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An analysis of Sociocultural Factors associated with home delivery in Kano, Nigeria.

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Abstract

Background: In Nigeria generally and Kano in particular pregnant mothers increasingly attend antenatal clinics but utilization of skilled delivery service remains very low. The individual or health system factors that affect women's preferences for delivery places are not clearly well known.

Method: A case control study was conducted in July 2017 to assess factors associated with utilization of hospital delivery service. A total of 324 mothers who recently delivered and visited either postnatal care or sought immunization services were included. Cases (n = 108) were mothers who gave birth at home and controls (n = 216) were those who delivered at health facility. Pre-tested and standardized questionnaires were used to collect relevant data by trained data collectors. Logistic regression model was used to control for confounding.

Result: The likelihood of delivering at home was greater among mothers with inadequate knowledge of maternal health related services (AOR = 62, 95% CI: 3, 128.4), those who started attending ANC after 24 weeks of gestation (AOR 8.7, 95% CI: 2.2, 33.3), mothers

having no formal education (Adjusted OR 4.2, 95% CI 1.63, 11.27) and rural residents (AOR = 3.6, 95%CI: 1.4, 9.0).

Conclusion: The predominant factors associated with home delivery services were lack of knowledge about maternal health care services, delay in starting Antenatal Care (ANC) follow up, Illiteracy and rural residence. Audience specific behavioral change communication should be designed to improve the demand for delivery services. Health professionals should take the opportunity to encourage mothers attend delivery services during ANC follow up. Improvements should be made in social conditions including literacy and major social mobilization endeavors.

Keywords: **Sociocultural Factors associated home delivery in Kano.**

Background

In Nigeria, majority of births occur without the help of a skilled assistant (defined as a midwife, nurse trained, or a doctor) and mainly at home (Nuhu et al, 2010). Home deliveries are bound to be un-hygienic, unsupervised and when intervention is required it usually late (Onwuhafua, 2006; Okolocha et al, 1998). Despite skilled delivery is one of the most tracked Sustainable Development Goals (SDG) indicators, the proportion of births attended by skilled health personnel in Nigeria and in Kano at present is about 6% and 4% respectively (Yar'zever, 2013). Home deliveries have been associated with adverse infant and maternal mortality [Pattinson, and Moodley, 2005)]. The highest number of maternal deaths occurs on the first day after delivery high-lighting the critical need for good quality care during this period [Stanton et al, 2001].

Interestingly, a large proportion of these maternal deaths could be prevented through timely and appropriate interventions. The presence of skilled delivery service utilization at each birth can significantly reduce the maternal mortality and morbidity (Starrs, 2006). Many studies revealed the presence of positive association between utilization of maternal health care and residence; those living in urban and closest to health facilities tend to utilize skilled delivery services than rural dwellers [Ujah et al, 2005]. Maternal education is also considered as most important factor in determining women's delivery care seeking behavior UNFPA, 2007). However, education of mothers may not maintain its effects across all levels of education and

social settings (USAID, 2008).

Knowledge is also an important factor that affects attitude, intension and behavior. Knowledge relates to behavior, and behavior produces change towards service utilization (WHO, UNICEF, UNFPA, 2004). The more knowledge they have about dangerous signs of pregnancy and delivery the more they go for antenatal and delivery services (WHO, 2005). Studies conducted to assess the relationship between knowledge and skilled delivery service utilization consistently showed that, knowledge is strong predictor of maternity service utilization; those having good knowledge about danger signs of pregnancy and delivery are more likely using skilled delivery services. It is expected that a better informed individual is better placed to make reasonable decisions (WHO, UNICEF, UNFPA, 2010). A strong positive association that has been also shown to exist between quality of care obtained during pregnancy and the use of skilled delivery care (Yahaya, 2004).

In many studies done in Nigeria most mothers express their wish to deliver in a health unit; but majority of them end up either not being attended or attended by non-trained people during delivery (Yar'zever, 2012). Although most pregnancy and delivery related complications cannot be predicted, high quality antenatal care (ANC) and receiving counseling on birth preparedness during antenatal care appeared to strongly influence women's use of skilled care during delivery (Audu and Ekele, 2002).

In Nigeria, utilization of health facilities for delivery service still stagnates at lower level despite a rapid expansion of the health sector throughout the country. It is believed that there are different factors that operate at different level determining the utilization of delivery service.

This study was conducted with the aim of identifying the factors related to low utilization of hospital delivery services.

Material and Methods

Research design

A survey study was conducted in selected public health facilities in urban and rural Kano.

It was conducted between October 15th to July 30th 2017 which involved the collection of information through the use of structured questionnaire and in-depth interview to assess respondents on the study objectives

Study Setting

Kano State is one of the 36 states of Nigeria from the north western zone and also the most populated and largest in Nigeria. Kano city *is* an ancient city with over 1500 years of history (Dan Yaro, 1987). It remains one of the oldest Hausa city-states that enjoy the eminent position of being a foremost center of commerce, Islamic thought and culture. The culture of people is Hausa-Islamic culture, in that ethnicity and religion are so interwoven that a distinction is hardly discernable. The study area comprises thirty hospitals both referred and health centers in both urban and rural areas selected based on clustered senatorial zones. The population of the study area was 240,380 and the annual estimated deliveries were 12,200 deliveries of these 16% took place in health facilities. The referral hospitals in the zones provides comprehensive emergency obstetric care while the health centers provide basic emergency obstetric care. Health extension workers provide clean and safe delivery and referrals at the health centers.

Study Participants

The study participants were all mothers who came for post-natal care or those who brought their children for immunization service. Mothers who gave birth at home for their last pregnancy were considered as case while mothers who delivered at health facility were categorized in the control group.

Tools of the study

A two proportion formula (stat calc EPI info 3.5.1) was used to estimate the sample size required of the study. The following assumptions were made to estimate sample size required for the study. A 95% confidence level and 80% power were used. ANC coverage was used as exposure variable. The calculated sample size to detect an odds ratio of 2.0 and case: control ratio of 1:2. The final estimated sample size was 119 for cases and 238 for controls.

The average number of mothers coming for post natal care and immunization service was estimated based on previous reports from the facilities. The estimated sample was allocated proportional to the case load of each facility. Mothers who delivered in four months period preceding the data collection were asked about their place of delivery. They were grouped as cases or controls based on their place of delivery. Both cases and controls were selected using

systematic sampling technique, every third case and control were interviewed until the allotted sample is reached at each health facility. Face to face interview using a pre-tested and standardized questionnaire was conducted to collect the data.

Construction of indices of women's Place of delivery

Questions extracted from NDHS & other literatures served to prepare the instrument (NDHS, 2008). The instrument was pretested on 35 mothers who were attending post natal care service in health centers. Findings from the pretest were used to modify the instrument.

Place of delivery was the main dependent variable while characteristics that determine the place of delivery service namely age, number of children, education, knowledge, attitude, residence and quality of care were the independent variables.

Skilled delivery was defined as a delivery that has taken place at health center or a hospital. Home deliveries are considered as non-skilled delivery in this study, according the prevailing practice in the country.

Data collectors were senior nurses and health officers who were selected based on their experience in research work after a short training for two weeks. Supervisors were two female public health consultants, a medical sociologist and a clinical psychologist. The training focused on understanding the research question, ethical conduct, and quality of data collection.

Attitude of mothers was measured using 10 attitude questions. (Example: Pregnant women can choose their place of delivery by themselves, Husbands promote their wives to attend skilled delivery care, Attending skilled delivery service is safe and satisfactory). The response of each mother was given. Finally the response was recoded into "1" if the mother has agreed for the question and "0" otherwise. The total score was dichotomized into favorable and unfavorable attitude.

Practice of mothers was also measured based on prompts to see whether they had adequate maternal health practices. That includes attendance of ANC and frequency of ANC attendance. Accordingly, a score of "1" was given for mothers who fulfill the notion of good practice and "0" point for those who don't fulfill those criteria. And finally it was dichotomized into good and unsatisfactory practice.

Data analysis

The data was entered into EPI info version 3.5.1. Once the entry was completed it was exported into SPSS version 17. STATA 11 was also used. The data was summarized using tables. Composite scales were constructed for knowledge, attitudes and practice variables that used different items for measurement. Knowledge was assessed using 18 items on danger signs of pregnancy and delivery. Correct responses were given 2 points and 0 point was given for incorrect answers. The final scores were computed to give a composite scale with categories (Good, fair or bad) based on following cut off points (“>75 “good, “≥ 50-74% = fair”, and “< 50% “bad”). Logistic regression was employed to analyze the data.

Crude and adjusted Odds ratios were computed for each explanatory variable to determine the strength of association and to control the effect of confounders. Variables with significant association with the dependent variable were entered into the final model. The model was tested with goodness of fit test yielding LR (chi square calculated = 120 and P-Value = 0.000).

Ethical consideration

Institutional approval for the conduction of the study was obtained from Kano state ministry of health and approved by the office of the social welfare center. The study was conducted according to the Principles of the Helsinki Declaration. Before the questionnaire was applied to the respondents, permission was obtained from the hospital and informed verbal consent was obtained from all the respondents who participated in the study. The respondents were specifically informed regarding their entitlement to information regarding the study, voluntary participation, privacy issues, their right to refuse to divulge information, and to terminate their participation at any time. While all the respondents gave their oral approval for participating in the study.

Results

Among a total of 356 participants sampled, 108 cases and 216 controls accepted the invitation to participate. As shown in Table 1 there was significant difference between cases and controls in their age (χ2cal =10.38,df = 4 and p = 0.034), residence (χ2cal =95.63,df = 1 and p = 0.000), level of education of mothers (χ2cal =89.82,df = 4) and p = 0.000), income(χ2cal =83.01,df = 4 p = 0.000) level of education (χ2cal = 95.4,df = 4 and p = 0.000).

The following variables were found to be predicators of place of delivery. The likelihood of delivering at home was greater among mothers with inadequate knowledge of pregnancy related problems (AOR = 62, 95% CI: 3, 128.1), those who started attending ANC after 24 weeks of gestation (AOR 8.7, 95% CI: 2.2, 33.3), mothers having no formal education (AOR 4.2 95% CI 1.63, 11.27) and rural residents (AOR = 3.6, 95%CI: 1.4, 9.0) (See Tables 2 and 3).

Table 1 Socio-demographic and obstetric characteristics of participant mothers aged 15-49, Kano 2018

Variables	Cases (n = 108)		Controls (n = 216)		χ^2 square,df and p- value
Age of the mother					
15-19	7	(6.5)	14	(6.5)	$\chi^{\lambda\alpha\chi 2}$83.01=
20-24	31	(28.7)	76	(35.2)	df = 4
25-29	34	(31.5)	88	(40.7)	P-value = 0.034
30-34	25	(23.1)	26	(12.0)	
35-39	11	(10.2)	12	(5.5)	
Maternal education					
Illiterate	83	(76.9)	54	(25.0)	$\chi^{\lambda\alpha\chi 2}$28.98=
Read & write	8	(7.4)	11	(5.1)	df = 4
Primary	12	(11.1)	77	(35.6)	P-value = 0.0000
Secondary and above	5	(5.0)	74	(34.1)	
Husband Education					$\chi^{\lambda\alpha\chi 2}$74.69=
Illiterate	63	(58.3)	29	(13.4)	df = 4
Read & write	17	(15.7)	14	(6.5)	P-value = 0.0000
Primary	18	(16.7)	62	(28.7)	
Secondary and above	10	(9.3)	111	(51.4)	
Residence					$\chi^{\lambda\alpha\chi 2}$36.59=
Urban	49	(45.4)	202	(93.5)	df = 1
Rural	59	(54.6)	14	(6.5)	P-value = 0.0000

Average monthly income* n = 248	n = 55		n = 193		
<1000.00ETB	44	(80)	89	(46.1)	$\chi^{\lambda\alpha\chi 2}$83.01=
1000-1999.00ETB	9 (16.4)		60	(31.1)	df = 4
> = 2000.00ETB	2 (3.6)		44	(22.8)	P-value = 0.000

Among the social factors, education of mothers appeared to be the most important predictor in deter-mining the utilization of institutional delivery care after controlling other variables. Many previous studies con-ducted in developing countries have found education of mothers to be among the most important determinants of skilled delivery care utilization (Chandola and Jenkinson, (2000). There are a number of explanations that speculate as to why education is a key determinant of skilled care demand. For ex-ample education is likely to enhance female autonomy so that mothers develop greater confidence and capabilities to make decision regarding their own health, as well as their children. It is also more likely that educated women demand higher quality service and pay more attention to their health in order to insure better health for themselves. Moreover, educated women are more likely to be aware of difficulties during pregnancy and as a result, they are more likely to use maternal health care services (Chiwuzie and Okolocha, 2001).

Table 2 Obstetrics characteristics, Knowledge, Attitude and practice of participant mothers in Kano 2018

Variables	Cases(n = 108)		Controls(n = 216)		Crude OR (95% CI)
	No (%)		No (%)		
Para					
1-3	93	(86.1)	179	(82.8)	1.3(0.7, 2.4)
≥4	15 (13.9)		37	(17.2)	1

Abortion					
Yes	15	(13.9)	18	(8.3)	1.8(0.9, 3.7)
No		93 (86.1)	198	(91.7)	1
Still birth					
1-2		3 (2.8)		7 (3.2)	1
None		105 (97.2)	209	(96.8)	0.8(0.2, 3.4)
No of Surviving children					
1-4		103 (95.3)	203	(93.9)	1.3(0.4, 3.8)
5-8		5 (4.7)	13	(6.1)	1
Knowledge about danger signs of pregnancy					
No		39 (36.1)	33	(15.3)	3.1(1.8, 5.4)
Yes		69 (63.9)	183	(84.7)	1
Knowledge about danger signs of Labor					
No		23 (21.3)	12	(5.6)	4.6(2.2, 9.6)
Yes		85(78.7)	204	(94.4)	1
General knowledge about obstetric complications					
Bad		22 (20.4)		2 (1)	27.9(6.4, 122)
Fair	18	(16.7)	41	(19)	1.1 (0.6, 2.0)
Good		68 (62.9)	173	(80)	1
Over all attitude					
Unfavorable		88 (81.5)	108	(50)	4.4(2.5, 7.6)
Favorable		20 (18.5)	108	(50)	1
Last pregnancy planned					
No		25 (23.1)	38	(17.6)	1.4(0.8, 2.5)
Yes		83 (76.9)	178	(82.4)	1
Got ANC for last pregnancy					

No	51 (47.2)	11	(5.1)	16.6 (8.1, 34)
Yes	57 (52.8)	205	(94.9)	1
Got any advice on where to deliver				
No	62 (57.4)	52	(24.1)	4.2 (2.6, 6.9)
Yes	46 (42.6)	164	(75.9)	1
Number of visits				
1-2	17 (29.8)	26	(12.7)	2.9 (1.4, 5.8)
3 or more	40 (70.2)	179	(87.3)	1
Counseling				
No	27 (47.4)	43	(21.0)	3.4 (1.8, 6.2)
Yes	30 (52.6)	162	(79.0)	1

Another predictor that has also shown an important influence on maternal health care utilization was place of residence. Mothers living in rural area were less likely to use institutional delivery services than urban mothers. This finding is consistent with the previous studies done in Zaria, Nigeria (Duze, 1997), which suggested that place of residence has a statistical significance variable on the use of skilled care. It is consistent with the fact that rural mothers have limited financial and transport access to receive institutional delivery service (Eboiyehi and Muoghalu, 2008). Similarly large disparities exist in many key health indicators in relation to place of residence, signifying that living in a rural area is a barrier to seek modern health care. Having poor knowledge about pregnancy and delivery for instance was strongly associated with home delivery. Similarly having lack of knowledge about danger signs of pregnancy was very strongly associated with home delivery (El- Nafaty et al, 2004).

Table 3 Obstetrics characteristics, Knowledge, Attitude and practice of participant mothers in Kano 2018 (Continued)

Satisfied with ANC care				
No	11 (19.3)	12	(5.9)	4.5 (1.8, 10.9)
Neutral	7 (12.3)	2	(1.0)	0.2 (0.04,1.54)

Yes		39 (68.4)		191 (93.1)	1
Over all ANC quality					
Inadequate	49	(86.0)		160 (78.0)	1.7 (0.7,3.9)
Adequate		8 (14.0)	45	(22.0)	1
Who decided place of last delivery					
Husband	20		49		1.5 (0.8, 2.8)
Others †	17		42		1.5 (0.8, 2.9)
Together	13		32		1.5 (0.7, 3.2)
My self	58		93		1

† Include mother or grandmother or mother in-law.

Table 4 Predictors of home delivery mothers in Kano 2018

Variables	Number of		Odds ratio
	Cases = 108	Controls = 216	Adjusted OR (95%CI)
Maternal Education			
No formal education	91	65	4.27 (1.63, 11.27)*
Formal education.	17	151	1
Address			
Rural	59	14	3.6 (1.4, 9.0) *
Urban	49	202	1
General knowledge about obstetric complications			
Poor	22	2	62 (3, 128.4) *
Fair	18	41	0.7 (0.2,1.7)
Good	68	173	1
Time of first ANC visit			
< 12 weeks	8	58	1

12-24 weeks	35	140	1.6 (0.7, 4.0)
After 24 weeks	14	7	8.7 (2.2, 33.3)*

*Adjusted for Maternal education, Husband education, Residence, Knowledge on danger sign of pregnancy, Attitude, and Time of ANC visit mothers in Kano 2018

Discussion

The study identified very important predictors that are related to geographic access such as living in rural area; social factors such as being illiterate; lack of access to information such as having poor knowledge about obstetric complications and delay in starting first ANC visit.

This finding demonstrated the fact that obstetric knowledge is an important factor that affects attitude, intention and behavior of mother (Ejembi et al, 2004; Yar'zever, 2013)). Another explanation for this could be knowledge of danger signs of obstetric complication is the first step in the appropriate and time referral for essential obstetric care (FMOH, 2008). Moreover the main reasons leading to poor use of skilled care services include the personal belief, knowledge, attitude and life style of pregnant mother (Federal Ministry of Health, 2005).

These findings are consistent with those of previous studies in Kaduna, Nigeria (Galadanci et al, 2010; Ladipo, 2006)). The more knowledge they have about the importance of skilled obstetric care the more likely they have a positive attitude towards skilled obstetric care utilization (Adamu et al, 2003; Lambo , 2003)).

In this study, level of antenatal attendance was high (80.9%), the reason for this may be due the high number of mothers from urban residence. those mothers who delayed presentation for ANC until the end of second trimester were more likely to attend home delivery than those came earlier. This can be best explained by the fact that ANC is more effective when received earlier in the pregnancy. This finding is consistent with previous studies (Advocacy Brief, 2007; Adetoro et al, 2007).

In this study women who did not receive counseling where to deliver were more likely to deliver at home in the bivariate analysis. This result wasn't retained in the multivariate analysis. Failing to counsel women about preferred place of delivery during antenatal care can be considered as a missed opportunity to improve the rate of skilled deliveries.

With regard to other correlates of skilled delivery care utilization, our finding did not reveal any supporting evidence that age, monthly income, number of surviving children and history of abortion to show a statistically significant difference between cases and controls. These findings could be related to difference in research methodology, sample size and the difference in other social and demographic factors that might not be accounted in this study.

Limitation of the study

Case control studies are not able to establish temporal relationships. So it is difficult to establish causal relation-ship in this study. A non-response rate of 6% also affects estimate of a parameter and power of a test. Selection bias may be in-evitable since cases and control were selected among mothers who only visit postnatal care or immunization for their children, this may affect generalizability and internal validity. Those who have limited access for all kinds of service may not be included in the study. This may result in differential misclassification obscuring some potential differences.

Those who delivered at heath facility might have been forced to visit care because of presence of serious clinical conditions during pregnancy and childbirth. Tools used to measure knowledge and attitude were not standardized and tested for their reliability which would affect its comparability. Inclusion of other variables like perceptions of the existing quality of delivery service, direct and indirect cost of health services and ability of the participants to pay for the service could have provided a comprehensive picture.

Conclusion

The predominant factors associated with not utilizing skilled delivery services in the study area are lack of knowledge about obstetrics care, delay in starting Ante-natal Care (ANC) visit, and low level of education. Place of residence was also an important predicator of place of delivery.

Recommendations

Audience specific behavioral change communication should be designed to improve the demand for delivery services. Health professionals should take the opportunity to encourage

mothers attend delivery services during ANC follow up. Improvements should be made in social conditions including education and major social mobilization endeavors. To have a complete picture of the situation, it is recommended to assess the quality of delivery service, perception of the potential users on the quality of care and other cultural factors.

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