Maternal health care in five sub-Saharan African countries

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Abstract

This paper examines inequalities in access to maternal health care services and identifies demographic and socio-economic factors associated with poor maternal health outcomes using data from five Demographic and Health Surveys conducted in Ghana (2003), Kenya (2003), Nigeria (2003), Uganda (2000-2001) and Zambia (2001-2002). The six maternal health care indicators show that rural women are more disadvantaged than urban women. Home deliveries comprise more than half of total births. Getting money for treatment stands out as the most important problem women have in accessing health care. In general, Nigerian women experience poorer maternal health outcomes than women in the other four countries. Maternal educational attainment, urban/rural residence and partner's occupation emerge as the most important predictors of inadequate antenatal care, institutional delivery and current use of any contraceptive method. Female education beyond secondary school level coupled with strenuous efforts to reduce poverty holds the key to keep women off the road to death.

Keywords: Maternal health care, antenatal/postnatal care, contraceptive use.

Resume

Cet article examine des inégalités dans l'accès au service de santé medicaux maternelle et identifie les facteurs démographiques et socio-économiques liés aux consequences de la santé maternelle pauvres en utilisant des données de cinq enquêtes démographiques et de santé conduites au Ghana (2003), au Kenya (2003), au Nigéria (2003), en Ouganda (2000-2001) et en Zambie (2001-2002). Les six indicateurs de santé medicale maternelle prouvent que les femmes rurales sont plus désavantagées que les femmes urbaines. Les accouchements à domicile comportent plus que la moitié des naissances totales. Obtenir l'argent pour les soins ou les traitements ressortent comme le plus important probleme que les femmes ont pour accéder aux services ou soins medicaux. En général, les femmes nigerianes éprouvent des résultats de santé maternelle plus pauvre que les femmes dans les quatre autres pays. L'acquisition de l'education maternelle, la résidence urbaine/ruale et l'occupation du partenaire émergent en tant que facteurs prédictifs les plus importants de soin prénatal, d'accouchements institutionels et de l'utilisation courante de n'importe quelle methode contraceptive inadéqates. L'education femine au delà du niveau d'école secondaire ajouté aux efforts laborieux de réduire la pauvreté détiennent la clé d'eloigner les femmes de

la route vers la mort

Mots clés : Soin prénatal/postnatal, santé maternelle, utilisation contraceptive

Introduction

Poor maternal health remains a major reproductive health concern in most parts of the less developed world, including sub-Saharan Africa. Compared with achievements in the reduction of fertility and infant mortality in the last few decades, relatively less progress has been made in the area of maternal health (Magadi *et al*., 2003). Insufficient maternal health care is largely responsible for the appalling annual toll of maternal deaths that are preventable. Maternal mortality ratios are still unacceptably high in developing countries, particularly in sub-Saharan Africa. It has been estimated that in sub-Saharan Africa, the lifetime risk of maternal death in 2000 is 1 in 16, while for developed regions it is only 1 in 2,800 (World Health Organization, 2004). The estimates of maternal mortality ratios (maternal deaths per 100,000 live births) developed by the World Health Organisation (WHO), United Nations Children Fund (UNICEF) and United Nations Population Fund (UNFPA) for 2000 were 540 in Ghana, 1,000 in Kenya, 800 in Nigeria, 880 in Uganda and 750 in Zambia (WHO, 2004). This excessive maternal mortality is a sheer waste of human lives. The tragedy of the situation is that there are simple and relatively inexpensive strategies such as giving pregnant women tetanus toxoid injections during pregnancy as well as providing antenatal and postnatal care, which can combat excessively high maternal mortality. Reducing maternal mortality means helping mothers to live to participate effectively in the development process. Because women comprise more than half of the total population of most sub-Saharan African countries poor maternal health and care constrain human and sustainable socio- economic development.

The 2000 Millennium Summit like previous several international conferences also identified maternal health as an urgent priority. The fifth Millennium Development Goal (MDG) is to improve maternal health and this is to be achieved by reducing maternal mortality ratio by three-quarters between 1990 and 2015. An assessment of inequalities in access to maternal health care in Ghana, Kenya, Nigeria, Uganda and Zambia particularly in terms of type of place of residence can give an indication of the lopsided development of urban areas which has to be rectified if sustainable and equitable development is to be attained in these countries.

A number of studies have shown how the demographic, socio-economic and socio-cultural variables influence demand for and utilization of maternal and child health services (Tawiah, 1998; Magadi *et al*., 2000; Overbosch *et al*., 2002; Magadi *et al*., 2003; Magadi *et al*., 2004; Ram and Singh, 2006). In particular, maternal education has been found to be a significant predictor of the use of maternal health care services (Mekonnen and Mekonnen, 2003; Addai, 2000; Ikeako *et al*., 2006; Navaneetham and Dharmalingam, 2002).

The importance of socio-cultural factors like religion and marital status cannot be overemphasized. Mekonnen and Mekonnen (2003) found religion to be an important predictor of use of antenatal care in rural Ethiopia. They explain that the negative influence of traditional religion in rural areas may be due to the spiritual explanation of events, including the causes of disease. The perception of events of traditionalists may tie followers to the use of traditional methods of cure and healing and use of modern medicine as a last resort.

The paper has two aims namely, (i) to examine levels of maternal health care in Ghana, Kenya, Nigeria, Uganda and Zambia and (ii) to identify demographic and socio-economic factors associated with poor maternal health outcomes in each country.

Data and methods

The data for this paper are derived from five Demographic and Health Surveys (DHSs) conducted in Ghana (2003), Kenya (2003), Nigeria (2003), Uganda (2000-2001) and Zambia (2001-2002) whose sampling designs are described elsewhere (Ghana Statistical Service, Noguchi Memorial Institute for Medical Research and ORC Macro, 2004; National Population Commission and ORC Macro, 2004; Central Bureau of Statistics [Kenya], Ministry of Health [Kenya] and ORC Macro, 2004; Uganda Bureau of Statistics and ORC Macro, 2001 and Central Statistical Office [Zambia] and ORC Macro, 2003. Availability of comparative data for the period 2000-2003 influenced choice of the five countries. One other reason was to do a comparative analysis of two West African countries and three East African countries. In order to collect information on antenatal care, tetanus toxoid injections, place of delivery, assistance at delivery and postnatal care and contraceptive use, eligible women were asked a number of questions about the survival status of each birth in the past five years before the survey namely; (i) last birth and (ii) next-to-last birth. A total of 3,639 births had occurred to 2,645 women in Ghana, 6,219 births to 3,911 women in Nigeria, 6,102 births to 4,052 women in Kenya, 7,672 births to 4,489 women in Uganda and 6,649 births to 4,402 women in Zambia in the five years preceding the survey.

The six maternal health care indicators employed to describe women's access to maternal health care services are receipt of tetanus toxoid injection during pregnancy, antenatal care provider, person providing assistance at delivery, place of delivery, timing of postnatal care and current contraceptive use. These indicators hold the key to improving maternal health.

The number of independent variables used in the models is not the same for each country. This is because non-significant independent variables were dropped from the models. It should also be mentioned that the same categories of an independent variable were as far as possible used in the models for each country to facilitate comparison of results.

Bivariate analysis was used to describe inequalities in access to maternal health care services in the five countries. Three forward stepwise logistic regression models were run for each country to identify demographic and

socio-economic factors associated with (i) inadequate antenatal care, (ii) institutional delivery and (iii) current use of any contraceptive method. The results of the logistic regression analysis are given as regression coefficients, odds ratio (if greater than unity, the probability of institutional delivery is higher than that of non-institutional delivery), and p values, to assess the relative statistical significance of the selected variables.

Results

Maternal health outcome

Care during pregnancy is essential for diagnosing and treating complications that could threaten the lives of mother and child. Although most life threatening obstetric complications cannot be prevented through antenatal care (ANC), care during pregnancy is an important opportunity to deliver interventions that will improve maternal health and survival during the period immediately preceding and after birth. Table 1 shows percentage distribution of women who have a live birth in the five years preceding the survey by antenatal care provider during pregnancy for the most recent birth, number of antenatal care visits, timing of first antenatal check and tetanus toxoid injection. As expected, in all the five countries rural women are less likely to receive antenatal care than urban women. The rural-urban disparity in access to antenatal care is more pronounced in Ghana than in the other countries. In Ghana, rural women are 7.7 times less likely to make ANC visit than urban women compared to Kenya where it is two times. This finding is contrary to what was found in Southern India where there was no significant rural-urban gap (Navaneetham and Dharmalingam, 2002). Although the percentage of women who do not receive antenatal care is highest in Nigeria (36.9 percent) it is interesting to note that Nigeria also has the largest percentage of doctors providing ANC (21.3 percent). Zambia has the least percentage of medical doctors providing ANC (2.3 percent). In all countries, nurses/midwives/auxiliary midwives are the largest group of antenatal care providers followed by medical doctors.

The importance of ANC in preventing adverse pregnancy outcomes when it is sought early in the pregnancy and continued through to delivery can hardly be overemphasized. Respondents were asked whether they saw anyone for ANC for their most recent birth. The World Health Organisation recommends a minimum of four visits per pregnancy to ensure proper care. Uganda is worse off than any other country. The percentages of women who have at least the minimum of four visits are 41.9 in Uganda, 47.4 in Nigeria, 66.7 in Kenya, 69.4 in Ghana and 71.6 in Zambia.

The proportions of urban and rural women who receive ANC for the most recent birth during the first trimester differ substantially. Early use of ANC is considerably higher among urban than rural women. It is seen in Table 1 that few women receive ANC in the first trimester, particularly in Kenya, Zambia, Uganda and Nigeria (see for example, Magadi *et al*., 2003). Among women who receive ANC, 11.1 percent make their first ANC visit during the first three months of pregnancy in Kenya, 14.3 percent in Zambia, 14.4 percent in Uganda, 16.7 percent in Nigeria and 46.4 percent in Ghana. Table 1 shows

that except in Nigeria (43.4 percent), Kenya (47.8 percent) and Uganda (49.3 percent), more than three out of four women in Ghana (81.1 percent) and two out of three women in Zambia (66.7 percent) receive ANC during the first five months of pregnancy. The findings seem to suggest that safe motherhood initiatives should focus more on rural women by encouraging them to seek ANC early in the pregnancy to forestall any adverse outcomes.

Tetanus toxoid immunization is given pregnant women to protect the new born against neonatal tetanus, a major cause of death among infants. Tetanus toxoid coverage is lowest in Nigeria (50.7 percent) and highest in Kenya (85.4 percent). It is recommended that for full antenatal protection, a pregnant woman should receive two doses of tetanus toxoid. It is seen that half of the women in Ghana and Kenya have received two or more injections, while in Nigeria it is four out of 10 women. Zambia has the smallest proportion (26.7 percent) of women who have received two or more injections.

Some of the factors associated with delivery outcome include the place where a mother delivers a baby and the hygienic practices associated with such delivery as well as the person providing assistance during delivery. One important way to reduce the health risks of mothers and children is to increase the proportion of babies delivered under medical supervision. Table 2 shows the percentage distribution of live births in the five years preceding the survey by place of delivery, the person who provided assistance during delivery, type of place of residence and country. With regard to place of delivery, it is seen that more than one out of two births took place at home. Magadi *et al*., (2000) also found that more than half of deliveries in Kenya in 1993 took place at home. The proportion of births delivered at home varies from 53.4 percent in Ghana to 66.4 percent in Nigeria. Once again, rural births are more disadvantaged. Except in Nigeria, rural births are more than twice likely to be delivered at home than urban births. The percentages of rural births delivered at home are 65.5 in Kenya, 67 in Uganda, 69.7 in Ghana, 71.3 in Zambia and 75.1 in Nigeria. Having more than half of births delivered at home has implications for reducing the risk of complications and infections that cause the death or serious illness of the mother and baby.

The level of assistance received by a woman during delivery can reduce maternal and child deaths and related complications. The proportion of deliveries with a skilled attendant reflects coverage of care for women at the time of delivery. Table 2 shows that the proportions of births assisted by doctors, nurses or midwives are 35.2 percent in Nigeria, 39 percent in Uganda, 41.6 percent in Kenya, 43.4 percent in Zambia and 47.1 percent in Ghana. This is an indication that the level of medically assisted deliveries is low in the five countries. Except in Ghana, relatives who may not be as skilled as medically trained providers assist more than one out of five births. It is interesting to note also that 2.2 percent of births are assisted by no one in Ghana compared to 16.9 per cent of births in Nigeria. The corresponding percentages are 6.7 in Zambia, 8 percent in Kenya and 14.7 in Uganda.

Table 1 Percentage distribution of maternal health outcomes (antenatal care) by type of place of residence and country

Maternal health indicator	Ghana			Nigeria			Kenya			Uganda			Zambia		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Antenatal care provider															
Doctor	20.9	33.7	13.7	21.3	38.5	14.2	17.9	22.5	16.7	9.4	25.5	7.1	2.3	4.6	1.1
Clinical Officer													7.0	1.4	10.0
Nurse/Midwife/auxiliary midwife	71.0	64.2	74.9	36.7	44.2	33.6	70.2	70.7	70.1	83.0	71.3	84.7	84.0	91.6	80.0
Community health extension worker				2.1	0.3	2.8									
TBA/other	1.2	0.4	1.6	2.8	1.6	3.3	1.8	1.0	2.0	1.3	0.1	0.5	2.3	0.1	3.4
No one	6.3	1.2	9.2	36.9	15.0	46.0	9.6	5.4	10.6	6.1	2.9	6.6	4.1	1.9	5.2
Missing	0.6	0.6	0.6	0.1	0.2	0.1	0.6	0.3	0.6	0.2	0.1	0.2	0.3	0.4	0.2
Number of antenatal care visits															
None	6.3	1.2	9.2	36.9	15.0	46.0	9.6	5.4	10.6	6.1	2.9	6.5	4.1	1.9	5.2
1	4.0	0.9	5.7	2.6	2.8	2.5	4.2	2.5	4.7	7.7	2.7	8.4	2.0	1.2	2.4
2 – 3	16.7	8.3	21.3	11.0	8.4	12.1	31.3	22.1	33.7	42.3	24.7	44.8	19.8	14.6	22.5
4+	69.4	84.3	61.0	47.4	71.1	37.6	52.3	66.7	48.6	41.9	66.3	38.2	71.6	79.6	67.5
Don't know/missing	3.7	5.3	2.8	2.1	2.7	1.8	2.6	3.3	2.5	2.1	3.4	2.1	2.5	2.7	2.3
Timing of first antenatal check															
<4 months	46.4	56.0	41.0	16.7	23.4	13.9	11.1	15.8	9.9	14.4	21.4	13.5	14.3	16.3	13.2
4–5 months	34.7	34.4	34.9	26.7	38.1	22.0	36.7	38.4	36.3	34.9	34.5	35.0	52.4	52.6	52.3
6–7 months	10.7	7.7	12.4	16.6	20.4	15.0	37.1	36.2	37.3	37.6	36.4	37.8	26.7	26.6	26.8
8 months +	1.2	0.5	0.8	2.1	2.3	2.1	4.9	3.3	5.3	6.7	4.4	7.0	1.9	1.9	1.9
None	6.3	1.2	9.2	36.9	15.0	46.0	9.6	5.4	10.6	6.1	2.9	6.5	4.1	1.9	5.2
Don't know/missing	0.7	0.5	0.8	1.0	0.8	1.0	0.7	0.9	0.6	0.3	0.4	0.2	0.6	0.6	0.5
Tetanus toxoid injection															
None	14.3	5.6	19.1	47.3	24.7	56.6	13.7	8.4	15.1	29.9	18.4	31.6	24.2	20.6	26.0
One injection	33.1	33.8	32.6	10.5	12.7	9.6	33.5	32.6	33.7	27.8	25.6	28.1	48.1	45.5	44.8
Two or more injections	50.4	56.8	46.8	40.2	60.7	31.8	51.9	57.2	50.6	41.7	55.6	39.8	26.7	23.8	28.1
Don't know/missing	2.3	3.7	1.4	2.0	2.0	2.0	0.8	1.8	0.6	0.5	0.4	0.6	1.1	1.1	1.1
Number of women	2,645	946	1,699	3,911	1,144	2,767	4,052	835	3,217	4,489	560	3,929	4,402	1,499	2,003

Sources:Ghana Statistical Service *et al*., 2004; National Population Commission and ORC Macro, 2004; Central Bureau of Statistics *et al*., 2004; Uganda Bureau of Statistics and ORC Macro, 2001; Central Statistical Office and ORC Macro 2003.

Table 2 Percentage distribution of maternal health outcomes (delivery care) by type of place of residence and country

Maternal health indicator	Ghana			Nigeria			Kenya			Uganda			Zambia		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Place of delivery															
Public sector	36.3	61.0	24.0	18.2	28.5	4.0	26.1	44.9	21.8	36.6	79.2	31.5	34.5	67.2	20.0
Private sector	9.4	17.6	5.3	14.4	25.6	9.8	14.0	25.3	11.4				9.1	11.8	7.9
Home	53.4	20.4	69.7	66.4	44.8	75.1	58.7	29.2	65.5	61.9	19.6	67.0	55.7	20.6	71.3
Other	0.4	0.4	0.3	0.4	0.5	0.3	0.8	0.4	0.9	0.9	0.8	0.9	0.4	0.0	0.5
Missing	0.6	0.6	0.6	0.7	0.5	0.7	0.3	0.2	0.3	0.6	0.4	0.7	0.3	0.3	0.3
Assistance at delivery															
Doctor	6.6	14.6	2.6	6.6	14.1	3.5	11.4	24.0	8.5	3.8	14.3	2.5	3.2	7.2	1.5
Clinical officer													1.3	0.6	1.7
Nurse/midwife/ auxiliary midwife	40.5	65.1	28.3	28.6	44.4	22.2	30.2	48.0	26.0	35.2	66.2	31.5	38.9	71.2	24.4
Community health extension worker				1.1	0.3	1.4									
TBA	31.0	12.1	40.3	20.4	11.6	23.9	28.0	12.5	31.5	17.7	4.3	19.3	11.5	3.4	15.1
Relative/other	19.1	6.2	25.5	25.6	17.9	28.7	22.1	11.1	24.6	28.3	10.6	30.4	38.2	14.4	48.8
No one	2.2	1.5	2.5	16.9	10.6	19.4	8.0	4.2	8.9	14.7	4.4	15.9	6.7	3.0	8.3
Don't know/ missing	0.7	0.6	0.7	0.9	1.0	0.8	0.3	0.1	0.4	0.2	0.4	0.2	0.2	0.2	0.2
Number of births	3,639	1,204	2,435	6,219	1,795	4,424	6,102	1,143	4,959	7,672	821	6,851	6,649	2,050	4,599

Sources: Ghana Statistical Service *et al*., 2004; National Population Commission and ORC Macro, 2004; Central Bureau of Statistics *et al*., 2004; Uganda Bureau of Statistics and ORC Macro, 2001; Central Statistical Office and ORC Macro 2003.

Postnatal care

Postnatal care is one of the important safe motherhood initiatives aimed at reducing maternal deaths and improving the health status of the mother and child. Timing of first postnatal check-up is crucial for effective management of post-delivery complications. The percentage distribution of women who have a non-institutional live birth in the five years preceding the survey by timing of postnatal care for the most recent non-institutional birth by type of place of residence and country is shown in Table 3. The percentages of women who give birth outside a health facility and receive postnatal care are 46.4 in Ghana, 28.2 in Nigeria, 22.8 in Zambia, 19 in Kenya and 7.6 in Uganda. The expected pattern of greater proportion of urban women receiving postnatal care is shown for the five countries. Rural women are less likely to receive postnatal check-up than urban women.

Coverage of postnatal care is much lower than that of prenatal care in the five countries. In Uganda, 5.8 percent of women who give birth outside a health institution receive postnatal care within two days of delivery compared to one in four women in Ghana. Table 3 shows that a smaller proportion of women receive postnatal care after two days of delivery. It may well be that women think that the first two days after delivery are the most crucial period after which the risk of illness or death is more or less negligible. This is more pronounced in Nigeria where 5 percent of women receive postnatal care between three and 41 days after delivery.

Table 3 Percentage distribution of women who had a non-institutional live birth in the five years preceding the survey by timing of postnatal care for the most recent non-institutional birth by type of place of residence and country

Characteristic	Ghana			Nigeria			Kenya			Uganda			Zambia		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Timing of first postnatal check up															
Within 2 days of delivery	25.1	26.3	24.9	23.2	31.3	21.3	10.0	9.3	10.1	5.8	12.7	5.5	11.9	23.0	10.3
3 – 41 days after birth	21.3	33.4	19.2	5.0	7.9	4.2	9.0	11.8	8.7	1.8	4.6	1.7	10.9	24.5	8.8
Don't know/missing	0.4	0.9	0.4	0.6	0.4	0.6	0.2	0.0	0.2				0.1	0.3	0.1
Did not receive postnatal check up	53.2	39.4	55.5	71.3	60.4	73.9	80.8	78.9	81.0	92.4	82.7	92.8	77.2	52.5	81.0
Number of women	1,384	200	1,184	2,566	498	2,068	2,311	225	2,086	2,776	110	2,666	2,370	313	2,057

Sources: Ghana Statistical Service *et al.*, 2004; National Population Commission and ORC Macro, 2004 ; Central Bureau of Statistics *et al.*, 2004; Uganda Bureau of Statistics and ORC Macro, 2001 ; Central Statistical Office and ORC Macro 2003

Contraceptive use

Excessive childbearing in sub-Saharan Africa tends to predispose women to higher risk of maternal death. One of the strategies to curb unacceptably high levels of maternal deaths is to make family planning accessible and affordable particularly to rural women. Table 4 provides information on current contraceptive use by method type by women who have births in the five years preceding the survey. The five countries are characterised by the phenomenon of low contraceptive prevalence and there is a substantial variation in current use of contraception among the countries. Contraceptive use level is higher in East than West Africa. It varies from 14.2 percent in Nigeria to 34.9 percent in Zambia. Nigeria has the lowest percentage of women using modern contraceptive methods. Once again, rural women are more disadvantaged. In Ghana and Kenya, rural women are almost twice less likely to use modern contraception. It is noted that use of inefficient methods (folkloric methods) is very low (less than 1 percent) in Ghana, Nigeria, Kenya and Uganda, while the percentage is relatively high in Zambia (3.4 percent).

Final say on health care

Women's empowerment which was highlighted by the 1994 International Conference on Population and Development (ICPD) is one of the building blocks for the attainment of the Millennium Development Goals, particularly MDG 5 which aims at improving maternal health. The extent to which women have final say on their health care can be used as a rough indicator of their empowerment. The person who has

Table 4 Percentage distribution of current contraceptive use by method type by women with births in the five years preceding the survey according to type of place of residence and country

Characteristic	Ghana			Nigeria			Kenya			Uganda			Zambia		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Method type															
No method	74.7	64.3	79.8	85.8	77.2	89.3	67.7	56.3	70.4	77.5	55.5	80.2	65.1	54.3	69.9
Folkloric method	0.9	0.1	1.4	1.5	0.4	1.9	0.8	1.0	0.7	0.8	0.1	0.8	3.4	1.5	4.2
Traditional method	5.5	7.6	4.5	3.2	6.2	2.0	7.0	5.9	7.3	3.4	3.9	3.4	6.9	3.7	8.3
Modern method	18.9	28.0	14.4	9.5	16.2	6.7	24.5	36.9	21.7	18.3	40.9	15.6	24.6	40.5	17.6
Number of women	2,645	946	1,699	3,911	1,144	2,767	4,052	835	3,217	4,489	560	3,930	4,402	1,499	2,903

Sources: Ghana Statistical Service *et al.*, 2004; National Population Commission and ORC Macro, 2004 ; Central Bureau of Statistics *et al.*, 2004; Uganda Bureau of Statistics and ORC Macro, 2001; Central Statistical Office and ORC Macro 2003.

the final say on a mother's health care has a role to play in the strategy to help women off the road to death. Respondents were asked to indicate who in their households usually has the final say on their own health care. Table 5 shows that less than half of respondents have final say on their own health care. Nigerian women are worse off than women in the other four countries. The percentages of women who have final say on their own health care are 12.8 in Nigeria, 33.1 in Zambia, 36.7 in Ghana, 38.8 in Kenya and 45.3 in Uganda. It is worthy of note that in Nigeria, for almost three out of four women, the husband/partner alone has final say on the woman's health care. In both Kenya and Zambia, it is four out of 10 women.

Whether the person who has final say is the respondent alone or husband/partner alone, rural women are more disadvantaged than urban women. The proportion of cases where a joint decision is made is less than 20 percent. It is relatively low in Nigeria (8.3 percent), Zambia (9.6 percent), 13.1 percent in Kenya, 16.2 percent in Uganda and 19.4 percent in Ghana.

A further analysis was done to examine the relationship between the person who has final say on respondent's health care and the respondent's educational attainment as well as religious affiliation. To a large extent the higher a woman's educational attainment the more likely she has a final say on her health care. In all the countries except Nigeria, more than 50 percent of women with higher education have final say on their own health care. In Nigeria, among women with higher education, the percentage is 23.4 compared with 51.9 percent for women

Table 5 Percentage distribution of women who had a live birth in the five years preceding the survey by who has final say on respondent's own health care, type of place of residence and country

Characteristic	Ghana				Nigeria			Kenya			Uganda			Zambia		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Final say on own health care																
Respondent alone	36.7	40.3	34.9	12.8	15.9	11.5	38.8	49.1	36.5	45.3	59.7	43.6	33.1	39.0	30.4	34.1
Respondent and husband/partner	19.4	19.0	19.7	8.3	11.4	7.0	13.1	13.2	13.0	16.2	12.9	16.6	9.6	6.2	11.1	8.4
Respondent and other person	1.4	1.7	1.2	0.3	0.2	0.3	0.9	0.4	1.0	0.5	1.0	0.5	1.2	1.3	1.2	1.2
Husband/partner alone	34.1	29.4	36.4	74.2	68.1	76.7	40.0	30.3	42.3	34.8	23.4	36.1	39.6	33.7	42.2	36.7
Someone else	8.4	9.6	7.9	4.3	4.0	4.4	6.9	6.8	7.0	2.7	2.8	2.7	16.3	19.4	15.0	12.8
Decision not made/not applicable	0.0	0.4		0.2	0.4	0.1	0.3	0.3	0.3	0.5	0.2	0.6	0.2	0.3	0.2	0.3
Number of women	2,645	946	1,699	3,911	1,144	2,767	4,052	835	3,217	4,489	560	3,929	4,402	1,499	2,903	4,402

whose husband/partner has final say on respondent's health care (figures not shown). Among uneducated women, a larger proportion has husband/partner taking the decision except in Uganda where the reverse is the case. In Nigeria, husband/partner takes decision on health care for 84.9 percent of uneducated women.

With regard to religious affiliation, the analysis shows that a larger proportion of Muslim women have husband/partner deciding on their health care in Nigeria, Kenya and Zambia. The Muslim influence is more pronounced in Nigeria than in Kenya and Zambia. Among Muslim women in Nigeria, 85.1 percent have their husband/partner making the decision on health care compared to 7.9 percent of the respondents themselves (figures not shown). In Uganda, the percentages among Muslim women are 52.8 and 34.3 for respondent alone and husband/partner respectively. Obviously, the situation in Nigeria has serious implications for maternal health care.

Problems in accessing health care

Information on women's perceptions of problems in accessing health care is important for programme design and health planning. Many different factors prevent women from getting medical advice or treatment for themselves. Except in Kenya, all women were asked whether they had problems with knowing where to go, getting permission to go, getting money for treatment, distance to a health facility, availability of transport, not wanting to go alone, lacking a female health provider and negative attitude of health provider. Table 6 presents information on women's perceptions of problems in accessing health care for themselves. Clearly, women

Table 6 Percentage of women who reported they have big problems in accessing health care for themselves when they are sick, by type of problem, type of place of residence and country

Characteristic	Ghana			Nigeria			Uganda			Zambia		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Type of problem												
Knowing where to go for treatment	11.3	8.9	13.6	13.7	5.1	18.3	6.8	4.5	7.3	7.0	5.2	8.1
Getting permission to go for treatment	9.0	7.5	10.3	9.9	4.0	13.0	8.1	5.3	8.7	4.0	3.0	4.7
Getting money for treatment	54.7	43.6	65.2	30.4	16.9	37.6	63.1	45.4	66.6	66.4	58.5	71.6
Distance to health facility	32.7	16.8	47.7	24.4	9.5	32.2	43.9	14.3	49.8	45.5	25.2	59.1
Having to take transport	33.1	16.1	49.2	23.8	8.5	31.8	43.4	18.2	48.5	47.3	28.0	60.3
Not wanting to go alone	20.8	16.4	25.0	14.3	6.0	18.6	21.5	14.4	22.9			
Concern there may not be a female health provider	16.0	12.9	18.9	17.2	7.8	22.1	16.6	16.3	16.7			
Negative attitude of health care provider							42.0	53.1	39.8			
Any of the specified problems	68.2	56.1	79.6	46.6	25.6	57.6	85.2	73.2	87.5	77.3	66.2	84.8
Number of women	5,961	2,755	2,936	7,620	2,629	4,991	7,246	1,207	6,039	7,658	3,073	4,585

Sources:Ghana Statistical Service et al., 2004; National Population Commission and ORC Macro, 2004; Uganda Bureau of Statistics and ORC Macro, 2001; Central Statistical Office and ORC Macro 2003.

have problems in accessing health care services. Nigeria has the least percentage of women citing any of the specified problems, 46.6 percent compared with 68.2 percent in Ghana, 77.3 percent in Zambia and 85.2 percent in Uganda.

With respect to the type of problem encountered in accessing health care, "getting money for treatment" stands out as the most prominent problem, followed by "distance to a health facility" and "having to take transport". The distance effect on health care utilization has been reported elsewhere (Muller *et al*., 1998; Magadi *et al*., 2000; Overbosch *et al*., 2002). The percentages of women who report that getting money for treatment is a big problem range from 30.4 in Nigeria to 66.4 in Zambia. As expected, a greater proportion of rural than urban women have difficulty in getting money for treatment. The disparity is more pronounced in Nigeria where twice as many rural women have difficulty in getting money for treatment. This finding seems to suggest that poverty reduction particularly among rural women holds the key to positive health seeking behaviour. It is noted that negative attitude of health care provider is the fourth most important problem affecting women's access to health care in Uganda.

Predictors of inadequate antenatal care

One logistic regression model was run for each country using the forward stepwise method with five independent variables namely; type of place of residence, birth order, age at birth, highest educational level and partner's occupation and inadequate antenatal care for the most recent birth as the dependent variable. Inadequate antenatal care is defined as less than four antenatal visits during pregnancy with the first visit taking place late, during the last trimester (Magadi, 2000). As shown in Table 7, all five independent variables attain statistical significance in Kenya, while four independent variables are significant in Uganda. In Ghana, Nigeria and Zambia, birth order and age at birth are not significant. Type of place of residence, highest educational level and partner's occupation stand out as significant predictors of inadequate antenatal care in all the five countries. Urban and rural women in Ghana experience the largest disparity in inadequate antenatal care. Rural women in Ghana are three times more likely to have inadequate antenatal care than their urban counterparts. In Zambia, the corresponding value is 1.2 times.

Table 7 also shows that uneducated women are worse off particularly in Nigeria and Kenya. Uneducated women in Nigeria are five times more likely to have inadequate antenatal care (OR = 5.4) than women with higher education. In Uganda, it is women with primary school education who are most disadvantaged. Partner's occupation, which may be a proxy for household resources to finance health care, is an important predictor of inadequate antenatal care in all the five countries. It is more dominant in Ghana where mothers whose partners are in unskilled manual occupations are three times more likely to have inadequate antenatal care than their counterparts whose partners are in professional, technical, managerial and clerical occupations. In Nigeria, women whose partners are in agriculture are two times more likely to

have inadequate antenatal care, compared with mothers whose partners are in professional, technical, managerial and clerical occupations.

Table 7 Logistic regression of inadequate antenatal care by selected characteristics of women and country

Characteristic	Ghana 2003 Logistic coefficient	Odds ratio	P value
Type of place of residence			
Urban (RC)		1.000	
Rural	1.108	3.028	***
Partner's occupation			
Prof. tech. manage, clerical (RC)		1.000	
Sales and services	0.019	1.019	
Agriculture	0.905	2.472	***
Skilled manual	0.793	2.210	**
Unskilled manual	1.120	3.065	
Level of education			
No education	0.320	1.377	*
Primary	0.191	1.210	*
Secondary and higher (RC)		1.000	
Constant -2.887	Model ^{2} 185.079	Df 7	N 2,330

Characteristic	Nigeria 2003 Logistic coefficient	Odds ratio	P value
Age at birth			
Under 20 years	0.295	1.343	
20 – 34 years (RC)		1.000	
35 years and over	-0.258	0.772	
Type of place of residence			
Urban (RC)		1.000	
Rural	0.334	1.397	*
Level of education			
No education	1.686	5.398	***
Primary	1.113	3.043	**
Secondary	0.464	1.590	
Higher (RC)		1.000	
Partner's occupation			
Prof. tech. manage, clerical (RC)		1.000	
Sales and services	0.380	1.463	*
Agriculture	0.741	2.097	***
Unskilled manual	0.211	1.235	
Constant -2.2529	Model ^{2} 203.228	Df 9	N 1,723

Characteristic	Kenya 2003 Logistic coefficient	Odds ratio	P value
Age at birth			
Under 20 years	0.355	1.426	**
20-34 (RC)		1.000	
35 years and over	0.065	1.067	
Birth order			
1	-0.513	0.599	***

2 – 5 (RC)			1.000	
6 – 14		0.085	1.089	
Type of place of residence				
Urban (RC)			1.000	
Rural		0.469	1.599	***
Level of education				
No education		1.036	2.818	***
Primary		0.991	2.695	***
Secondary		0.723	2.060	***
Higher (RC)			1.000	
Partner's occupation				
Prof. tech. manage. clerical (RC)			1.000	
Sales and services		0.476	1.609	**
Agriculture		0.538	1.712	***
Domestic service		0.944	2.570	**
Skilled manual		0.355	1.426	
Unskilled manual		0.599	1.821	***
Constant -1.959	Model ^{2} 157.534	Df 13	N 3,017	

Characteristic	**Uganda 2□□□-2□□1**		
	Logistic coefficient	**Odds ratio**	**P value**
Birth order			
1	-0.366	0.693	***
2 – 5 (RC)		1.000	
6 – 13	-0.129	0.879	
Type of place of residence			
Urban (RC)		1.000	
Rural	0.700	2.014	***
Level of education			
No education	1.112	3.042	***
Primary	1.158	3.182	***
Secondary	0.429	1.536	
Higher (RC)		1.000	
Partner's occupation			
Prof. tech. manage. clerical (RC)		1.000	
Sales and services	0.204	1.226	
Agriculture	0.591	1.806	***
Manual	0.529	1.697	***
Constant -1.681	Model ^{2} 238.415	Df 9	N 3,664

Characteristic	**Zambia 2□□1 – 2□□2**		
	Logistic coefficient	**Odds ratio**	**P value**
Type of place of residence			
Urban (RC)		1.000	
Rural	0.217	1.242	*
Level of education			
No education	0.567	1.764	***
Primary	0.448	1.565	***
Secondary	-0.974	0.377	
Higher (RC)		1.000	
Partner's occupation			
No work	-0.116	0.891	

Prof. tech. manage. clerical (RC)		1.000	
Agriculture	0.584	1.794	*
Domestic service	0.477	1.612	
Sales and services	0.349	1.418	
Manual	0.195	1.215	
Constant -2.010	Model ^{2} 117.071	Df 9	N 3,827

RC is reference category ; * p<0.05, ** p<0.01, *** p<0.001

Predictors of institutional delivery

Table 8 presents predictors of institutional delivery of the most recent birth for each country. It is only in Nigeria where all the six independent variables attained statistical significance. In Kenya, five of the six independent variables are significant compared to four in Ghana, Uganda and Zambia. The probability of institutional delivery increases with increasing maternal education. This finding confirms that of Magadi *et al*., 2003, which examined delivery care in urban sub-Saharan Africa in the 1990s. Ikeako *et al*., 2006 also concluded that formal education is still a significant predictor of whether women deliver within or outside health institutions in Enugu, south-eastern Nigeria. Except in Ghana, the disparities in institutional delivery among educational groups are more pronounced in Kenya, Nigeria, Uganda and Zambia. In Kenya, women with higher education are 10 times more likely to deliver in a health facility than their uneducated counterparts. As expected, type of place of residence is a predictor of institutional delivery. Urban women are more likely to deliver in a health facility than rural women. Mothers in urban areas in Ghana are five times more likely to deliver in a health facility like government hospital, government health centre, private hospital/clinic and maternity home, (OR = 5.13) than mothers in rural areas. The disparity is least in Nigeria (OR = 2.22).

Religious affiliation is a significant predictor of institutional delivery in Ghana, Kenya and Nigeria where Christian mothers are three times more likely to deliver in an institution (OR = 3.24) than Muslim women after controlling for age at birth, birth order, type of place of residence, level of education and partner's occupation. In all the five countries, partner's occupation emerges as a significant predictor of institutional delivery. Women whose partners are in agricultural occupation are more disadvantaged, while women whose partners are in professional, technical, managerial and clerical occupations are better off.

Table 8 □ogistic regression of institutional delivery by selected characteristics of women and country

Characteristic	Ghana 2□□3 Logistic coefficient	Odds ratio	P value
Type of place of residence			
Urban	1.635	5.128	***
Rural (RC)		1.000	
□evel of education			
No education (RC)		1.000	
Primary	0.185	1.203	

Secondary and higher	0.842	2.321	***
Religion			
No religion	0.125	1.133	
Catholic	0.136	1.146	
Christian	0.445	1.560	**
Moslem (RC)		1.000	
Traditional	-0.376	0.687	
Partner's occupation			
Prof. tech. manage. clerical	1.035	2.816	***
Sales and services	1.126	3.083	***
Agriculture (RC)		1.000	
Manual	0.359	1.432	**
Constant -1.549	Model ^{2} 684.368	Df 10	N 2,328

Characteristic	Nigeria 2□□3 Logistic coefficient	Odds ratio	P value
Age at birth			
Under 20 years	-0.728	0.483	**
20 – 34 years (RC)		1.000	
35 years and over	0.502	1.652	**
Birth order			
1	0.544	1.723	**
2 – 5 (RC)		1.000	
6 – 13	-0.551	0.576	**
Type of place of residence			
Urban	0.799	2.222	***
Rural (RC)		1.000	
□evel of education			
No education (RC)		1.000	
Primary	0.634	1.886	***
Secondary	1.163	3.198	***
Higher	1.907	6.730	***
Religion			
Christian	1.176	3.240	***
Islam (RC)		1.000	
Traditional	0.718	2.050	
Partner's occupation			
Prof. tech. manage. clerical	0.617	1.853	***
Sales and services	0.251	1.285	
Agriculture (RC)		1.000	
Unskilled manual	0.899	2.457	***
Constant -1.820	Model ^{2} 504.053	Df 13	N 1,720

Characteristic	Kenya 2□□3 Logistic coefficient	Odds ratio	P value
Birth order			
1	*0□949*	*2□583*	***
2 – 5 (RC)		1.000	
6 – 13	-0.514	0.598	***
Type of place of residence			
Urban	1.310	3.707	***
Rural (RC)		1.000	
□evel of education			
No education (RC)		1.000	
Primary	0.654	1.924	***
Secondary	1.594	4.923	***
Higher	2.360	10.589	***

Religion					
Christian			0.376	1.457	*
Muslim (RC)				1.000	
No religion			-0.190	0.827	
Partner's occupation					
Prof. tech. manage. clerical			0.939	2.559	***
Sales and services			0.486	1.625	***
Agriculture (RC)				1.000	
Domestic service			0.434	1.543	
Skilled manual			0.443	1.557	*
Unskilled manual			0.292	1.340	**
Constant -2.000	Model ^{2} 800.145	Df 13	N 3,065		

Characteristic	Uganda 2□□3		
	Logistic coefficient	Odds ratio	P value
Birth order			
1	0.612	1.844	***
2 – 5 (RC)		1.000	
6 – 13	0.070	1.072	
Type of place of residence			
Urban	1.555	4.737	***
Rural (RC)		1.000	
□evel of education			
No education (RC)		1.000	
Primary	0.739	2.093	***
Secondary	1.629	5.101	***
Higher	1.803	6.068	***
Partner's occupation			
Prof. tech. manage. clerical	0.716	2.046	***
Sales and services	0.680	1.975	***
Agriculture (RC)		1.000	
Manual	0.637	1.891	***
Constant -1.748	Model ^{2} 740.756	Df 9	N 3,650

Characteristic	Zambia 2□□1 – 2□□2		
	Logistic coefficient	Odds ratio	P value
Birth order			
1	0.369	1.446	**
2 – 5 (RC)		1.000	
6 – 13	0.011	1.011	
Type of place of residence			
Urban	1.489	4.433	***
Rural (RC)		1.000	
□evel of education			
No education (RC)		1.000	
Primary	0.639	1.894	***
Secondary and higher	1.761	5.819	***
Partner's occupation			
No work	0.657	1.928	**
Prof. tech. manage. clerical	1.675	5.339	***
Agriculture (RC)		1.000	
Domestic service	0.552	1.737	***
Sales and services	1.115	3.050	***
Constant -1.930	Model ^{2} 1310.220	Df 9	N 3,781

RC is reference category, * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Predictors of current use of any contraceptive method

The predictors of current use of any contraceptive method are shown in Table 9. Level of education is a significant predictor of current use of any contraception in all the countries. Largest disparities in current use of any contraception are experienced in Nigeria and Kenya where women with higher education are almost nine times more likely to use any contraceptive method (OR = 8.7) than their uneducated counterparts. Discussion of family planning with partner is also a significant predictor of current use of any contraceptive method in Ghana and Nigeria, whereas it is husband's approval of family planning in Kenya and Uganda. In Nigeria, women who discuss family planning with their partners more often are almost four times more likely to use any contraceptive method (OR = 3.8) than women who never discuss family planning with their partners. As expected, husband's approval of family planning is a significant predictor of current use of any contraceptive method in Kenya and Uganda as shown in Table 9. The odds ratio for Kenya women whose husband approve of family planning is 3.3 compared with corresponding values of 2.0 and 2.0 for Ugandan and Zambian women respectively. This finding suggests active male involvement in family planning issues.

Except in Nigeria, type of place of residence is also a significant predictor of current use of any contraceptive method. This finding is more of a reflection of availability of health facilities and contraception in urban areas and not urban residence per se. The relatively low contraceptive use in Nigeria (14.2 per cent) may partly explain why type of place of residence is an insignificant predictor. It is seen that larger disparities are characteristic of Uganda and Zambia. The odds ratios for urban women in Uganda and Zambia are 2.3 and 1.8.

Table 9 Logistic regression of current use of any contraceptive method by selected characteristics of women and country

Characteristic	Ghana 2□□3		
	Logistic coefficient	Odds ratio	P value
Age at birth			
Under 20 years	-0.664	0.515	**
20 – 34 years (RC)		1.000	
35 years and over	-0.072	0.930	
Type of place of residence			
Urban	0.421	1.524	***
Rural (RC)		1.000	
Level of education			
No education (RC)		1.000	
Primary	0.635	1.886	***
Secondary and higher	0.679	1.972	***
Number of living children	0.185	1.203	*
Desire for more children			
Wants within two years (RC)		1.000	
Wants after 2+ years	0.394	1.483	*
Wants, unsure timing	-0.232	0.793	
Undecided	0.439	1.551	

Wants no more	-0.050	0.951	
Infecund/never had sex	1.472	4.360	***
Husband approves f.p.			
Disapproves (RC)		1.000	
Approves	0.630	1.885	**
Don't know	0.050	1.051	
Discussed f.p. with partner			
Never (RC)		1.000	
Once or twice	0.900	2.460	***
More often	1.505	4.504	***
Respondent approves f.p.			
Disapprove (RC)		1.000	
Approves	0.983	2.672	**
Don't know	0.622	1.863	
Constant -4.280	Model ^{2} 368.755	Df 17	N 2,155

Characteristic	Nigeria 2□□3		
	Logistic coefficient	Odds ratio	P value
□evel of education			
No education (RC)		1.000	
Primary	0.803	2.232	***
Secondary	0.999	2.715	***
Higher	1.821	6.179	***
Number of living children	0.202	1.224	*
Visited by f.p. worker last 12 months			
No (RC)		1.000	
Yes	0.501	1.650	**
Visited health facility last 12 months			
No (RC)		1.000	
Yes	-0.294	0.745	*
Desire for more children			
Wants within two years (RC)		1.000	
Wants after 2+ years	0.432	1.540	**
Wants, unsure timing	0.408	1.503	
Undecided	-0.273	0.761	
Wants no more	0.458	1.580	*
Husband approves f.p			
Disapproves (RC)		1.000	
Approves	0.608	1.836	**
Don't know	-0.119	0.888	
Discussed f.p. with partner			
Never (RC)		1.000	
Once or twice	0.648	1.911	***
More often	1.334	3.796	***
Respondent approves f.p.			
Disapprove (RC)		1.000	
Approves	1.199	3.316	***
Don't know	-0.907	0.404	
Constant -4.419	Model ^{2} 552.661	Df 16	N 2,147

Characteristic	Kenya 2□□3		
	Logistic coefficient	Odds ratio	P value
Age at birth			
Under 20 years	-0.462	0.630	**
20 – 34 years (RC)		1.000	
35 years and over	0.218	1.243	
Birth order			
1	0.042	1.043	
2 – 5 (RC)		1.000	
6 – 13	-0.657	0.518	***
Type of place of residence			
Urban	0.377	1.457	**
Rural (RC)		1.000	
□evel of education			
No education (RC)		1.000	
Primary	0.846	2.331	***
Secondary	1.484	4.409	***
Higher	2.163	8.699	***
Religion			
Christian	0.624	1.866	**
Muslim (RC)		1.000	
No religion	0.732	2.078	*
Number of living children	0.283	1.328	**
Desire for more children			
Wants within two years (RC)		1.000	
Wants after 2+ years	0.231	1.260	
Wants, unsure timing	0.231	1.259	
Undecided	-0.876	0.417	*
Wants no more	0.271	1.311	
Husband approves f.p			
Disapproves (RC)		1.000	
Approves	1.186	3.275	***
Don't know	-0.669	0.512	**
Partner's occupation			
Prof. tech. manage. clerical	0.445	1.560	**
Sales and services	0.239	1.270	*
Agriculture (RC)		1.000	
Domestic service	0.557	1.745	
Skilled manual	0.213	1.237	
Unskilled manual	0.271	1.312	*
Constant -3.566	Model ^{2} 636.867	Df 22	N 2,686

Characteristic	Uganda 2□□□ – 2□□1		
	Logistic coefficient	Odds ratio	P value
Type of place of residence			
Urban	0.840	2.316	***
Rural (RC)		1.000	
□evel of education			
No education (RC)		1.000	
Primary	0.266	1.305	*
Secondary	1.806	2.963	***
Higher	1.579	4.852	***

Number of living children	0.377	1.458	***
Husband approves f.p			
Disapproves (RC)		1.000	
Approves	0.708	2.029	***
Don't know	-0.314	0.731	
Discussed f.p. with partner			
Never (RC)		1.000	
Once or twice	-0.088	0.915	
More often	0.333	1.395	*
Respondent approves f.p.			
Disapprove (RC)		1.000	
Approves	0.576	1.778	**
Don't know	-0.355	0.701	
Partner's occupation			
Prof. tech. manage. clerical	0.208	1.231	
Sales and services	0.364	1.439	**
Agriculture (RC)		1.000	
Skilled manual	0.577	1.780	***
Unskilled manual	-0.023	0.978	
Constant -3.479	Model ^{2} 493.281	Df 15	N 3,154

Characteristic	Zambia 2□□1 – 2□□2 Logistic coefficient	Odds ratio	P value
Age at birth			
Under 20 years	0.071	1.074	
20 – 34 years (RC)		1.000	
35 years and over	-0.331	0.718	*
Type of place of residence			
Urban	0.582	1.789	***
Rural (RC)		1.000	
□evel of education			
No education (RC)		1.000	
Primary	-0.137	0.872	
Secondary	0.206	1.229	
Higher	0.370	1.448	
Number of living children	0.422	1.525	***
Desire for more children			
Wants within two years (RC)		1.000	
Wants after 2+ years	0.495	1.641	***
Wants, unsure timing	-0.081	1.084	
Undecided	-0.615	0.541	*
Wants no more	0.108	1.114	
Husband approves f.p			
Disapproves (RC)		1.000	
Approves	0.693	1.999	***
Don't know	0.216	1.241	
Discussed f.p. with partner			
Never (RC)		1.000	
Once or twice	0.516	1.676	***
More often	0.619	1.857	***
Respondent approves f.p.			
Disapprove (RC)		1.000	

Approves	0.716	2.045	***
Don't know	0.186	1.204	
Partner's occupation			
No work	-0.806	0.447	**
Prof. tech. manage. clerical	0.223	1.250	
Agriculture (RC)		1.000	
Domestic service	-0.032	0.969	
Sales and services	-0.199	0.820	
Skilled manual	0.224	1.251	
Unskilled manual	0.909	2.481	*
Constant -3.285	Model ^{2} 434.489	Df 23	N 3,262

RC is reference category, * p<0.05, ** p<0.01, ***p<0.001

Discussion and conclusion

There are wide variations in inequalities according to the six maternal health care measures among the countries. In general, rural women are much worse off than urban women with regard to the six maternal health care indicators. For example, in Nigeria, the proportion of rural births that does not receive any antenatal care is 46 per cent compared to 15 per cent for urban births. Home deliveries are more in rural than urban areas. They account for 65.5 per cent of rural births in Kenya, 67 per cent of rural births in Uganda, 69.7 per cent of rural births in Ghana, 71.3 per cent of rural births in Zambia and 75.1 per cent of births in Nigeria. Delivering more than half of total births at home has serious implications for reducing the risk of pregnancy complications and infections that cause the death or serious ill health of the mother and baby.

The rural-urban differences in the maternal health care indicators are due in part to physical inaccessibility of health services in many rural areas of these countries and hence the relevance of service-related factors cannot be underestimated. The urban bias in the allocation of and concentration of public and private health care resources should give way to equitable distribution of infrastructure and other social services such as education, health, housing and potable water.

The interesting finding that less than half of women have final say on their own health care is a serious concern and shows that these countries have not made much headway in respect of women's empowerment since 1994 ICPD and the 1995 World Conference on Women. The analysis strongly suggests that maternal educational attainment and religion make a world of difference as to who has final say on the respondent's own health care. Education is likely to enhance female empowerment so that women develop greater confidence and capabilities to make decisions regarding their own health (Raghupathy, 1996). In all countries except Nigeria, more than half of women with higher education have final say on their own health care. The analysis shows that a larger proportion of Muslim women have husband/partner deciding on respondent's own health care in Nigeria, Kenya and Zambia. The Muslim religion as a way of life seems to be more pervasive in Nigeria than in Kenya and Zambia. Among Muslim women in Nigeria, 85.1 per cent have their husband/partner making the deci-

sion on respondent's own health care compared to 7.9 per cent of respondents who decide for themselves.

"Getting money for treatment" stands out as the most important problem women have in accessing health care. The other two related problems are "distance to health facility" and "having to take transport". This finding corroborates that of Magadi *et al*., (2003) which suggests that poverty is possibly a hindrance to receiving adequate maternal health care. Poverty reduction strategies are likely to play a critical role in improving maternal health care particularly among rural women who are more disadvantaged.

Maternal educational attainment, type of place of residence and partner's occupation stand out in all the models as the critical variables to be manipulated in any attempt to improve maternal health care. Lower maternal educational attainment is consistently associated with poorer maternal health outcomes. In Kenya, women with higher education are 10.6 times more likely to deliver in a health facility than their uneducated counterparts, while in Nigeria uneducated women are 5.4 times more likely to have inadequate antenatal care than women with higher education. The strong education effect is consistent with other studies which have found maternal education to have an important impact on the use of maternal health care services (Addai, 2000; Mekonnen and Mekonnen, 2003; Ikeako *et al*., 2006). Partner's occupation, which can be used as a proxy for household income and socio-economic status, is associated with antenatal care and institutional delivery. For example, Ghanaian women whose husbands are in unskilled manual occupations are three times more likely to have inadequate ANC than their professional, technical, managerial and clerical counterparts. This seems to suggest that lack of financial resources hinders use of antenatal care services by pregnant women. This finding supports the study of Stekelenburg *et al*. 2004 which found that women who were able to pay user fees were more likely to deliver in a clinic in Kalabo, Zambia. The Ghana Government's directive to provide free maternity services at public health facilities to pregnant women with effect from July 2008 is likely to yield health dividends.

The analysis indicated that the percentage of women who do not receive antenatal care ranges from 4.1 in Zambia to 36.9 in Nigeria. Pregnant women should be encouraged to avail themselves of antenatal care services because antenatal care services have been found to influence decision about the place of delivery (Bloom *et al*., 1999; Chandiok *et al*., 2006). The finding that delivery of more than half of total births takes place at home coupled with low modern contraceptive use seems to suggest that these five countries have a long way to travel in respect of the attainment of MDG 5 by 2015 which is only four years from now. The maternal health care indicators suggest that Ghana and Kenya are the pacesetters, while Nigeria trails behind among the countries examined.

The policy measures that emerge from the analysis are that conscious efforts should be made by governments in these countries to promote female education up to at least secondary school level coupled with a serious

effort to initiate programmes and activities to reduce poverty. Free maternity services including free institutional delivery deserve serious consideration of governments. The lop-sided distribution of health facilities and services in favour of urban areas should be rectified by governments in these countries so as to make these facilities and services not only available but more importantly affordable to the rural people.

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