ASSESSMENT OF MATERNAL HEALTH SERVICES UTILIZATION AND ITS ASSOCIATED FACTORS AMONG WOMEN OF REPRODUCTIVE AGE IN AN URBAN COMMUNITY OF JOS, PLATEAU STATE.

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INTRODUCTION

Relative to the interest on improving the standard of and access to maternal health services, the influence of women's socio-economic situation on maternal care use has received little attention. More worrisome is the relatively low uptake of maternal care, in developing countries, amidst high maternal mortality records.[1]

Although maternal mortality reduced globally by near to 38% between 2000 and 2017, sub-Saharan Africa continues to experience high maternal deaths. The sub-region accounted for about two-thirds of maternal deaths worldwide in 2017.[2] Records indicate that among the 15 countries that were considered as hot spots of maternal mortality, 8 were from sub-Saharan Africa. These countries include Somalia, Central Africa Republic, Democratic Republic of Congo, Chad, Guinea, Zimbabwe, Nigeria and Ethiopia.[2,3]

Access to high quality care before, during and after childbirth has been identified as a vital and effective means of reducing maternal mortality.[2] Emphasis has been placed on the importance of antenatal care to maternal and child survival. Antenatal care helps women to get set for delivery and understand warning signs during pregnancy and childbirth.[2] It is an avenue for micronutrient supplementation, identification and treatment of covert illnesses in pregnancy like preeclampsia, prevention of mother-to-child transmission of conditions like HIV/AIDS and immunization against preventable diseases. In a bid to ensure adequate care for women during pregnancy, WHO at some point recommended at least four antenatal visits for every pregnant woman which has been reviewed upward to eight visits throughout the period of pregnancy.[4] In 2016, the organization developed and published 39 recommendations which are related to five interventions aimed at ensuring a positive pregnancy experience for women.[5] Such interventions include nutritional interventions, maternal and foetal assessment, preventive measures, interventions for common physiological symptoms and health system interventions to improve utilization and quality of antenatal care.[5] However, antenatal care utilization among women in sub-Saharan Africa has been below the global rate. It has been shown that globally, 86% of pregnant women access antenatal care with a skilled professional at least once, while 65% receive at least 4 visits. Only 52% of pregnant women in sub-Saharan Africa receive at least four visits.[6] Low utilization of antenatal care has been linked to factors such as unplanned pregnancy, previous pregnancy complications, poor

autonomy, lack of husband's support, increased distance to health facility, not having health insurance and high costs of services.[7] Other factors that influence antenatal care (ANC) utilization include maternal age, maternal education, place of residence, household wealth, region, exposure to mass media, number of living children, knowledge of danger signs, previous obstetrical history and quality of care, among others.[8-13]

Conditions amenable to intervention by skilled health providers are involved in about 80% of maternal deaths, and thus, to date, the core strategy for optimizing maternal health has been to increase access to maternal health services, including ANC and hospital delivery. Underutilization of available maternal health services can pose a danger to the women and the population at large. Assessing the level of uptake, the reasons for such and the factors that influence the degree of maternal services utilization will guide public health actions targeted at increasing the uptake of these life-saving services. Hence, a holistic approach to increasing maternal health service utilization should give attention to the demand, as well as the supply side of health care delivery.[1] To this effect, this study aims at assessing the level of maternal health service utilization among women of reproductive age and to identify the factors associated with it.

METHODOLOGY

The study was carried out in Maiadiko, an urban community in Rayfield, Jos South Local Government Area of Plateau State. The area was purposively selected for the rich mix of both Christians and Muslims in that community and for the presence of a primary healthcare centre in the same community. All women of reproductive age between ages 15-49 years were selected for the study. Women who have never been pregnant were excluded from the study.

A cross sectional study design was conducted and data were obtained at a point in time. An electronic semi-structured interviewer-administered, adapted questionnaire was applied through the open data kit (ODK) to obtain quantitative data.

The sample size for the study was calculated using the formula for sample size determination for cross sectional study design. The formula had n as the minimum sample size, Z is the standard normal deviate at 95% confidence interval which is 1.96, d is the precision at 0.05, q is 1-p (complementary for p) and p is the proportion of women who utilized maternal services.[14]

A total cluster (comprising all eligible women from all the household in the selected cluster), door-to-door administration of the electronic questionnaire was done following house mapping of the community. Face-to-face interview of all eligible women was carried out by the researchers and their trained assistants and the data generated were automatically uploaded to the Kobo-tool-box server in real time. Variables that were measured include independent variables like the sociodemographics of the women and dependent variables like maternal health service utilization (hospital delivery and antenatal care visit) and reasons for delivery outside the hospital. Data cleaning was done in excel and subsequently coded and analysed using SPSS version 23. Descriptive

analysis was performed to show the prevalence of maternal health services utilization, frequencies and percentages of the independent variables (the socio-demographics, wealth index and parity) and the dependent variables (place of last delivery and number of antenatal care visits in the last pregnancy). Bivariate analysis was done to show any association between the dependent and independent variables. A p-value of ≤ 0.05 was considered statistically significant

RESULTS

The mean age (±Standard Deviation) of the women was 32.4 ± 9.1. The modal age group was 20-24 (22%) with only 2% of the women being less than 20 years of age. Most of the women were married (83.3%), with more than half of them (62%) having at least secondary level of education. Fifty four percent of the women were Muslims.

The socio-demographic characteristics of the women are presented in table 1

Table 1
Sociodemographic Variables. n = 150

Variables	Frequency	Percentage (%)
AGE		
15-19	3	2
20-24	33	22
25-29	26	17.3
30-34	24	16
35-39	25	16.7
40-44	17	11.3
45-49	22	14.7
EDUCATIONAL STATUS		
None	15	10
Primary	42	28
Secondary	63	42
Tertiary	30	20
MARITAL STATUS		
Never married	17	11.3
Married	125	83.3
Widowed	3	2
Divorced/Separated	5	3.3
RELIGION		
Christianity	69	46
Islam	81	54

Close to half of the women (44.7%) have had between 2 to 3 previous pregnancies with 77.3% of the total women having attended a minimum of 4 antenatal visits in their last pregnancy. About 76% of the women delivered in the hospital/clinic [Table 2]

Place of last delivery n = 136

Place of delivery	Frequency	Percentage
Home	30	22.1
Hospital	103	75.7
Others	3	2.2

Table 3 shows the various reasons given for choosing to deliver outside the hospital/clinic.

Table 3
Reasons for delivery outside the hospital/clinic (Home delivery). n=30

Reasons	Frequency	Percentage
Claims delivery is usually easy for her	3	10
Claims to have some experience in self-delivery	1	3.3
Has birth attendant in the neighbourhood	2	6.7
Delivery happened during religious crisis	1	3.3
It happened late at night	2	6.7
Labour was swift	10	33.3
Lack of proper midwife attention in last pregnancy	1	3.3
No reason	9	30
The will of God	1	3.3

A high proportion of the women had up to four antenatal visits in their last pregnancy. However, 9 (6.7%) of the women had no antenatal visit throughout the 9 months of their previous pregnancy. [Table 4]

Table 4
Number of antenatal visits in the last pregnancy. n = 135

Number of antenatal visits	Frequency	Percentage
Nil visit	9	6.7
1-3 Visits	10	7.4
>3 Visits	116	85.9

Table 5
Quality of maternal health services in the community PHC as perceived by the women. n = 150

Quality of maternal service	Frequency	Percentage
Good	118	78.7
Fair	31	20.7
Poor	1	0.7

Table 6

Utilization of the PHC for treatment

	Frequency	Percentage (%)
Very often	1	0.7
Often	74	49.3
Rarely	62	41.3
Never	13	8.7

On bivariate analysis, more than 90% of the women in the highest age range of 45-49 years had up to 4 antenatal visits while majority of those in the lowest age bracket (15-19 years) never attended any antenatal session. The proportion of women who had no antenatal visit decreased as the age group increased and age was found to be significantly associated with antenatal care (ANC) uptake ($p < 0.05$). In regards to delivery, age was not significantly associated with place of delivery. The other factor that was also found to be significantly associated with ANC but not with place of delivery was marital status ($p = 0.001$). Religion however was significantly associated with place of delivery but not with ANC uptake, with Christians more likely than Muslims to deliver in the hospital ($p = 0.019$). The only sociodemographic factor that was found to be significantly associated with both ANC utilization and place of delivery was educational status $p = 0.037$ and $p = 0.000$ respectively). [Table 7]

Tables 7

Factors associated with maternal health services utilization among respondents. n = 150

Age Variable

Variables	**ANC Visits**			**p- Value**	**Fishers Exact**
	Nil visit	**1-3 visits**	**>3 visits**		
AGE GROUP					
15-19	2[66.7%]	0[0%]	1[33.3%]	0.012	21.98
20-24	10[30.3%]	3[9.1%]	20[60.6%]		
25-29	7[26.9%]	2[7.7%]	17[65.4%]		
30-34	1[4.2%]	2[8.3%]	21[87.5%]		
35-39	2[8%]	0[0%]	23[92%]		
40-44	1[5.9%]	2[11.8%]	14[82.4%]		
45-49	1[4.5%]	1[4.5%]	20[90.9%]		

	Place of Last Delivery			**p- Value**	**Fishers Exact**
	Home	**Hospital/Clinic**	**Others**		
15-19	1[50.0%]	1[50.0%]	0[0%]	0.82	8.50
20-24	4[16.7%]	19[79.2%]	1[4.2%]		
25-29	5[22.7%]	16[72.7%]	1[4.5%]		
30-34	4[16.7%]	20[83.3%]	0[0.0%]		
35-39	6[24.0%]	18[72.0%]	1[4.0%]		
40-44	6[35.3%]	11[64.7%]	0[0.0%]		
45-49	4[18.2%]	18[81.8%]	0[0.0%]		

Tables 8

Factors associated with maternal health services utilization among respondents. n = 150
Marital Status

	ANC Visits			p- Value	Fishers Exact
MARITAL STATUS	**Nil visit**	**1-3 visits**	**>3 visits**		
Never Married	14[82.4%]	1[5.9%]	2[11.8%]	0.000	45.46
Married	10[8.0%]	9[7.2%]	106[84.8%]		
Widowed	0[0.0%]	0[0.0%]	3[100.0%]		
Divorced/Separated	0[0.0%]	0[0.0%]	5[100.0%]		
	Place of Last Delivery			**p- Value**	**Fishers Exact**
	Home	**Hospital/Clinic**	**Others**		
Never Married	2[40.0%]	2[40.0%]	1[20%]	0.057	11.70
Married	25[20.3%]	96[78.0%]	2[1.6%]		
Widowed	2[66.7%]	1[33.3%]	0[0.0%]		
Divorced/Separated	1[20.0%]	4[80.0%]	0[0.0%]		

ANC Visits **p- Value** **Fishers Exact**

Tables 9
Factors associated with maternal health services utilization among respondents. n = 150
Educational Status

EDUCATIONAL STATUS	**Nil visit**	**1-3 visits**	**>3 visits**		
None	3[20%]	0[0%]	12[80%]	0.037	12.16
Primary	2[4.8%]	5[11.9%]	35[83.3%]		
Secondary	9[14.3%]	4[6.3%]	50[79.4%]		
Tertiary	10[33.3%]	1[3.3%]	19[63.3%]		
	Place of Last Delivery			**p- Value**	**Fishers Exact**
	Home	**Hospital/Clinic**	**Others**		
None	7[46.7%]	8[53.3%]	0[0.0%]	0.000	20.37
Primary	15[35.7%]	27[64.3%]	0[0.0%]		
Secondary	8[14.0%]	47[82.5%]	2[3.5%]		
Tertiary	0[0.0%]	21[95.5%]	1[4.5%]		

Tables 8

Factors associated with maternal health services utilization among respondents. n = 150

Religion

	ANC Visits			p- Value	Fishers Exact
RELIGION	**Nil visit**	**1-3 visits**	**>3 visits**		
Christianity	14[20.3%]	5[7.2%]	50[72.5%]	0.382	1.97
Islam	10[12.3%]	5[6.2%]	66[81.5%]		
	Place of Last Delivery			**p- Value**	**Fishers Exact**
	Home	**Hospital/Clinic**	**Others**		
Christianity	7[11.7%]	51[85.0%]	2[3.3%]	0.019	7.26
Islam	23[30.3%]	52[68.4%]	1[1.3%]		

DISCUSSION

The study reflects a high utilization of both delivery services and ANC (maternal health services) in this urban population. The high utilization of maternal health services among urban dwellers was corroborated by others studies that revealed similar findings. [8,15,16] However, among mothers within the youngest age group, there was a sharp drop in the utilization of the maternal services. This could be due to the stigma associated with single parenting in this part of the world (on the part of the single mothers) and lack of awareness of the immense benefit of regular utilization of maternal services (on the part of the young mothers). This finding is worrisome so, despite the increased and known risk of poor maternal outcome in these categories of mothers.[17] However, another study conducted in the same Plateau State of Nigeria showed that age is not associated with maternal services utilization.[18] A recent systematic review that pooled various predictors of maternal health services utilization identified maternal age as a strong factor that influence service utilization.[16] This calls for public health approaches that will address the issue of stigmatization both at the community and the facility level. . Additionally, the use of older women as mentor mothers for younger women will be critical in persuading them to utilize such services. One important tool that the older women can use is anecdotal stories of a positive maternal service experience.[19] This technique can also be used to increase the utilization of facility-based services.

The place of education in understanding the importance of maternal services uptake reflected in this study. Educational status of the women was associated with increased uptake of maternal health services as also substantiated in other studies.[20,21] There is therefore increased call for the girl child education as a distant yet proven approach in improving maternal health outcomes through maternal services utilization.

This study was limited by the fact that it was a cross sectional study so could not show temporal relationship between the sociodemographics of the women and maternal health services utilization. Also, there is provision for expanding the scope of the explanatory variables in subsequent studies in order to identify other possible

associations and hence, inform policies and public health actions.

CONCLUSION

This study has shown high utilization of maternal health services among the study population. Albeit, the roughly one-quarter of the study participants who do not utilize maternal health services may contribute to poor maternal health indices. The identified associated factors such as age of the women, marital status, religion and educational status should be further explored in order to deliver tailored intervention to additionally increase service uptake among the study population. We recommend further exploration to identify any possible prediction by the identified factors and hence, guide prioritization and degree of possible intervention.

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