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Research article

Utilization of Antenatal and Postnatal Care Services Among Adolescents and Young Mothers in Rural Communities in South-Western Nigeria

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ABSTRACT

Antenatal and postnatal care services have been found to be a proximate determinant of maternal outcomes as they enable early detection of at risk-mothers and provision of prevention services. However, factors affecting the utilization of antenatal and postnatal care services among young mothers in rural settings are poorly documented. A community based cross-sectional study was carried out among parturient adolescent and young women selected through a 4-stage sampling procedure. A pretested interviewer administered questionnaire was used to collect information on mother's socio-demographics and use of maternal health care services. Data collected was analysed using Chi-square test and binary logistic regression. Almost half (47.9%) had given birth to only one child. Only 45.4% of the mothers attended four Antenatal care sessions. The mean gestational age at booking was 19.5 ± 4.8 weeks and the mean number of ANC visits was 3.6 ± 1.1 visits. Overall the proportion of young mothers who accessed antenatal care at least once was 86.2% and postnatal was (5.8%). However less than half attended at least 4 full ANC services. Unskilled working mothers are 3 times less likely to attend post-natal care services (OR=0.34, 95% CI=0.12-0.97) while those delivered by caesarean section were 5 times more likely to attend post natal services (OR=4.9, 95% CI= 1.6 – 14.8). The findings suggest low utilization of full antenatal and postnatal services are related to personal health and economic factors, and indicates the need for increase awareness campaign on the benefits of these services to improve uptake.

Keywords: *Young mothers, Antenatal care, Postnatal care, Service utilization*

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INTRODUCTION

Recent estimates suggest that globally, there has been an annual decline in maternal mortality to 2% against the target of 5.5% set in the Millennium Development Goals-5. The number of maternal deaths during pregnancy and childbirth, has reduced substantially from 409,053 deaths in 1990 to 273,645 deaths in 2011 (Lozano et al, 2011). Although studies have shown maternal mortality ratio is in a decreasing trend, developing countries still account for about 99% of all maternal deaths in the world with major contribution (95%) from Sub-Saharan Africa and South Asia (WHO, 2015). In particular, six counties of the world, namely, India, Nigeria, Pakistan, Afghanistan, Ethiopia and democratic Republic of Congo still bear the burden of highest maternal mortality (Patton et al. 2009). Majority of the maternal deaths of these countries occurs among adolescent and young mothers.

Reducing maternal mortality therefore remains an important challenge to global public health systems and calls for effective intervention especially in developing countries. (UNGASS, 2001).

Maternal health care services utilization is important for early detection of maternal morbidity and reduction of mortality during pregnancy (WHO, 2007). Skilled care in the antenatal period and post natal period can reduce maternal deaths by almost 74 percent, improve pregnancy outcome and reduce neonatal deaths (WHO, 2011). The WHO recommends four or more Antenatal care visits to skilled birth personnel during pregnancy. However uptake of modern maternal health care has been found to be generally low in developing countries (Adamu 2011).

Maternal health care among certain vulnerable groups remains a challenge to health systems around the world. Adolescent mothers in developing countries are one of these vulnerable groups (UNICEF, 2001; Paxton & Wardlaw 2011).

They have increased risk for poor maternal and infant outcomes and it is assumed that they are less likely than older women to utilize maternal health care services.

About one fifth of the world's population are adolescents. In the developing and least developed nations, this group comprises a high proportion of the population, sometimes up to about 45%. Pregnancy and child birth have been found to be the leading causes of death among these adolescents and young women (WHO, 2012). In Nigeria, 23% of women age of childbearing age are adolescents aged 15-19 years (NDHS 2013). With 576 maternal deaths per 100,000 live births, Nigeria accounts for roughly 14% of the global burden of maternal mortality (NDHS, 2013; WHO, 2014). About three-fifth of maternal deaths in Nigeria are due to four conditions which include haemorrhage, eclampsia, sepsis and abortion complications. Most of these maternal deaths are however preventable if a woman has proper access to essential healthcare before, during, and after childbirth (WHO, 2005; Dhakal et al 2007). Antenatal and postnatal care service utilization has been identified as an important strategy for reducing maternal morbidity and mortality thereby improving maternal health. Nigeria over the years has adopted ANC and PNC as part of her health delivery services. Many studies have looked at the utilization of maternal health care services among women of reproductive age in general but focus has not been on factors that are responsible for the utilization of these services among young mothers. A study on the factors affecting the uptake of antenatal and postnatal care services among the adolescents and young women is therefore necessary to provide information on specific intervention that could be directed towards these vulnerable groups

MATERIALS AND METHODS

Study design

A descriptive community based cross sectional study was conducted among females aged 15 to 24 years in Orire local government, Oyo state Nigeria.

Study Population

The study population included females within ages 15 to 24 years who had given birth to at least one child; resides in one of the chosen enumeration areas and provided informed consent. Females that were pregnant for the first time were excluded from the study since they were yet to need postnatal care services.

Sample size determination

The Leslie Kish formula ($N = z^2pq/d^2$) was used to calculate the sample size, based on an assumption of a proportion (p) of 18.2% rural young mothers that attended full ANC services (Saradiya et al, 2014), $q = 1-p$ and $z = 1.96$ at 95% point of the normal distribution and an error $d = 0.05$. A non-response rate of 10% was included to yield a sample size of 251 young women.

Sampling techniques

A multi-stage sampling technique was used to select households and study respondents. In the first stage, Oyo State was divided into six health zones (Ibadan, Ogbomoso, Oyo, Oke-

Ogun I and Oke Ogun II and Ibarapa health zones). From this list, Ogbomoso health zone was randomly selected by balloting. In the second stage, the local government areas in Ogbomoso health zone were listed (Ogbomoso South, Ogbomoso North, Oriire, Surulere and Ogo Oluwa). From this list Oriire local government area was also selected by balloting. In the third stage, the ten health wards in Oriire local government area were listed with their population of females in the wards. From the list a proportional allocation of sample size was made to determine the number of women of reproductive age to be selected from each ward. The allocated sample size (N_s) was then used to determine the sampling interval ($k = N_s/N_h$) for the number of households (N_h), assuming one woman of reproductive age per household. One woman of reproductive age between the ages of 15-24 years was selected for the interview in each household included in the study. In a household where more than one woman of reproductive age were present, the woman selected for the interview was determined by balloting.

Data Collection instrument

A pretested interviewer administered questionnaire was used to collect information on socio demographic variables including age, religion, occupation, educational level, average monthly income and marital status. Information on the use of antenatal and postnatal services during the past delivery was also collected. Interview lasted for about 25mins.

Data Management and analysis

Full antenatal care attendance was defined as attendance of four visits before delivery. Postnatal care service was defined as attendance of routine care within six weeks of delivery of the baby. Data was analysed using SPSS version 16. Descriptive Summary statistics such as mean and standard deviation were computed for continuous variables and proportions for categorical characteristics of the women. Test of association was carried out using the chi-square test. Multivariate logistic regression was performed to identify significant predictors, all at 5% level of significance.

Ethical Approval

Ethical approval (Ref AD 13/479/1044) for the study was obtained from Oyo State Ethical Review Board which is located in the state ministry of Health Ibadan. Consent was obtained from the participants/parents/husbands after explaining the content of the study to them. All information obtained from respondents were kept private and the participants were informed of their right to withdraw or refuse to participate in the study at any stage.

RESULTS

The mean age (standard deviation) of the respondents was 21.6+2.1 years. Most of the respondents (80.8%) were within 20-24 years age group. More than half of the respondents were Yoruba (93.2%), Christians (50.4%) and married (87.1%). About two-fifth of the respondent had secondary education, 85.4% are working predominantly as traders. About half (47.9) of the respondents have given birth to only one child. (Table 1)

Table 1:
Respondent's Socio-Demographic Characteristics

Variable		Frequency	Percentage
Age	15-19	46	19.2
	20-24	194	80.8
Ethnicity	Yoruba	166	69.2
	Igbo	9	3.8
	Hausa	21	8.8
	Others	44	18.3
Religion	Christianity	121	50.4
	Islam	119	49.6
Educational status	None	85	35.4
	Primary	57	23.8
	Secondary	93	38.8
	Tertiary	5	2.1
Marital status	Single	13	5.4
	Cohabitation	10	4.2
	Married	209	87.1
	Separated	6	2.5
	Divorced	2	0.8
Occupation	Not working	35	14.6
	Trading	104	43.3
	Farming	49	20.4
	Artisans	35	14.6
	Others	17	7.1
	Husband's educational status	No education	79
Primary		37	15.4
Secondary		106	44.2
Tertiary		10	4.2
Husband's occupational status	Not working	12	5.2
	Farming	124	53.4
	Driving	38	16.4
	Artisans	37	15.9
	Others	21	9.1
Family type	Monogamy	160	66.7
	Polygamy	49	20.4
Parity	1	115	47.9
	2	90	37.5
	3+	35	14.6

Antenatal services attendance

Overall the proportion of young mothers that attended antenatal care services at least once during their last pregnancy was 86.2%. Less than half (45.4%) of the mothers utilized full ANC services. The mean gestational age at booking was 19.5±4.8 weeks and the mean number of ANC visits was 3.6±1.1 visits. Of the respondent that attended ANC, more than half (65.4%) of them attended a PHC centre, (5.4%) attended a state specialist hospital, (12.5%) attended a private hospital, (8.5%) attended a teaching hospital (1.2%) attended a maternity home for their antenatal care. A significant percentage (84.1) of the respondent said they heard about antenatal through health workers. (Table 2)

Table 2:

Respondents Utilization of Antenatal care services

Variable	Frequency	Percentage (%)
ANC use		
Yes	207	86.2
No	33	13.8
Number of ANC visits		
None	33	13.8
1-3	98	40.8
4 and Above	109	45.4
Focused ANC		
Less than 4	131	54.6
4 and Above	109	45.4
Gestational age at booking		
16wks and Below	82	39.6
20wks-24wks	106	51.6
28wks and Above	19	9.2
Venue of ANC		
PHC	157	65.4
State hospital	13	5.4
Private hospital	30	12.5
Teaching hospital	4	1.7
Maternity home	3	1.2
Source of ANC knowledge		
Health workers	174	84.1
TBAs	4	1.9
Religious organisation	4	1.9
Radio	5	2.4
Others	20	9.7

After adjusting for confounders, young mothers that knew about ANC through a health worker are more like to attend full ANC services in their index pregnancy compared with those that heard through other sources such as media, religious organizations and parents. (OR=1.2, 95% CI=1.1-1.9). (Table 3)

Table 3
Multivariate analysis of factors associated with ANC

Variables	OR	P – Value	95% CI	
			Lower	Upper
Educational Level				
No Formal Education (ref)	1	0.07	0.9	2.9
Primary and above	1.6			
Source of information about ANC				
Health workers	1.2	0.001*	1.1	1.9
Others(ref)	1			

*Statistically significant at p less than 5%. CI: Confidence interval, OR: Odds ratio

Postnatal services attendance (PNC)

The proportion of young mothers who accessed postnatal care services at least once within 42days after delivery was very low (5.8%). Of the respondent that utilized PNC, about fifty

percent received care in PHC centre and state specialist hospital respectively (Table 4).

Unemployed young mothers are about 3times more likely to attend PNC services compared with mothers who are engaged in unskilled occupations. (OR=0.34, 95% CI=0.1-0.9). However, those engaged in skilled occupations are almost twice as likely to attend post natal care compared to those not employed.

Young mothers whose mode of delivery was caesarean section were 5times more likely to attend PNC services after their last pregnancy compared to those women who had a normal delivery (OR=4.9 , 95% CI= 1.6 – 14.8). [Table 5]

Table 4:
Respondents attendance at Post-natal clinics

Variable	Frequency	Percentage (%)
PNC USE		
Yes	14	5.8
No	226	94.2
NO OF PNC VISITS		
None	226	94.2
1-3	11	4.6
4 and above	3	1.2
VENUE OF PNC		
PHC	6	49.6
State hospital	7	50
Private hospital	1	0.4

TABLE 5:
Multivariate analysis of factors associated with PNC

Variables	OR	P – Value	95% CI	
			Lower	Upper
Religion				
Christian	0.8	0.40	0.44	1.4
Islam (ref)	1			
Ethnicity				
Yoruba	0.6	0.8	0.38	1.78
Others (ref0)	1			
Educational Level				
No Formal Education (ref)	1			
Primary School	1.3	0.43	0.61	3.05
Secondary/tertiary	1.5	0.26	0.69	3.51
Occupational Status				
Not working (ref)	1			
Unskilled	0.34	0.04*	0.12	0.97
Skilled	1.99	0.20	0.50	6.60
Mode of delivery				
Spontaneous (ref)	1			
Caesarean section	4.9	0.05*	1.6	14.8

*Statistically significant at 5%. CI: Confidence interval, OR: Odds ratio

DISCUSSION

The findings of this study showed low utilization of both antenatal and postnatal care services among rural young mothers. More than two-fifth of the respondents received full antenatal care (at least four visits) while an abysmally low percentage received postnatal care services. ANC attendance among rural young mothers reported in this study was slightly higher than the proportion reported in the Nigerian Demographic and Health Survey, which reported 38% (NDHS, 2013). The increase in the attendance of ANC observed in this study might have been due to sustained campaign for maternal health care services utilization in Oyo state. In contrast, some studies have reported a lower ANC attendance than was reported in this study (Tsegay *et al* 2013). The attendance at PNC among young mothers in this study was unacceptably low (7.8%) but almost similar to the findings from India among rural young mothers in which only 7.4% attended post-natal care. A possible explanation for the low use of PNC might be due to level of awareness about the importance of the service even when there are no complications after birth and also probably because the service is not available in primary health care centres.

The result from the logistic regression analysis of factors affecting utilization of maternity health care services showed a significant association with the source of information about antenatal care availability. Mothers that obtained their information about antenatal care through health workers were more likely to attend antenatal care services compared to those that received ANC information from other sources such as media, religious organizations and parents. This is consistent with another study in Tanzania that showed that women that were counselled by community health extension workers are likely to attend full ANC (Mohan *et al*, 2015). A possible reason for this association might be due to the perception of mothers especially those in rural areas that information from a health personnel are likely to be detailed and true. Also this medium creates an opportunity for mothers to ask questions on necessary steps to be taken to access health services.

Similarly, there was a significant association between PNC service use and mother's occupation as well as the mode of delivery. Finding from this study revealed that women's occupation had a significant effect on the use of PNC services, this is consistent with other studies that revealed that unemployed mothers are more likely to be economically independent and consequently have reduced access to health care services, and utilise the services when they need or as recommended by their health workers (Chakraborty *et al*, 2003).

Women who delivered through caesarean section were about 5 times more like to utilize PNC compared with women who had vaginal delivery, this finding corroborates another finding in rural Tanzania (Mohan *et al* 2015). A possible explanation for this association could be that mothers are left with no option than seek care in health facility because of the state of their health after delivery. Another reason could have been the fear of birth complications thus motivating their attendance at health facility for check-ups after delivery. Also women with birth complication tend to receive optimum support from family members thereby encouraging them to utilize PNC services compared with women who had no immediate birth complications.

The implications of these findings that adolescent and young mothers underutilised modern health care in pregnancy despite the increased risk associated with adolescent pregnancy. In a previous study Dairo et al had reported the increased association between being a pregnant adolescent and poor compliance with routine prescriptions for iron supplementation, a routine requirement to prevent anaemia in pregnancy (Dairo and Lawoyin, 2004, Dairo et al 2005, Dairo and Lawoyin, 2006), Thus expectant mothers with high risk pregnancies are missing the opportunities for early intervention that may reduce morbidities and potential mortalities.

This study, however is with some limitations. There might be recall bias as the precise number of antenatal visits by the young mothers may not be accurately reported. In addition, the number of post-natal visits may not be accurate as there may have been some visits to the health facilities consequent to complications of the delivery rather than routine maternal and child care. This recall bias may affect the precision of the estimates. Furthermore, the study is carried out in a rural community thus the findings may not be generalizable to adolescents and young mothers in urban settings. Despite these shortcomings the findings reported in this study will be useful for planning and implementation of maternal health programs in similar settings in the country.

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