



## FACTORS INFLUENCING UTILIZATION OF POSTNATAL CARE SERVICES AMONG POSTNATAL MOTHERS WHO DELIVERED FROM CHINA-UGANDA FRIENDSHIP HOSPITAL, KAMPALA DISTRICT

Kyabaishiki Allen Christine<sup>1</sup> & Omona Kizito [PhD]<sup>1\*</sup>

<sup>1</sup>MPH Student, Uganda Martyrs University, Faculty of Health Sciences, P. O. Box 5498, Kampala, Uganda

<sup>1\*</sup>Lecturer, Uganda Martyrs University, Faculty of Health Sciences, P. O. Box 5498, Kampala, Uganda

\*Corresponding author E-mail: [komona@umu.ac.ug](mailto:komona@umu.ac.ug)

### Abstract

**Introduction:** Only 13% of women in Africa attend postnatal care appointments. Despite the availability of postnatal care services at China-Uganda Friendship Hospital Naguru (CUFHN), utilization of PNC services remains low.

**Purpose:** Specifically, this study looked at the level of utilization of postnatal care services, the individual and healthcare factors and modalities for improving utilization of postnatal care services among postnatal mothers who delivered from CUFHN.

**Methods:** Analytical cross sectional research design was used, with quantitative methods of data collection. A sample of 381 respondents who were postnatal mothers was used, selected by simple random sampling. Data was collected using researcher administered questionnaires and analyzed using SPSS version 25.

**Findings:** Utilization of postnatal care services was low at 14%. Socio-demographic factors that were significantly associated with utilization of PNC services were; age ( $p=0.001$ ), religion ( $p=0.024$ ), marital status ( $p=0.048$ ), education ( $P=0.034$ ). Significant individual factors included; work ( $p=0.001$ ), cultural norms ( $p=0.014$ ), education about PNC ( $p=0.006$ ), birth order ( $p=0.010$ ), having children ( $p=0.025$ ), HIV testing ( $p=0.024$ ), husbands' involvement ( $P=0.002$ ), use of herbal medicine ( $p=0.004$ ), financial constraints ( $p=0.001$ ), means of transport ( $p=0.001$ ). Significant healthcare factors included; distance ( $P=0.001$ ), availability of maternity services ( $p=0.038$ ), affordability of drugs at local pharmacies ( $P=0.001$ ), availability of drugs ( $p=0.042$ ), diagnosis before prescription and treatment ( $P=0.005$ ), availability of health workers ( $p=0.033$ ),



privacy ( $p=0.039$ ), waiting time ( $p=0.001$ ) and enough seats and beds ( $p=0.038$ ).

**Conclusion:** *There was low utilization of PNC services. This was mainly due to maternal old age, high parity, and knowledge about PNC, among others. Policy to enhance PNC service utilization needs to be enacted and revised from time to time to enhance effective utilization*

**Keywords:** *Postnatal care, Utilization, Mothers*

---

## 1. INTRODUCTION

### 1.1. Background of the Study

Studies (1) have shown that only 13% of women in Africa attend postnatal care appointments. The postnatal period is the first six weeks after birth, is an important time in the life of the mother and child (2). In 2013, more than 289,000 maternal deaths occurred globally, with 62 % occurring in sub-Saharan Africa alone which fate could be saved by 50% with good attendance of postnatal care services(3).

The fact that 18 million women in Africa currently do not give birth in a health facility poses challenges for planning and implementing postnatal care for women and their newborns (4). Most mothers and newborns do not visit the health institution following birth, indicating that postnatal care programs are among the weakest of all reproductive and child health programs utilized (5). The study to assess the factors influencing the utilization of postnatal care services among postnatal mothers who deliver from China-Uganda Friendship Hospital Naguru with an aim of improving maternal and child health.

In China-Uganda Friendship Hospital Naguru, there is low utilization of postnatal care services where only 15% of mothers who delivery from the hospital come back for postnatal care services with one week. Less than 5% of mothers seek postnatal care services after a week post-delivery. This attracted that researcher to investigate factors that may influence mothers to utilize or not utilize postnatal services.

## 2. METHODS

A descriptive and analytical cross sectional study design, which was quantitative in nature conducted among post-natal mothers who delivered from post-natal care in Uganda during the study period.

Sample size was determined by Cochran formula for sample size determination and 381 participants participated in the study. Probability sampling to select respondents was used to give every postnatal mother, a chance to participate in the study. This involved simple random sampling was used to select the respondents for the study from the accessible population.



The study was based on both primary and secondary data. Primary data was collected by interviewing using a structured interview guide. Secondary data was collected to determine the utilization of postnatal care services and was got by reviewing postnatal care register to determine those mothers who actually attended against those who were supposed to attend from the Antenatal care register. An interview guide questionnaire to collect quantitative data and a checklist to establish the actual postnatal attendance were used to guide data collection.

Informed consent from the postnatal mothers who delivered from Hospital was thought and data analysis was done at univariate, bivariate and multivariate analysis. Odds ratio > 1 with their corresponding confidence interval at 95% and p-Value at 0.05 and below were considered to be statistically significant.

### 3. RESULTS

#### 3.1 Background Findings

A total of 381 participants participated in the study and majority 158 (41.5%) of the respondents were between 15 and 25 years of age, 153 (40.2%) were Catholics, 269 (70.6%) were married, 198 (52.0%) had secondary education and 200 (52.5%) resided in town areas.

#### 3.2 Level Of Utilization Of Postnatal Care Services Among Mothers

Out of 381 respondents who participated in the study, majority 327 (86%) never utilized postnatal care services while 54 (14%) utilized postnatal care services (table 1 below). However, out of the 54 respondents who utilized postnatal care services; majority 39 (72%) utilized the services on a monthly basis or after more than one month, 10 (19%) utilized postnatal care services after two weeks and the least 5 (9%) utilized the services on a weekly basis.

**Table 1: Level of Utilization of Postnatal care services Among Mothers**

Variable	Category	Frequency	Percent age
Ever attended postnatal care services	Utilized PNC services	54	14%
	Never utilized PNC services	327	86%

Source: Primary Data

#### 3.3 Individual Factors Affecting the Utilization of PNC Services Among Postnatal Mothers

Bivariate analysis of individual or personal factors affecting utilization of PNC was done. The result is shown in table 2 below



**Table 2: Individual factors affecting the utilization of PNC services**

Variable	Category	Attendance of Postnatal care				$\chi^2$	P=value
		<u>Attended PNC</u>		<u>Never attended PNC</u>			
		(n)	%	(n)	%		
Worked	Yes	39	72.2	103	31.5	32.87 Df=1	<b>0.001</b>
	No	15	27.8	224	68.5		
Work experience	Less than 5 years	14	35.9	49	46.2	1.947 Df=3	0.745
	Btn 6-10 years	12	30.8	28	26.4		
	Btn 11-15 years	8	20.5	21	19.8		
	16 years and above	4	10.3	7	6.6		
Had cultural norms for PNC e.g no moving beyond the courtyard	Yes	11	20.4	135	41.3	8.58 Df=1	<b>0.003</b>
	No	43	79.6	192	58.7		
Ever been had educated about postnatal care	Yes	46	85.2	217	66.4	7.68 Df=1	<b>0.006</b>
	No	8	14.8	110	33.6		
Source of information	Health worker	15	32.6	62	28.6	10.36 Df=4	<b>0.035*</b>
	Friend	21	45.7	124	57.1		
	Family member	4	8.7	18	8.3		
	Media	3	6.5	12	5.5		
	Community leaders and VHT	3	6.5	1	0.5		
Birth order	1 <sup>st</sup> delivery	26	48.1	153	46.8	10.71 Df=2	<b>0.005*</b>
	2 <sup>nd</sup> delivery	16	29.6	146	44.6		
	3 deliveries and above	12	22.2	28	8.6		
All children were alive	Yes	50	92.6	261	79.8	5.04 Df=1	<b>0.025*</b>
	No	4	7.4	66	20.2		
Would freely undergo HIV test during PNC	Yes	51	94.4	269	82.3	5.11 Df=1	<b>0.024*</b>
	No	03	5.6	58	17.7		
Reasons for freely undergoing HIV test	Need for PMTCT	36	70.6	163	60.6	2.36 Df=2	0.307
	Start ARVs if positive	10	19.6	81	30.1		
	Maintain an HIV free life	05	9.8	25	9.3		
Were at risk of death if not attended PNC	Yes	34	63.0	142	43.4	7.12 Df=1	<b>0.008</b>
	No	20	37.0	185	56.6		
Husbands fully involved reproductive health care	Yes	29	53.7	105	32.1	9.48 Df=1	<b>0.002</b>
	No	25	46.3	222	67.9		



Used traditional herbal medicine	Yes	8	14.8	113	34.6	8.33 Df=1	<b>0.004</b>
	No	46	85.2	214	65.4		
Reasons for low male involvement	Busy with work	11	40.7	57	25.6	2.88 Df=3	0.401
	Fear HIV test	9	33.3	98	43.9		
	Weren't informed	3	11.1	32	14.3		
	Don't regard it necessary	4	14.8	36	16.1		
Had financial constraints	Yes	18	33.3	204	62.4	16.09 Df=1	<b>0.001</b>
	No	36	66.7	123	37.6		
Had helper home for domestic chores	Yes	39	72.2	169	51.7	7.89 Df=1	<b>0.005</b>
	No	15	27.8	158	48.3		
Encouraged to attend PNC by neighbours	Yes	28	51.9	223	68.2	5.51 Df=1	<b>0.019</b>
	No	26	48.1	104	31.8		
Means of transport used to reach the health facility	Foot	6	11.1	70	21.4	41.80 Df=4	<b>0.001</b>
	Public Vehicle	27	50.0	206	63.0		
	Bicycle	8	14.8	32	9.8		
	Motorcycle	5	9.3	17	5.2		
	Personal vehicle	8	14.8	2	0.6		
Awareness of health complications during postnatal period	Yes	34	63.0	135	41.3	8.83 Df=1	<b>0.003</b>
	No	20	37.0	192	58.7		

**Source: Primary Data**

Personal factors that were significantly associated with utilization of PNC services included; employment ( $\chi^2=32.87$ ,  $p=0.001$ ), cultural norms ( $\chi^2=6.04$ ,  $p=0.014$ ), health education about PNC ( $\chi^2=7.68$ ,  $P=0.006$ ), Source of information about PNC ( $\chi^2=10.36$ ,  $P=0.035$ ), birth order ( $\chi^2=10.75$ ,  $P=0.010$ ), having alive children ( $\chi^2=5.04$ ,  $P=0.025$ ), attitude towards HIV testing ( $\chi^2= 5.11$ ,  $P=0.024$ ), attitude towards dangers during PNC ( $\chi^2= 7.12$ ,  $P=0.008$ ), husbands involvement ( $\chi^2= 9.48$ ,  $P=0.002$ ), traditional herbal medicine use ( $\chi^2= 8.33$ ,  $P=0.004$ ), financial constraints ( $\chi^2= 16.09$ ,  $P=0.001$ ), house helper ( $\chi^2= 7.89$ ,  $P=0.005$ ), encouragement by neighbors ( $\chi^2= 5.51$ ,  $P=0.019$ ), transport means ( $\chi^2= 41.80$ ,  $P=0.001$ ) and awareness of the health complications during postnatal period ( $\chi^2= 8.83$ ,  $P=0.003$ ). However, respondents' work experience was not significantly associated with utilization of PNC services ( $P\geq 0.05$ ).

**3.4 Healthcare Factors Affecting the Utilization of PNC Services**

Bivariate analysis of healthcare factors affecting utilization of PNC was done. The result is shown in table 3 below



**Table 3: Healthcare factors affecting the utilization of PNC services**

Variable	Category	Attendance of PNC				$\chi^2$	p-value
		Attended PNC		Never attended PNC			
		(n)	%	(n)	%		
Distance to the nearest health facility from home	Less than 1 km	32	59.3	86	26.3	24.27 Df=2	<b>0.001</b>
	2 – 4 kms	12	22.2	103	31.5		
	5 kms and above	10	18.5	138	42.2		
Has it got maternity services	Yes	42	77.8	207	63.3	4.29 Df=1	<b>0.038</b>
	No	12	22.2	120	36.7		
Perception of the price of drugs at local pharmacies	Affordable	37	68.5	47	14.4	76.06 Df=1	<b>0.001</b>
	Not affordable	17	31.5	280	85.6		
Drugs available	Yes	42	77.8	208	63.6	4.12 Df=1	<b>0.042</b>
	No	12	22.2	119	36.4		
If no, how do you get the medicine	buy from pharmacy	9	75.0	99	83.2	0.51 Df=1	0.477
	used herbal medicine	3	25.0	20	16.8		
Got routine education on PNC	Yes	34	63.0	143	43.7	6.89 Df=1	<b>0.009</b>
	No	20	37.0	184	56.3		
Money extortion hindered utilizing PNC services	Yes	20	37.0	127	38.8	0.063 Df=1	0.801
	No	34	63.0	200	61.2		
Had enough and readily available health workers	Yes	39	72.2	117	35.8	25.46 Df=1	<b>0.001</b>
	No	15	27.8	210	64.2		
Had enough privacy during examination	Yes	38	70.4	181	55.4	4.28 Df=1	<b>0.039</b>
	No	16	29.6	146	44.6		
Waiting time	Less than 30minutes	11	20.4	15	4.6	31.05 Df=3	<b>0.001</b>
	Btn 30 minutes and an hour	21	38.9	68	20.8		
	Between 1-3 hours	12	22.2	138	42.2		
	More than 3 hours	10	18.5	106	32.4		
Sanitation and hygiene levels at the health centre	Good	44	81.5	228	69.7	3.14 Df=1	0.077
	Bad	10	18.5	99	30.3		
Postnatal mothers had enough seats and beds at ward	Yes	35	64.8	160	48.9	4.68 Df=1	<b>0.038</b>
	No	19	35.2	167	51.1		
Response of health workers in case of inquiry	In a friendly way	48	88.9	288	88.1	0.03 Df=1	0.863
	They are neglectful	06	11.1	39	11.9		

**Source: Primary Data**

Healthcare factors significantly associated with utilization of PNC services included; distance ( $\chi^2= 24.27$ ,  $P=0.001$ ), availability of maternity services



( $\chi^2= 4.29$ ,  $P=0.038$ ), affordability of drugs at local pharmacies ( $\chi^2= 76.06$ ,  $P=0.001$ ), getting all the drugs as prescribed ( $\chi^2= 4.12$ ,  $P=0.042$ ), routine education about reproductive health and PNC ( $\chi^2= 6.89$ ,  $P=0.009$ ), diagnosed before prescription and treatment ( $\chi^2= 8.02$ ,  $P=0.005$ ), availability of health workers ( $\chi^2= 4.53$ ,  $P=0.033$ ), privacy ( $\chi^2= 4.28$ ,  $P=0.039$ ), Waiting time ( $\chi^2= 31.05$ ,  $P=0.001$ ) and seats and beds ( $\chi^2= 4.68$ ,  $P=0.038$ ). However, sanitation and behaviors of the mothers were not significantly associated with utilization of PNC services ( $P\geq 0.05$ )

### 3.5 Modalities to Improve the Utilization of Postnatal Care Services

Modalities to improve the utilization of PNC services included; place of delivery ( $\chi^2= 11.79$ ,  $P=0.008$ ), health facility delivery, what was done within 24 hours after delivery ( $\chi^2= 6.09$ ,  $P=0.014$ ), service within 24 hours for home deliveries ( $\chi^2= 14.93$ ,  $P=0.001$ ), home PNC visits by midwives ( $\chi^2= 80.79$ ,  $P=0.001$ ), health education about umbilical cord hygiene ( $\chi^2= 6.24$ ,  $P=0.014$ ), use of spirit to clean the umbilical cord ( $\chi^2= 93.73$ ,  $P=0.001$ ), duration taken to bathe after delivery ( $\chi^2= 53.63$ ,  $P=0.001$ ), baby clothing after delivery ( $\chi^2= 76.82$ ,  $P=0.001$ ), exclusive breastfeeding ( $\chi^2= 118.72$ ,  $P=0.001$ ), given iron folate supplementation after delivery ( $\chi^2= 5.23$ ,  $P=0.022$ ) and psychosocial support ( $\chi^2=91.64$ ,  $P=0.001$ ). However, place of residence was not significantly associated with utilization of PNC services ( $P\geq 0.05$ ). See table 4 below;

**Table 4: Modalities to improve utilization of postnatal care services**

Variable	Category	Attendance of PNC				$\chi^2$	p-value
		Attended PNC		Never attended PNC			
		(n)	%	(n)	%		
Activities within 24 hours after delivery for health facility deliveries	Retained under care with 24hrs	35	92.1	195	73.9	6.09 Df=1	<b>0.014</b>
	Discharged within hours after delivery	3	7.9	69	26.1		
Activities within 24 hours after delivery for home deliveries	Was visited by midwives within 24 hrs of delivery	4	25.0	7	11.1	14.93 Df=2	<b>0.001</b>
	Visited health facility	11	68.8	18	28.6		
	Remained at home and self-medicated	1	6.3	38	60.3		
Stayed together with baby after delivery	Yes	47	87.0	262	80.1	0.45 Df=1	0.229
	No	7	13.0	65	19.9		
Received PNC visits by midwives at home	Yes	42	77.8	62	19.0	80.79 Df=1	<b>0.001</b>
	No	12	22.2	265	81.0		
Were health educated about umbilical cord cleaning	Yes	43	79.6	203	62.1	6.24 Df=1	<b>0.014</b>
	No	11	20.4	124	37.9		



Duration taken to bathe after delivery	Less than 6 hours	28	51.9	44	13.5	53.63 Df=3	<b>0.001</b>
	Btn 6 and 12 hrs	11	20.4	185	56.6		
	Btn 12 and 24 hrs	9	16.7	84	25.7		
	After 24 hours	6	11.1	14	4.3		
Clothing of the baby after delivery	Clothed more than two layers of cloth with hat/caps	34	63.0	42	12.8	76.82 Df=2	<b>0.001</b>
	One layer of cloth without hat/caps	7	13.0	188	57.5		
	Just covered in blanket and bed sheet	13	24.1	97	29.7		
Used spirit to clean the umbilical cord	Yes	41	75.9	50	15.3	93.73 Df=1	0.001
	No	13	24.1	277	84.7		
Practiced exclusive breastfeeding	Yes	44	81.5	45	13.8	118.72 Df=1	<b>0.001</b>
	No	10	18.5	282	86.2		
Were given iron and folic acid supplementation after delivery	Yes	50	92.6	260	79.5	5.23 Df=1	<b>0.022</b>
	No	4	7.4	67	20.5		
Got psychosocial support from trained person	Yes	44	81.5	61	18.7	91.64 Df=1	<b>0.001</b>
	No	10	18.5	266	81.3		

Source: Primary Data

#### 4. DISCUSSION

Utilization of postnatal care services was low at 14% which was far below a study carried out in Soroti District in Eastern Uganda indicated postnatal care attendance of 58% (10). This implied that very few mothers utilized postnatal care services, which could be associated to a number of factors. This could be attributed to the fact that most postnatal mothers may not have felt it important to seek healthcare services because they had not faced any major health complications to force them visit healthcare facilities, lacked money for transport to the healthcare facility or lacked support from their husbands. On the contrary, this was lower than a study carried out in Pakistan where utilization of postnatal care services was at 30% (6), 47.9% in Namibia (7) and 54% a national average in Uganda (8). Attaining a low utilization in this study could be due to being a cross sectional study that was carried out at a single point in time.

Husbands involvement in seeking reproductive health care was also significantly associated with utilization of postnatal care ( $\chi^2= 9.48, P=0.002$ ). It was found that majority of mothers' husbands were not involved in healthcare which could be attributed to lack of money and being busy with work. Similar findings were reported in a study carried out in Rwanda where





men who were involved in healthcare their wives had higher utilization of postnatal care services (9).

It was found out that most of the postnatal mothers never worked and a mother being engaged in any income generating activity was significantly associated with utilization of postnatal care services ( $\chi^2=32.87$ ,  $P=0.001$ ). Postnatal mothers who worked were more likely to utilize postnatal care services as compared to those who never worked. Seven out of ten postnatal mothers who utilised postnatal care services were engaged in income generating activities (10). This was attributed to that fact that they could afford the transport costs to the healthcare facility thus having higher chances of utilising the services.

Healthcare factors that were significantly associated with utilization of PNC services among postnatal mothers attending China-Uganda Friendship Hospital Naguru included; distance to the healthcare facility ( $\chi^2= 24.27$ ,  $P=0.001$ ). It was found out that postnatal care services were more likely to be utilized by mothers who resided in less than one kilometre from the health care facility as compared to mothers who travelled long distances. This was because staying nearer the healthcare facility meant that one could even just walk to the facility for services even if they didn't have money unlike mothers who came from far and had to incur transport costs. Similar findings were reported in an earlier study carried out in Uganda where results indicated that being far away from the nearby health care facility especially public health centres forces many mothers who would have preferred to attend postnatal care services to abscond and resort to TBAs because the latter are easily accessible and cheaper (11).

Being health educated about health care seeking is the primary pillar of having knowledge about the benefits of seeking healthcare from trained healthcare providers and knowing the dangers one may be predisposed to if she does utilize the services. Getting routine education regarding reproductive health and PNC was also a reason for utilizing postnatal care services among postnatal mothers who delivered from Naguru Hospital ( $\chi^2= 6.89$ ,  $P=0.009$ ). Majority of the respondents reported that, they did not get routine health education about the importance of utilizing postnatal care services, which could have kept them ignorant of the importance of seeking postnatal care services. Postnatal mothers who had received routine health education about reproductive health care services had higher utilization of postnatal care services as compared to mothers who were not health educated.

The place of delivery was paramount in the utilization of postnatal care services where it was significantly associated factor at bivariate analysis ( $\chi^2= 11.79$ ,  $P=0.008$ ). Postnatal mothers who had delivered from a health facility were not bathed before 24 hours and were health educated about cord care and exclusive breastfeeding within the first hour after delivery. This increased bonding between the mother and the child. For postnatal



mothers who delivered from home they majority were not visited by midwives at home, never health educated about umbilical cord cleaning, never used chlorhexidine for umbilical cord cleaning, bathed before 24 hours elapsed. They however had good clothing for the baby and practiced exclusive breastfeeding.

## **5. CONCLUSION**

Utilization of postnatal care services was low at 14% which was far below a study carried out in Soroti District in Eastern Uganda indicated postnatal care attendance of 58% (10). Personal factors associated with low utilization were; having delivered outside a healthcare facility, work, high work experience, having cultural norms about PNC, lack of health education about PNC, high parity, having all children alive, fear of HIV test, not feeling being at risk of death, use of traditional herbal medicine, low husband involvement, having financial constraints, having not helper at home for domestic chores, using unreliable means of transport and ignorance about the complications that could be faced.

Health care factors associated with utilization of postnatal care services included; staying far away from the hospital, lack of maternity services in the nearest healthcare facility, affordability of drugs at the nearest pharmacy, failure to get all the drugs as prescribed, unavailability of healthcare workers, extortion of money from mothers, long waiting time, lack of privacy, lack of diagnosis before treatment, lack of seats and beds and poor behavior of some healthcare workers.

Modalities that were associated with low utilization of postnatal care services included; not being visited by the midwife after delivery, taking less than 24 hours to bathe after delivery, lack of psychosocial support by a trained person for the prevention of postpartum depression

## **6. ACKNOWLEDGEMENTS**

We wish to also acknowledge the staff of China-Uganda Friendship Hospital Naguru for their unconditional support and assistance to help us get all the relevant information that was necessary.

## **7. DECLARATION**

The authors declare no conflict of interest

## **REFERENCES**

1. MOH. Uganda Maternal and child health updates. 2015.
2. WHO. WHO. Postnatal updates and statistics. 2016.



3. WHO U, UNFPA, the World Bank, and the United Nations Population Division. Trends in Maternal Mortality: 1990 to 2013. World Health Organization. 2014;201456.
4. DiBari JN, Yu SM, Chao SM, Lu MC. Use of postpartum care: predictors and barriers. *Journal of pregnancy*. 2014;2014.
5. Organization WH. WHO technical consultation on postpartum and postnatal care. Geneva: World Health Organization; 2010.
6. Sultana N, Shaikh BT. Low utilization of postnatal care: searching the window of opportunity to save mothers and newborns lives in Islamabad capital territory, Pakistan. *BMC research notes*. 2015;8(1):645.
7. Wesson J, Hamunime N, Viadro C, Carlough M, Katjiuanjo P, McQuide P, et al. Provider and client perspectives on maternity care in Namibia: results from two cross-sectional studies. *BMC pregnancy and childbirth*. 2018;18(1):363.
8. UDHS Udahs. Uganda Bureau of Statistics , ICF. key indicators report. UBOS, and Rockville Maryland; 2016.
9. Rwabufigiri BN, Mukamurigo J, Thomson DR, Hedt-Gautier BL, Semasaka JPS. Factors associated with postnatal care utilisation in Rwanda: A secondary analysis of 2010 Demographic and Health Survey data. *BMC pregnancy and childbirth*. 2016;16(1):122.
10. Izudi J, Akwang GD, Amongin D. Early postnatal care use by postpartum mothers in Mundri East County, South Sudan. *BMC health services research*. 2017;17(1):442.
11. Rutaremwa G, Kabagenyi A, Wandera SO, Jhamba T, Akiror E, Nviiri HL. Predictors of modern contraceptive use during the postpartum period among women in Uganda: a population-based cross sectional study. *BMC public health*. 2015;15(1):262.

