

Factors Associated with Post-Natal Care Use among Post-Delivery Women in Bugesera District, Eastern Province, Rwanda, 2015

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Abstract: *Maternal mortality is unacceptably high, approximately 30-40% of direct maternal deaths in Africa are due to hemorrhage, mostly in the postpartum period. Such problems can be detected and treated through proper follow up visits for women during the postpartum period. This study aimed to identify the factors associated with postnatal care services utilization in Bugesera District. This was a cross-sectional study, consisted of 168 women who gave birth from July to December 2015 and 5 heads of health centers in Bugesera District. Data was collected using questionnaires and key informants interview. Study subjects were selected per health center was determined proportionate to number of deliveries each of the facilities had conducted. The selected mothers were reached in their respective villages. Analysis was conducted using stata, bivariate and multivariate logistic regression analysis were computed to determine statistical association between the outcome variable and independent variables using Odds Ratio; significant of statistical association were tested using 95% confidence interval (CI) and p value (< 0.05). The findings of this study showed that the utilization of postnatal care is 42.26%. It highlighted also that factors associated with the use of postnatal care services are age, educations, socio economic class "ubudehe" category, ANC visits, mode of delivery, the fact that last born is alive or not, being informed about PNC and understanding the necessity of the PNC. The study also revealed that it is necessary to build health posts in remote areas far away from health centers to facilitate population to seeking PNC services and to enhance the sensitization of mothers on the use of PNC service.*

Keywords: Postnatal care, maternal mortality, post-delivery women

1. Introduction

Maternal mortality is unacceptably high, approximately 30-40% of direct maternal deaths in Africa are due to hemorrhage, mostly in the postpartum period. Such problems can be detected and treated through proper follow up visits for women during the postpartum period. About 75% of maternal deaths occur during the process of childbirth or in the first week thereafter.¹ Approximately, each year an estimated 303,000 women die worldwide from complications related to pregnancy, childbirth or the postnatal period,² 90% of the deaths occurring in the developing countries³ and up to two-thirds of all maternal deaths occur in the Sub-Saharan Africa,⁴ an estimate of 201,000 women die each year in Sub-Saharan Africa.²

The postnatal period is the ideal time for special interventions in order to improve the health outcome and survival of both the newborn and the mother after delivery because many maternal deaths occur in this time period. It is very important to note that failure to attend for routine postnatal care leads to mortality, morbidity and unplanned early pregnancy after delivery. Postnatal care is essential and much helpful in maintaining and promoting the health of the woman and the newborn baby.³ In low-income countries, almost 40% of women experience complications after delivery and an estimated 15% develop potentially life-threatening problems.⁵ Moreover, postnatal care allows for the provision of postnatal vitamin A and iron supplementation to the mother and immunization of newborns to provide them with optimal start to life.⁶ Though it is a period that poses substantial health risks for both mother and newborn infant, yet it receives less attention from health care providers than pregnancy and childbirth.⁷ Lack of care in this time period may result in death or

disability as well as missed opportunities to promote healthy behaviors. Hemorrhage, sepsis and infections are the leading causes of maternal death and the majority of deaths occur virtually during the postnatal period.⁸

Sub-Saharan Africa has the highest rates of neonatal and maternal mortality in the world and has shown the slowest progress in reducing newborn deaths, especially deaths in the first week of life. Each year, at least 1.16 million African babies die in the first 28 days of life, at least 125,000 women and 870,000 newborns die in the first week after birth, yet this is when coverage and programs are at their lowest along the continuum of care. Asphyxia and infections claim many babies during the first day, and the majority of deaths were due to preterm birth occur during the first week.⁸ Postnatal care (PNC) program has the lowest rate of all reproductive and child health programs. Impediments to the effective delivery of PNC imply all the factors that, directly or indirectly, hinder its utilization and these include geographical, economical, socio-cultural barriers and the characteristics of health services such as well as the quality of care in influencing the decision of seeking care. According to different readings from different authors, the following factors contribute to perceived low use of PNC services: the fact that women do not feel sick pushes them to think that they do not need postnatal care: the use of PNC is higher among women who had experienced problems during their delivery, had a cesarean section, or had an instrumental vaginal delivery than among women who had a spontaneous vaginal delivery.⁹ Lack of advices from healthcare providers to women in post-natal care: women not having been told by their doctor /nurse to come back for postnatal care do not attend PNC service after delivery.⁹ There is a need for health care providers to sensitize community on the importance of postnatal care services and on complications that may arise

during postnatal period. Geographical inaccessibility to health facility: this may be measured by distance, travel time, means of transportation and any other physical barriers that could hinder the client from receiving PNC services. Long distances to health services often impact health service utilization.¹⁰ DHS 2010 reported that 26.1% of women said a long distance to reach the health facility is among the constraints in accessing healthcare including postnatal care.¹¹ The education of the mother is an important social variable that has a positive effect on the utilization of maternal and child health services. The other socioeconomic factors usually found to be important are place of residence, religion and standard of living of the household.¹² DHS 2010 revealed that slightly more than half of women (53%) reported that lack of money constitutes a primary barrier.¹¹

Ensuring appropriate postnatal care is critical for maternal and newborn health. Unfortunately, although Rwandan policies have rightly emphasized on components such as skilled birth attendance and antenatal care, they have overlooked the need to strengthen postnatal care within the reproductive health services.

2. Objective of the Study

The study aimed determine factors associated with postnatal care services utilization among post-delivery women in Bugesera District.

3. Materials and Methods

This study was a descriptive cross-sectional study consisting of 168 mothers delivered from July to December 2015 who were visited in their respective villages and 5 heads of health centers. The mothers were selected from 5 public health centers. The study was conducted in Bugesera District. It is conceptualized that independent variables such as the social demographic and economic factors (such as mothers' age, marital status, education, occupation, place of delivery, religion and economic social class) and external factors to mothers like accessibility and availability of PNC all influence the dependent variable, which is utilization of PNC services. Questionnaires and in-depth guide checklist were used in data collection. The utmost confidentiality was each time ensured to participant. Completed data were processed using Stata version 11.7. Descriptive statistics such as frequency distributions and percentages were used to describe various variables under study. Furthermore, bivariate and multivariate logistic regression analysis were computed to determine statistical association between the outcome variable and independent variables; significant of statistical association were tested using 95% confidence interval (CI) and p value (< 0.05). Ethical clearance and permission to carry out the study were obtained from Rwanda National Ethics Committee after the review of the research proposal.

4. Results

A total of 168 women and 5 heads of the health facilities met the inclusion criteria and were reached to their respective

villages for interview. Out of 168 women: 78 (46.4%) were aged 21 to 30 years, 142 (84.5%) were married, 95% were Christians, 62.5% of women interviewed attended primary school, 75% were farmers, 36.31% belonged in ubudehe category 1 and 2, 36.9% got pregnant three to four times, 38.1% delivered a live birth three to four times, 83.93% attended ANC, among them 21.28% completed ANC visits, 58.16% attended ANC 3-4 times, 91.07% delivered in health facilities, 78.57% had a normal delivery, 91.07% delivered alive baby last time they gave birth, 23.81% experienced post-partum complications, only 71(42%) of respondents attended the postnatal care services.

Among the reasons to attend PNC: 50.7% of those who attended postnatal care went just to check for post-delivery health status for both mother and baby, more than 20% went because they had health problems such as abdominal pain, postpartum hemorrhage, unknown severe pain. For those who did not go for PNC, 34% said they did not need to go there because they felt well, 32.99% said they were not advised, 12.4% said no time to go because of the work and forgot the date. Concerning time period to attend the PNC: only 16.9% came back within 3rd day after delivery, more than half of them (66.2%) came for PNC between fourth and tenth day after delivery, 49.3% attended PNC once only, 61% of mothers judge PNC attendance as necessary. PNC is necessary because they check for safety of mother and baby in addition identified problem is treated. On the other hand, among those who said that PNC is not necessary, 40.91% said that PNC is highly necessary just in case of sickness during postnatal period, 24.24% said it is needful to seek for PNC in case of postpartum complications like hemorrhage. The package offered during PNC matters a lot in terms of utilization of this service, it has been shown that more than 70% were advised on family planning, danger signs for both mother and baby, immunization of the baby, 63.38% were physically examined also were advised on breastfeeding, 66.20% were advised on nutrition.

Socio-demographic and economic characteristics of mothers and attendance of postnatal care service

As it is shown in table 1: 57.74% (97/168) did not attend PNC, 79.31% (23/29) of women aged 40+ did not attend PNC services, 66.67% (18/27) of women without schools did not attend PNC, 60.95% of women with primary school did not go for PNC services. It is also shown that mother's age and education can influence the use of PNC services with a P-value of under 0.05. Being married or not (P-value > 0.05) does not influence the PNC attendance. It has been revealed also that religion (P-value > 0.05) does not have an impact on PNC use. Among the socio-economic characteristics, the study showed that only ubudehe socio class has an impact on the use of PNC whereby the P-value equals 0.000: as shown in table 1, 91.67% (11/12) of those in category 1 and 75.51% (37/49) of those in category 2 did not attend PNC services, but 53.77% (57/106) in category 3 and 100% (1/1) in category 4 attended PNC services. It is also highlighted that 56.52% (39/69) of those who do not have domestic animals and 58.59% of those owning domestic animals did not attend PNC.

Table 1: Effect of socio demographic and economic characteristics of mothers and the use of postnatal care services

Variable	Have you ever attended postnatal clinic after the births of your baby/babies?						Pr.
	Mothers who did not attend PNC		Mothers who attended PNC		Total		
	No.	%	No.	%	No.	%	
Age							
21-30	36	55.38	29	44.62	65	100.00	0.032
31-40	38	51.35	36	48.65	74	100.00	
40 +	23	79.31	6	20.69	29	100.00	
Mother's education							
No school	18	66.67	9	33.33	27	100.00	0.044
Primary school	64	60.95	41	39.05	105	100.00	
Secondary school	13	38.24	21	61.76	34	100.00	
Tertiary school	2	100.00	0	0.00	2	100.00	
Marital status							
Married	81	57.04	61	42.96	142	100.00	0.978
Widowed	5	62.50	3	37.50	8	100.00	
Separated	5	62.50	3	37.50	8	100.00	
Single	6	60.00	4	40.00	10	100.00	
Religion							
ADEPR	26	65.00	14	35.00	40	100.00	0.269
Adventist of 7th day	15	51.72	14	48.28	29	100.00	
Anglican	3	42.86	4	57.14	7	100.00	
Roman Catholic	33	54.10	28	45.90	61	100.00	
EAR	9	56.25	7	43.75	16	100.00	
EPR	5	71.43	2	28.57	7	100.00	
Islam	6	100.00	0	0.00	6	100.00	
Jehovah's witness	0	0.00	1	100.00	1	100.00	
Maranatha	0	0.00	1	100.00	1	100.00	
Mother's occupation							
Employee	3	75.00	1	25.00	4	100.00	0.418
Private sector	8	42.11	11	57.89	19	100.00	
Housewife	10	58.82	7	41.18	17	100.00	
Agriculture	74	58.73	52	41.27	126	100.00	
Other	2	100.00	0	0.00	2	100.00	
Socio-economic class "Ubudehe category"							
1	11	91.67	1	8.33	12	100.00	0.000
2	37	75.51	12	24.49	49	100.00	
3	49	46.23	57	53.77	106	100.00	
4	0	0.00	1	100.00	1	100.00	
Ownership of domestic animals							
No	39	56.52	30	43.48	69	100.00	0.790
Yes	58	58.59	41	41.41	99	100.00	
Total	97	57.74	71	42.26	168	100.00	

Person level factors associated with postnatal care services

The study showed that there is not a statistical significance of gravidity (P-value=0.335), parity (P-value=0.113), ANC attendance (P-value=0.861), place of delivery (P-value=0.067), experience of postpartum complications (P-value=0.972) to PNC attendance (table 2). The study revealed that more a pregnant woman makes visits to ANC clinic (P-value=0.016) the more she is likely to further attend PNC: 50% of women who attended ANC 3 and 4 times attended PNC. Though the place of delivery does not have a significant impact of the use of PNC but the mode of delivery (P-value=0.006) has an influence on PNC: 52.27%

of those with normal delivery and 77.78% of those with abnormal delivery did not attend PNC. 54.90% of those with last born alive did not attend PNC services. The also highlights that the effect of receiving an appointment for PNC on the use of PNC whereby 82.2% of those who did not receive an appointment for PNC did not attend PNC and 55.56% of those who have been appointed for PNC went for PNC. 82.6% of the women who were not informed about PNC did not attend PNC, 70.3% of those who were informed once did attend as well but 60.3% of those often informed attended PNC, 71.2% of the women who judge PNC not necessary did not attend PNC.

Table 2: Effect of person level factors of mothers and the use of postnatal care services

Variable	Have you ever attended postnatal clinic after the births of your baby/babies?						Pr.
	Mothers who did not attend PNC		Mothers who attended PNC		Total		
	No.	%	No.	%	No.	%	
Gravidity							
2-Jan	29	50	29	50	58	100	0.335
4-Mar	38	61.29	24	38.71	62	100	
5+	30	62.5	18	37.5	48	100	
Parity							

2-Jan	29	47.54	32	52.46	61	100	0.113
4-Mar	42	65.63	22	34.38	64	100	
5+	26	60.47	17	39.53	43	100	
ANC attendance							
No	16	59.26	11	40.74	27	100	0.861
Yes	81	57.45	60	42.55	141	100	
Number of ANCs for last pregnancy							
4 times	14	46.67	16	53.33	30	100	0.016
3 times	24	46.15	28	53.85	52	100	
2 times	26	76.47	8	23.53	34	100	
Once	17	68	8	32	25	100	
Place of delivery							
Health facility	85	55.56	68	44.44	153	100	0.067
Outside health facility	12	80	3	20	15	100	
Mode of delivery							
Normal delivery	69	52.27	63	47.73	132	100	0.006
Abnormal delivery (C-section)	28	77.78	8	22.22	36	100	
Last born alive							
No	13	86.67	2	13.33	15	100	0.017
Yes	84	54.9	69	45.1	153	100	
Appointment for PNC							
No	37	82.22	8	17.78	45	100	0
Yes	48	44.44	60	55.56	108	100	
Information about PNC							
No	19	82.61	4	17.39	23	100	0.009
Yes	78	53.79	67	46.21	145	100	
Extent of PNC information							
Once	26	70.27	11	29.73	37	100	0.008
Sometimes	27	60	18	40	45	100	
Often	25	39.68	38	60.32	63	100	
PNC necessity							
No	47	71.21	19	28.79	66	100	0.004
Yes	50	49.02	52	50.98	102	100	
Total	97	57.74	71	42.26	168	100	

Health facility level factors associated with postnatal care utilization among post-delivery women.

The study showed that there is a statistical significance between time made to reach the nearest health facility with a Pr = 0.020, the quality of customer care with a Pr = 0.018 and the use of PNC. 79/168 (47%) of the respondents use above 45 minutes to reach the health facility, 43/168 (26%) of them use 30 to 45 minutes, 24% use 15 to 30 minutes. The women judged the customer care at health facility: 111/168 (66.07%) said they were received friendly, 21/168

(12.5%) said that the health provider were hurried, 12 (7.14%) said that the health provider were rude. As shown in table 3, the more the woman stays nearby the health facility the more the use of PNC is high: 80% of those using less than 15 minutes and 56% of those using 30 to 45 minutes attended PNC but 68.35% of those using above 45 minutes did not attend PNC. Also the customer care plays a role in the use of PNC because, 91.67% of the woman who said that the health care providers were rude did not attend PNC.

Table 3: Effects health facility level factors vis a vis the fact of attending postnatal care service

Variable	Have you ever attended postnatal clinic after the births of your baby/babies?						Pr.
	Mothers who did not attend PNC		Mothers who attended PNC		Total		
	No.	%	No.	%	No.	%	
Time made to reach nearest health facility							
Less than 15 minutes	1	20.00	4	80.00	5	100.00	0.020
15 to 30 minutes	18	43.90	23	56.10	41	100.00	
30 to 45 minutes	24	55.81	19	44.19	43	100.00	
Above 45 minutes	54	68.35	25	31.65	79	100.00	
Customer care							
Friendly	55	49.55	56	50.45	111	100.00	0.018
Hurried	13	61.90	8	38.10	21	100.00	
Rude	11	91.67	1	8.33	12	100.00	
Slowly	10	71.43	4	28.57	14	100.00	
Neutral	8	80.00	2	20.00	10	100.00	
Total	97	57.74	71	42.26	168	100.00	

The PNC services are offered in all 5 health centers visited, 2/5 offer PNC services 3-5 days. PNC service is not indicated on health center's signing panels in all health

centers visited, no PNC activities in annual plans of the 5 health centers, no health center possess national PNC guidelines nor possession of PNC standard registers because

they are not provided by MOH, PNC data are available only in one health center and also are analyzed in one health center. The heads of health centers interviewed said that among influencing factors of PNC use are: long distance to reach health facility is the main factor, nurses who do not give much importance to PNC and explain to women the importance of PNC, mothers do not give importance to PNC when they have no complications and lastly the ignorance of women.

5. Discussion

The findings of this study showed that the uptake of postnatal care is 42.26% which falls in line with RDHS 2014/2015 that showed that first postnatal checkup is only 43%.¹³The age of the mother plays an important role in women's utilization of maternal health services. This study revealed that the age of the mother at Pr=0.032 influences her decision to use PNC services: 79.31% of those aged 40 years and above did not attend PNC. The same scenario has been found by Kinuthia in 2014 in a study done in Kenya where it has been shown women aged 30 and above are less likely to use postnatal care services, the same findings were revealed by a study done in Nepal,¹⁴ the same finding were revealed by another also conducted in Kenya.¹⁵ Another study conducted by Bernard in Rwanda also revealed that the age of the mother at delivery ($p < 0.001$) is significantly associated with PNC use.¹⁶This study revealed that maternal education has a positive impact on the utilization of health care services at Pr=0.044: 66.6% of women without studies and 61% with primary studies did attend PNC services. Maternal education is argued to be an effective means of achieving greater autonomy in the family, getting employment, thereby achieving economic independence.¹⁷ The same finding has been noted in Bangladesh that the higher educated mothers are more conscious than illiterate mother in utilizing the services. Also many others researchers found the same where they said that the higher the educational level of mothers, the more they attend health centres for postpartum services.^{18,15,19,20} The influence of mother's education level ($p < 0.001$) to PNC use was also confirmed by another study conducted in Rwanda.¹⁶The socio-economic class "ubudehe" at Pr=0.000 plays a strong significant impact on the use of PNC services: 91.67% of those in category 1 and 75.5% in category 2 did not attend PNC. The same finding is confirmed by a study done in India which showed that mothers from upper class are more likely to use maternal care compared to mothers from lower class. Household wealth may facilitate the use of maternal care in many ways. Mothers from richer households are generally more educated and have more autonomy compared to mothers from the poorest households.²¹

This study showed that mother's gravidity at Pr= 0.335 and parity at Pr= 0.113 have no influence on the attendance of PNC services. Though the attendance of ANC at Pr= 0.861 does not have an influence on the use of PNC but this study revealed that there is a significant effect of ANC visits (Pr=0.016) on postnatal care attendance: 53% of the women with 4 and 3 ANC visits attended PNC whereas 76% with 2 ANC visits and 68% with only one ANC visit did not attend PNC. A study done in Nepal¹⁴ found that the mothers who attended four or more ANC visits as recommended by the

WHO⁷ were more likely to attend postnatal care. This study highlighted that the place of delivery at Pr= 0.067 does not have an influence on the use of PNC rather the mode of delivery with Pr=0.006 has an influence on the use of PNC: 77.8% of the women with an abnormal delivery did not attend PNC because they were still weak to walk to health facility for PNC. The same situation is confirmed by the study conducted by Dhaler et al which showed that the use of PNC is higher among women who had experienced problems during their delivery, had a cesarean section, or had an instrumental vaginal delivery than among women who had a spontaneous vaginal delivery.⁹This study has shown that the fact that the woman's last born is alive or not (Pr= 0.017) plays a negative or positive impact on the PNC utilization: 86.67% of the women whose last is not alive did not attend PNC. This study showed that when the women are informed about PNC (Pr=0.009) are most likely to use PNC services where 826% of the women who were not informed about PNC while staying in health facility did not attend PNC. A study done in Nepal²², reported that the main reason for the non-utilization of postnatal care services is lack of awareness or not perceiving a need for it. The results from these studies concur with the study done in Kenya where 41.3% of the respondents had no knowledge about postnatal services and only 16.3% had good knowledge about postnatal care.²³ According to Titaley et al, lack of exposure to information and lack of health knowledge about pregnancy are significantly associated with non-utilization of postnatal care services.²⁴This study has shown that the more the woman is informed the more is likely to attend the PNC service. The extent to what the PNC is shared with a Pr=0.008 has an impact on PNC use: 60% of those saying that they were sometimes informed on PNC attended PNC. This study has revealed that the more the woman feels PNC is necessary the more is likely to use it. The necessity of PNC at Pr=0.004 has a significant impact on the use of PNC where 71.2% of those saying that PNC is not necessary did not attend PNC and 51% of those saying that PNC is necessary attended PNC as well.

This study has shown that when women receive an appointment to come for PNC at health centre has a positive impact on the use of PNC. Appointment for PNC with a Pr= 0.000 has an impact on the use of PNC services: 82% of those saying not receiving an appointment did not attend PNC whereas 55.56% of those who were appointed to come back for PNC came. This study has shown that distance to reach the health facility with a Pr=0.020 constitutes a limitation to seek PNC services. The previous studies done in Kenya and Indonesia also revealed that long distance to the healthcare facility constitutes a barrier hindering the use of postnatal care services.^{23,24}The fact that long distance to reach health centre has an influence on the use of PNC has been also stressed by 80% of health centres representatives. This study has revealed that customer care at Pr= 0.018 plays an important role for the use of PNC services: 50% of those saying that they were friendly received at health centre attended PNC whereas 91.7% of those saying that health provider were rude did not attend PNC. A study done in Kenya by Kinuthia showed that providers' response and care in the facility also contributed to poor utilization of postnatal care for instance respondents reported that the health workers were rude and that the waiting time was long. The

rude health workers and long waiting time should not be ignored in order to improve utilization of postnatal care services.²³

6. Conclusions

Postnatal care utilization is a significant part of maternal and child health care. It is connected with the physical, nutritional and emotional wellbeing of mothers and new born. This study examined the factors associated with the non-utilization of postnatal care among post-delivery mothers in Bugesera District. The socio-demographic and economic characteristics play an important role in women's decision and utilization of maternal health services. Age of the mother, her level of education show a positive impact on the utilization of health care services. The social class named "Ubudehe" has a strong significant impact ($P=0.000$) on the use of PNC services. Household wealth may facilitate the use of maternal care in many ways. Mothers from richer households are generally more educated and have more autonomy compared to mothers from the poorest households.²¹ The majority of the mothers attended ANC and PNC, but this study revealed that there is a significant effect of ANC visits ($P=0.016$) on postnatal care attendance, mode of delivery with $P=0.006$ has an influence on the use of PNC, the more the woman is informed the more is likely to attend PNC, the extent to what the PNC is shared with a $P=0.008$ has an impact on PNC use. Again more the woman feels PNC is necessary the more is likely to use it, the necessity of PNC at $P=0.004$ has a significant impact on the use of PNC. The distance to reach the health facility constitutes a limitation to seek PNC services. Customer care plays an important role for the use of PNC services. The rude health workers and long waiting time should not be ignored in order to improve utilization of postnatal care services.²³ The availability of PNC service, its functionality and priority given to PNC service in a health facility have a direct impact on the use of PNC.

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