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Research Article

Utilization of Maternal Postnatal Care Services Among Women in Selected Villages of Bahi District, Tanzania

James Lwelamira, John Safari and Angelina Stephen
Department of Population Studies, Institute of Rural Development Planning, P.O. Box 138, Dodoma, Tanzania

Abstract: Tanzania is among the countries in sub-Saharan Africa with high rate of maternal mortality. Postpartum deaths caused by obstetric factors occur mainly due to limited access and use of maternal health care services. A cross-sectional study was conducted in July, 2014 in Bahi district, Central Tanzania. The objective of the study was to assess the utilization maternal postnatal care (PNC) services and determinants for its utilization. The study involved a random sample of 134 women whose last live child birth occurred within two years preceding the survey. Key issues investigated were awareness to maternal PNC services on health facilities and attitude on the services; timing and frequency of use of maternal PNC services and barriers for utilization of the services. Results show that majority of women (94.8%) were aware of the existence of maternal PNC services in health facilities. Nearly 82% of women had positive attitude towards maternal PNC services. However, only 71.6% of them used the services in their most recent child birth, 70.8% had one to two PNC visits for checkup within 42 days post delivery as opposed to the recommended three visits; and only 41.7, 45.6 and 32.1%, respectively of women that had first, second and third maternal PNC visits, attended the visits timely. Factors associated with non- use of maternal PNC services included low education level, long distance to health facilities, low household income, non-attendance to health facilities for antenatal care service, home delivery, negative attitude towards maternal PNC services and negative perception on quality of maternity health services in health facilities. Women with at least secondary education were more likely to use maternal PNC services compared to those with no formal education (OR = 1.40, p = 0.020). Likewise, women from high income families were more likely to use the services compared to the counterpart (OR = 1.67 p = 0.015). On the other hand, women living in distant areas from health facility i.e., more than 5 km from homestead, were less likely to use the services compared to the counterpart (OR = 0.75, p = 0.033). Non-use of antenatal care services (ANC) also decreased odds for use of maternal PNC services among women (OR = 0.68, p = 0.017). Results further indicate women delivered in health facilities were more likely to report use of maternal PNC services compared to those delivered at home (OR = 2.03, p = 0.004) and women who attached less importance to maternal PNC services were 58% less likely to use the services compared to the counterpart (OR = 0.42, p = 0.003), while those think that quality of maternity health services in health facilities are good were 40% more likely to use maternal PNC services compared to the counterpart (OR = 1.40, p = 0.046). Based on these results, the study recommended that efforts to raise awareness of women in terms of health education and improving their socio-economic conditions should be continued and strengthened. There is also need for continued efforts to improve coverage of health facilities in the rural areas. Capacity of health services should be strengthened both in terms of skilled health attendants and medical supplies.

Keywords: Determinants, health care, mothers, rural areas

INTRODUCTION

High rate of maternal mortality is among the major problems of public health importance. In sub-Saharan Africa, one in 16 women dies in pregnancy or childbirth related causes (Filippi *et al*., 2006). This risk is 175 times higher than that in developed countries, i.e., one in 2800 (WHO, 2004). Tanzania is among the countries in sub-Saharan Africa with high rate of maternal mortality (Olsen *et al*., 2000; Mpembeni *et al*., 2007). Estimates show that Tanzania ranks 6th among the 13 countries with highest levels of maternal mortality. These 13 countries account for 67% of all maternal deaths (WHO, 2004). The Maternal Mortality Ratio (MMR) for Tanzania is estimated to be 454 maternal deaths per 100,000 live births i.e., for every 1,000 live births; about four to five women die of pregnancy-related causes (URT, 2010).

Bahi has an estimated MMR of 400 deaths per 100,000 births which makes it the second district with the highest MMR among the seven districts of Dodoma

Corresponding Author: James Lwelamira, Department of Population Studies, Institute of Rural Development Planning, P.O. Box 138, Dodoma, Tanzania

region, Central Tanzania (URT, 2008). High rates in maternal deaths are mainly due to limited access and use of maternal health care services (Khan *et al*., 2006). Evidence shows that postpartum deaths caused by obstetric factors occur within few weeks postpartum (Li *et al*., 1996; Eliakimu, 2010; Kinney *et al*., 2010). Most of maternal deaths can be prevented by utilization of maternal health care services in health facilities among women (Goodburn and Capbell, 2001; Rosenfield *et al*., 2007). These services include antenatal care services (ANC), delivery services and maternal postnatal care (PNC) services (Ronsmans and Graham, 2006; Smith and Sulzbach, 2008; Ejaz and Ahmad, 2013; Dieleman *et al*., 2014).

The postnatal period (or called postpartum, if in reference to the mother only) is defined as the period beginning one hour after the delivery of the placenta and continuing until six weeks (42 days) after the birth of an infant (WHO, 1998). The World Health Organization recommends at least three maternal PNC checkups, the first within two days post-delivery, second visit within 3-6 days and a third visit from 7-41 days. In Tanzania, Ministry of Health and Social Welfare schedules maternal PNC visits at 7^{th}, 28^{th} and 42^{nd} days post delivery (Mmbaga, 2003).

Past researches have indicated low utilization of maternal PNC services among women in Tanzania. For example, a study by Eliakimu (2010) in Shinyanga rural district indicated about 35% of women in the area visits health facilities for maternal PNC services at least once within 42 days post delivery. However, in recent years there had been deliberate government effort to ensure women access maternity services in the country by increasing network of health facilities in most part of the country including rural areas and ensured that these services are provided freely in government health facilities (Mpembeni *et al*., 2007). Furthermore, in recent years, there have been massive campaigns in the country by various stakeholders to increase public awareness on importance of maternity health care services. Therefore, current trend for utilization of maternal health care services such as maternal PNC services in the country might have changed. Little is known in most part of the country on current status of utilization of maternal PNC services among women and associated factors. Therefore, this study was carried out in central part of the country by taking a case of Bahi district to reveal this information for the area. Specifically the study explored awareness of women to presence of maternal PNC services in health facilities and their attitude towards the services; determined proportion of women that uses the services, as well as frequency and timing of use of the services. Finally, the study identified barrier for utilization of maternal PNC services among women in the study area. This information is important for informed decisions for efforts to reduce maternal mortality in the study area and in the country as whole.

METHODOLOGY

Study area: This study was conducted in six villages of Bahi district in July, 2014. The district is among the seven districts of Dodoma region, located in central Tanzania. It is located at latitude 5° 58' 59" S and longitude 35° 19' 0" E, with the estimate terrain elevation of 834 m above the mean sea level. The area is semi- arid which receives 500 to 800 mm annual rainfall. Crop and livestock production are the main economic activities. The Gogo constitute the main ethnic group in the area. Bahi is one of the districts with high maternal mortality rate in Dodoma region (URT, 2008) and was therefore selected for the study.

Study design: A cross-sectional survey was employed to collect data on maternal PNC services utilization from six villages selected at random. The study involved a random sample of 134 women whose last live child birth occurred within two years prior to the survey. Nearly equal numbers of respondents were selected from each village. If a household did not have a target woman, the household was replaced by another nearby household also chosen at random. If a household had more than one woman satisfying the inclusion criteria, only one was considered for interview. Estimation of the sample size (n) was performed using a formula Z^2 pq/d^2 as described by Fisher *et al*. (1991). Where; *p* = percentage of women in the study area delivered within two years prior to the survey that had received postnatal care in last delivery, d = maximum error and Z was a critical value based on chosen confidence level. Since *p* was not known for the study population, its value was assumed to be 50% as it ensures maximum sample size. By assuming a confidence level of 90% for the estimated population proportion, a maximum error of 10% and design effect of 2 (Mmbaga, 2003; Kisinza *et al*., 2008), the estimated sample was 134 women. Data for this study were collected using a semi-structured questionnaire which was pre- tested in a neighbouring village. This village was not involved in the study. During data collection, informed verbal consent was sought from the respondent before the interview.

Data analysis: Data were analyzed for descriptive statistics to determine frequency distributions and percentages for responses for various variables under study. Furthermore, binary multiple logistic regression analysis was used to identify the factors influencing women's decision to utilize maternal PNC services. In this analysis, a dependent variable was utilization of maternal PNC services within 42 days post delivery. On the other hand, the independent variables were: Age of respondent in years (1 = ≤19, 2 = 20-35, 3 = >35); marital status (1 = single, 2 = married, 3 = others); family structure (1 = nucleus, 2 = extended); education level (1 = none, 2 = primary, 3 = secondary and above);

ethnicity (1 = Gogo, 2 = others); annual household income (TZS) (1 = low if ≤ 500,000, 2 = high if above 500,000; 1USD≈1800TZS). Others were distance to the nearest health facility (1 = ≤ 5 km, 2 = >5 km); if used ANC services in a most recent child birth (1 = yes, 2 = no); place of delivery in a most recent child birth (1 = home, 2 = health facility); whether maternal PNC services are important (1 = yes, 2 = no) and whether the quality of maternity health services is good (1 = yes, 2 = no). During analysis, the first category for each independent variable was used as a reference category. Statistical Product Solution (SPSS) Software Version 18 was used for data analysis. Statistical significance was set at $p<0.05$.

RESULTS AND DISCUSSION

Socio-demographic characteristics of respondents: Results in Table 1 present the socio- economic characteristics of respondents. The mean age of the interviewed women was 28 years. Majority of them were in the middle age group (20-35) (56%), married (73.9%) and in monogamous marriage (97%). Results also show that 25.4% of the respondents had no formal education. Among those who reported having attended schooling, 57.5% completed primary education while 17.1% had at least secondary education. Most of the respondents (84.3%) were from households of low income category (<500,000 TZS). About seven in ten women (67.9%) lived in extended families. Socio-economic and demographic factors affect the utilization of maternal health services at varying degrees of magnitude and significance (Babalola and Fatusi, 2009; Ahmed *et al*., 2010; Woldemicael, 2010; Wang *et al*., 2011; Zere *et al*., 2012). The factors considered in this study are discussed further in below section.

Awareness, attitude and utilization of maternal PNC services: Awareness to maternal PNC services was assessed in terms of women's ability to show the type of services offered during maternal PNC services in health facilities. Results in Table 2 show that majority of respondents (94.8%) were aware of the existence of maternal PNC services. Most women (81.9%) indicated that body checkup was the main PNC service provided followed by advice on mother and child nutrition (55.1%), family planning (28.4%) and breastfeeding (37%). While awareness on maternal PNC services is a basic factor that affects utilization of the services (Matsumura and Gubhaju, 2001; Gage, 2007; Babalola and Fatusi, 2009), attitude towards the services has been shown to have strong influence on its uptake (Kabakian-Khasholian and Campbell, 2005). In this study, about eight in ten women had positive attitude towards maternal PNC services. Reduced child and maternal mortalities and healthy development of a child were frequently mentioned benefits of the services.

Table 1: Distribution of respondents by Socio-demographic characteristics (n = 134)

Variable	Frequency	Percentage
Age (years)		
≤19	18	13.4
20-35	75	56.0
>35	41	30.6
Marital status		
Single	27	20.2
Married	99	73.9
Widow	5	3.7
Separated	3	2.2
Type of marriage		
Monogamous	96	97.0
Polygamous	3	3.0
Family structure		
Nucleus family	43	32.1
Extended family	91	67.9
Education level		
None	34	25.4
Primary	77	57.5
Secondary+	23	17.1
Tribe		
Gogo	109	81.3
Others	25	18.7
Annual Household income		
Low	113	84.3
High	11	15.7

Table 2: Distribution of respondents by awareness and attitude towards maternal PNC services

Variable	Frequency	%
Awareness of maternal PNC services (n = 134)		
Yes	127	94.8
No	7	5.2
Source of information on maternal PNC services (n = 127)*		
Clinic	98	77.2
Radio	19	15.0
Television	3	2.4
Friends	27	21.3
Own experience	36	28.4
Services provided during maternal PNC services (n = 127)*		
Checkup for a mother	104	81.9
Check up for a child	115	90.6
Cleanliness	78	61.4
Advice on child care (e.g., breastfeeding, vaccination)	47	37.0
Child vaccination	90	70.9
Advices on family planning	36	28.4
Advices on mother and child nutrition	70	55.1
Maternal PNC services are important (n = 127)		
Yes	104	81.9
No	17	13.4
Not sure	6	4.7

* Based on multiple responses

Although the level of awareness on maternal PNC services was high, only 71.6% of women used the services (Table 3).

This percentage is lower than 90.8% reported by Ndunguru (2007) in Morogoro rural district on eastern Tanzania, but substantially higher than 34.7% in Shinyanga rural district in the western part of the country reported by Eliakimu (2010). Results also show low frequency of use of postnatal care services as 70.8% of women had 1-2 visits for maternal PNC checkup within 42 days post delivery in their most recent child birth compared to three visits

Table 3: Distribution of respondents by extent of utilization of maternal PNC services in the most recent child birth

Variable	Frequency	%
Used maternal PNC within 42 days post delivery (n = 134)		
Yes	96	71.6
No	38	28.4
Number of times used the service (n = 96)		
One time	39	40.6
Two times	29	30.2
Three times	23	24.0
More than three times	5	5.2
Timing for the first visit (n = 96)		
Less than 7 days	19	19.8
7 days	40	41.7
More than 7 days	37	38.5
Timing for the second visit (n = 57)		
Less than 28 days	7	12.3
28 days	26	45.6
More than 28 days	24	42.1
Timing for the third visit (n = 28)		
Less than 42 days	2	7.1
42 days	9	32.1
More than 42 days	17	60.7

recommended by the Ministry of Health and Social Welfare. In most cases, these visits were untimely. For example, 41.7, 45.6 and 32.1%, respectively of women that had first, second and third maternal PNC services visits, respectively, attended the visits timely (Table 3). Although women indicated the importance of maternal postnatal care services in broader sense, in practice the visits were meant for immunization or monitoring progress of their newborn and less so for women's health.

Determinants of utilization of maternal PNC services among women: Results in Table 4 show that except for maternal age, marital status, family structure and ethnicity, all other factors considered in the analysis had significant influence on the utilization of maternal PNC services among women (p<0.05). Women having at least secondary education were 1.4 times more likely to use maternal postnatal care services relative to those with no formal education (OR = 1.40, p = 0.020). Positive effect of increased education level on utilization maternity services was also reported in other studies (Kalule-Sabiti *et al*., 2014; Akunga *et al*., 2014). Its effect is related to greater awareness of risks of obstetric complications and better informed approach to dealing with them (Bulatao and Ross, 2003; Tsegay *et al*., 2013).

Women living far (>5 km) from homesteads to the nearest health facility were less likely to use maternal PNC services compared to those living closer to a health facility (OR = 0.75, p = 0.033). Increased household income was associated increased odds for utilization of maternal PNC services. Women from high income households were nearly two times more likely to use maternal PNC services compared to the counterpart (OR = 1.67 p = 0.015). On the other hand, increased probability of uptake of maternal PNC services was associated with the use of ANC services. Women who did not receive antenatal care services in their most recent child birth were 32% less likely to use maternal PNC services in their most recent child birth compared to the counterpart (OR = 0.68, p = 0.017). Those who delivered in health facilities in their most recent child birth were two-times more likely to use maternal PNC services in the respective period

Table 4: Logistic regression analysis for use of maternal PNC services within 42 days post delivery during the most recent child birth among women against various predictors

Predictor	Response	β	S.E.	Wald statistic	p-value	Odds Ratio (OR)
Maternal age	15-19 (Ref.)					
	20-35	0.04	0.028	2.01	0.153	1.04
	>35	0.06	0.036	2.78	0.096	1.06
Marital status	Single (Ref.)					
	Married	0.09	0.050	3.19	0.074	1.09
	Others	0.02	0.015	1.78	0.182	1.02
Family structure	Nucleus (Ref.)					
	Extended	-0.05	0.031	2.69	0.101	0.95
Education level	None (Ref.)					
	Primary	0.02	0.016	1.52	0.217	1.02
	Secondary+	0.34	0.146	5.41*	0.020	1.40
Ethnicity	Gogo (Ref.)					
	Others	0.12	0.082	2.16	0.141	1.13
Distance to the nearest health facility	≤ 5 km (Ref.)					
	> 5 km	-0.29	0.136	4.53*	0.033	0.75
Household income status	Low (Ref.)					
	High	0.48	0.197	5.95*	0.015	1.67
Used ANC services	Yes (Ref.)					
	No	-0.39	0.164	5.67*	0.017	0.68
Place of delivery in a most recent birth	Home (Ref.)					
	Health facility	0.71	0.249	8.16**	0.004	2.03
Maternal PNC services are important	Yes (Ref.)					
	No	-0.87	0.296	8.65**	0.003	0.42
Quality of maternity health services	Poor (Ref.)					
	Good	0.34	0.170	4.00*	0.046	1.40

S.E. = Standard Error; Ref. = Reference category; * = Significant at p<0.05; ** = Significant at p<0.01; Nagelkerke R^2 = 0.52

compared to women who delivered at home (OR = 2.03, p = 0.004). The findings suggest that improving the use of maternal healthcare services would require, among other things, improvement of coverage of health facilities and the reduction of poverty.

Attitude towards maternal PNC services and perception on quality of health services in health facilities were strong predictors for utilization of maternal PNC services among women in the area. Women who attached less importance to maternal PNC services were 58% less likely to use the services relative to those attached high importance (OR = 0.42, p = 0.003), while those think that quality of maternity health services in health facilities are good were 40% more likely to use maternal PNC services compared to the counterpart (OR = 1.40, p = 0.046). It is possible that poor quality of health care (e.g., limited availability of health attendants, equipment and medical supplies) contributed to the negativity on maternal PNC services. Besides, respondents reported poor relational practice of health providers, a situation often attributed to poor working conditions among health professionals (Kruk *et al*., 2010). Previous studies have established that poor relationship between women and health attendants affects women's healthcare-seeking practice (Kiwanuka *et al*., 2008; Yakong *et al*., 2010). This indicates that factors which influence maternal health service utilization may not only be attributed to specific background characteristics of users but also to those associated with the attitude of health attendants and the health system in general. In a study of health systems factors influencing maternal health service in four countries, Parkhurst *et al*. (2005) found that systems issues notably those related to human resource influenced the access to and utilization of services, quality of care provided and ultimately maternal health outcomes. This means greater attention to the users' and health providers' perspectives needs to be considered for service improvement.

CONCLUSION AND RECOMMENDATIONS

Level of awareness to maternal PNC services among women in the area is high and most of them have positive attitude towards the services. However, despite high level of awareness and positive attitude towards the services by majority of women, substantial proportion of women doesn't use the services. Findings from this study indicated factors influencing maternal PNC services utilization among women in the study area to be diverse and operate at various levels ranging from individual women to household and health system level. Specifically, this study has demonstrated that low level of maternal education, long distance to health facilities are strong predictors of low utilization of maternal postnatal health care services. Other predictors are low household income status, non-attendance to antenatal care services, home delivery, poor quality of health services at health facilities and negative attitude towards the services. Interventions for optimal utilization of maternal health service should address the underlying factors at individual level (i.e., mothers with the least chances of utilizing the service) to those related with the functioning of the health system. In this regard, continued raising awareness of women in terms of health education and improving their socio-economic conditions is particularly important. There is also need for continued efforts to improve coverage of health facilities in the rural areas. Capacity of health services needs to be strengthened both in terms of skilled health attendants and medical supplies.

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