization of postnatal care service in Jabitena district, Amhara region, Ethiopia. Science Journal of Public Health. 2014;2(3): 169-176(j.sjph.20140203.15).
 29. Alemayehu.et.al. Prevalence and Factors Associated with Post Natal Care Utilization in Abi-Adi Town, Tigray, Ethiopia: A Cross Sectional Study. IJPBSF International Journal of Pharmaceutical and Biological Sciences Fundamentals. November 2014;Vol. 08,(Issue 01,).