Factors associated with uptake of free maternity services at Kabarnet County Hospital

Chesumei E. J. [1], Kiage B. N. [2], Mutai J.[3]

1. Institute of Tropical Medicine and Infectious Diseases, Jomo Kenyatta University of Agriculture and Technology, Nairobi Kenya.
2. College of Health Sciences, Jomo Kenyatta University of Agriculture and Technology.
3. Centre for Public Health Research, Kenya Medical Research Institute (KEMRI).

Corresponding Author: Emily Chesumei; MSc. Public Health student, Institute of Tropical Medicine and Infectious Diseases, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya. Email: ebungeik@gmail.com

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SUMMARY

Introduction: High maternal mortality is a global issue now apparent with unattained Millennium Development Goal five. World Health Organization 2015, reported developing countries especially those in sub-Saharan Africa as most affected with a Maternal Mortality Rate of 546 while Kenya at 510 was among those highlighted. A skilled assisted delivery is known to reduce maternal mortality hence the Government of Kenya implemented free maternity services in June 2013 to remove financial barriers to it. The study sought to determine factors associated with uptake of free maternity services.

Methodology: It was a cross sectional study, conducted at Kabarnet County Hospital among women attending maternal child health clinic who had a birth three years prior to study. A sample size of 379 was obtained using Cochran's formula and systematic sampling was applied. Ethical consideration was obtained from Kenyatta National Hospital/ University of Nairobi ethical review committee. Data was collected through structured questionnaires and analyzed using binary logistic regression.

Findings: Majority of participants exemplified socio demographic factors identified from previous studies to promote skilled assisted deliveries. Of the 379 women interviewed; 70.4% were between 21 to 30 years, about three quarter (75.7%) had education beyond primary school, 89.7% lived within 7km from government maternity facility and 89.4 % had a birth plan. Most of the deliveries (95.8%) took place at government hospitals while 3.2% were in private hospitals and 0.5% away from hospital. Three quarter of participants stated good services as their reason for choosing place of delivery. Presence of modern equipment/technology and referrals were significantly associated with hospital deliveries with 0.001 and 0.016 p values respectively.

Conclusion: Well-equipped and functional maternity facilities, if made accessible, affordable and acceptable will promote skilled assisted deliveries.

Key words: Maternal Mortality Rate, Skilled Assisted Deliveries, Free Maternity Services

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Introduction

Every day in 2015, about 830 women died due to complications of pregnancy and child birth. Almost all of these deaths occurred in low-resource settings and most could have been prevented [1]. The risk of a woman in a developing country dying from a maternal-related cause during her lifetime is about 33 times higher compared to a woman living in a developed country [1]. These deaths are a painful reality to many families and not mere statistics especially due to the woman's vital role in the family, her death brings in a lot of disruption [2, 3].

The global community consolidated efforts to reduce maternal mortality by 75% between 1990 and 2015 through Millennium Development Goal five (MDG 5) which culminated in a 44% drop [1]. However, developing regions and especially Sub-Saharan Africa (SSA) lags behind, accounting for approximately 99% and 66% respectively of the global maternal deaths in 2015 [1]. Developed countries had a Maternal Mortality Rate (MMR) of 12 while developing countries had it at 239 and SSA at 546. Kenya was among eighteen countries all in SSA with very high MMR at 510 [1]. The 2014 Kenya Demographic Health Survey (KDHS) reported it at 362 with no conclusion of change from previous 2008/09 KDHS of 520 [4].

Building on the momentum generated by MDG 5, are the Sustainable Development Goals (SDGs) with a new transformative agenda towards ending preventable maternal mortality [1]. Target 3.1 of SDG 3 for 2030 is to reduce the global MMR to less than 70, reduce country MMR by two thirds from the 2010 baseline, end preventable maternal mortality and have no country with MMR higher than 140 [1]. Top among World Health Organization (WHO) strategies towards ending preventable maternal mortalities are addressing inequities in access to and quality of maternal healthcare as well as ensuring universal health coverage [1].

Kenya aimed at increasing equitable access to quality, efficient, effective and responsive maternal services [5]. In enhancing accessibility, Free Maternity Services' program was introduced in June 2013 after a presidential directive [6]. It was however implemented without elaborate preparation and with no written strategy, amidst pessimism of its success. This is more so because public hospitals already had challenges and services would likely worsen with

increased clients [6]. In addition, Kenya's maternal services grapple with inadequacies in; funds, skilled health personnel and referral systems. Regional health services disparities, socio-cultural barriers, lack of awareness and poor infrastructure causing constrained access to health facilities are standing issues in many places in Kenya [6, 7].

Although the Government Policy was a bold step in attracting more women to utilize hospital maternity services, factors contributing to its optimal uptake or otherwise have not been adequately explored. This study therefore sought to highlight those factors associated with uptake of free maternity services at Kabarnet County Hospital.

Methodology

Study area

The study was done at Kabarnet County Hospital in Kabarnet Mosop location, Kabarnet town, which hosts the County Government of Baringo. 88.36% of the hospitals in the County are public and government owned with an average of 15KM to the nearest health per household. 53.5% of deliveries in the County are conducted in health facilities and there is 63.2% full immunization coverage [8]. Kabarnet Mosop location has an urban population of 9,583 and a total population of 24,661 [8, 9]. It is on Tugen hills hence a rugged terrain, characterized by hills, cliffs and valleys. Kabarnet County Hospital is the largest hospital in the county covering kabarnet town population estimated to be 5% county population and referrals from all over the county [8]. It has the only maternity unit within the town and environs and residents of the town majorly get MCH services there.

Study Design

It was a descriptive cross sectional study to determine factors associated with free maternity services

Study Population

It was conducted among women attending maternal child health clinic at Kabarnet County Hospital who had a birth within three years from the time of study.

Sampling

The sample size of 379 was derived using Cochran's formula 1977 and Kenya's most recent estimated proportion of skilled attended births available at the time of the study [4, 10].

Data Collection Apparatus

A structured questionnaire was administered to participants and it captured; socio-demographic characteristics (age, education level, parity and marital status), Knowledge, attitude and practices on delivery services (antenatal attendance, delivery practices, experiences and views). The questionnaire was designed in English, then translated and administered in Kiswahili by the principal investigator and/or trained research assistant.

Data Collection Procedures

A sample interval of three was obtained by dividing sample frame (estimated number of patients per day times the number of study days) to the sample size.

Simple random sampling was used to pick the first participant from among the first three mothers and thereafter systematic sampling applied, where every third mother was sampled until a sample size was attained. If a sampled mother did not meet inclusion criteria the next mother was sampled. The sampled mothers were interviewed with the guide of a Kiswahili translated structured questionnaire after receiving the hospital services.

Ethical Considerations

Scientific and ethical approvals were obtained from Kenyatta National Hospital/ University of Nairobi Ethical Review Committee. Permission was sought and obtained from the hospital's administration to collect data within the hospital. Mothers, who met the study criteria, were requested to voluntarily sign informed consent or place a thumbprint, were enrolled into the study. Women whose condition made them unable or uncomfortable to participate were exempted. Participants were assured that none of their names would appear in any report and that all their responses would be kept in confidence.

Data Analysis

Data obtained were entered into Access database, cleaned then exported to Statistical Package for Social Sciences version 20 for analysis. The independent variables were the woman's and facility's factors while uptake of free maternity services was the dependent variable. A P-value less than 0.05 was considered statistically significant. Binary logistic regression was used to eliminate confounding factors and assess effect of various predictive factors significantly associated to the dependent variable. Data was then presented in tables and charts form.

Results

Socio Demographic Factors

A total of 379 women participated in the interview. 32% of the respondents were aged between 21 and 25 years and 38% aged between 26 and 30 years. 43 % and 32.7% of the participants had secondary and tertiary level of education respectively. 73.1% of participants were married and about three-quarter of them had parity of six and below (Table 1).

Table 1: Summary of socio-demographic factors

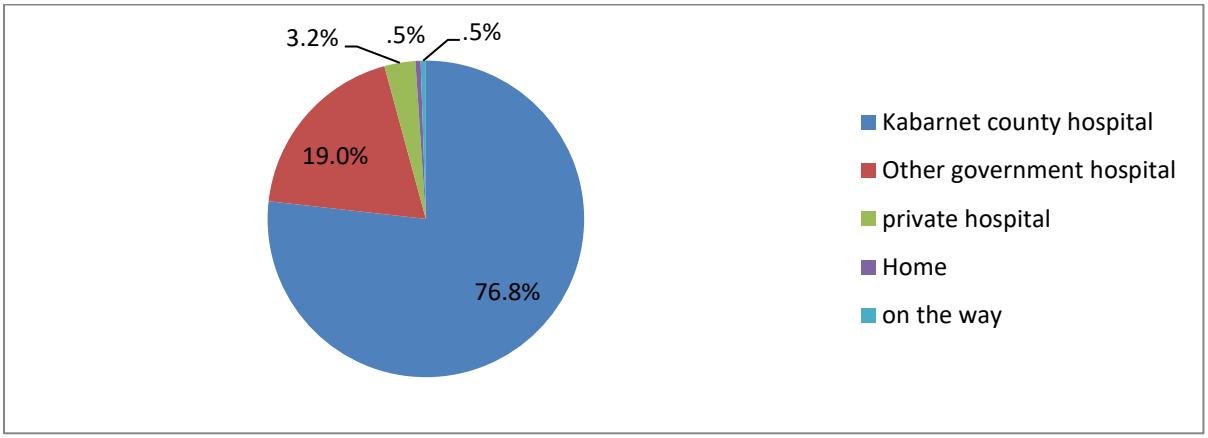
Characteristic	Number	Percentage (%)
Age		
15-20 years	29	7.7
21-25 years	120	31.7
26-30 years	143	37.7
31-35 years	65	17.2
36-40 years	22	5.8

Characteristic	Number	Percentage (%)
Level of education		
Lower primary school	12	3.2
Upper primary school	74	19.5
Secondary school	163	43
Tertiary	124	32.7
Marital status		
Married	277	73.1
Single	80	21.1
Divorced	6	1.6
Separated	16	4.2
Parity		
1-3	123	32.5
4-6	165	43.5
7-9	73	19.3
>10	1	0.3

Place of delivery

Government maternity facilities were most utilized for delivery by almost all respondents (95.8%), with 3.2% in a private hospital and 0.5% each at home and on the way to the hospital (Figure 1).

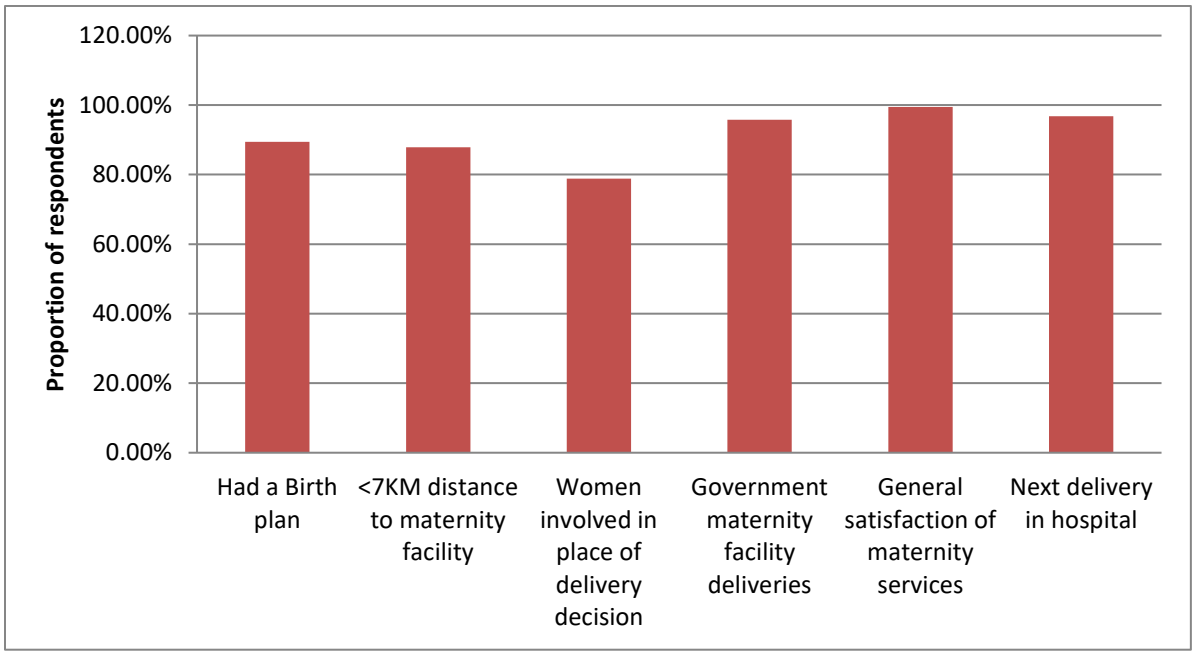
Figure 1: Place of delivery



Delivery attributes

97.4% of the respondents attended ANC, 89.4% had a birth plan and 88.4% lived within seven Km from a government maternity facility. 78.8% of the mothers were involved in deciding place of delivery, 99.5% were generally satisfied with maternity services offered and 96.8% desired to have their next delivery in a hospital (Figure 2).

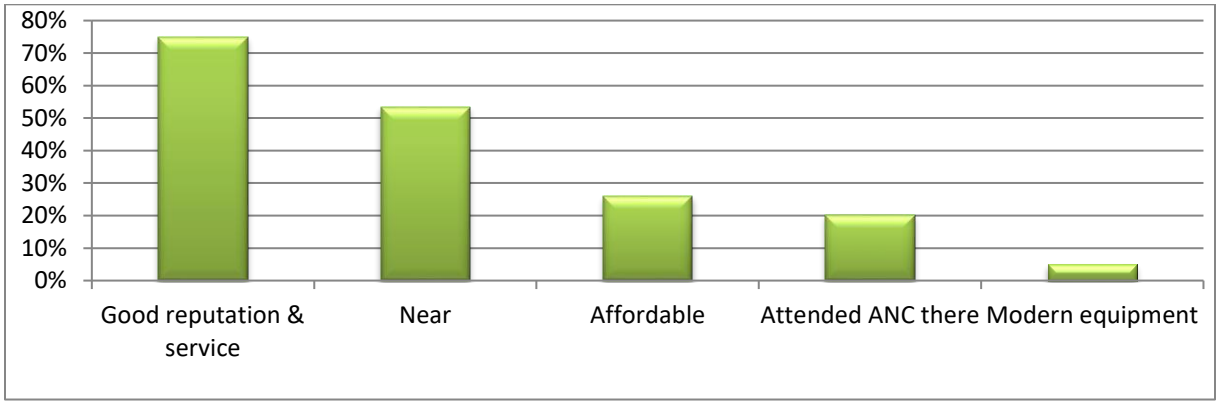
Figure 2: Delivery place factors



Reasons for place of delivery

Good services of the maternity facilities were stated by 75% of the participants as a reason for their choice of place of delivery. It was followed by Proximity to facility and affordability by 53.5% and 26% of participants respectively (Figure 3).

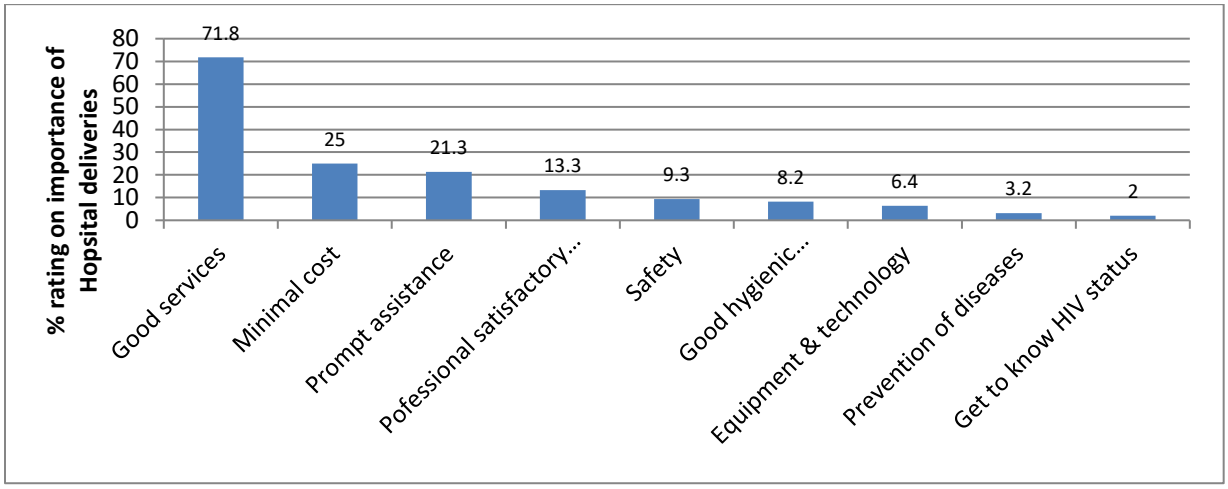
Figure 3: Reasons for place of delivery



Importance of hospital deliveries

Views on importance of hospital delivery from the respondents were; good services (71.8%), good hygienic environment (8.4%), professional and satisfactory services (13.3%), No /minimum cost (25%), available equipment and technology (6.4%), prompt assistance (21.3%), health education to the mother (8.2%), safety of mother and baby (9.3%), promotes prevention of infection and diseases (3.2%), and knowing one's HIV status (2.9%) (Figure 4)

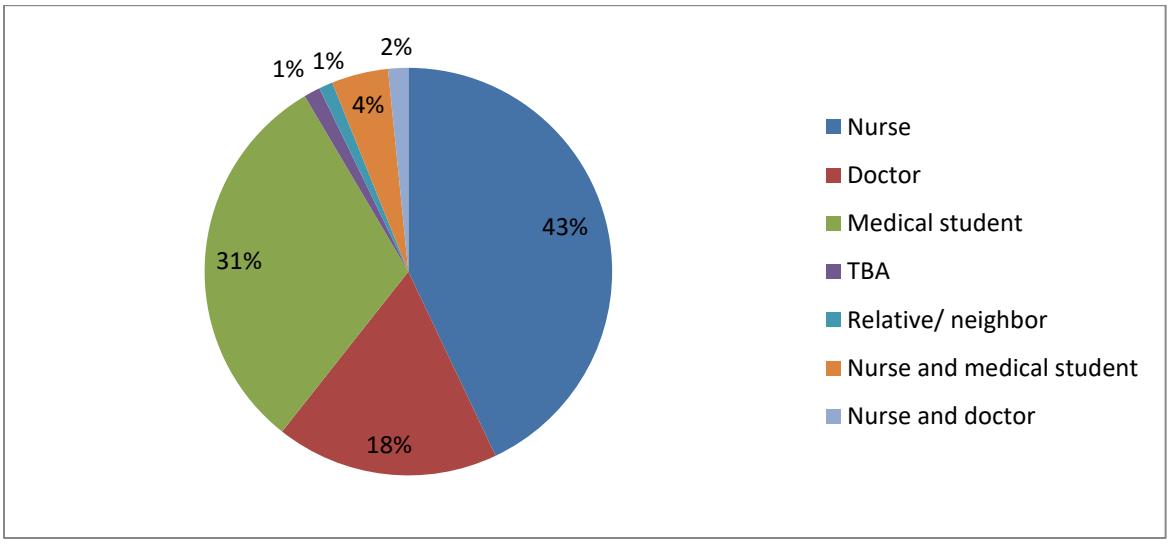
Figure 4: Importance of hospital deliveries



Delivery assistant

Nurses assisted 43% of the deliveries while doctors 17.7%, medical students assisted 30.9%, nurse with medical student did 4.5% and nurse with doctor 1.6% (Figure 5).

Figure 5: Delivery assistant



Logistic regression

Factors associated with place of delivery were tested using bivariate logistic regression. Significant factors on data without private sector were established to be; having a birth plan, referrals and presence of modern equipment. Women with a birth plan significantly associated with hospital delivery having a p value of 0.028 which is less than 0.05 hence significant. Referred women or those expecting a complication significantly associated with hospital delivery having a p value less than 0.001 at 5% level of significance. Women who cited presence of modern equipment and technology as importance of hospital delivery were likely to deliver in a hospital with p value less than 0.001 at 5% the level of significance (Table 2).

Table 2: Bivariate logistic regression

	S.E	Sig	EXP (B)
Birth Plan	1.016	0.028	0.107
Referral/expected complication	1.081	<0.001	59
Modern equipment	1.195	<0.001	95.182

Checking for confounding

Confounding factors were checked using backward Stepwise (conditional) method, used on the factors that were significant under the bivariate logistic regression. Modern equipment / technology and referral were found to be significant. Presence of modern equipment / technology at exponential 69.334 increased odds of uptake delivery services by 1.29 times while referrals at exponential 34.96 by 1.52 times (Table 3).

Table 3: Checking for confounding

	S.E	Sig	Exp (B)	C.I
Step 1				
Birth plan	1.475	0.309	0.223	0.12-4.02
Modern equipment	1.404	0.007	43.357	2.70-679.1
Referral	1.583	0.018	42.732	1.90-962.7
Step 2				
Modern equipment	1.318	0.001	69.334	5.20-918.5
Referrals	1.472	0.016	34.960	1.95-625.9

Discussions

Uptake of Free Maternity Services (FMS)

Introduction of free maternity services has been associated with an influx of maternity clients as was the case in South Africa and Kano state of Nigeria [11, 12]. User fee exemption has been popularly used all over the world and is proven strategy in improving health services delivery [13, 14]. The study revealed a sterling uptake of maternity services with 95.8% of the respondents having delivered in government facilities. Good reputation and good services were mentioned by 75% of the mothers as a reason for choice of delivery place, followed by proximity and affordability. This relates to findings in Nepal's study where public maternity facilities had the bulk of births at 76% and mothers' reasons for that choice was due to their reputation and perceived higher technical quality despite constrained essential facilities [15].

The high proportion of skilled assisted births among study participants demonstrates a possibility of attaining maternal health goals despite limited resources. It differs from the National proportion of 62%, understandably so because Kenya is a heterogeneous country with diverse geographical, socioeconomic and cultural factors hence variations in provision and uptake of maternity services [4, 16]. The findings are closer to the KDHS 2014 results, where Central province had 90% skilled assisted births unlike 29% for North Eastern and 82% skilled assisted births for the urban population unlike 50% for the rural population [4]. It is consistent with Ghana results at 86.7% skilled assisted births in the urban areas unlike 45% in the rural [17]. Such high proportion of skilled assisted births is a norm in developed countries attaining 95% in upper and middle income countries [18]. Similarly some developed countries have public maternity services being popularly utilized like in the United Kingdom (UK) [19].

Factors associated with uptake of Free Maternity Services

Controlled hospital environments, hygienic conditions, skilled personnel and the availability of resources to manage possible complications are corner-stones for the achievement of safe motherhood [20]. These factors bear great influence on a mother's choice of delivery place along with her own inherent factors such as; attitude, knowledge, practices as well as socio demographic factors.

Hospital equipment and technology

Availability of equipment and materials go hand in hand with provision of conventional delivery services. There can never be adequate care without adequate availability of required resources [14]. Modern equipment, materials and technology make work faster, safer and less burdensome and largely distinguish conventional care from home deliveries. The study established that presence of modern equipment/ technology in a hospital significantly influenced a woman's choice for it by about 1.3 times.

It seems that respondents counted conventional care as modern and were not after extravagance unavailable in public hospitals but efficiency. Therefore, well equipped health Centers with skilled workers is significant in attracting hospital deliveries and preventing maternal deaths [6, 15]. Igboanugo and Martin (2011) put it well, that a health Centre with skilled workers cannot prevent maternal or child deaths without an adequate supply of specialized equipment [21].

Hospital referrals

Referrals are mainly done in cases where a mother is likely to have complications. It signals possible danger hence unlikely to be ignored. Mothers have been known to ignore hospital delivery as they view birth as a natural process requiring no hospital services [13]. The study found significant association of referrals to hospital delivery where a referred mother had one and half times likelihood of delivering in a hospital compared to others. This is because a referred mother is not guaranteed a smooth natural delivery hence would not take a chance on a home delivery. Referrals or expecting complications has been associated with hospital delivery in other studies as was the case in a study in Ghana [17]. It therefore means that emphasis has to be put in enhancing proper referrals of mothers where one is required.

Mother's birth plan

Birth plan is the preparation an expectant mother puts towards ensuring safe delivery. This however has to be prompted during antenatal care as one of its important component. It includes a plan for a skilled assisted birth and place of delivery, financial and logistical preparation towards it, as well as recognition of danger or labor signs. Presence of a birth plan significantly associated with place of delivery in the first step of logistic regression, however on removing confounding factors it was eliminated. 89.4 % of clients had a birth plan and is among other maternal factors documented to increase uptake of maternity services.

Delivery assistants

Delivery assistants play a significant role in preventing maternal mortality. 43% of the deliveries were assisted by nurses, 17.7% by doctors, 30.9% by students and 4.5 % by nurse/student. Students assisted a good proportion of deliveries probably an indication of shortage of staff as ideally they work alongside qualified staff. The nurses conducted majority of the deliveries, which could be higher since male nurses are often perceived as doctors. This relates to Kenyas' demographic health survey 2014 results that found nurses and midwives having assisted 64% of the deliveries while doctors did 31%. It included private and referral hospitals where doctors conduct more deliveries otherwise proportion would be much lower [4]. This finding is consistent to a study in Ghana where doctors conducted only 9% of the deliveries [17].The Nurses/ midwife role in Skilled assisted deliveries is immense hence the need for recognition,

capacity building, and autonomy. They are the most available at grassroots level offering primary care and referrals. Netherlands has such semblance with their maternity services being midwifery led and having clear referral systems, however it is nationally recognized [19]. Midwifery/nurse led maternity services can be more accessible, affordable and with fewer chances of medical interventions [19].

Accessibility of maternity facilities

The hospital was accessible to most mothers as 88.4% of the respondents lived within 7 km to a government maternity facility. 53.3% of respondents attributed their choice of place of delivery to proximity. Most of them walked to hospital or used taxis and 'bodaboda' motorcycles readily available. 20.5% and 17.9% of respondents thought that women prefer TBA because of transport and distance respectively. MOH study found that distance to facility was the third with least satisfaction scores at 0.23 out of a possible 1 [6]. Therefore physical accessibility is important in improving uptake of maternity services. Other deterrents however must be addressed to avoid clients boycotting health facilities like in Gambia where 97% of the participants were within 5 km yet only 44% had skilled assisted deliveries due to poor hospital services, traditions and culture [22].

Among respondents, the affordability of services did not come out as a fore factor for choosing place of delivery, only 26% stating mentioned it. It could be attributed to the fact that good health outcomes are weightier than cost or actually the elimination of maternity fees did not significantly impact the participants.

Conclusion

There was a high uptake of free maternity services offered in public hospitals with nurses/ midwives having assisted most of the deliveries. The study demonstrated that skilled assisted deliveries can reach the required targets when adverse deterrents mainly; physical and financial accessibility, acceptability of services and women's socio-economic status are addressed. Free maternity services' program is a great avenue for mothers to access skilled assisted deliveries especially that government facilities are widespread and most available at the grass root levels.

Presence of modern equipment/ technology and referrals significantly associated with hospital deliveries and therefore a reason to equip and enhance functionality of maternity services with modern technology. Majority of the respondents highlighted 'good services' as a reason for place of delivery, emphasizing the significance of quality of services. There were no outstanding deterrents to skilled deliveries within the hospital or among the mothers.

Recommendations

1 Maternity services should be physically accessible to all women, by ensuring a ceiling

of five KMs to a health facilities offering emergency obstetric care. This can be achieved when every government health facility offers such services and through initiatives such as mobile clinics in remote areas.

2 Maternity facilities should have required functional equipment and materials, infrastructure and competent staff.

3 Nurse/midwife role in maternal services should be enhanced through training, capacity building and by making primary maternity services Nurse/midwife led.

4 The referral system requires strengthening and clear protocol outlined on when and where to refer clients.

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