Two Worlds Apart: A Comparative Study Of Access And Utilization Of Maternal - Infant Health Services Between Two Counties In Kenya

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ABSTRACT

Maternal and infant mortalities in Kenya are still high compared to global targets. This study targeted women of reproductive age (15 - 49) with the aim of assessing disparities in the access and utilization of maternal - infant health services in Migori and Nyeri Counties. A crossectional study design was employed. Interviewer – administered questionnaires, Key Informant Interviews (KII) and Focused Group Discussions (FGD) were used. Quantitative data was analyzed using STATA 9, reporting proportions while qualitative data was recorded and transcribed, with responses being grouped according to emerging themes. The findings especially in Migori County indicated that there was limited access and utilization of maternal and infant health services. In Migori, the peak fertility was 20-24 as compared to Nyeri which was 25-29 with the average number of children per woman being four in Migori compared to two in Nyeri. In Migori, 417(93.9%) attended ANC, 32.2% making atleast 4 ANC visits during their last pregnancy while in Nyeri 97% did attend with 38.2% making 4 visits. Health facility delivery occurred in 53.3% of women in Migori, 93.1% in Nyeri. In Migori, 73.9% of the respondents had attended postnatal clinic compared to 93.1% for Nyeri County while 41.2% and 76.5% sought use of Family Planning methods after delivery in Migori Nyeri respectively.Some of the factors contributing to inaccessibility included economic, inadequate staffing, negative staff attitude and health facility factors as well as lack of equipment and some services. Training needs on current obstetric care practices by the health care workers were mainly identified in Migori. Male participation is merely passive in the two counties. There exists a wide gap in access and utilization of maternal and infant health services between the two counties. Access and utilization is hampered by a range of factors of which some are unique for each region. These include socio-demographic and economic factors, lack of knowledge of the health services, poor infrastructure including poor road network and negative staff attitude. Lack of capacity of the health facility to provide the services due to inadequate staffing and lack of equipment is also a contributory factor. Male involvement in maternal and infant health is low. These findings could guide design of interventions aimed at improving maternal and infant health at the tier two health facilities in line with Kenya Essential Package for Health (KEPH).

Keywords: Comparative; access; utilization; maternal-infant; health; Kenya

1. BACKGROUND

Poor access and unavailability of quality obstetric care, inadequate health facilities for institutional deliveries, lack of skills among health care providers in essential and emergency obstetric care are key systemic factors that have influenced the utilization and pregnancy outcomes(Gupta S.D., 2005). Lowering a mother's risk of mortality and morbidity directly improves a child's prospects for survival(UNICEF, 2009).

In developing countries, the risk of death in the neonatal period is six times greater than in developed countries(WHO, 2006). Analyses from Demographic and health Surveys (DHS) in developing countries have

repeatedly found large gaps between the poorest and least-poor quaintiles in maternal and neonatal health coverage, particularly for skilled attendance at delivery, which is one of the MDG progress indicators(Boerma, Bryce, Kinfu, Axelson, & Victora, 2008).

Kenya's maternal mortality ratio is still high (362 maternal deaths per 100,000 live births) and under-five child mortality (52 per 1000 live births) with mortality occurring in the first month of life being 39 deaths per 1,000 live births. In 2012, the government of Kenya launched a new policy on population and national development. The policy is described in the Sessional Paper No. 3 of 2012, policy targets include: to reduce the infant mortality rate from 52 per 1,000 live births in 2009 to 25 per 1,000 live births by 2030, reduce the under-5 mortality rate from 74 per 1,000 live births in 2009 to 48 per 1,000 live births by 2030 and to reduce the maternal mortality rate from 488 deaths per 100,000 live births in 2009 to 200 deaths per 100,000 live births by 2030(Kenya National Bureau of Statistics et al., 2015).

The Kenya Demographic and Health Survey (KDHS, 2008-2009) report indicate that only 44% births are done under supervision of a health professional, 28% under traditional birth attendance (TBA) and 21% under relatives and friends. There are large regional disparities in the availability and utilization of delivery care in Kenya. There are also inequities in the distribution of skilled care providers with more than half (56%) of all health personnel being urban-based(Kenya National Bureau of Statistics - KNBS et al., 2010).

A child born in the Nyanza region is almost twice as likely to die before age 5 as a child born in the Central region. Nairobi has the second highest under-5 mortality rate, following Nyanza (72 deaths per 1,000 live births)(Kenya National Bureau of Statistics et al., 2015).

There are large regional disparities in the availability and utilization of maternal and infant health services in Kenya. In Kenya, more than half (56%) of all health personnel are urban-based, and almost one quarter (25%) work in Nairobi(Kenya National Bureau of Statistics - KNBS et al., 2010). There are also inequities in the distribution of skilled care providers. Skilled childbirth care, particularly in rural areas, is provided mostly by nurses/midwives. In Nairobi, twice as many obstetric care facilities have at least one physician on staff compared to obstetric care facilities in other provinces in Kenya (64% and 30 –45%, respectively).

Nyanza province has the highest infant mortality rates (149 per 1000) while central province has the lowest in the country (51 per 1000). Central province has the highest skilled birth attendance in the country (73.8%) compared to Nyanza province (43.1%)(Kenya National Bureau of Statistics - KNBS et al., 2010). Migori County in Nyanza province suffers the highest maternal mortality rates in the country of 1400 - 2000 per 100 000 live births). Maternal health indicators are particularly poor in Migori District, where only 23% of women give birth in health facilities(FHI, 2003). Nyeri County in central province has evenly distributed health facilities with 63.4% of the population living within 1-4.9 kilometres to the nearest health facility (KSPA, 2010).

This study elucidates maternal-infant health disparities between Migori and Nyeri Counties in Kenya.

2. MATERIALS AND METHODS

This was a descriptive cross-sectional baseline study of 2013 for the 5 year MAISHA project (2012-2017). The five year maternal – infant health (The MAISHA Project 2012-2017) project's primary objective was to improve access to and attitudes towards quality health care services for women and children living in rural communities within Migori and Nyeri Counties. The study design employed both quantitative design through the use of an interviewer – administered questionnaire and qualitative design through the use of Key Informant Interviews (KII) and Focused Group Discussions (FGD). The study areas were Mukurwe-ini and Othaya divisions in Nyeri County and Suba East and West in Migori County. Nyeri is one of the counties in central region with a population of 693,558 people. Migori County is located in the Nyanza region with a population of 917,170 people. Women of reproductive age who met the inclusion criteria living in Suba East and West divisions in Migori, and Mukurwe-ini and Othaya divisions in Nyeri.

Two divisions from each of the counties were selected purposively due to the poor maternal and infant health indicators. This was done with the guidance of the District Health Management Teams in both counties. Four health facilities with high volume clients and households surrounding the facilities were recruited into the study.

A total of 446 women of reproductive age in Migori and 482 in Nyeri were interviewed. In the selected facilities, one key informant representing the community health workers and one representing the health facility were interviewed. Separate FGDs for men and women were organized in the selected health facilities.

Quantitative data was analyzed using STATA 9 computer packages and presented in forms of proportions, tables and narratives. Excerpts from Focus Group Discussions (FGD) and Key Informant Interviews (KII) were used to supplement the quantitative data.

2.1 ETHICAL CONSIDERATIONS

Ethical approval was granted from Kenyatta University Ethics Review Committee (KUERC) and a permit from the National Council of Science and Technology and Innovation (NACOSTI). Participants gave informed consent.

3. RESULTS

3.1 SOCIO - DEMOGRAPHIC FINDINGS

In Migori, among the 446 women interviewed, most of them were aged between 20 – 24 years were 157 (35.2%) and the mean age was 25.9 years. In Nyeri, among the 482 respondents interviewed, most of them were aged between 25 – 29 years 138 (28.6%) and the mean age was 29.2 years.

In Migori, most women were multiparaous 222(49.9%), and the average number of children per woman was four while in Nyeri, most of them were either multiparaous 316(65.7%) and the average number of children per woman was two. Migori was noted with a high number of grandmultiparity 155(34.8%) as compared to Nyeri 34(7.1%). Most of the respondents were married in both areas of study 382(85.6%) and 366(76.1%) in Migori and Nyeri respectively. Most of the respondents 357(80%) had attained primary level of education in Migori while in Nyeri, 223(46.3%) of the respondents had primary level of education and 219(45.4%) had secondary level. On the partner's education level, 271(61.3%) had primary level of education in Migori, while 183(38.3%) had primary level and (144)30.1% had secondary level of education in Nyeri. In both study sites, most of the respondents did not have formal employment. The number of housewives were 228(51.5%) and 191(40.2%) in Migori and Nyeri respectively. Most of their partners were self-employed. The religion of most of the respondents was either Protestant or Catholic. (**Table 1**)

3.2 ACCESS AND UTILIZATION OF MATERNAL - INFANT HEALTH SERVICES

In Migori, qualitative data findings indicate that access and utilization of maternal – infant health services was limited by various factors. These included cost at the health facilities like buying of ANC books, inadequate staffing, negative staff attitude, lack of basic equipment and supplies and lack of drugs in the health facilities. Long distances to the health facility, poor road network, lack of transport or proper means to the health facility and expensive means of transport also contributed to inaccessibility. In some facilities, the services provided were poor and construction was still underway.

"Lack of drugs, and the drugs that are meant to be free are sold and this makes (mothers) to avoid seeking help from there". (KII)

"There is inadequate staff and equipment especially Reproductive Health equipment (delivery and infant resuscitation equipment)". (KII)

"Motorcycles are expensive". (FGD)

"Some women do not deliver in hospital because they believe they will be tested for HIV and they will be known in the village if tested positive which will in turn lead to their rejection by the community members". (KII)

In Nyeri, qualitative data findings indicated that access and utilization of maternal – infant health services was good in some facilities however, it was limited by various factors. These included cost at the health facilities, for example, delivery fee would cost between 2000 – 3500 Ksh. The poor referral network was also reported as a factor contributing to inaccessibility to the health facility.

"Lack of equipment is a challenge. Referral system is poor because we are depending on one ambulance which serves very many facilities, you can easily loose a patient due to delays, there are no adequate drugs like folic and ferrous. For resuscitation, we do not have some of the equipment". (KII)

3.3 ANTENATAL CARE

In Migori, 417(93.9%) attended ANC during their last pregnancy. Those who had attended the clinic at least four times during the entire pregnancy were 137(32.2%), 120(28.2%) had attended at least three times, 43(10%)

two times and 18(4.2%) had attended ANC once during the entire pregnancy. Those who had attended the ANC five times and more were (104)23%. In Nyeri, 97% of the respondents had attended ANC during their most recent pregnancy. Those who had attended at least four times during their entire pregnancy period were 38.2%, 23.2% had attended three times, 26.3% had attended more than five times while 5.9% had attended twice or less.

The findings indicate that most of the respondents booked for ANC during the second trimester 259(61.4%) in Migori and 68.3%) in Nyeri. In Migori, 112(26.5%) booked during the first trimester and 51(11.4%) during the third trimester. In Nyeri, those who booked during the first trimester were 20.9% while 10.8% booked ANC during the third trimester.

In Migori, the reasons for not attending ANC included cultural/religious reasons, transport means, clinic charges, distance to the health facility, lack of husband's approval and attending at TBA while in Nyeri, the main reasons were facility charges (0.2%) and negative staff attitude (0.21%) and 1.2% gave other reasons.

In Migori, 80.7% of the respondents made the decision for ANC attendance themselves, the partners decided among 11.6%, the mother-in-law decided among 3.6% and among 3.8%, the decision was made by other members of the family and friends. In Nyeri, among 86.6% of the respondents, the decision to attend ANC was made by the respondents themselves, the partners made decision among 6.7% of them while for 3.6% of them, the decision was made by the mother in law and in 3.8% it was done by other family members.

On the mode of transport in Migori, most of the women went to the clinic by foot (88%), 9.9% used motorcycles, 1.1% by 'Matatu' while 0.9% used other means of transport. The time taken to reach the health facility was 30 minutes or less among most of the respondents (73.8%). Only 2.3% took more than two hours to the health facility. In Nyeri, the transport means used by most of the respondents to the health facility was by foot (71.3%), 27.7% used 'matatu' while 0.6% used motorcycles.

3.4 DELIVERY

In Migori, on the mode of delivery, 95.5% of the respondents had normal delivery, 2.2% assisted vaginal delivery and 2.24% had caesarean section during their last delivery. Those who had had a difficult delivery were 16.6%. The difficulties encountered prolonged labour, abnormal presentations of the baby and postpartum complications. In Nyeri, among the respondents, 80.6% of them had a normal delivery during their most recent pregnancy, 17.3% had caesarean section while 2.1% had an assisted vaginal delivery. Those who reported a difficult delivery were 20.4%. The difficulties experienced included prolonged labour (5.4%), baby complications (5.4%) and 2.7% had postpartum complications.

In Migori, those who delivered at a health facility were 53.3% while in Nyeri, delivery of the most recent pregnancy took place at the health facility among 93.1% of the respondents.

"It is safe, and my first pregnancy was twin, I was assisted and delivered first twin well and the second twin was due to caesarean section. If I had delivered at home, I could have died". (FGD - Women)

"It is safe because my previous pregnancies, I delivered at home and after every delivery, I could get very sick. When I started going to hospital for delivery, I never had any complications". (FGD - Women)

In Migori, 45.4% delivered at home and 6.7% in Nyeri. Most of those who delivered at home were assisted by TBA (28.6%), 10.2% delivered without assistance, 7.4% assisted by friends and family members and only 0.23% received assistance from the CHWs. The main reason given for home delivery was sudden labour (18.7%), financial reasons 8.1%, lack of transport 7.4%, personal choice 5.4%, fear of facility staff 1.1%. Those who lacked husband's approval were only 0.2% while 4% delivered at home due to other reasons. Qualitative data indicated that women preferred home delivery due to the affordability. In Nyeri and for 6.7%, the delivery took place at home. For those who delivered at home, the reasons given were sudden labour (3.8%), financial reasons (1.5%), lack of transport (0.8%), personal choice (0.6%) and fear of facility staff (0.2%).

"The TBAs are easy to reach and are cheap because you can pay them with a chick or hen". (FGD - Women)

"There is immediate good food after delivery which is ready made". (FGD – Women)

3.5 POSTNATAL CARE

In Migori, 73.9% of the respondents had attended postnatal clinic. Most of the clients (62.3%) attended PNC during the first six weeks postnatally while in Nyeri, 93.1% of the respondents had attended PNC during their most recent delivery.

In Migori, the main reason why 25.4% of the respondents had not attended PNC was lack of knowledge (14.3%), 5.2% did not feel it was necessary, 1.6% went to a TBA. Those who did not attend due to distance and transport costs to the health facility were 1.6%. Cultural/ religious reasons only contributed among 0.68% and for only 0.2%, they did not get husband's approval. In Nyeri, the reasons given for not seeking postnatal care were lack of knowledge (1.8%), did not see the need (0.6%), 0.42% went to a TBA while 0.2% cited transport costs.

3.6 FAMILY PLANNING

In Migori, those who sought use of FP after delivery were 41.2% while 58.8% did not seek for the services. Among the respondents who sought for FP services, 82.1% sought for the services at the public health facility while 17.9% sought elsewhere. Among the places sought were private health facility (10.4%), chemist (3.5%), herbal medicine (0.7%) and other places (4.3%).

In Nyeri, 76.5% of the respondents sought the services. Among the places sought were private health facility (16.3%), chemist (6.9%), herbal medicine (1.1%) and other places (2.8%). In Migori the commonly used FP method was injectables (27%. Other methods were orall contraceptives (3.8%), implants (2.04%) and condoms

(2.04%) while in Nyeri, the most preferred method of FP was injectables (29.8%), oral contraceptives (22.9%), implants (2.9%) and condoms were least preferred (0.5%).

3.7 THE BABY

In Migori, 94% of the women had breastfed their babies. Difficulties during breastfeeding were experienced among 14% of the respondents. For those who did not breastfeed, the reasons given included mother not having enough milk (2.26%), abnormality of the breast (1.6%), a sick mother (1.35%), lifestyle choices (0.45%) and 0.5% did not breastfeed for other reasons. In Nyeri, 97.5% of the respondents breastfed their babies. For those who did not breastfeed, the reasons given included a sick mother (1.9%), inability to produce enough milk (0.8%), a sick baby (0.6%), abnormalities of the breast (0.6%) and work – related reasons (0.2%). For those who breastfed, 6.1% had difficulties in breastfeeding.

3.8 IMMUNIZATION

In Migori, 92.1% of the babies were immunized. An average of 58.81% of the 352 mothers intervened had taken their babies for immunization at 14 weeks. (For third pentavalent and polio 4). The reasons for not immunizing the children were lack of knowledge (3.8%), distance to the health facility (1.12%), mother did not see the importance 0.45%, lack of vaccines (0.45%) and 2.8% due to other reasons. In Nyeri, 98.1% of the children were immunized. For those whose children were not immunized, the reasons given were lack of vaccines (0.4%), distance to the health facilities (0.4%) and 0.2% gave other reasons. A good number 86.92% the 474 mothers intervened had taken their babies for immunization at 14 weeks. (For third pentavalent and polio 4) and 75.7% had taken their babies for measles vaccine at 9 months.

"There is incomplete immunization of infants, they default after BCG & 1st polio". (KII - Facility in-charge)

"Mothers are ignorant of immunization schedule and there is low turn up for hospital delivery". (KII- Facility in-charge)

3.9 UNDER – FIVE MORTALITY

Under five mortality was reported among 14.8% of the respondents. Most of the children died within one month of life (4.3%). According to the respondents, the children had died due to sickness, 1.9% believed the child had died due to a curse, 1.4% died due to accidents and among 3.1% of the respondents, the children died due to other reasons. In Nyeri, under five mortality was reported among 2.7% of the respondents. The mortality age for most of the children was one month (1.5%). On the cause of death, most deaths were related to sickness (1.5%), accidents (1%), choking (0.2%) and 0.8% died due to other reasons.

3.10 HEALTH SERVICES

Satisfaction with services

In Migori, it was found out that 85.5% were satisfied with the services offered at the health facility while only 14.5% were not. In Nyeri, 84.8% of the respondents were satisfied with the services offered at the health facility. The main reasons for satisfaction were good staff attitude (72.9%) and good facility factors which include

presence of equipment (11.5%). The reasons for not being satisfied with the services included lack of services at the facility, poor staffing and negative staff attitudes and 1.4% of them gave other reasons.

"The staff keep them for too long, they wait for them to give them services but they just chat or take tea. Generally the staffs are different, some are bad and some are good".(FGD - Women)

Staff Attitudes

The experience of bad treatment cut across maternal and infant care. Results from the focus group discussions indicated that some staff at the health facilities treat mothers badly and therefore service uptake is poor especially so in Migori County.

"I went to deliver at a health facility; the nurses were pinching and beating me. I was traumatized and I swore never to go back. The third born I went to a traditional birth attendant (TBA). The fourth born, I decided to go to the district hospital and the treatment was the same". (FGD - Women)

"I took my child to hospital at around 8pm. At around 9pm, the child started convulsing. At around 10pm, I awoke the nurse and the doctor but they refused to wake up. At around midnight, my child died and that is the time they woke up" (FGD - Women).

3.11 MALE INVOLVEMENT

Qualitative data indicated that some men were involved in maternal and infant health services through supporting their wives when they were pregnant and at decision making level especially where the woman was less empowered economically. However, some of them did not offer the support. In Nyeri, the women felt that the men should be involved to the extent of them being allowed into the delivery room during the birth of the baby however, in Migori the women felt that the men could escort them especially during labour but should not enter the delivery room owing to their cultural beliefs. It was found out that men would utilize the health services at the facilities if there were incentives like the clinic taking a short time. Despite being aware of the services provided at the health facilities, did not see the need of accessing the services.

"Fathers are mainly the decision makers in where to deliver, however some give their wives to decide where to deliver" (FGD - Women)

"Husband only accompanies the wife to the hospital only when there is no woman to accompany" (FGD - Men).

"Some do not support their wives especially during health facility visits and they beat them when they return home late from the health facility". (KII- Facility in-charge).

4. DISCUSSION

Access and utilization of maternal and infant health services serves as key factors in improving maternal and infant outcomes. From the findings, Nyeri and Migori Counties have wide disparities in maternal and infant health statistics: ANC attendance, skilled birth attendance, immunization coverage, postnatal care attendance and family planning utilization. This could be attributed to the infrastructure, accessibility of the health services and the socio – demographic differences including education level and parity in the two regions. In other studies,

socio-demographic factors including age, parity, marital status, mother's and partner's education level occupation and religion have been found out to influence use of maternal health care services in the developing countries(AbouZahr, 2003; Mekonnen & Mekonnen, 2003).

In Migori, the peak fertility was 20-24 as compared to Nyeri which was 25-29. The findings compare to KDHS 2008-09 which indicated that nationally and in rural areas, the peak fertility occurs early, at age 20-24. The disparities in the regions could be attributed to the education level. It has been found out that literacy decreases fertility levels. Better-educated women marry later and have greater autonomy in reproductive decision making(Bongaarts & Casterline, 2013).

Multiparity was evidenced from the study. Average number of children was higher in Migori as compared to Nyeri. Similar findings were found in KDHS (2008-09), where fertility in Central province was at 3.4 children per woman, and 5.4 in Nyanza. Higher parity has been associated with home deliveries. High parity could be associated to low education level and lack of access to family planning services.

Occupation of both the respondents and their partners affected access and utilization of health services. Qualitative data indicated that TBAs were preferred because they were cheap as compared to the health facilities. Other studies have reported similar findings which indicated that the earning ability of women is an important factor for utilization of health services(Furuta & Salway, 2006).

Antenatal and delivery care are both critical for maternal and newborn health (Magadi, Agwanda, & Obare, 2007). The findings of this study indicated that most of the women booked their ANC during the second trimester. A study on Utilization of maternal health services among young women in Kenya found out that timing of first antenatal care is an important entry point for delivery care as young women who initiated antenatal care early were more likely to use skilled professional assistance at delivery than their counterparts who initiated ANC late(Ochako, Fotso, Ikamari, & Khasakhala, 2011) .

Skilled attendance at childbirth is crucial for decreasing maternal and neonatal mortality, yet many women in low- and middle-income countries deliver outside of health facilities, without skilled help (Gabrysch & Campbell, 2009). Study findings indicated that most of the women in Migori attended ANC however, they delivered at home as compared to Nyeri where most of them attended ANC and delivered under skilled birth attendance. Home deliveries have been associated with rural residence(Kenya National Bureau of Statistics - KNBS et al., 2010) .

Barriers in accessing health care contribute to the second obstetric delay which eventually compromises the pregnancy outcome. Among the barriers identified from the study were the cost to the health facility, lack of knowledge, negative staff attitude, distance and lack of transport means to the health facility. Similar findings have been found in various studies (GOK, August 2010; Kenya National Bureau of Statistics - KNBS et al.,

2010). A number of qualitative studies have cited distance as deterrent from delivering in health facilities, particularly when labour starts suddenly prior adequate birth preparedness (Amooti-Kaguna & Nuwaha, 2000; Duong, Binns, & Lee, 2004; Mesko et al., 2003). A study done by Story et al. (2012) in Bangladesh found out that high cost and lack of transport contributed to delays in reaching the health facility in time(Story et al., 2012).

Decision making is a contributing factor to access and utilization of the health facilities. From the findings, those who made independent decisions were likely to utilize the health facilities as compared to those who depended on the partner or other people. Decision making is influenced by various factors which include the socio-economic empowerment and cultural factors. A Tanzanian study found out that cultural beliefs influenced home delivery (Mrisho et al., 2007).

Knowledge of danger signs plays a role in expediting the seeking of health services. The study findings indicated that some respondents did not seek care due to lack of knowledge on the importance of seeking care. These findings compare to a study in Tanzania which found out that lack of knowledge of the recognition of danger signs and complications led to extended time to make decision in seeking health care (Mushi D, 2007).

Male participation is a crucial component in the optimization of Maternal and Child Health (MCH) services. Despite this, qualitative data from this baseline survey strongly points to male participation being merely passive in the two counties. This is consistent with findings from a study done in Omoro County Gulu District, where few men accompanied their wives during delivery (Tweheyo, Konde-Lule, Tumwesigye, & Sekandi, 2010). In fact, as was the case in Nyeri County, with more women empowerment – economic wise, women themselves contribute to sidelining of their partners from active participation. The health facilities' reportedly 'skewed' their maternal infant health services in favor of women and infants, with no specific services/clinics targeting men and as Mboizvo and Bassett (1996) stated, failure to target men in programmes has weakened the impact of reproductive health programmes, since men can significantly influence their partner's reproductive health decision-making and use of health resources. Further, there were reported cases of men who were barred from being with their partners in the delivery room. Some men failed to realize the importance of participating in Maternal and Child Health (MCH) services and voiced discomfort having to queue along with women and children as they sought services. These lead to low men involvement(Mbizvo & Bassett, 1996). Similarly, male participation was reportedly low, as reflected in only 12.5% men accompanying their wife for ANC in a study in northern Tanzania(Msuya et al., 2008).

5. CONCLUSION

There exists a wide gap in access and utilization of maternal and infant health services between the two counties. Access and utilization is hampered by a range of factors of which some are unique for each region. These

include socio-demographic and economic factors, lack of knowledge of the health services, poor infrastructure including poor road network and negative staff attitude. Lack of capacity of the health facility to provide the services due to inadequate staffing and lack of equipment is also a contributory factor to inaccessibility and poor utilization of the health facilities. There is inadequate training of the staff on current obstetric care. Male involvement in maternal and infant health is low.

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Conflict of interest

The authors declare no conflict of interest.

Authors' contributions

Moses Gitonga: conceptualized the study, analyzed the data and wrote the manuscript. Joyce Jebet Cheptum and Ernest Muthami Mutua: participated in study design, analysis and manuscript review. All authors read and approved the final draft of the manuscript.

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7. TABLE

Table 1: Participants Socio-Demographic Characteristics

MIGORI			**NYERI**	
AGE	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
15 - 19	65	14.6	12	2.5
20 – 24	157	35.2	110	22.8
25 – 29	99	22.2	138	28.6
30 – 34	73	16.4	116	24.1
35 – 39	33	7.4	68	14.1
40 – 44	13	2.9	32	6.6
45 - 49	6	1.3	6	1.2
TOTAL	446	100	482	100
PARITY	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Primipara (1+0)	72	16.2	131	27.2
Multipara (1-4)	222	49.9	316	65.7
Grandpara (5+)	155	34.8	34	7.1
TOTAL	445	100	481	100
MARITAL STATUS	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Married	382	85.6	366	76.1

Single	24	5.4	98	20.4
Divorced	29	6.5	14	2.9
Widowed	11	2.5	3	0.6
TOTAL	446	100	481	100
EDUCATION LEVEL	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
None	5	1.12	4	0.83
Primary	357	80.04	223	46.27
Secondary	74	16.59	219	45.44
College/ University	10	2.24	36	7.47
TOTAL	446	100	482	100
PARTNER'S EDUCATION LEVEL	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
None	6	1.36	5	1.05
Primary	271	61.31	144	30.13
Secondary	97	21.95	183	38.28
College/ University	15	3.39	40	8.37
N/A	53	11.99	106	22.18
TOTAL	446	100		
OCCUPATION	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Self employed	187	42.21	175	36.8
Salaried	14	3.16	44	9.26
Casual	14	3.16	65	13.68
Housewife	228	51.47	191	40.21
Total	443	100	475	100
PARTNER'S OCCUPATION	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Self employed	257	58.01	176	36.82
Salaried	43	9.71	112	23.4
Casual	73	16.48	78	16.3
N/A	70	15.80	111	23.2
TOTAL	443	100	478	100
RELIGION	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Catholic	81	18.4	133	27.7
Protestant	304	68.9	331	68.96
Muslim	2	0.5	1	0.21
Others	54	12.2	15	3.13
Total	441	100	480	100