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Predictors of male knowledge and participation in maternal health care in urban Kano, northern Nigeria

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Abstract

Investigating the pivotal role of men in maternity care in the highly populous state of Kano, northern Nigeria, is crucial to improving maternal health outcomes, as they are powerful decision-makers. This study assessed the level and predictors of knowledge and participation of men in maternal health care. A structured interviewer-administered questionnaire was administered on a cross-section of 399 ever-married men. Predictors of male knowledge and participation in maternal health were determined using logistic regression analysis. Very few of the men (9.5%) had adequate aggregate knowledge, while many (72.2%) had good participation in maternal health care. Men with tertiary education were less likely to have poor knowledge (aOR) = 0.28, 95% CI [0.09-0.89], and men whose highest educational qualification was at primary, secondary, and tertiary level were 61%, 54%, and 78% less likely to have poor participation in their wives' utilization of maternal health services respectively. At the same time, men with lower incomes had increased odds of poor participation in their wives' utilization of maternal health services. Men are largely ignorant of maternal health care services in Northern Nigeria, especially among the less well-educated. Maternal health programmers should increasingly educate and involve men as partners in reducing the disproportionately high maternal mortality in the region.

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Introduction

Over the last two decades, some reductions have been achieved in maternal mortality, but the figures are still unacceptably high in low-resource settings, where the majority (94%) of these deaths occur.[1] Fifteen countries were classified as 'high alert' having Maternal Mortality Ratios (MMRs) ranging from 31 (Syria) to 1150 (South Sudan);[1] Nigeria was included, with MMR of over 800 per 100,000 live births and contributing about 20% of global maternal death.[2] The quality of care that both mother and newborn receive during pregnancy, delivery, and early post-natal period is critical for women's survival and healthy newborns.[3] Interventions aimed at reducing maternal mortality have been mostly focused on women attending antenatal clinics with little attention to their male partners. This is accentuated by cultural perceptions in parts of sub-Saharan Africa that family planning, pregnancy, and childbirth are exclusively women's affairs.[4] Programs continue to encourage women's utilization of maternal services, yet women continue to face many social, economic, and health system barriers to utilizing ante-natal, delivery, and post-natal care.[5,6] This focus on increasing maternal knowledge has improved maternal health services' utilization, but minimally. The 2018 Nigeria Demographic and Health Survey (NDHS) showed only minimal change in the proportion of women receiving no ante-natal care between 2003 NDHS (42%) and 2018 NDHS (33%).[7] While decision making power within the family lies with men, more often than not, they are uninformed and little involved with maternity care services.[8] Husband's level of knowledge, often determining participation, is a major socio-cultural and economic determinant of service utilization, which is often overlooked despite the declaration of its importance during the 1994 International Conference on Population and Development (ICPD).[9] Men, therefore, constitute an important target for increasing utilization of maternal health services, since they control the cash reserves and give permission to access obstetric care even during emergencies.[9,10] The Hausa society located in Northern Nigeria is patriarchal, with a strong male influence on

many household decisions, including those regarding reproduction.[8,11-13] This study aimed to determine predictors of male knowledge and participation in maternal health care in a peri-urban community in Kano to inform interventions that promote male participation in maternal health services.

Materials and Methods

Study design, setting, and participants

This study was descriptive, cross-sectional, and conducted among ever-married men in Kumbotso Local Government Area (LGA), one of the metropolitan LGAs in Kano. It included men whose wives had delivered a child in the last year and were residents in the study area. Men whose wives were pregnant for the first time or delivered a stillbirth were excluded.

Sample size calculation and sampling

A sample size of 381 was calculated using a 95% confidence level, 5% precision, and male participation from a previous study.[13] The computed sample size was adjusted by 10% for non-response to give 420 as the final sample size. A multistage sampling technique was used in the selection of respondents. In the first stage, 3(≈25%) of the 11 wards in the LGA were selected by Simple Random Sampling (SRS). The selected wards had nine settlements, of which four (≈50%) were selected in the second stage using SRS. The third stage involved house numbering of each selected settlement to obtain a sampling frame. Thereafter, the sampling fraction and interval were also obtained. Houses were selected using a systematic sampling technique, with the starting point obtained using a random number table. An eligible head of household was then approached to participate in the study.

Study instrument and data collection

The data for this study was collected using a pre-tested interviewer-administered questionnaire. The semi-structured tool was adapted[13,14] and had three sections: respondent's socio-demographic characteristics, knowledge, and the level of participation of the respondent in maternal care

Data management

The dependent variables were the level of men's knowledge and participation in maternal health. Knowledge of antenatal, delivery, and postnatal care, as well as services, were assessed. Men's prenatal, intrapartum, and postnatal participation were also assessed on wives' last delivery. Each correctly answered question on knowledge and participation earned one mark. A total of 14 knowledge questions were asked, aggregated, and dichotomized into 'adequate (³50%)' and 'inadequate (<50%)' while the level of participation was assessed by asking a total of 17 questions; also aggregated and dichotomized into 'good (≥50%)' and 'poor (<50%)' as in a previous study.[15] The data was analyzed using SPSS version 22 (IBM Corp., Armonk, NY, USA). Pearson's Chi-square test was used to identify variables significantly associated with men's knowledge and participation in maternal health. Variables significantly associated with men's knowledge and participation were included in a logistic regression analysis to identify predictors of men's knowledge and participation in maternal health care services. Adjusted ORs and their respective 95% Confidence Interval (CI) were obtained. A CI of 95% was used in this study, and a p-value of 0.05 was considered significant.

Ethical considerations

The ethical approval for this study was obtained from the Aminu Kano Teaching Hospital Research and Ethics Committee. The principles of the Helsinki declaration were adhered to, and a written informed consent was signed by each participant after being informed about the study and agreeing to participate.

Results

Socio-demographic characteristics of respondents

Of the 423 questionnaires administered to the men, 399 responded, giving a response rate of 95.0%. Their mean age was 41.3±11.9 years, the majority were Muslims (95.5%), of the Hausa/Fulani tribe (95.2%), and had a monogamous union (61.4%). The estimated monthly income of the respondents ranged from ₦700 to ₦390,000, with a median of ₦16,630 (Table 1).

Table 1. Socio-demographic characteristics of respondents.

Characteristic	Frequency (percentage) n (%)
Age group (years)	
20-29	49 (12.3)
30-39	151 (37.8)
40-49	112 (28.1)
50-59	41 (10.3)
60-69	35 (8.8)
70 and above	11 (2.8)
Occupation	
Trading	124 (31.1)
Civil service	116 (29.1)
Farming	97 (24.3)
Manual labor	29 (7.3)
Driving	23 (5.8)
Company work	5 (1.3)
Quranic teaching	5 (1.3)
Religion	
Islam	381 (95.5)
Christianity	18 (4.5)
Ethnic group	
Hausa	319 (79.9)
Fulani	61 (15.3)
Yoruba	9 (2.3)
Ibo	7 (1.8)
Kanuri	3 (0.8)
Educational status	
None	7 (1.8)
Quranic	164 (41.1)
Primary	56 (14.0)
Secondary	72 (18.0)
Tertiary	100 (25.1)
Family type	
Monogamous	245 (61.4)
Polygamous	154 (38.6)
Number of children	
1-4	210 (52.6)
5 and above	189 (47.4)
Estimated monthly income (₦)	
Undisclosed	29 (7.3)
<5000	17 (4.3)
5001-10000	70 (17.5)
10001-15000	65 (16.3)
15001-20000	66 (16.5)
Above 20000	152 (38.1)

Men's knowledge of maternal health services

Knowledge of Antenatal Care (ANC) and services

Many (n=233; 58.4%) of the men were aware of ANC and at least one danger sign in pregnancy (n=205; 51.4%); but fewer were aware of the details of care such as minimum number of visits required (n=14; 3.5%) and ideal gestational age to start ANC (n=57; 14.3%) (Table 2).

Knowledge of delivery services

Awareness of delivery services was low (n=69; 17.3%), while many of them knew the ideal place of delivery (n=192; 48.1%) and the material used to cut the cord (n=322; 80.7%) (Table 2).

Knowledge of postnatal services

About half (n=199; 49.9%) of the men were aware of Postnatal Care (PNC), some (n=109; 27.3%) knew the appropriate time to attend PNC, and fewer (n=66; 16.5%) knew the services rendered during PNC (Table 2).

Men's participation in maternal health services

Participation during the antenatal period

Many (n=275; 68.9%) of the men approved of ANC, and paid for wife's ANC expenses (n=229; 57.4%), while less than half (n=186; 46.6%) had ever accompanied their wives for ANC, and few (n=60; 15.0%) saved for emergencies during pregnancy (Table 3).

Participation during delivery

Many (n=246; 61.7%) saved for delivery expenses, but fewer approved of hospital delivery (n=144; 36.1%), ever accompanied their wives to the hospital for delivery (n=107; 26.9%), or had wives' last delivery in the hospital (n=76; 19.0%) (Table 3).

Participation during the postnatal period

About half (n=107; 51.9%) of the men approved of immunization services, but a lower proportion approved of PNC (n=158; 39.6%), ever accompanied wife for PNC (n=41; 10.3%) or approved of utilization of family planning (n=33; 8.3%) (Table 3).

Men's aggregate knowledge and participation in maternal health

Only a few (n=38; 9.5%) of the men had adequate aggregate knowledge, while the majority (n=361; 90.5%) had inadequate knowledge of maternal healthcare services (Table 2).

The majority (n=288; 72.2%) of the men had good aggregate scores on participation in maternal healthcare utilization (Table 3).

Predictors of male knowledge and participation in maternal health

Factors associated with good knowledge (occupation, educational status, type of union, and income) and good participation (occupation, religion, ethnicity, education, and income) in maternal health were included in the logistic regression model. After controlling for potential confounders, men who had tertiary education (n=100; 25.1%) were 72% less likely to have poor knowledge (aOR) = 0.28, 95% CI [0.09- 0.89] (Table 4).

Men whose highest educational qualification was at primary (n=56; 14.0%), secondary level (n=72; 18.0%), and tertiary (n=100; 25.1%) were 61%, 54% and 78% less likely to have poor participation in their wives' utilization of maternal health services. Men with lower income: less than ₦5,000 (n=17; 4.3%), ₦5001-₦10,000 (n=70; 17.5%) and undisclosed income (n=29; 7.3%) had more than sevenfold (aOR) = 7.38, 95% CI [2.26-24.13], twofold (aOR) = 2.52, 95% CI [1.23- 5.14] and fivefold (aOR) = 5.92, 95% CI [2.33- 15.04] respectively, increased odds of poor participation in their wives' utilization of maternal health services (Table 4).

Table 2. Men's knowledge of maternal health.

	Frequency (%) n=399
Knowledge on ANC	
Aware of ANC	233 (58.4)
Knows ideal gestational age to start ANC	57 (14.3)
Knows minimum number of ANC visits	14 (3.5)
Knows at least one service rendered during ANC	57 (14.3)
Knows at least one danger sign in pregnancy	205 (51.4)
Knowledge on delivery services	
Aware of delivery services	69 (17.3)
Knows ideal place of delivery	192 (48.1)
Knows skilled attendants	172 (43.1)
Knows material used to cut cord	322 (80.7)
Knows at least one danger sign during labor	164 (41.1)
Knowledge on PNC	
Aware of PNC	199 (49.9)
Knows women in need of PNC	169 (42.4)
Knows appropriate time to attend PNC	109 (27.3)
Knows services provided during PNC	66 (16.5)
Knows at least one danger sign during post-natal period	225 (56.4)
Aggregate knowledge	
Adequate	38 (9.5)
Inadequate	361 (90.5)

Table 3. Men's participation in maternal health.

Level of participation in maternal health	Frequency (%) n=399
Level of participation	
Approves of ANC	275 (68.9)
Wife/wives attended ANC in last pregnancy	243 (60.9)
Have ever discussed ANC with wife/ wives	126 (31.6)
Pays for wife's ANC expenses	229 (57.4)
Ever reminded wife of ANC appointment	255 (63.9)
Ever accompanied wife for ANC	186 (46.6)
Saves for emergencies during pregnancy	60 (15.0)
Delivery	
Approves of hospital delivery	144 (36.1)
Wife/wives' last delivery was in hospital	76 (19.0)
Saved for delivery expenses	246 (61.7)
Arranged for transport to health facility	183 (45.8)
Contact health worker to help with delivery	159 (39.8)
Ever accompanied wife/wives to hospital for delivery	107 (26.9)
PNC	
Approves of post-natal care	158 (39.6)
Approves of use of family planning	33 (8.3)
Approves of use of immunization	207 (51.9)
Ever accompanies wife/ wives for post-natal care	41 (10.3)
Aggregate participation	
Good	288 (72.2)
Poor	111(27.8)

Discussion

The study observed that very few of the married men studied had adequate aggregate knowledge scores on maternal health, although their knowledge of different aspects of maternal health varied widely. This level of ignorance on maternal health may have far-reaching negative consequences on maternal and child health as the individual's positive actions in promoting family health can only go as far as one is knowledgeable.[8] While more than half of the respondents (58.4%) were aware of ante-natal care, only a few were knowledgeable about details such as ideal gestational age for booking (14.3%), minimum number of ANC visits required (3.5%) and awareness of component activities performed during ANC visits (14.3%). Although the level of awareness about ANC is similar to that observed in an earlier study in Kaduna, Northern Nigeria (53%),[16] it is much lower than the figure reported from Cameroun (100%). In the latter study, all men interviewed were aware of ANC and each respondent mentioned at least one ANC activity.[17]

The awareness about delivery services was quite low (17.3%), and this may partly explain why most deliveries in northwest Nigeria take place in homes.[7] Also, there appeared to be a wide gap in the proportion of men who approved of hospital delivery (36.1%) and the proportion that actually had their child delivered in the hospital (19.0%). The northwest has the highest proportion of home deliveries as the institutional deliveries reported by the NDHS in 2008, 2013, and 2018 for the region were 8.4%, 12.0%, and 16%, respectively.[7] However, the slightly higher than expected number of institutional deliveries of the last child obtained from this study may be due to information bias in which fathers may report that their last child was delivered in a hospital, knowing that the research was connected with improved health facility utilization. A larger proportion of the men had better aggregate participation (72.2%) in maternal health as compared to their knowledge (9.5%). This is probably because most men perceive that the responsibility for bearing children is a shared effort.[9,18] However, more men approved of ANC, but much fewer approved hospital delivery and post-natal care. Awareness or approval of maternal health services did not translate to discussing these issues with their wives or permitting them to utilize such services. For example, very few (8.3%) of them approved of the use of a family planning method, and previous studies in the same region noted a general negative attitude of men towards family planning.[12,19] This may be related to the fact that men in traditional societies such as we have in Northern Nigeria restrict women's movement, contact, and relationship with unrelated men to the barest minimum. This may be associated with low literacy levels as well as prevailing religious and cultural beliefs.[8,12]

While the level of participation of men in maternity care observed in this study (72.2%) is comparable to the level among men in southwest Nigeria, Oyo (72.5%),[20] higher levels of participation were reported among men in Osun (93.9%),[21] also in southwest Nigeria, India (98.2%),[22] and El Salvador (90%).[23] Male participation varies across counties with poorer levels observed in developing countries.[24,25] As noted in other studies, non-participation among respondents in this study may be due to cultural perceptions and levels of gender sensitivity.[8,9,24,25] Men who accompany their wives to hospitals have more access to reproductive health information, which could result in greater communication between spouses on subjects related to reproductive health and child care. This improved inter-spousal communication could

Table 4. Predictors of men's knowledge and participation in maternal health care.

Predictor	Men's knowledge		Men's participation	
	Adjusted OR (95% CI)	p	Adjusted OR (95% CI)	p
Occupation				
Trading	1.91 (0.44-8.24)	0.38	0.82 (0.41-1.61)	0.56
Civil service	0.73 (0.20-2.62)	0.63	0.50 (0.20-1.24)	0.14
Farming	0.74 (0.20-2.70)	0.65	0.81 (0.39-1.66)	0.56
Others	Referent		Referent	
Educational status				
None/Quranic	Referent		Referent	
Primary	0.83 (2.0-3.43)	0.79	0.39 (0.18-0.81)	0.01*
Secondary	0.54 (0.17-1.73)	0.30	0.46 (0.23-0.92)	0.03*
Tertiary	0.28 (0.09-0.89)	0.03*	0.22 (0.09-0.53)	0.001*
Family type				
Monogamous	0.63 (0.26-1.50)	0.30	___	___
Polygamous	Referent		___	___
Income (₦)				
Undisclosed	3.56 (0.43-29.35)	0.24	5.92 (2.33-15.04)	0.0001*
<5000	0.42 (0.10-1.80)	0.24	7.38 (2.26-24.13)	0.001*
5001-10000	1.71 (0.53-5.52)	0.37	2.52 (1.23-5.14)	0.001*
10001-15000	1.74 (0.45-6.68)	0.42	2.13 (1.01-4.49)	0.046
15001-20000	1.71 (0.53-5.47)	0.37	1.12 (0.50-2.48)	0.79
Above 20000	Referent		Referent	
Religion				
Islam	___	___	0.26 (0.01-12.54)	0.50
Christianity	___	___	Referent	
Ethnicity				
Hausa/Fulani	___	___	10.83 (0.22-523.10)	0.23
Non Hausa/Fulani	___	___	Referent	

enhance pregnancy planning, birth preparedness, and complication readiness, as observed in the Men in Maternity Study (MIMS) India Research Evaluation of Intervention.[22]

Education is probably the most critical determinant of the health of a society, and its benefits transcend generations.[26] It informs knowledge, attitude, and practice, and this was typified in this study as it predicted men's knowledge and participation in maternal health. Studies have shown that education plays a significant role in the understanding and interpretation of health-related knowledge, the protection of health, and the seeking of proper healthcare. It may explain why other factors related to education, such as occupation as a civil servant and better income, were significantly associated with adequate knowledge and good participation in maternal health. Education is intertwined with income and employment because it reduces poverty through increased employment and provides skills for attaining better health. School attendance and literacy affect access to and understanding of health-related knowledge.[27] Close to half (42.9%) of the men had no formal education, and this may have reduced knowledge to promote health and seek proper health care. Studies done in similar African settings, Kano[12,16] and Kenya,[28] also noted that men with formal education were better informed about their wives and children's health. Men with a lesser income had an increased likelihood of poor participation in maternal health than their higher-paid counterparts. Poor households with low income or a low wealth index have been shown to contribute significantly to poor utilization of health services including maternal health services.[29] Primarily and probably the most important responsibility of a man in the African setting, and strongly in the Hausa society, is that of financial provision for his family.[8,13] It is socially unacceptable for a man not to care for his household financially. These norms must have promoted the financial participation of men, as some men only recognized the role of a man in maternal health as financial. A study done across the 36 states of the federation showed that household socioeconomic status affected the utilization of maternal health services, as women from the richest household utilized ante-natal, delivery, and post-natal care more than their counterparts from poorer households.[30]

This study gave insight into men's knowledge and participation in maternal health in northern Nigeria, but the findings may have been limited by some information and social desirability bias. Despite the global recognition and recommendations on the importance of involving men in maternal health services, men's knowledge and participation in maternal health services is still suboptimal in northern Nigeria. Reproductive health service providers need to be oriented, trained and equipped to accommodate male partners and not to focus on women only.

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