

# *The use of Maternal Health Care Services*

*Socio-economic and demographic factors—Nyanza, Kenya*

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## *Abstract*

This study seeks to identify factors that either enhance or constraint the utilisation of maternal health care services. Few studies in the past focused on the problem of maternal health and use of maternal health services in Kenya, and especially in Nyanza province. An outcome of the research will be to answer the following questions with an illustration from Homa Bay district: How many women use maternal health care services? Do the socio-economic and demographic characteristics have any role in the utilisation patterns?

## *Résumé*

Cette étude tente d'identifier les facteurs qui favorisent ou au contraire limitent l'utilisation des services de santé maternelle. Peu d'études ont porté spécifiquement sur la santé maternelle et sur l'utilisation de ces services au Kenya, et en particulier dans la province de Nyanza. Notre étude, qui porte sur le cas de Homa Bay, a pour objectif de répondre aux questions suivantes : combien de femmes utilisent les services de santé maternelle ? est-ce que les caractéristiques démographiques ou socio-économiques jouent un rôle dans les modes d'utilisation de ces services ?

## *Introduction*

Pregnancy-related complications are a leading cause of death among women in the reproductive ages (15–49) in developing countries. In Kenya, the incidence of maternal mortality is estimated to be 365 deaths per 100,000 live births (MOH, 1997). Some sub-Saharan African countries record extremely high maternal mortality rates, for example, Mali, 1750; Somalia, 1100; Ghana, 1000

deaths per 100,000 live births. These are in contrast to low rates in developed countries, for example, 5 in Sweden; 3 in Denmark, Norway and Israel (Population Action International, 1995).

Studies indicate that greater numbers of maternal deaths could be avoided with widespread accessibility and utilisation of maternal health care services. Inadequate medical facilities, treatment of complications and inadequate medical personnel contribute between 10% and 45% of all maternal deaths. Complications arising from maternal obstetric conditions need not lead to death; they occur mainly because of severe socio-economic deprivations that are prevalent in developing countries. However, the socio-economic factors do not operate in isolation, but in conjunction with access to health services and ease of transportation (MOH, 1997; Obermeyer and Potter, 1991).

Although the primary health care strategies that have been implemented in Kenya since independence have positively impacted on child health, maternal health has lagged behind (MOH, 1997). This led to the establishment of the Maternal Health and Safe Motherhood Programme in 1987. The objectives of this programme are to ensure that women are healthy through pregnancy and childbirth. It is now over 10 years since the 1987 Safe Motherhood Conference in Nairobi, yet maternal death rates in Africa show no sign of decreasing and may even be on the increase in some countries (Rosen and Conly, 1998).

Suggestions of the most effective ways of reducing the risk of death among pregnant women are:

- increasing accessibility and use of essential obstetric services.
- increasing awareness of the signs and symptoms of birth-related complications among women, their families and traditional birth attendants.
- improving the availability and quality of services at health referrals. Increased use of essential services when complications arise would significantly reduce the number of maternal deaths (MOH, 1997; McCarthy and Maine, 1992).

Maternity services often make the difference between life and death (MOH, 1997). These should be accessible and affordable to women on a 24-hour basis since many pregnancy complications occur without warning. Although the services may be accessible and available, they may not always be used due to lack of information or other constraints.

However, the single most important proximate determinant of maternal health and survival is the extent to which women have access to and utilise

high quality maternal health care services (UN, 1998). The Programme of Action of the ICPD 1994 recognised the above fact and states that;

*“all countries must expand the provision of maternal health services... All births should be assisted by trained persons, preferably nurses and midwives, but at least by trained birth attendants”* (UN, 1995, chapter 1, Resolution 1).

Therefore, interventions to improve reproductive health outcomes need to include ways of making maternal health services available while taking into account women's various socio-economic and cultural backgrounds. Maternity care essentially involves the care given to a woman in her expectant state, at delivery and during the postpartum period. In Kenya, it may entail both modern and traditional care. Modern maternity care comprises antenatal pregnancy check ups, tetanus toxoid vaccinations, professional assistance at delivery, advice on diet and hygiene, and care after delivery (NCPD & MI, 1994; UNICEF, 1998). Antenatal care (ANC) is a very important component of ensuring safe motherhood. Ideally, women ought to have 12 to 13 visits to the antenatal clinic (NCPD & MI 1994; UNICEF 1998)<sup>1</sup>.

### *Provision of Maternity Health Care Services (MHCS)*

The provision of affordable and accessible care can affect maternal health through level of usage of antenatal care, safe delivery and essential obstetric care. The provision of care by the public sector has been reviewed regularly to make the services more relevant. The most recent of them was in 1996, specifically focusing on health personnel. A lot of emphasis is also laid on safe motherhood (MOH, 1997). For instance, one of the long-term objectives of the health sector as stipulated in the Alma Ata Declaration of the 1994–1996 national development plan was to increase coverage and accessibility of health services with active community participation (MPND, 1996). The previous plan's (1989–1993) overall objective was to promote the health of mothers and children. During the period, a number of activities were undertaken to meet the set objectives. Among them was the training of traditional birth attendants (TBAs) and strengthening of district health management teams (MOH, 1996). However, it appeared that although significant gains were made in improving child health, the case was not so for maternal health.

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<sup>1</sup> Obstetricians generally recommend that antenatal visits be made monthly to the 28<sup>th</sup> week, fortnightly to the 36<sup>th</sup> week and then weekly until the 40<sup>th</sup> week (until birth). This optimum schedule translates to a total of at least 12–13 visits during the pregnancy.

Currently, nurses and midwives provide most of the MHCS especially in rural areas where there are very few doctors. Moreover, 60% of the doctors are in private practice sector and are based in the urban areas. TBAs also provide health services in most of the rural country, although their actual numbers are not known. They mostly practice traditional medicine. Their practices are often influenced by superstitions and taboo in the locality.

Regarding regional distribution of services, 84% of doctors and 56% of health personnel are urban based. Almost 25% of health personnel are found in Nairobi. There are seven clinical officers for every 100,000 residents of Nyanza province while there are 15 for North Eastern Province. This shows the skewed nature of health service provision in the country (MOH, 1997). Generally, almost 40% of the population in Kenya live within 4 kilometres of a health facility while 75% are within 8 kilometres. The Kenya Demographic and Health Survey (KDHS) of 1993 revealed that 50% of the population was within 5 kilometres of a health facility offering antenatal care. In rural areas, health facilities offering laboratory and delivery services can be up to 20 to 25 kilometres away<sup>2</sup>.

In Kenya, nearly all pregnant women access antenatal care (ANC), with just over 50% starting clinic before 6 months of pregnancy. One-third begin at 7 to 8 months (NCPD & MI, 1994). More than two-thirds of the women have more than four antenatal visits and about one quarter have 2 to 3 visits. Only 4% of pregnant women do not attend antenatal clinic (NCPD & MI, 1994). Most women sought antenatal care from nurses or midwives. Doctors offered 23% and TBAs 0.7 per cent of antenatal care (NCPD & MI, 1994). The government is the main provider of MCH services in Kenya, and these are provided through the Maternal and Child Health/Family Planning (MCH/FP) facilities (MOH, 1996). In the public sector, antenatal care and immunisation are provided free of charge.

### *Problem statement*

Demographers are interested in maternal health because of its influence on maternal mortality, as an indicator of the success of maternal health programmes and as an explanation for sex differentials in mortality. Research has shown that adequate use of antenatal and delivery services can reduce

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<sup>2</sup> These disparities may contribute to the significant role played by unqualified traditional health practitioners and birth attendants in health care delivery.

maternal deaths by between 10 to 45%, especially in the developing countries where maternal mortality is highest (WHO (A), 1997). The study seeks to identify factors that influence the use of various maternal health care services in Nyanza province. There is inadequate information at present regarding the level of utilisation of MCH services in the province. Similarly, the factors that affect the utilisation of the services have not been identified and are poorly understood.

It is reported that large proportions of pregnant women in Kenya seek antenatal care from health facilities. For 95% of births occurring during the five years preceding the 1993 KDHS survey, the expectant mother sought some antenatal care. However, over half of the recorded births in Kenya occur at home with rural births amounting to 60% (NCPD & MI, 1994). One in ten births occur without the mother having any assistance. Furthermore, these patterns have not changed significantly between 1989 and 1993. The rural women are more likely to deliver without assistance. High proportions of such births are recorded to occur in Western, Coast and Nyanza province. Therefore, such women are more at risk of deaths that can be prevented with effective use of modern medical facilities (NCPD & MI, 1994).

Nyanza Province records one of the highest levels of maternal mortality in the country, of over 1000 deaths per 100,000 live births in some areas (MOH, 1997). The attendance of antenatal and delivery services is also very low in the region. On average, the number of visits by 1993 was only 4.7 as opposed to the recommended 12 visits. Although availability of health care is very important, its effectiveness can only be achieved through utilisation of existing services (Nginya, 1980). In Kenya, maternal health care services are available but their use is low (NCPD & MI, 1994). Currently, it is not known why most women do not use maternal health care services. Even in urban areas where physical accessibility is less of a constraint, about one-fourth of all deliveries still occur away from health facilities. This finding is disturbing as it indicates that a significant proportion of women fail to seek delivery by trained health workers. The risk of complications and deaths are highly increased under such situations (MOH, 1997).

The increasing focus on women's reproductive health and primary health care is a pointer to the need for better information and data than is currently available. Lack of adequate data hampers the development of appropriate health interventions and responsive strategies especially in countries like Kenya where maternal mortality is high. The study will generate useful information regarding utilisation of maternal health care and their determinants.

For a long time in Kenya, maternal and child health were combined at hospitals and service delivery points. This was in the hope that no time would be wasted in locating the two services at their respective points. The effect was that more emphasis was placed on childcare at the expense of maternal health (MOH, 1996). Even demographic and health surveys seem to lay more emphasis on child health.

The study is useful for Nyanza Province because if the factors influencing maternal health care service use are established, appropriate strategies can be devised to enhance the use of maternal care services in the province. That way, maternal morbidity and mortality could be reduced. The concern with prevention of early death, hence a prolonged healthy life for women is part of the International Safe Motherhood Initiative of 1987, which Kenya endorsed. One of its objectives was to “*flag the major information gaps on maternal mortality and morbidity in Kenya*” (MOH, 1997). Furthermore, the Cairo International Conference on Population and Development (ICPD) of 1994 placed a lot of emphasis on reproductive health, of which safe motherhood is a component. Kenya adopted the plan of action on reproductive health. The government recognises the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant.

This is also an important research area because it is reported that deaths of women due to pregnancy related causes account for the majority of deaths that occur to adult female population. Rural areas record the highest incidence of maternal mortality in Kenya (MOH, 1997). There is need to understand factors that are responsible for the maintenance of this phenomenon. This research anticipates to shed light on the same through the study of the determinant factors of utilisation of maternity care, since these are identified as determinants of maternal deaths (MOH 1997; McCarthy & Maine, 1992).

### *Conceptual and operational framework*

Maternal health care depends primarily on the socio-economic and cultural milieu in which a woman lives. The World Health Organisation Expert Committee on Maternal and Child Health (MCH) stated that if MCH care programmes were to be effective, they must concern themselves not only with immediate causes of morbidity and mortality, but with the social organisations and values that characterise the populations (WHO, 1997a). This is because

pregnancy and childbirth in Africa are entrenched in beliefs and customs that affect health and health care sought.

The resources available both to the family and community determine the access that women have to maternal health care services. The cultural set up also influences health care behaviour and use of health services. Modern maternal health care services may be available but if culture prohibits some practices, women may not make use of them.

Kroeger (1983), identified two broad frameworks for analysing health-seeking behaviour. The pathway model that uses qualitative methods of investigation is anthropological. The method identifies a sequence of steps from recognition of complications to use of health facilities and the social and cultural steps that affect the sequence. The model that is used by the study assumes that information leads to use of health services. The operational framework assumes that socio-economic, demographic and exposure factors have an effect on utilisation of maternity care.

Educated people are more likely to use maternity care. Rural women are usually less educated and therefore less exposed to knowledge and importance of maternity care. Living in the rural areas restricts the social networks of a woman, since a woman operates within a predetermined circle of friends and relatives. Therefore, information acquired through social learning and formal education usually influences very few women.

The socio-economic conditions of women affect their attitudes and values. For the poor especially in the rural areas, poverty results in a lack of education, which in turn leads to ignorance of health services. Those in the lower socio-economic classes tend to be ignorant or apathetic to the health services available to them, even if these are free. Moreover, social interventions across socio-economic groups are less in the rural environment. Such interactions enable exchange of information on reproductive health matters. The information acquired influences attitudes and perceptions, which together with access factors, determine one's use of maternity care services. However, in the rural areas, women tend to remain unaffected by social interventions and health awareness campaigns.

## *Methodology and data*

### *Primary qualitative data*

To obtain primary data, a small-scale field study was carried out in Asego and Rangwe divisions of Homa Bay district. Two villages were randomly selected from each division, based on a list compiled by local leaders. Focus group discussions were used to supplement information on community knowledge and perception of maternal health care services. In-depth interviews were used to obtain data from the health providers. Sources of information were mainly:

1. The women who were eligible to have sought some form of maternity care, through FGDs.
2. Community health providers.
3. Traditional birth attendants both groups of which in-depth interviews were conducted.

The themes covered in the discussions include the effects of costs at health facilities, attitudes of maternity health care providers and reasons why women in general may not be willing to use maternity care services in the study area. Women eligible for FGDs were those who were either expectant or had had a child during the last five years. Secondly, they should have been resident in the area for at least one year. They were categorised in the following age groups ; women aged 24 and below, those aged 25 to 34, and those 35 and above.

Discussions were held at church compounds and classrooms of the schools in the locality, using the Dholuo language. Health providers (nurses, midwives and doctors) were interviewed to assess the whether institutional structuring of maternal care affects its use, and whether reluctance to attend clinics is related to attitudes of health personnel or to conditions in health centres and hospitals.

The data drawn from the 1993 KDHS were analysed using both descriptive and inferential statistics. All analyses of data in this study was done using the Statistical Package for Social Sciences (SPSS). The study uses the chi-square technique to test whether there is an association between use of maternal health care services and the socio-economic, demographic and exposure factors. Logistic regression analysis was used to estimate the likelihood of use of a specific form of maternity health care service, given a set of socio-economic, demographic and exposure factors.



*Characteristics of the study population*

The basic characteristics of the study population are presented in Table 1. Majority of the children were born to women of low education level. About 66% of them were born to mothers with primary education, while only 18% had mothers with at least secondary education. There is often a significant association between level of education and use of services. Women of higher educational levels are expected to use the services more than those of a lower educational level. The low level of education among the sampled women is a predictor of low utilisation of maternity care services. Similar to the mothers, most of their partners had attained a maximum primary education, the category having 59%; those with secondary education and higher constituting only 32%. For 17% of the births, mothers did not have any formal education while only 8% of their spouses did.

Distribution of births by maternal age reveals that births to younger women aged less than 35 years constituted the majority of the group. Those children whose mothers were aged between 15 to 24 years constituted 35% of the sample. 49 percent of the births were to women aged between 25 and 34 years. This is typical of the province since it has been experiencing a consistently high fertility rate and it is expected that subsequent births will increase. Births to older women (35+) are fewer in the sample, since generally they may have had their desired family size or stopped childbearing. Therefore, they are likely to have fewer children aged five and below than their relatively younger counterparts in the province.

The majority of children were born to women who had six children or less, accounting for 77%. This is probably due to high value placed on having many children and low use of contraception by younger women as they enter their reproductive life. Only 23% of the births occurred to women who had given birth to at least seven children. Over 84% of the births occurred to currently married women; 6% were to single women and 9% to either divorced, widowed or separated women. This is typical of a society where women are all expected to marry and have children upon entering adulthood.

A majority of the children were born to women who earned money for the work they do, and this accounted for 75%. This observation indicates that the mothers were economically engaged and exposed to influences other than those in the home. These two factors have been found to influence the use of maternal health care services, and it is not surprising that this group of women are more receptive to the services.

**Table 1** Percentage distribution of births (1988–1993) in Nyanza province, according to maternal background characteristics

	Percentage	Number of births
<b>Maternal age</b>		
15–24	35.1	390
25–34	49.1	549
35+	15.6	173
<b>Maternal education</b>		
No education	16.5	184
Primary	65.9	733
Secondary+	17.5	195
<b>Mother in paid employment</b>		
No	25.2	208
Yes	74.8	618
<b>Children ever born</b>		
1–3 children	39.4	438
4–6	37.3	415
7+	23.3	259
<b>Use of family planning methods</b>		
Never	52.4	583
*Trad/Folk	15.6	174
Modern	31.9	355
<b>Maternal marital status</b>		
Single	6.0	67
Married, living together	84.7	942
Other	9.3	103
<b>Paternal educational level</b>		
No education	8.3	85
Primary	59.6	612
Secondary+	32.1	330
<b>Type of place of residence</b>		
Rural	96.8	1076
Urban	3.2	36
<b>Household economic status</b>		
Low	48.6	458
Middle	43.3	408
Upper middle	8.1	76
<b>Total</b>	<b>100</b>	<b>1112</b>

*Source:* Analysis of 1993 KDHS data.

\*Note: Trad/folk refers to traditional and folkloric methods of family planning. Not all row totals add up to 1112 due to missing cases.

An attempt was made to construct an index as a proxy for household disposable wealth and income. It is observed that over 48% of the births in Nyanza province were to low-income households and 97% of the births were to rural residents.

Use of family planning (which includes past usage) has been used as a proxy measure of exposure to maternity health care services, since in Kenya maternal and family planning services are usually provided under one clinic roof. The majority (52%) of births were to women who had never used any form of family planning. Only 32% had ever used modern family planning methods while 16% had used traditional and folkloric methods.

#### *Levels of utilisation of maternal health care services*

Antenatal care is most effective if the clinic visits are started early in the pregnancy and continue regularly until delivery. However, for most of the births in the province, antenatal clinics began in the second trimester of their mother's pregnancy. In over 69% of cases, the women visited antenatal clinics for the first time during the second trimester of pregnancy. In only 17% of these births did mothers begin their antenatal clinics in the first trimester. Health personnel recommend that women should be screened during the first month to avoid complications later for both the mother and the growing baby. Antenatal checks in the third trimester were carried out in 15% of the mothers. Such mothers are particularly at risk because when and if they develop any complications, the situation may have already caused damage to either the mother or the foetus.

Despite the recommendation that a woman should attend at least 12 antenatal checks for the pregnancy, 64% of mothers had four or less visits during the entire pregnancy. This means that their pregnancies were not regularly monitored in case of any abnormal developments. Only 36% had had five or more checks. The percentage of births to women not receiving antenatal care is almost similar to the national estimate. Whereas just below 4% of women at the national level did not get any antenatal care (NCPD & MI 1994), the figure stands at 4.3% for Nyanza Province.

There appears to be a general high uptake of tetanus toxoid injections. Evidence for this is the fact that 93% of the mothers had at least one tetanus injection before birth. It is recommended that a woman should have two such injections, but for second and consecutive births, one dose of a booster is adequate in preventing tetanus infection. A critical point is that it appears that

just about half of the birth mothers had two or more tetanus injections. The rest had either one or no vaccination at all. But, since the majority of the mothers captured in this study had more than one child, it can be stated that there was near adequate receipt of tetanus toxoid injections. In fact, non-receipt of tetanus toxoid is lowest in Nyanza province as compared to other provinces in the country (NCPD & MI, 1994). Only 7% of mothers in Nyanza province did not benefit from any vaccination compared to 10% at the national level.

Nurses and/or midwives invariably, were the most preferred in provision of antenatal care. An overwhelming 88% reported having seen a nurse or midwife for their prenatal care. This is not unusual as nurses run most of the rural health facilities. Doctors attend only 6% of prenatal care. Trained birth attendants and traditional birth attendants attended only a negligible number of the cases. A remarkable shift in the choice of health care provider is noted with regard to assistance during delivery. Whereas most of the mothers sought prenatal care from nurses and midwives during delivery, there is a clear distribution among all the various health care providers. Nonetheless, nurses and midwives still delivered most babies, accounting for 33% of all births. Trained and untrained birth attendants assisted in over 16% of the deliveries. Remarkably, relatives, friends or the mother herself—without any assistance—attended about 44% of the deliveries. Such occurrences pose great risks for both the mother and baby, as there is a high level of unskilled handling of the delivery process.

In Nyanza Province, 18% of mothers delivered their babies unattended. Although this is quite high, there are even greater proportions of unattended delivery in other parts of the country. For example, the proportion of children delivered in this manner account for 52% in Turkana district, 39% in Kwale, and 23% in Western Kenya (CBS, 1996). In this study, it can therefore be hypothesized that the preference for unskilled personnel during delivery may be a possible factor in determining the high maternal mortality levels in Nyanza Province.

The kind of assistance a mother receives during the birth of a child is dependent on the place of delivery. Most of the deliveries at home are likely to be aided by TBAs or close relatives while births at a health facility are likely to be assisted by trained medical personnel. Although in majority of the births in Nyanza the mothers had received prenatal care from medical personnel, only 39% were delivered at a health facility. The remaining 61% were delivered at home (CBS 1996).

**Table 2** Percentage distribution of births according to mother's use of MHC services; 1993 KDHS

Form of maternity care	Percentage	Number
<b>1. Timing of first ANC check</b>		
a. 1st trimester	16.7	178
2nd trimester	69.1	735
3rd trimester	14.2	151
b. Late	83.3	886
Early	16.7	178
<b>2. ANC visits for pregnancy</b>		
a. No visits	4.4	48
At least one visit	95.6	1063
b. 4 visits and less	63.8	709
5 and more visits	36.2	402
<b>3. Tetanus toxoid for pregnancy</b>		
a. No injection	7.2	80
At least one injection	92.8	1032
b. Two and above	49.4	549
One and less	50.6	563
<b>4. Prenatal care provider</b>		
Doctor	5.7	63
Nurse/midwife	88.2	981
Trained birth attendant	1.4	16
TBA	0.4	4
No one	4.3	48
<b>5. Assistance during delivery</b>		
Doctor	4.9	54
Nurse/midwife	33.6	374
Trained birth attendant	8.9	99
Traditional birth attendant	7.8	87
Self	18.1	203
Relative	26.6	295
<b>6. Place of delivery</b>		
Home	61.3	682
Health institution	38.7	430
<b>7. Scale of prenatal care</b>		
Adequate	38.6	429
Some	61.4	683
<b>Total</b>	<b>100</b>	<b>1112</b>

An attempt has been made to grade the quality of prenatal care a woman received during pregnancy. Based on the number of visits and the timing of the first antenatal check-up, care was classified into two categories—some or adequate. Women who had four or less visits from the second trimester onwards were considered to have got “some” care. Those that went for five and more visits and began clinics in the first trimester were considered to have had “adequate” care. It is observed that only 41% of the births had their mothers receiving adequate care. Obviously then, a majority of women in Nyanza province do not receive adequate antenatal care. This is a particularly useful observation for health care intervention, since more than half of the population does not benefit adequately from medical attention during their pregnancy.

*Receipt of tetanus toxoid vaccinations before delivery*

The number of tetanus toxoid injections received by mothers in Nyanza province before birth is observed to be associated to use of family planning methods, and the partner’s education level. However, in all educational categories, mothers had received tetanus injections, and for over 90% of the births, the mothers got at least one injection.

The number of tetanus toxoid injections a child’s mother received is also associated to use of family planning methods. Mothers who had never used any family planning method were more likely not to have injections. Those who had used traditional methods showed greater likelihood of getting tetanus injections.

*Timing of antenatal clinic checks/visits*

The onset of antenatal clinic visits during the pregnancy is very important for the health of the mother and the foetus. Most women in Nyanza province undergo their first clinic checks during the second trimester of the pregnancy. Remarkably, at 5% significance level, only one variable had a significant relationship with timing of antenatal checks, namely, whether the mother earned money for work or not. Mothers in paid employment were most likely to go for antenatal checks in the second and third trimester. Mothers who did not earn cash had greater chances of going for the first antenatal check during the first trimester.

*Choice of prenatal care provider*

The prenatal care services investigated in this study are ; tetanus toxoid injections, periodic checks during pregnancy and advice on nutrition. Prenatal care providers are classified as either 'professional' or 'other'. The professional category includes doctors, midwives and nurses. 'Other' refers to trained birth attendants and traditional birth attendants.

Statistics have shown that for over 90% of the births, the mothers sought prenatal care from professional health personnel (KDHS, 1993). Despite the fact that receipt of prenatal care services from professional health personnel was generally high for the province, more educated mothers had greater chances of seeking the care of professionals than the less educated mothers. Even as little as primary education increased the chances of getting prenatal care from a professional. Marital status, partner's education and parity all had a significant association with seeking antenatal care. Paternal education also had a significant influence on choice of prenatal care provider, and the relationship is very similar to that exhibited by maternal education. Education levels of secondary and above, of the father, increased the chances of the mother seeking prenatal care from a professional. There is also a significant relationship between children ever born and choice of prenatal care provider. Women with six and less children were more likely to seek prenatal care. Lower parity women were less likely to seek prenatal care from professional health personnel. This observation is odd considering results of other previous studies.

*Number of antenatal clinic checks during pregnancy*

The frequency of antenatal clinic checks a woman has during the entire pregnancy reduces the risk of complications during pregnancy and childbirth. A majority of the mothers had four or less visits for the entire pregnancy. These accounted for over 63% of births. The higher the level of education, the more the antenatal checks a mother had. Education up to secondary level or higher increased the chances of having five or more clinic checks. Children of women with no education had the least number of checks. Regarding use of any family planning method, it emerged that women who had ever used traditional or folk methods had greater likelihood of going for fewer checks. Overall, use of FP had a significant association to the number of antenatal checks a woman went for.

There are mixed results as regards maternal age. Whereas births to mothers aged over 35 had the highest probability of getting the least checks, those aged 15 to 24 were most likely to go for four or less checks. Births to mothers aged over 35 had the greatest chances of having 5+ antenatal checks. This observation is rather unexpected because previous studies established that older, higher parity women were less likely to go for antenatal checks during pregnancy (Bulut, 1995; Dissevelt, 1978; Nginya, 1980; Obemeyer, 1991). In Nyanza province, over 55% of the women went for 2–4 antenatal checks. Nationally, 64% of the women went for equal visits.

#### *Scale of antenatal care received*

Previously, it was observed that in over 60% of the births, mothers received less than adequate prenatal care. An investigation was made into differentials and factors significantly related to the quality of prenatal care. Receipt of adequate or otherwise antenatal care appears to be significantly related to maternal age, level of education and paternal education. Births to mothers aged 25 to 34 had better chances of receiving adequate care, while those aged 35 and above were the worst placed.

Secondly, a minimum of primary education improved the likelihood of receiving adequate care. The effect of paternal education is similar to that of maternal education, whereby births to those with no education had the least chance of getting adequate care.

#### *Place of delivery*

The place from where a birth was delivered is related to a number of factors. Factors that were significantly associated with place of delivery were: total children ever born; maternal age; maternal and paternal education; household economic status; place of residence; use of family planning; number and timing of antenatal checks and scale of antenatal care received.

With regard to total children ever born, the higher the parity, the greater the chances of a mother delivering at home. 71% of births to mothers of parity seven and above were born at home, compared to 54% for parity 1–3. Conversely, health facility deliveries were greatest among births to lower parity women.

Most births to mothers with primary or no education were the most likely to be delivered at home in Nyanza province, while mothers with secondary



education had greater chances of delivering their babies in a health institution. The relationship between partners' education and place of delivery is similar to that of the mothers. Mothers who earned cash had greater likelihood of delivering at a health institution, whereas those who did not earn cash were more likely to deliver at home. The most plausible explanation for this is that the former were better able to pay for delivery in a health institution.

The household economic status also, is significantly related to place of delivery. A greater proportion of those who delivered at home were from the lower economic status households. On the other hand, over 75% of births in medium and upper status households took place in health institutions.

Rural residence is associated with higher likelihood of home deliveries, where 63% of births occur at home. Those residing in urban areas had a higher chance of a health institution delivery, with 78% births delivered in a health facility. Maternal age also had a statistically significant relationship with place of delivery. The chances of delivering at home were greatest among older mothers aged 35 years and above. The youngest age group, of mothers aged from 15 to 24, had the most chances of delivering at a health institution. Moreover, a greater percentage of mothers who delivered at health institutions were lower parity women with 1 to 3 children. Over 70% of mothers of parity 7 and above delivered at home, compared to about 54% of those of parity 1–3.

The above relationships of age and parity concur with previous studies where it was found that younger women tended to deliver at a health facility for fear of complications during childbirth. Older women, however, were observed to deliver at home confidently due to their experience with previous births (Bulut, 1995; Dissevelt, 1978; Nginya, 1980; Obemeyer & Potter, 1991; Winikoff, 1987; Sargent & Rawlings, 1991).

Timing and number of antenatal checks during pregnancy appears to be significantly associated. Mothers who had their first antenatal check in the third trimester were most likely to deliver their babies at home. On the other hand, mothers who went for their first check in the first trimester had greater chances of delivering in a health institution. It is also clear that mothers who had four or less antenatal visits had greater chances of delivering at home. Conversely, mothers who had over five antenatal checks showed greater likelihood of delivering at a health institution.

The quality of antenatal care received by a woman is also noted to have a significant relationship to place of delivery. Births to women who had received adequate prenatal care had greater proportions delivered at a health facility,

while those to mothers who had just some care were likely to be born at home. It is also observed that births to women who had never used any family planning methods had greater chances of being delivered at a home. Births to women who had used modern methods of family planning exhibited greater likelihood of being delivered at a health institution. The hypothesis here is that such women are exposed to the MCH/FP structure and are therefore more aware and comfortable to seek their services. From 1988 to 1993 in Nyanza province, 62% of births were delivered at home. The national estimate is that 55% of births occur at home during the same period.

#### *Choice of attendant during delivery*

The type of assistance a woman receives during the birth of her child has health implications for both the mother and baby. Home deliveries are more likely to occur without assistance from medically trained personnel, whereas births delivered at health facilities are more likely to be delivered by professional health personnel (NCPD & MI, 1994).

Maternal education, age, marital status, paternal education, paid employment, total children ever born, timing of antenatal check, use of family planning and scale of prenatal care all have significant associations with assistance received during delivery. Mothers who had secondary education were more likely to seek delivery assistance from professionals than those with primary or no education. The same is true for paternal education, and this may reflect the effect of husband's income and knowledge of the importance of seeking professional services for their wives.

There is a significant relationship between children ever born and assistance at delivery; 47% of births to women with three or less children were assisted by a professional compared to 36 and 27% of those with 4–6 and 7+ children respectively. The lower the parity of the mother, the higher the chances of seeking professional assistance during delivery. A professional delivered 47% of births to women of parity 3 and below, whereas only 36 and 27% of parity 4–6 and 7+ respectively received the same care. Whereas a relative, friend or self-delivered accounted for 56% of births to women of parity 7+, only 36% of those with parity 3 and less did the same. Therefore, what emerges is that births to lower parity mothers were more likely to be delivered by professional health personnel.

With regard to marital status, 48% of married women were most likely to be attended by a relative, friend or self, unlike children of single mothers (28%)

and others, (46%). Among births to single mothers, there is a greater chance of seeking professional care during delivery than among married women and other categories. Urban residence has also been noted as related to the choice of attendant during delivery. 78% of urban births were attended by professionals, compared to 37% in rural areas. Furthermore, rural births were more likely to be delivered by trained or untrained birth attendants, relatives or self. Thus, urban women have an edge over their rural counterparts in terms of receiving professional maternity care.

A further significant association was noted between assistance sought during delivery and household economic status. The upper middle-class household births were more attended by professionals than the low economic status households, where TBAs, relatives and self-deliveries were more prevalent. The choice of an attendant during delivery among the women in Nyanza province is again related to the scale of antenatal checks and timing of the first of these checks.

The study found that mothers who began their antenatal clinics early in the first trimester were likely to be attended by a professional during delivery. Those who began their visits in the second trimester had greater likelihood of being attended at delivery by trained or untrained TBAs. Mothers who had their first antenatal check in the last trimester of pregnancy showed the highest likelihood of being assisted by relatives, friends or self during delivery.

Mothers who attended nine or more antenatal clinics had better chances of being assisted during delivery by professional health care staff. These women were also the least likely to be attended by trained or untrained birth attendants during delivery. Those who had none or at least four clinic checks had the greatest chances of being assisted by relatives, friends or self.

The scale of prenatal care received and use of family planning are another set of factors that are significantly related to attendance during delivery. Births to women who received adequate prenatal care were also more likely to be delivered by professionals. Conversely, births to women who received some care were more likely to be delivered by TBAs, relatives or self. Regarding use of family planning, women who had used modern methods showed better chances of delivery by professionals. Those who had never used any method or had used traditional and folk methods were likely to be assisted by TBAs, relatives or self.

There is an association between household economic status and assistance during delivery such that births to lower status households were more likely to

be delivered by TBAs, relatives or self. Upper middle-class households had better chances of being attended by professionals. This observation may be explained by the fact that differences in costs at health facilities and ability to pay for services exist. Medium-status households would be advantaged and therefore, better able to pay for the services of professional health care providers.

Lastly, the higher the number of antenatal checks a child's mother had, the more likely she was to be assisted at delivery by a professional health care provider. About 49% per cent of births to mothers who had four or less visits were most likely to be assisted by TBAs, relatives or self.

In data-case selection, only births to married women were selected for analysis. This was done to ensure reduced incidences of missing cases that may have been introduced by including variables with husbands' characteristics.

#### *Receipt of tetanus toxoid vaccinations*

Paternal education was a significant predictor of receipt of tetanus injections. Tetanus toxoid vaccinations increased with the level of education of the father. For children whose fathers were educated, the mothers were more likely to have tetanus toxoid vaccinations. The other factor that had a significant effect on receipt of the toxoid was use of family planning methods. Births to mothers who had never used any method were more likely to receive tetanus vaccinations than those who used traditional and folk methods. Users of traditional methods were also less likely than users of modern methods to receive tetanus vaccinations. Therefore, traditional method users were the least likely to receive tetanus injections. All the rest of the factors included in the model were found to have an insignificant effect on the receipt of tetanus vaccination and were therefore automatically excluded from the final model. Possibly, this would be due to the fact that there is almost universal receipt of the toxoid, accompanied by little variation across respondents' characteristics.

**Table 3** Odds ratios indicating the effects of background variables with a significant net effect on receipt of tetanus toxoid vaccination

Explanatory variable	Log odds	S.E	DF	P	LR $\chi^2$	Odds ratios
Paternal education			2	p<0.05	8.84	
None	-.623**	.703				0.536
Primary	[ref]					1.000
Secondary+	.429**	.399				1.536
Ever use of family planning			2	p<0.10	7.56	
Never	1.611*	.737				5.008
Trad/folk	[ref]					1.000
Modern	0.219	.763				1.245
Constant = 2.6380 S.E. for the model =0.5994						

Notes: Reference categories are in square brackets. \*\* Significant at p<0.05, the rest p<0.10. S.E stands for standard error; Secondary+ refers to secondary education and above; trad/folk refers to traditional and folk methods of family planning. This is valid for all following tables (4-9).

Source: Nyanza Province, 1993 KDHS.

#### *Choice of prenatal care provider*

Table 4 shows that receipt of prenatal care from professionals was associated with two factors namely, household economic status and paternal education. Births to low-income households were less likely to receive professional antenatal care than middle-income households were. The likelihood of receipt of professional antenatal care increased with the level of paternal education. Children whose fathers had education up to secondary level and above were the most likely to receive professional care, compared to the other categories.

#### *Number of antenatal clinic visits during pregnancy*

The most significant factor predicting the number of antenatal visits a woman had was use of family planning. Mothers who used traditional methods were most likely to go for five or more visits, while those who had never used any method were least likely to. The likelihood of having five and above visits increased with the level of education of the mother. Secondary educated mothers were most likely to go for five or more visits while those with no education had the least likelihood.

**Table 4** Odds ratios indicating the effects of background variables having significant net effects on choice of prenatal care provider during pregnancy

Explanatory variable	Log odds	S.E.	DF	P	LR $\chi^2$	Odds ratios
Household economic status			2	p<0.10	12.89	
Low	-1.291*	37.08				0.275
Middle	[ref]					1.000
Upper Middle	-1.923*	1.20				0.146
Paternal education			2	p<0.10	6.16	
None	-0.575*	.251				0.563
Primary	[ref]					1.000
Secondary+	0.544*	.324				1.723
Constant = -1.8596	S.E for the model = 0.3769					

**Table 5** Odds ratios indicating the effects of background variables having significant net effects on 5 or more antenatal visits during pregnancy

Explanatory Variable	Log odds	S.E.	DF	P	LR $\chi^2$	Odds ratios
<b>Use of family planning</b>			2	p<0.10	9.337	
Never	-.737*	.247				0.479
Trad/folk	[ref]					1.000
Modern	-.1633*	.184				0.849
<b>Maternal education</b>			2	p<0.10	6.932	
None	-.275*	.221				0.760
Primary	[ref]					1.000
Secondary+	.271	.278				1.311
Constant = -.1142	S.E for the model = .2083					

*Timing of the first antenatal visit*

Table 6 indicates that earning cash had the most significant effect on early timing of the first antenatal check. The likelihood of early onset of antenatal care increased when the mother was in paid employment. Compared with mothers who did not earn money, those who did were more likely to begin antenatal clinics early. A suggested explanation to this observation could be that mothers who earn cash are in a better position to pay for antenatal services especially if provided by private medical clinics. Moreover, they are better placed to meet costs of transport to the clinic. Previous studies indicated that

women identified having to offset transportation costs as one of the reasons barring them from seeking maternity care.

The next most significant factor impacting on early timing of antenatal care was maternal education. Those with secondary education had the highest likelihood of early onset of prenatal care. Mothers who had no education had the least likelihood of beginning antenatal visits early whereas those with secondary education were 1.4 times more likely to go for early prenatal care, compared to those with primary education.

**Table 6** Odds ratios indicating the effects of background variables having significant net effects on early timing of antenatal checks during pregnancy

Explanatory Variable	Log odds	S.E.	DF	P	LR $\chi^2$	Odds ratios
<b>Earns cash for work</b>			1	p<0.05	6.991	
No	[ref]					1.000
Yes	0.608**	.227				1.837
<b>Maternal education</b>			2	p<0.10	5.370	
None	-0.262*	.363				0.770
Primary	[ref]					1.000
Secondary+	0.341*	.374				1.406
Constant = -1.7514	S.E for the model = 0.2740					

#### *Adequacy of prenatal care*

The scale of prenatal care received was associated with maternal education and use of family planning, as seen in Table 7. Compared to those with primary education, mothers with secondary and above education were more likely to receive adequate antenatal care. Mothers with no education had the least likelihood of receiving adequate prenatal care.

Use of contraception was the second most significant determinant of adequacy of prenatal care. Mothers who used traditional methods were more likely to receive adequate prenatal care than modern method users and those who had never used contraception. This observation is rather unexpected because women who have at one point used modern methods are expected to be more aware of the need for regular and adequate prenatal care than those who use traditional methods. Perhaps it has to do with the experiences such women have had when in contact with the health care system that discouraged them from going back to seek additional services.

**Table 7** Odds ratios indicating the effects of background variables having significant net effects on scale of antenatal care

Explanatory Variables	Log odds	S.E.	DF	P	LR $\chi^2$	Odds ratios
<b>Maternal education</b>			2	p<0.05	9.210	
None	-.336**	.276				0.715
Primary	[ref]					1.000
Secondary+	0.270**	.212				1.310
<b>Use of family planning</b>			2	p<0.05	7.200	
Never	0.630**	.241				0.533
Trad/folk	[ref]					1.000
Modern	-0.134**	.257				0.875
Constant = -0.1044 S.E. for the model = 0.2027						

*Place of delivery*

Table 8 presents relationships between place of delivery and significant factors that affect it. Household economic status was the most significant factor in predicting place of delivery. Births to women in upper middle status households were more likely to be delivered in hospital than births in middle status households, while births to women in low status households were least likely to be delivered in hospital.

Use of family planning was also significantly associated with place of delivery. Relative to births to mothers who had used traditional methods, those who used modern methods had greater likelihood of hospital delivery. Type of place of residence was another factor significant in determining place of delivery. Births to urban women were 5.4 times more likely to be in a health facility than rural births. This particular observation may demonstrate the skewed nature of provision of delivery services towards urban areas. It may also point out the differences in accessibility of the services between rural and urban areas.

The likelihood of a hospital delivery increased with the level of paternal education. Fathers with secondary and more education increased the odds of hospital delivery over primary education. Births to fathers who had no education were least likely to be delivered in a health facility.

Timing and number of antenatal visits were significantly associated with place of delivery. Those who began antenatal clinic visits late were more likely to deliver at a health institution. The same is true of women who had four or less visits. This is an unexpected observation in that a woman who begins



antenatal clinics early and attends regularly throughout the pregnancy would be expected to deliver in hospital. It is possible that women who commence antenatal clinics late only do so when they notice complications that eventually force them to deliver in hospital so as to avoid dire effects. Women who may have regularly attended clinics, on the other hand, might feel confident enough to deliver at home especially if they were diagnosed as healthy during their clinic examinations.

#### *Assistance during delivery*

Household economic status is significantly associated with assistance received during delivery. Relative to the middle status households, upper middle status households were more likely to be assisted by professionals.

The second most significant factor predicting assistance during delivery is paternal education. The odds of professional assistance were almost the same for primary and secondary educated fathers. However, the likelihood was lower for non-educated fathers. Urban residents were more likely to be assisted by professionals than their rural counterparts. This disparity is wide and may be attributed to the fact that rural areas are less endowed with health services, especially for delivery.

Maternal education was a significant determinant of assistance received during delivery. Births to mothers with secondary and above education were more likely to be delivered by a professional compared to those with primary education. Interestingly enough, mothers with no education were more likely to be assisted by a professional, than those with primary education.

The scale and timing of prenatal care received during pregnancy were predictors of the kind of assistance a mother received during delivery. Receipt of adequate care was negatively related to professional assistance during delivery. Relative to those who got inadequate care, mothers who got adequate care were less likely to be assisted by a professional. This observation is contrary to expectations because mothers who received adequate care are thought to be more knowledgeable about the usefulness of a hospital delivery. After all, they have had more contact with the health care system than their counterparts, and are expected to utilise these services more.

**Table 8** Odds ratios indicating the effects of background variables having significant net effects on place of delivery

Explanatory Variables	Log odds	S.E.	DF	P	LR $\chi^2$	Odds ratios
<b>Household economic status</b>						
Low	-0.259**	.253	2	p<0.05	19.479	0.772
Middle	[ref]					1.000
Upper middle	1.198**	.324			3.304	
<b>Place of residence</b>						
Rural	[ref]		1	p<0.05	9.253	1.000
Urban	1.686**	.646				5.395
<b>Use of family planning</b>						
Never	-0.153**	.248	2	p<0.05	8.602	0.859
Trad/folk	[ref]					1.947
Modern	0.513	.194				1.670
<b>Paternal education</b>						
None	0.302**	.332	2	p<0.05	8.419	0.739
Primary	[ref]					1.000
Secondary+	0.230	.357				1.257
<b>Timing of antenatal checks</b>						
Early	-.4973*	.2441	1	p<0.10	4.115	0.608
Late	[ref]					1.000
<b>Number of antenatal checks</b>						
<4	-.338*	.189	1	p<0.10	4.174	0.678
5+	[ref]					1.000
Constant = 0.1003		S.E. of the model = 0.3830				

### *Discussion*

There appears to be very little variance in receipt of tetanus toxoid injections and choice of prenatal care provider. In fact, for over 90 percent of the births, mothers received at least one dose of the toxoid or were attended by a professional during the prenatal period. Thus, the factors outlined may not have been sufficient in explaining the little variation that existed in the use of the two forms of maternal health care services.

Use of family planning methods has been noted to play a very significant role in predicting use of a number of maternal health care services in Nyanza province. Most notable is the fact that use of traditional or folk methods increased the likelihood of receipt of adequate prenatal care and five or more antenatal visits. Yet, it would be expected that women who had at some point

used modern methods of contraception be more familiar with the health care system than those who used traditional or folk methods, and would be expected to use the same services more. The question is, is there some aspect of the maternal health care system that discourages FP users to discontinue or fall out at some stage? Why would a woman who is aware of the need to use modern contraception (assumed to be obtained from modern health facilities) opt for fewer clinic visits and eventually receive inadequate prenatal care?

**Table 9** Odds ratios indicating the effects of background variables having significant net effects on assistance during delivery

Explanatory Variables	Log odds	S.E.	DF	P	LR $\chi^2$	Odds ratios
<b>Household economic status</b>			2	p<0.05	13.338	
Low	-0.204**	7.666				0.816
Middle	[ref]					1.000
Upper middle	0.974**	1.956				2.647
<b>Paternal education</b>			2	p<0.05	6.442	
None	-0.451**	.327				0.637
Primary	[ref]					1.000
Secondary+	0.006**	.352				0.994
<b>Type of place of residence</b>			1	p<0.05	6.281	
Rural	[ref]					1.000
Urban	1.355**	.603				3.876
<b>Maternal education</b>			2	p<0.05	5.075	
None	0.306**	.251				1.358
Primary	[ref]					1.000
Secondary+	0.712	.324				2.039
<b>Scale of antenatal care</b>			1	p<0.10	3.762	
Some	[ref]					1.000
Adequate	- 0.382*	.167				0.683
<b>Timing of 1<sup>st</sup> antenatal visit</b>			1	p<0.10	3.419	
Late	[ref]					1.000
Early	0.471*	.246				0.624
Constant =0.0052		S.E for the model= 0.4055				

The results have shown that only some socio-economic and demographic factors were significant, either positively or negatively. The literature review showed that use of the same services was influenced by a complex of social, economic, cultural and demographic conditions such as educational attainment

of both mother and father, type of place of residence, parity, age of mother and factors of accessibility.

Part of the findings of this study concurs with those of previous ones of similar nature. The results confirm the theoretical and conceptual models and the study hypotheses. In the theoretical framework, it was stated that socio-economic and demographic factors might affect use of maternal health care services. This statement is partly confirmed by the study results. The study has found that demographic factors of maternal age, marital status and total children ever born have no significant influence on use of maternal health services in Nyanza province. These findings concur with findings of a similar study in Jordan (Obemeyer & Potter, 1991). Other household and individual factors of the mother may have overshadowed these factors.

Socio-economic factors played a more crucial role in influencing the use of services. It is apparent from the regression results that most socio-economic variables are associated with utilisation of the services. A possible explanation is that these factors define inequalities in access to, and the quality of, maternal care received.

#### *Findings of qualitative study*

Qualitative data was collected from Asego and Rangwe divisions of Homa Bay district, Nyanza province to complement the KDHS data. The field study was done after analysing the DHS data and it was intended to explain some of the findings. Focus group discussions were held with women, while in-depth interviews were conducted for service providers and traditional birth attendants. The findings of the qualitative study are presented and discussed below.

It should be noted that the study area is poorly equipped with health facilities. Apart from the District Hospital at Homa Bay, no other health facility offers maternity health care. Privately owned maternity nursing homes exist, but these are costly for women, most of whom have a low income. There is a health centre at Nyagoro, which offers antenatal care but does not provide delivery care services.

The traditional birth attendants skills are either inherited or self-taught. However, the demand for TBAs had been on the decline in recent years, as women seek assistance from professional medical personnel. The field study found that women who delivered at home mostly preferred to be assisted by TBAs. However, friends, relatives or neighbours were often sought for assistance during delivery.

*Reluctance for hospital delivery*

In the analysis of KDHS data, it was seen that only 39% of the respondents delivered in a health institution. The study sought therefore, to answer why this was so. Explanations were solicited from both focus group discussions and in-depth interviews.

a) *Fear*

Women found hospitals to be unfriendly and hostile. Some feared they would be forced into surgical procedures such as sterilisation and episiotomy. This is illustrated by a respondent who said:

*“...they are so unfriendly. They look at you as if you are dirty. Sometimes, they can decide to cut you [i.e. episiotomy] even if it is not necessary. I know a woman who was tied [i.e. sterilised] because the sister [nurse or female service provider] said she had too many children. She used to give birth every year.”* (Rangwe married woman, 35, FGD).

Women said the nurses and midwives were impersonal and unkind. Those attending to women in the maternity clinics were said to mistreat or refuse to attend to women who had not attended antenatal clinics. A respondent narrated her experience:

*“I was in labour the whole night. When I reached the hospital I was so tired. The sister asked me for my card, ... I did not have it. She turned up her nose and left me in pain. When she came back she again demanded for my card ... I told her I did not have it. Then she told me there was no way I could be booked in for delivery if I did not have it. Eventually they accepted to help me when the baby was already crowning. They are so unkind and yet they are also women.”*

A woman's group from Asego agreed that the staff at the public hospital were too slow, spend time chatting and on personal matters rather than attend to clients. The patients end up waiting for long periods, *“yet some of us come from very far, and we need to be on our way back home early enough.”* Older women (over 40 years) said that providers were particularly unfriendly to them. They are seen as bearing children at the wrong time, and often they already had ‘many’ children, contrary to the advice of the providers.

b) *Cost of services, transportation and related expenses*

The cost of transportation and registration for antenatal care and hospital delivery was seen as an inconvenience. Both female respondents and service providers said that the costs incurred in seeking maternity services prohibited women from going to maternity health facilities. The district hospital, which offers the best services, is several kilometres away for most women, meaning

they have to spend a considerable amount of money on transportation and personal needs such as lunch. Respondents from Rangwe Division stated that there were no services in their local areas. One woman said, “*you may want to go to an antenatal clinic, but you don't have the money. Even at the district [hospital], it is not free, so you decide not to go. For most of us, the problem is money ... since they started charging money for the card [registration]; it is difficult to go there. When it was free, we used to go.*” (Asego married woman, 35, FGD).

In most cases, the motivating factor for a hospital delivery was complication in the delivery process. However, where transportation is unavailable or irregular, women prefer to deliver at home. A participant narrated an incident that occurred in her village:

*“There was this woman who had gone into labour ... her husband was working in Nairobi. She suffered the whole night. So in the morning she told her mother-in-law that she wanted to be taken to the district hospital at Homa Bay. The mother-in-law said she didn't have enough money ... then they got a nyamrerwa [TBA]. It took so long but the baby was not coming out. The head was just stuck ... We could see it, but the rest of the body was not coming out. Then her brother-in-law decided to carry her on a wheelbarrow to hospital. They left the house at 6 a.m. and struggled on the way until 1p.m. when they reached the hospital. She did not have enough blood by then, and she was cut (caesarean section). That woman almost died ... but you see in this area it is so common ... giving birth is like death. (Rangwe married woman 25, FGD).*

c) *Pregnancy is natural and needs no medical attention*

The motivation to use preventive health care requires that pregnancy and childbirth be conceived of as health conditions that have potential risks. However, when women were asked about the potential dangers of pregnancy and childbirth, they did not consider them as being health issues, but as natural reproductive events, that do not require strict medical care. This was one explanation for the high incidence of home deliveries and late onset of antenatal clinic checks. Evidence from the field illustrates this point:

*“You know, a woman is born to give birth to children. So, there is no issue of pregnancy being a danger. It is a natural thing, from the time human beings were created. OK, we agree it is painful, and people lose a lot of blood. But it is not a disease like malaria, which needs to be taken to hospital. It is weak women who rush to the clinic every time they see a small problem, even young women who are just getting their first born.” (Asego married woman 40, FGD).*

A key finding in the preliminary analysis of KDHS data was that 61% of births in Nyanza were delivered at home. Most of the deliveries at home are likely to be assisted by TBAs. 17% of women were assisted by TBAs during

delivery. One of the issues the qualitative study sought to investigate was why TBAs were sought instead of professionals at health institutions.

#### *Opinions regarding TBAs*

The women were also asked their opinion about TBAs and professional health personnel. They noted the following disadvantages of TBAs. The case below demonstrates dislike for TBAs' use of unsterilised equipment:

*“You know, most of those women are very old, they did not go to school. When you have delivered your baby and they want to cut the cord, they will just use rusty and unhygienic instruments, like old razor blades ... even the thread they use to tie the cord, I don't think it is clean. But what do you do if you can't afford to go to the hospital?” (Asego unmarried woman, 21, FGD).*

There was discontent among women due to the fact that TBAs make women push very hard during delivery and some end up with severe injuries:

*“They make women push too hard ... you push and push, for so long. When the baby's head emerges, you don't even have energy to push it out. I had one child aided by those women. I ended up with bad injuries, so I had to go to hospital to be sewed up.”*

Another reason for TBAs losing favour was their personal practices:

*“Some practise witchcraft. You go to them innocently expecting them to treat you normally ... but when the door is closed, they get out their charms and start singing very scary songs and chanting. They talk to people you cannot see. Then they tell you to do what those spirits have told them. If you are a Christian it becomes difficult to deal with such a person. Some can even detain you in their homes.”*

*“They can give an overdose of traditional herbs. If she feels that the baby is taking too long to come, she mixes a stronger medicine than the one you took before. If your blood is weak, you can easily die or become very sick ... you know those drugs are not ordinary. They are very strong. Most women I know who went to a TBA said they were given too much of the medicine that makes the baby come out quickly.”*

Another reason was unhygienic conditions:

*“Those people don't have beds like in hospital. When your time comes to deliver, she spreads for you a plastic sheet on the hard floor—no mattress. One has to deliver on the floor or on dirty linen at the TBAs place. The sheets that are used are so dirty you can see bloodstains from the woman who used it before you. It is easy to get an infection from those sheets.”*

Despite the fact that some women disliked the services of TBAs, they also had some positive comments:

*“The TBAs charge very little for their services. It is less than what the hospital people*

*demand. At hospitals you have to pay a deposit before they admit you even if you are in labour. Another thing is that if you want a TBA, you just walk to her home or send for her to come over to you. Access to them is easier compared to the hospital, for which I have to pay busfare, and then set aside a whole day for travel.” (Rangwe woman, 35).*

*“You don't have to pay in cash. She can tell you to bring her chicken, goats or grain. It is good for us here because we don't always have money to pay for such services. In fact, you can pay slowly over several months depending on how you agree with her.” (Asego married woman, 29).*

*“They are people who know us very well, so they treat us with respect, unlike some of the hospital nurses who are rude and don't care whether you are older than them or not.” (Rangwe widow 37).*

However, the women felt that in order to make their services better, TBAs should improve in the following areas:

- They should be trained in hygiene.
- They should work with midwives.
- They should be taught how to handle delivery emergencies and complications.

Lastly, the women felt that the provision of MHC was inadequate and there was need to put up more health centres since the existing community health services are few. They had to travel long distances to deliver babies, and the situation was worsened by the fact that the district hospital at Homa Bay was the only well-equipped facility in the whole district.

#### *Providers' perspectives regarding use of maternity care services*

Another component of the study was to seek service providers' views in order to understand their opinions on women's use of maternity care services and the role of TBAs in providing care.

##### *The role of TBAs*

The study observed that there was some degree of hostility between TBAs and professional health personnel (doctors, nurses and midwives). The health personnel felt that TBAs were misguiding the women, since they rely a lot on superstition, a fact that set them apart from the professionals. These are some of the comments made against TBAs:

- Some TBAs discouraged women from eating eggs, bananas and porridge because this would complicate labour. It is believed that if a woman ate



the mentioned foods, she would have an overweight baby who would be difficult to deliver.

- Women with oedema were thought to have very large babies in the womb or that they were lying badly in the womb. The kind of treatment given to such women by TBAs often complicated the situation further.
- A woman who had severe backache was supposed to be carrying a baby girl, and was thus not given any care at all since it was believed the backache would disappear upon delivery of the baby.
- They operate under extremely poor hygienic conditions; have no surgical equipment, offer dirty bed linen (if any) and subject their clients to conditions that can easily lead to tetanus infection.
- They are not trained to do the job, which requires a lot of skill. Health personnel felt that in order to provide quality service, TBAs need to be trained in midwifery, hygiene, nutrition and handling of emergencies. It was suggested that there be a referral system with trained birth attendants, so that they can refer cases that they cannot handle.

#### *Lack of information and access to services*

The providers agreed that women might be led to seek TBA assistance due to lack of money and poor access to health facilities. They also noted that some women might not be fully aware of the benefits of getting professional care and attention during pregnancy and delivery. The providers identified a number of hindrances concerning access to information regarding maternity care. They stated that unlike family planning that was getting a lot of media publicity, especially through radio, maternity care is often not aggressively addressed. Therefore women, especially those in rural areas, still remain in the dark. Other factors limiting access to information include lack of skills on the part of personnel, inadequate personnel, equipment and infrastructure such as vehicles and finance. Therefore even if they were willing to disseminate information, they are highly limited. Some providers stated that there are no seminars to give them adequate updates on new developments in the field, and to improve their skills.

#### *Provider-client relations*

The women mentioned that provider-client relations were not good; they are rude, unfriendly and often cold. The study sought to get the provider's views

on this subject. Some said the relationship was good. Since there are few facilities offering maternity care, there was a high incidence of client overload. This led to impersonal attention and often hurried interaction between clients and providers. Although some health personnel agreed that they treated women rudely and impersonally, they felt that it was only a small percentage and that the majority were kind. The attitude of health personnel could not therefore be a hindrance to women seeking maternal health services.

*Recommended areas of intervention*

The professional health providers recommended broad-based community health education, since a lot of the women and their partners lack awareness of symptoms of pregnancy and how to treat them. They felt that a health education campaign for the community should be designed, which would focus on:

1. Pregnant women's diet
2. Workload
3. The importance of ANC as a preventive service.
4. Common signs of complications during pregnancy and the need to seek medical attention.
5. The danger of seeking traditional treatments without questioning their integrity.
6. Need for women to be encouraged to insist on clean and hygienic conditions for delivery.

*Summary, conclusions and recommendations*

The results indicate that tetanus toxoid injections were widely received in the study area. Moreover, for over 90 percent of births, the mothers sought prenatal care from professional personnel; including doctors, nurses and midwives.

Factors found to be related to receipt of tetanus toxoid inoculation were father's education and whether the mother had ever used family planning methods. Timing of the first antenatal check was seen to be significantly associated with earning cash for work. The choice of a prenatal care provider was associated with maternal and paternal education and children ever born. Quality of prenatal care received (adequate or some) was significantly related to maternal age and education of both parents. Place and assistance during

delivery were associated with maternal and paternal education, earning cash for work, household economic status, place of residence, use of family planning, scale and number of antenatal checks. These findings indicate that there are differentials in the use of maternal health care services. Most outstanding is that there was above average uptake of preventive services (tetanus injections and prenatal care by professionals), and very low usage of curative services (hospital delivery assisted by professionals). These findings imply that coverage and uptake of curative services should be widened.

Use of family planning was found to be a most important factor in predicting use of most of the forms of maternity health services. Those who never used any methods had increased likelihood of receiving tetanus injections even more than among those who used traditional or modern methods. Secondly, it was found that mothers who used traditional methods were more likely to go for early antenatal checks compared to those who never or used modern methods. Also remarkable is the fact that mothers who had ever used modern methods had the greatest chances of a hospital delivery, assisted by professional personnel.

This linkage between use of maternal health care services and use of family planning leads one to suggest that coverage of family planning, which is normally provided alongside maternal health care services, should be improved in rural areas. Rural areas experience most of the problems associated with access, which may be the actual reason why urban mothers were seen to be more likely to deliver in a hospital.

Both mother's and father's education were significant determinants of utilisation of services. Cases where the father had no education negatively impacted on receipt of tetanus injection. The same levels of education for the mother reduced the chances of receipt of adequate prenatal care. In regard to place of delivery, cases where the mother had no education reduced the chances of a hospital delivery. However, paternal primary and above education had a negative effect on hospital delivery and professional assistance. Maternal and paternal education therefore had a key role to play in the use of maternal health care services.

Apart from serving as a measure of socio-economic conditions, type of place of residence can be a proxy for accessibility, such that urban residents usually have more access to services than their rural counterparts. Place of residence had an effect only on the use of delivery services. The results reveal that rural residents had less probability of seeking a hospital delivery and professional

assistance during delivery. At this point, it is worth remembering that in rural areas, most health institutions that offer antenatal services do not have facilities for delivery. In fact, the majority of women are attended to at government health centres that are basically outpatient oriented. The urban areas on the other hand, are well endowed with private and public hospitals that offer both prenatal and delivery services. Moreover, district and provincial hospitals in Nyanza province are located in the major towns. Therefore, accessibility tends not to be an issue among urban women seeking maternity care.

Household economic status was found to affect choice of prenatal care provider and place of delivery. Births in upper status households were most likely to be delivered in hospital. Apart from this, household economic status did not affect use of other services.

The significance of the results of this study is that education of both parents, urban residence, use of modern contraception and higher household economic status, all increase probability of use of maternal health care services. The implication for these observations is that more effort should be exerted in ensuring education of couples, increasing accessibility in rural areas and formulation of policies and programmes to improve the economic status of people of Nyanza province. Awareness needs to be created among women and their families of the existence and usefulness of professional assistance in the prenatal, intra-partum and postpartum period.

From the results obtained, the conclusion drawn is that women in Nyanza province receive some maternal health care, but a large percentage is not adequately covered.

### *Recommendations*

The findings of this study have important implications for improving utilisation of maternal health care services and further research. The study has provided evidence that except for tetanus injections and professional prenatal care, use of other forms of maternal health care services is low in Nyanza province.

#### *Recommendations for policy*

- The study found that intake of tetanus was almost universal and that over 90% of women saw a professional for antenatal care. However, when it came to delivery, more than 60% of the women sought delivery assistance

away from health facilities. The study therefore recommends that the scope of coverage of delivery services be increased in the province.

- With regard to the prevailing pattern of late and irregular prenatal clinic attendance, it is recommended that public health focus particularly on this dimension of maternal health care both in rural and urban areas.
- This study has found that women who had ever used modern methods of family planning were more likely to deliver in hospital. This may be attributed to the fact that such women were more exposed to modern medical services especially MCH/FP services. These women are more informed than their rural counterparts by virtue of their exposure. This suggests that more information, education and communication is required for the communities in Nyanza province about the existence and importance of seeking maternal health care services.
- Another challenge is to overcome barriers of access to maternal health care services. This study has shown that urban women in the sample were more likely to use services than rural women. This observation may be due to differences in access to maternal health care services. The rural women often have to cover long distances to the facilities, a fact that could discourage many. Therefore, maternal health care services should be made more accessible to rural women.
- Female education was associated with patterns of maternal health care service use. Education levels in Nyanza province need to be improved. In the sample studied, most of the women had either none or just primary education. Education affects maternal health care service use by changing ideas about maternal health and attitudes toward risk prevention by using the maternal health care services.

#### *Recommendations for further research*

The relationship between use of maternity care services and maternal mortality is another area that needs research in Nyanza Province. Such a study would give a true picture of whether the effects of the maternity care services really impact on the maternal mortality. Nyanza, a high maternal mortality zone would be an appropriate area to test the relationships. More qualitative studies need to be carried out to get women's perspectives on provision of maternity care services and what interventions would be appropriate.

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