DETERMINANTS OF POSTNATAL CARE SERVICE UTILIZATION IN DIGA DISTRICT, EAST WOLLEGA ZONE, WESTER ETHIOPIA: CASE-CONTROL STUDY

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ABSTRACT

BACKGROUND: Postnatal care is one of the most important maternal health care intervention to prevent morbidity and mortality during the postnatal period.
Objective of the study: To assess determinants of postnatal care service utilization among mothers who were in the 6th week to 12months period after delivery in Diga district, 2017.

METHODS AND MATERIALS: A community based unmatched case-control study was conducted among 347 mothers (cases=115 and controls=232) who were in the 6th week to 12months after delivery during data collection period. A pretested questionnaire was used for data collection and data were analyzed using SPSS version 24 software. Bivariate analysis was conducted to examine the association between dependent and independent variables; Odds Ratios (ORs) and their 95% Confidence Intervals (CIs) were calculated. Then, multivariable logistic regression was used to control for possible confounders. p-value less than 0.05 were considered statistically significant.

RESULTS: In this study, 341 study subjects were interviewed 113 (98.26%) cases and 228(98.27%) controls with overall response rates of 341(98%). 107 (94.7%) of cases and 72(31.6%) of controls had ever heard about postnatal care service. Place of delivery (AOR: 4.5, 95%CI: (3.04, 6.72), having antenatal care before current delivery (AOR: 11, 95% CI: (1.76, 17.34), maternal knowledge about postnatal danger signs (AOR: 1.3, 95%CI: (1.02, 1.69), were found to be significantly associated with postnatal care service utilization.

CONCLUSION: Encouraging regular ANC follow up with institutional delivery along with integrated health education about postnatal care both during pregnancy and delivery will increase postnatal care service utilization.

KEYWORDS: Postnatal care, determinants postnatal care utilization, Diga District, East Wollega, Western Ethiopia.

(Ethiopian Journal of Reproductive Health; 2018; 10; 4: 52-61)

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INTRODUCTION

Postnatal period is the first six weeks after delivery and the return of the reproductive organs to their normal non-pregnant state. Postnatal care is a care provided to women and their babies within 42 days after delivery1. World Health Organization (WHO) recommends that after an uncomplicated vaginal birth in a health facility, healthy mothers and newborns should receive care in the facility for at least 24 hours after birth. If birth is at home, the first postnatal contact should be as early as possible within 24 hours of birth. 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. Whereas Federal Ministry of Health (FMoH) of Ethiopia recommends three PNC care visits within 24 hours, 3 days, 7 days and 6 weeks2. The health of mothers is mostly regarded as an indicator of the health of the society. Postnatal care utilization is regarded as one of the most important maternal health care services for the prevention of morbidity and mortality resulting from pregnancy and childbirth3. A large proportion of maternal and neonatal deaths occur within 48 hours after delivery. But most newborns and mothers do not receive postnatal care services from a skilled health care provider during this critical first few days after delivery. These first two days following delivery are critical for monitoring complications arising from the delivery4. However, according to the EDHS 2016 the national and Oromia region coverage of postnatal care service utilization within the first two days after delivery is only 16.5% and 9.0%, respectively.

Poor women in remote areas are the least likely to receive adequate postnatal care service. This is especially true for regions with low numbers of skilled health workers, such as sub-Saharan Africa and South Asia. This means that millions of births are not assisted by a midwife, a doctor or a trained provider. Factors that avoid women from receiving or seeking care during pregnancy and childbirth are poverty, distance, lack of information, inadequate services and cultural practices5. In developed countries, virtually all women and their infants receive postnatal care service, even though the nature and frequency of this care vary considerably6.

Despite the availability of the postnatal care service at all level, the mothers and their new babies are not receiving this life-saving service. This indicates that determinants of postnatal care service utilization still need strong due attention to be researched so as to improve its utilization and it also indicates that the available knowledge about the service utilization is insufficient. Evidence from local health facilities and Diga district health office shows that majority of mothers did not attend PNC service in the first three days and during the first two weeks after childbirth unless mothers or their newborn babies get sick7. Therefore, this study aimed to identify Socio-demographic, health institution and maternal related factors that contribute for low postnatal care service utilization among mothers who were in the 6th week to 12months period after delivery in Diga district., the results of this study could help to explore factors that deter PNC service utilization to suggest policies and interventions aimed at improving the PNC service utilization.

METHOD AND MATERIALS

Study Area and Period

This study was conducted in Diga district in East Wollega Zone, Oromia regional state, at a distance of 340Km from Addis Ababa. The district is administratively structured into 21 rural Kebeles and three urban kebeles. According to Central Statistical Agency, the projected population of the district for 2016G.C is 88474.The estimated number of women of childbearing age and under one-year children is 19,036 and 2770 respectively7. The health infrastructure of

the District comprises of four health centers and 24 functional health posts as well as 17 private primary clinic and 4 drug shops. All health centers provide postnatal care services. Health extension workers also provide postnatal care services at health post level. The study was conducted from October1-30, 2017.

Study Design

A Community based unmatched case-control study design was employed to assess determinants of postnatal care service utilization in Diga district, East Wollega Zone, Western Ethiopia.

Source Population

All women who were in the 6th week to 12months after delivery during data collection period and living in Diga District.

Study Population

The study participants were all randomly selected women who were in the 6th week to 12months after delivery during data collection period and living in seven selected kebeles of Diga district.

Cases: All women who were in the 6th week to 12months after delivery during data collection and living in selected kebeles and utilized postnatal care.

Controls: All women who were in the 6th week to 12months after delivery during data collection and living in selected kebeles of the district and did not utilize postnatal care.

Sample Size

A two-population proportion formula using Epi-info7 with the assumptions of; a 95% confidence level, 85% power, level of exposure to institutional delivery in the control group was 9% (9), an odds ratio of 3.6, the ratio of case to control of 1:2, an additional 10% non-response rate and design effect of 1.5. The calculated total sample size was 347 with the number of sampled cases (n=115) and sampled controls (n=232).

Sampling Technique

The study was conducted in seven selected kebeles (one urban and six rural). Six Kebeles from rural and one kebeles from urban were selected from the district by simple random sampling technique using lottery method. Prior to data collection, a census of the sampled seven Kebeles were conducted and listing of all households with women who gave birth in the past 12 months were made and a sample frame was prepared separately for those who attended PNC for their last delivery (case) and for those who did not attend PNC for their last delivery (control). The total sample size was allocated to each kebeles based on the proportional size of the study population. Finally, study subjects were selected by simple random sampling using random number generated by computer from the existing sampling frame of study participants.

Data Collection and Processing

Data was collected through interviewer-administered face to face interview by using a pre-tested structured questionnaire which was developed from similar studies. The questionnaire was prepared in English and translated into regional working language, Afaan Oromo. Data were collected by seven trained nurses and data collection process was supervised by four public health professionals. to give appropriate support during the data collection process. All completed questionnaires were reviewed by the principal investigators.

Data Analysis and Quality Management

Data were entered and cleaned using Epi-Info version 3.5.3 statistical software package and exported to SPSS Version 24 for analysis. Univariate and binary logistic regression was carried out to assess for an association between dependent and independent variables. All variables having a p-value <0.25 in the bivariate analysis were selected for the multivariable logistic regression to control for possible confounders.

Those variables having p-value <0.05 were taken as significant predictors. Crude and adjusted odd ratios with their 95% confidence were computed to show the association between dependent and independent variables.

Measurements

Postnatal care (PNC): -the care provided to the mother for the first six weeks after delivery.

Puerperium – the first six weeks' after delivery.

Postnatal care service utilization: a mother who received at least one PNC service by a health professional (midwife, nurse, health officer, and a medical doctor or health extension worker) during the first six weeks after delivery.

Recommended postnatal care: PNC was given to a mother for the first six weeks after delivery as per FMoH of Ethiopia standards; within the first 24 hours after birth, at 3 days, 7 days and at 6weeks.

Access to health facility: mother being no more than an hour from health facility or availability of health facility within one-hour travel by local means of transportation (foot, horse).

Knowledge about postnatal danger signs: a mother who is able to name the maternal potential danger sings during the postnatal period.

Have knowledge about postnatal danger signs: a mother who spontaneously mentions at least one maternal potential danger sings during the postnatal period. When 1 is given for correct answer and 0 is given for the incorrect answer.

Not have knowledge about postnatal danger signs: a mother who failed to spontaneously mention at least one maternal potential danger sings during the postnatal period. When 1 is given for correct answer and 0 is given for the incorrect answer.

Attitude about PNC service- a way of thinking about PNC service or behaving towards PNC service

Favorable attitude: The questions on Likert's scale had positive and negative responses that ranged from strongly agree to strongly disagree. The responses were summed up and a total score was obtained for each respondent. Those respondents who scored greater than the mean were considered favorable attitude.

Unfavorable attitude: Those respondents who scored less than the mean was considered as unfavorable attitude.

Maternal decision making regarding medical care seeking: the ability of the mother to make and execute independent decision pertaining to PNC service utilization.

Maternal near-miss: a woman who nearly died but survived a complication that occurred during pregnancy, child birth or within 42 days of termination of pregnancy. In practical terms, women are considered near miss cases when they survive life threatening conditions.

Postnatal danger signs: a severe headache, blurred vision, excess vaginal bleeding, offensive uterine discharge, convulsion, edema on face and hands.

RESULTS

Socio-demographic Characteristics of Study Population

Of 347 participants selected, 113 (98.26%) cases and 228(98.27%) controls were interviewed with overall response rates of 341(98%). The mean age of the participants was 27.85 years (SD + 5.376) and 111 (98.2%) cases and 211(92.5%) controls were married.

In this study 105(92.9%) of cases and 216(94.1%), controls were Oromo ethnic group. Concerning maternal educational status, uneducated mothers were 21(18.6%) in cases and 134(58.8%) of controls. Among the cases 7(6.2%) were educated to college and above level. Regarding maternal occupation, 101(89.4 %) cases and 228(100%) controls were a housewife. (Table 1)

Table 5: Socio-demographic characteristics of study participants in Diga district, 2017

Variables	categories	Cases (n = 113) No (%)	Controls (n = 228) No (%)
Maternal age in years	15-19	10 (8.8)	10 (4.4)
	20-24	25 (22.1)	40 (17.5)
	25-22 25-29	52 (46)	83 (36.4)
	30-34	25 (22.1)	47(20.6)
	35-39	1 (0.9)	48(21.1)
Marital status	Married	111(98.2)	211(92.5)
	Separated	0(0.0)	1(0.4)
	Divorced	2(1.8)	9(3.9)
	Widowed	0(0.0)	7(3.1)
Ethnicity	Oromo	105(92.9)	216(94.1)
	Amhara	6(5.3)	12(5.3)
	Gurage	2(1.8)	0(0)
Religion	Protestant	63(55.8)	123(53.9)
	Orthodox	26(23)	66(28.9)
	Muslim	24(21.2)	39(17.1)
Maternal education	Not Educated	21(18.6)	134(58.8)
	Able to read and write	6(5.3)	35(15.4)
	Grade 1-4	35(31)	46 (20.2)
	Grade 5-8	21 (18.6)	7 (3.1)
	Grade 9-10	19(16.8)	6(2.6)
	Grade 11-12	4(3.5)	0(0.0)
	College and above level	7(6.2)	0(0.0)
Husband Education	Not Educated	9(7.8)	102 (44.7)
	Able to read and write	2(1.8)	16 (7)
	Grade 1-4	9 (8)	65 (28.5)
	Grade 5-8	36 (31.9)	41 (18)
	Grade 9-10	42(37.2)	0(0.0)
	Grade 11-12	5(4.4)	2(0.9)
	College and above level	10(8.8)	2(0.9)

Obstetric characteristics

Regarding parity of participants 68 (60.2%) of cases and 68 (60.2%) of controls gave birth to two to four babies (multipara). About 10(8.8%) of cases and 18(7.9%) of controls gave birth to five or more babies (grand multipara) and 35 (31%) of cases and 92 (40.4%) of controls gave birth to one baby (have one child). As to the number of surviving children, most of the mothers have three surviving children on average. From the study participants 4(19%) of cases and 17(7.4%) of controls had a history of child deaths after birth within 42 days and of these, only 25% of cases and 15.4% controls were provided medical care before death.

Awareness of Mothers to PNC service utilization
Among study participants, 107 (94.7%) of cases and 72 (31.6%) of controls had ever heard about PNC. Among mothers who heard about PNC services after delivery 93(86.9%) of cases and 57 (79%) of controls heard from health professionals, 8(7.5%) cases and 8(11%) controls heard from women development army and 3 (3%) of cases and 4(6%) of controls heard from Radio.

Mothers attitude to PNC service utilization

In this study, 104(92%) of cases and 109(47.8%) of controls have favorable attitude on the importance of the PNC utilization with 42 days of delivery.

The practice of Mothers to PNC utilization

Of the total respondents, 113 (33.1%) utilized postnatal care service after delivery within Six weeks of their last delivery. Among PNC users(cases), majority 70(61.2%) mothers attended one time, 8(7%) attended two times and the rest 3 (2.5%) three times and none of them attended four times. Among PNC users, majority 43 (38%) of mothers attended PNC for their babies' immunization and 26 (23%) mothers had visited for excessive uterine bleeding. As to obstetric history, 50(46.3%) of cases and 63(53.7%) of controls had antepartum and postpartum related problem before giving their last birth. Among them, 48 (67.6 %) of cases and 23(32.4%) of controls have got treatment at the time of the problem. The main reasons for not receiving medical care during the time of problem were: 25(40%) of control were due to not knowing the benefits of PNC and 2(4%) of cases were due to lack of money for transportation. Of the respondents, 111(98%) of cases and 202(88.5%) of controls reported that they have received at least one ANC during their last pregnancy. Among them, 104(92%) of cases and 131(64.8%) of controls were advised to deliver at health facilities.

In this study 94(83.2%) of cases and 42(18.4%) of controls gave birth at a health center and 16(14.2%) of cases and 6(2.6%) of controls gave birth at a hospital. Among those mothers who delivered at health facilities, 110(70.1%) of them were told to attend PNC. Concerning home deliveries, only 3(2.7%) of cases and 180(78.9%) of controls gave birth at home.
Accessibility and Availability of Maternal Health Care Service

Seventy-eight (69%) of cases and 185(81.1%) of controls were traveled on foot; which took a maximum of one and half hour on foot travel to reach to usual health care facility. (Table2)

Table 2: Accessibility and Availability of maternal health care service in Diga district, 2017

Variables	Options	Cases (n = 113)No (%)	Controls (n = 228) No (%)
Residence	Urban	24 (21.2)	44(19.3)
	Rural	89 (78.8)	184 (80.7)
Occupation of the mother	House wife	101(89.4)	228(100)
	Merchant	6(5.3)	0(0.0)
	Civil servant	6(5.3)	0(0.0)
Average monthly income (Birr)	<500	68(60.2)	209(91.7)
	501-1000	17(15)	13 (5.7)
	1001-1500	16 (14.2)	3 (1.3)
	1501-2000	4(3.5)	0(0.0)
	>20	8(7.8)	3(0.6)
Means of transport	On foot /walk	78(69)	185(81.1)
	Public transport	33(29.2)	23(10.1)
	Hourse/cart	2(1.8)	20(8.8)
Perceived distance	<30 minutes	78(76.5)	78(69)
from residence to usual	30 minutes to1 hr	21(18.6)	144(63.2)
health care facility.	1hr to 2 hrs	14(12.6)	60(26.3)
	short	62(54.9)	35(15.4)
Perceived waiting time at health facility	Satisfactory	38(33.6)	97(42.5)
	Long	13(11.5)	96(42.1)
Perceived quality of Health facility	Very good	17(15)	9(3.9)
	Good	77(68.1)	56(24.6)
	satisfactory	12(10.6)	132(57.9)
	Bad	7(6.2)	31(13.)

Socio-cultural practices that prohibited mothers from attending PNC

The majority 297 (87.1 %) of mothers were able to decide to go to the health facility for PNC follow up by themselves. Among those who could not decide to go to the health facility for PNC follow up, for 256 (75% of the them decision was made by their husband's and for 71(20.8%) of them by other family members and/ or neighbors. In about 161(42.2%) of respondents reported that their culture has prohibited them from attending PNC services, of them, 8(36.02%) has reported that the mother could not have enough energy to go out of the home and 55(34.16%) has replied that inflammation "MICH" will kill them if they go out before 42 days after delivery.

Factors associated with postnatal care service utilization

In bivariate analysis variables like ever heard about PNC, maternal knowledge of potential postnatal danger signs and symptom, ANC attendance before giving last birth, place of delivery, attitude of mothers towards PNC, number of Surviving children, puerperium related problems after delivery advice to deliver at health institution, cultures that prevent from attending PNC were statistically significant with PNC utilization.

After adjusting for other variables, maternal knowledge of postnatal danger signs, ANC follow up, place of delivery and information heard about PNC remained significant in multiple logistic regression. Mothers who gave birth at health institution were 4.5 times (AOR: 4.5, 95%CI: (3.03,6.72) more likely to utilize postnatal care service than those mothers who gave birth at home. Mothers who have ANC follow up were 11 times more likely to utilize PNC service (AOR= 11, 95% CI: (1.76, 17.34). Mothers who have information on PNC service were more likely to utilize PNC service (AOR= 27.7, 95% CI (10.08,70.3). A mother who knows at least one maternal danger sign were more likely to utilize PNC than mothers who did not know any maternal danger sign after birth (AOR= 1.3, 95% CI (1.02, 1.69) (Table 3).

Table3: Association between postnatal care service utilization and different characteristics among mothers in Diga District, October 2017

Variables value		Case (No)	Control (No)	COR (95%CI)	AOR (95%CI)
Mother knows postnatal period was more dangerous to the life of mother& her baby.					
	Yes	98	111	7.4(4.0,13.8)	2.4(.748,7.459)
	No	15	117	1	1
Mother knows at least one maternal danger sign and symptoms after give birth.					
	Yes	105	138	11.6(4.9,27.5)	1.3 (1.020,1.69) *
	No	8	90	1	1
Mother attended ANC	Yes	111	202	21(5.2,29.3)	11 (1.76, 17.34) *
	No	2	26	1	1
Mother gave her last birth at health institution					
	Yes	110	47	138(41.7,458.5)	4.5 (3.04, 6.72) *
	No	3	181	1	1
Importance of PNC service	Agree	108	209	6.5(1.6,26.7)	2.1(0.85,5.22)
	Disagree.	5	19	1	1
The mother had any pregnancy, childbirth or puerperium related problem					
	Yes	53	63	2.3(1.4,3.7)	1.3(0.585,2.875)
	No	60	165	1	1
No of Surviving children	1-4	109	194	4.8(1.65 ,13.81)	.679(0.14,3.23)
	5-8	4	34	1	1
Mother ever heard of PNC					
	Yes	107	72	38.6(16.2,92.0)	27.7(10.03, 76.3) *
	No	6	156	1	1

COR: crude odds ratio: odds ratio by bivariate analysis. 95% CI: confidence interval at the 95% level.
*: p –value significant at ≤0.05, AOR-Adjusted OR: odds ratio by multiple logistic regression
1: Referent category

DISCUSSION

Postnatal care is one of the most important maternal health care intervention for prevention of illnesses and deaths during the postnatal period. According to this study, there is a significant association between knowledge of mother and utilization of postnatal care service. The finding of this study identified that maternal attitude on the importance of postnatal care utilization, place of delivery, advises to have postnatal care and having ANC follow up are factors associated with postnatal care utilization.

Mothers who gave birth in health institution are more likely to utilize PNC compared with who gave birth at home. This finding online with other studies conducted in Jabitena District, Amhara region6. Similarly, mothers who have attended at least one ANC visit before giving their last birth were more likely to utilize PNC service than those mothers who have not attended ANC visit at all. These findings are consistent with the studies conducted in Gondar Zuria district, Amhara region11, Nepal12, and Pakistan13. This implies that if mother gave birth in health facility the probability of receiving advice and knowing the importance of postnatal care is high. Attending ANC follow up will also increase the chance of mother know the importance of postnatal care service and which of course help them overcome some traditional barriers that prohibit the utilization of PNC.

Knowledge of postnatal danger signs and symptoms has a positive association with PNC utilization. Mothers who know at least one potential postnatal danger sign and symptom are more likely to utilize PNC service as compared to those who did not mention any postpartum danger signs and symptoms. This finding is supported by local studies conducted

in, Goba woreda, Oromia region14, Jabitena District, Amhara region (6), and in addition, it is similar with a study conducted in Uganda15.This can be justified that knowledge on obstetric danger signs and symptom during puerperium is an important factor in motivating mothers and their families to attend health care service at the earliest opportunity with the intention of prevention, early detection and getting managed their obstetric danger signs and symptoms.

CONCLUSION

This study revealed that utilization of postnatal care service in Diga district, Oromia Regional State, is still low compared to some other studies conducted in different areas of Ethiopia and national target of postnatal care coverage. Maternal knowledge on postnatal danger sign, attending of ANC follow up, place of delivery, and lack of information about PNC found to be independent predictors for PNC service utilization. Therefore, encouraging regular ANC follow up with institutional delivery along with integrated health education about postnatal care both during pregnancy and delivery will increase postnatal care service utilization.

LIST OF ABBREVIATIONS AND ACRONYMS

ANC-Antenatal Care, AOR-Adjusted Odds Ratio, COR- Crude Odds Ratio, EDHS-Ethiopian Demography and Health Survey, FMoH-Federal Ministry of Health, PNC-Postnatal Care, SPSS-Statistical Package for the Social Sciences, WHO¬¬¬¬¬¬¬ World Health Organization

DECLARATIONS

Ethical Consideration

Ethical clearance was obtained from the Research Ethics Review Committee (RERC) of Wollega University. Permissions were obtained to undertake the study from Diga district health office and local administration. Written informed consent was obtained from each participant before conducting data collection. They were informed their right of not participating in the study and terminating at any time. Privacy and confidentiality of information were assured throughout the entire study period. Confidentiality of study participants was assured by using questionnaire identification number and privacy by removing names and other identifiers during the interview.

COMPETING INTERESTS

The authors have no conflicts of interest to declare for this study.

FUND

The study has been funded by Wollega University. The organization has no any influence on the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.

ACKNOWLEDGMENTS

The authors would like to thank, Wollega University for all rounded support. We would like to acknowledge, Diga District Health Office for their cooperation and facilitating the field work throughout the study period. Our appreciation also goes to the supervisors, data collectors and all of the district community especially mothers who generously and willingly participated in the study; without them, this study would have been unthinkable.

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