

Health system factors associated with choice of place of delivery among postnatal women in Marsabit County, Kenya

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Abstract:

Background: Worldwide, there were approximately 295,000 women died as a result of pregnancy and childbirth related complications in 2017. Majority of this was from Sub-Saharan Africa with 196000. In Africa, about seventy-five per cent maternal and neonatal deaths occur outside health facilities. In Kenya, maternal mortality rate is 362 per 100,000 live births with 61.2% deliveries occurring in hospitals. There is still evidence of home deliveries despite significant efforts through several interventions.

Objective: The study aims to determine health system factors associated with choice of place of delivery among postnatal women in Marsabit County, Kenya.

Materials and methods: This research adopted a mixed descriptive cross-sectional study design method. Quantitative and qualitative research methods were used to collect data from participants. A total of 416 respondents were interviewed. The respondents were drawn from households using systematic random sampling at a predetermined interval of four. The study was done in 24 selected villages from Moyale Township, Golbo, Dukana and North-Horr Wards. Statistical Package for Social Sciences (SPSS) version 20.0 was used to analyze descriptive data. Inferential statistics such as Chi-Square tests at 95% confidence level and p-values of 0.05 was used to determine variable association.

Results: About 178(43.3%) of postnatal women delivered at home in Marsabit County. Chi-square statistics indicated that most health system factors such as distance to the nearest facility ($p=0.001$), experience with care provider (0.012), hindrance from health facility ($p=0.008$) and provision of information (0.001) were associated with choice of place of delivery. Results from focused group interviews and key informants were reported as direct narrations.

Conclusion: The study concluded that there was a significant number of women who are still delivering at home in Marsabit County. Majority of the health system factors were associated with choice of place of delivery. This requires concerted efforts

by relevant stakeholders to ensure improved access health facility delivery through mobile clinics to assist women deliver under the hands of skilled birth attendants thus discouraging home deliveries.

Key Words: Health system, Place of delivery, Postnatal Women.

I. INTRODUCTION

Worldwide, there were approximately 295,000 women died as a result of pregnancy and childbirth related complications in 2017. Majority of this was from Sub-Saharan Africa with 196000¹. In Africa, about seventy-five per cent maternal and neonatal deaths occur outside health facilities. In Kenya, maternal mortality rate is 362 per 100,000 live births with 61.2% deliveries occurring in hospitals². There is still evidence of home deliveries despite the high risks and significant efforts through several health interventions³.

There has been reported progress by the Kenyan Government towards achieving the WHO target of 147 maternal deaths per 100,000 live births⁴. Marsabit County is among the top ten counties with highest maternal mortality rate standing at 1127/100,000¹. May policies and interventions have been put up to ensure all deliveries are attended by skilled birth attendants in hospital settings⁵. These interventions include Universal Health Coverage, free maternal delivery using Linda Mama Insurance cover, maternal shelter, beyond zero campaigns and Output Based Approach (OBA) to provide subsidies to ensure safe motherhood³.

However, despite all these interventions playing a significant role, there is still evidence of home delivery⁶. This has led to establishment of Community Based Referral Systems (CBRS) by through Traditional Birth Attendants converted to community-based referral agents, community health volunteers and provision of mother pack incentives. Strengthening community health care systems is essential to accessing skilled delivery services at health facilities through

effective community referral systems⁷. The strategy of using community based referral agents includes identification of traditional birth attendants (TBAs) from each sub-location. They are trained on their role as referral agents, identifying danger signs of pregnancy and risk factors associated with home deliveries.

II. LITERATURE REVIEW

2.1 Introduction

Globally Maternal mortality is unacceptably high. It is estimated that every day, about 810 women die from preventable causes related to pregnancy and childbirth with developing countries accounting for 99% of such maternal deaths⁸. It was estimated that in 2015, roughly 303 000 women died during and following pregnancy and childbirth⁹. Sub-Saharan Africa and South Asia account for 88 per cent of maternal deaths worldwide.

Sub-Saharan Africans suffer from the highest maternal mortality ratio – 546 maternal deaths per 100,000 live births, or 201,000 maternal deaths a year. This is two thirds (66%) of all maternal deaths per year worldwide. South Asia follows with 66,000 maternal deaths a year, accounting for 22 per cent of the global total. Furthermore, regional and global averages tend to mask large disparities both within and between countries¹. It has been revealed that skilled care before, during and after childbirth can save the lives of women and newborn babies. Between 2016 and 2030, as part of the Sustainable Development Goals, the target was to reduce the global maternal mortality ratio to less than 70/100 000 live births¹⁰.

In Addis Ababa for instance, the capital of Ethiopia, though the private health facilities (hospitals and clinics) outnumber public clinics, only 20% of deliveries take place in the private sectors and 17% of mothers deliver at home¹¹. Findings from a study in Nigeria showed that 60.8% of the pregnant women had their last delivery at home¹² which is similar although a bit lower than what was found in the rural area of Zambia where home delivery was about 67%¹³.

2.2 Health system factors influencing the choice of delivery

Health system factors have been noted to influence the uptake of health care services such as antenatal care and delivery with the help of skilled birth attendants. The patients' perception concerning the quality of service provision is very important as it influences their health outcomes. Provision of services which meet the needs, wishes and expectations of women ensures they seek health care services from health care delivery systems whenever they require such services¹⁴. A study in India revealed that women who felt dissatisfied with services at the health facility did not continue with their antenatal care services as required¹⁵.

Unfriendly health care providers instill a negative attitude of pregnant women towards services. Dehumanizing, devaluing and disempowering experiences lead to perceived challenge to personal identity and undermines self-sensing affecting service delivery. Choosing to deliver at home is associated

with concerns about the quality of services prompting women to shy from hospitals¹⁶. Good handling of patients means they can seek subsequent services in the health facilities thus more hospital deliveries. Mistreatment of women during delivery has been noted as factor that affected hospital delivery among pregnant women in Nigeria¹⁷.

Healthcare providers should listen to clients' concerns, give reliable advice, and provide full and accurate information. Information empowers women to make informed decisions on the most appropriate place of delivery¹⁸. Healthcare providers should explain the importance of antenatal care to pregnant mothers and hospital delivery in preventing maternal and neonatal mortalities¹⁹. Perceived support from care providers during service delivery improves outcomes and overall women's satisfaction with care²⁰. Perceived potential behavior and reception from the healthcare staff was an issue in Sierra Leone that significantly influenced hospital delivery²¹. In a qualitative study done in Tanzania, most people preferred to deliver at private hospitals and/or at home because they reported bad reception at government facilities²².

In rural areas, people are forced to walk or travel long distances to access the health facility of which many have been reported to be providing poor quality services. In some areas roads are not in good condition and there is limited number of vehicles operating through such routes. This further harder for the women to reach the hospital to delivery making some to deliver on the way even when they had an intention of delivering at the hospital²³. Distance to the nearest health care center was reported to be one of the reasons that made women to deliver at home. Study findings from Ethiopia revealed that distance was associated with home deliveries²⁴. In Ghana, the average distance to the nearest health facility was 4.7 kilometers²⁵. Long distances and poor road networks has been associated with low hospital deliveries among pastoralist women in Kenya²⁶.

The cost of service deliver and the physical ambiance of the health facilities may act as a major hindrance to hospital deliveries. According to a study done in ethnic minority villages of Lao, it was extremely expensive to access hospital delivery services²⁷. According to other studies, women deliver at home to avoid the costs incurred in hospital delivery²⁶. The indirect costs associated with hospital deliveries in remote areas of Sierra Leone were high hence opting for home deliveries²¹. Friendly structures coupled organized channels of service delivery means pregnant women can easily access services without struggles. In Northwest Ethiopia, ease of access to hospital infrastructure affected choice of place of delivery²⁸.

III. MATERIALS AND METHODS

3.1 Study design

The study employed a mixed descriptive cross-sectional study design to establish the health system factors associated with choice of place of delivery among postnatal women in Marsabit County, Kenya.

3.2 study setting

The study was conducted in Marsabit County. Marsabit County is among the counties with highest maternal deaths in the country and community based referral systems and mother pack incentives have been implemented. The county has a population of 291,166 with 52% male and 48% female covering 70,961.2 Sq. KM²⁹. The county has four sub-counties namely; North Horr, Laisamis, Saku and Moyale. The study was specifically conducted in Moyale and North Horr sub-counties. Moyale sub-county has 7 wards while North Horr sub-county has 5 wards. The County has 56,941 households²⁹. It has 2 district hospitals, 6 health centres and 34 dispensaries. The rate of maternal mortality is 1127 per 100,000 live births. The ratio of doctor-population and nurse-population is 15:100,000 and 91:100,000 respectively. Facility deliveries are at 44.4% against 61.2% of the national average³⁰.

3.3 study population

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3.4 Sampling techniques

Marsabit County was purposively selected because it records one of the highest maternal deaths in the country (the fourth high burden county in the country) and in which the community based referral systems and mother pack incentives have been implemented. Moyale and North Horr sub-counties were randomly selected from folded pieces of paper. From Moyale sub-county, Moyale Township Ward (3 sub-locations) which is most urban and populous and Golbo Ward (7 sub-locations) which is most rural was selected. In North Horr sub-county, North Horr Ward (5 sub-locations) which is most populous and most urban, and Dukana Ward (4 sub-locations) which is most rural was selected. Two sub-locations from each ward selected were randomly sampled for study. Respondents for interview were drawn from households' selected using systematic random sampling at a predetermined interval of four. Every 4th household with a postnatal woman who had delivered a child within one month prior to the conduct of the study was interviewed until the required number of participants in each sub-location is reached. The

respondents selected for the study were proportional to the number of postnatal women in each sub-location. In order to obtain additional information, 4 Focused Group Discussions (FGD) were held by the researcher with postnatal women. The FGDs comprised of 9 participants selected purposively based on their ability to give the required information. In addition, 20 Key Informant Interviewees (KII) were purposively selected to give their views on the study topic. The researcher involved Community Based Referral Agents from Marsabit County as the key informants (See table 3.1)

Table 3.1: Proportion of respondents for selection

Sub-county	Wards	Sub-locations	Total HH	Sampled HH
Moyale	Moyale Township	Township	365	82
		Ngurumesa	281	63
	Golbo	Golla	224	50
		Funyatta	273	61
North Horr	Dukana	Balesa	241	54
		Sabare	198	44
	North Horr	Gallas	119	27
		Malabot	156	35
Total			1857	416

Source: Marsabit County Development Plan, (2016).

3.5 Sample size determination

Sample size was determined using Fishers' formula of 1998 for populations more than 10,000³¹. Sample size:

$$n = \frac{z^2 pq}{d^2}$$

d²

Where: n = desired sample size

z = standard normal deviate (1.96)

p = 0.44 proportion of women with hospital deliveries in Marsabit County (MoH, 2018).

q = 1 - p = 1 - 0.44 = 0.54 Assumed proportion not delivering in health facilities.

d = degree of accuracy (0.05) i.e. at 95% confidence interval

When substituted the sample size was 378 and to cater for non-responses the researcher 10% (38) of subjects were added to cater for non-responses thus 416 questionnaires were administered.

3.6 Data collection techniques

Quantitative data was collected using semi-structured research questionnaires. The questionnaires were administered in English and translated to Kiswahili and other local languages as deemed necessary to ensure they are understood by the respondents. Trained research assistants administered the questionnaires to the participants and guided them to fill in

their responses. They were monitored, guided and supervised by the researcher. All collected questionnaires were kept in locked cabinets throughout the study period and accessed by the researcher only to ensure confidentiality and avoid data loss.

Qualitative data were obtained from focused group discussions held with primary respondents in four FGD sessions. The FGD sessions were carried out in a room within the locational Headquarter offices. The sessions were moderated by the researcher with the research assistants recording their audio views and notes taken. This encouraged free discussion among participants thus captures information which may not be achievable in a one on one interview. The researcher also conducted key informant interviews with 20 community referral agents in private offices within the Locational headquarters of the selected locations to supplement information obtained from primary respondents. Their views, opinions and suggestions will be taken into account.

3.7 Data management and analysis approach

Quantitative data was entered and stored in Microsoft Excel program. Data cleaning and editing was done where extreme, missing and inconsistent values were identified and corrected. Coding and verification of the data was done for easy manipulation, analysis and presentation. Data was then exported to Statistical Package for Social Sciences (SPSS) software version 20.0 for analysis. Descriptive analysis was presented in form of percentages, frequency tables, charts and graphs.

Inferential statistics were computed using Pearson's Chi-square Tests presented in cross tabulations. This was done at 95% confidence interval and p-values of less than 0.05 were considered significant in testing the association between study variables. Qualitative data from the FGDs and KII were presented as direct quotes or narrations and triangulated to validate and enrich the quantitative findings.

3.8 Ethical considerations

The researcher sought approval from Kenyatta University Graduate School. The study obtained ethical clearance from Kenyatta University Ethics and Review committee. A research permit was obtained from the National Council for Science, Technology and Innovation (NACOSTI). Research authorization was sought from Marsabit County Commissioner, County Director of Education and County Director of Health Services. Permission was also sought from the local administration units. The study obtained informed consent from research participants before they were interviewed. The purpose of the study was clearly explained and participants informed that their involvement in the research was voluntary without due coercion or influence. Their identities were kept private and confidential and the collected information used only for the purpose of this study only. The findings of this research would be presented to Kenyatta University, Marsabit County and the National

Commission for Science, Technology and Innovation. These results would also be published for reference and presented in conferences and workshops of relevant stakeholders.

IV. RESULTS

4.1 Choice of place of delivery

4.1.1 Proportion of respondents with respect to place of delivery

The results showed that more than half 233 (56.7%) of the respondents delivered at the hospital while the rest 178 (43.3%) delivered at home. The results were as shown in figure 4.1. The qualitative results established that indeed women preferred delivering at home through the help of traditional birth attendants whom they were familiar with. One focused group discussant said,

"...you know these women helping us in delivery are the people from our community who have been with us for long and they have the experience and respect from all of us. So that's why I prefer them to the hospital where I don't know the doctors or nurses and thus, I will not be free with them. I have heard from my neighbor that at the hospital you are shouted at and sometimes insulted by those medics..."

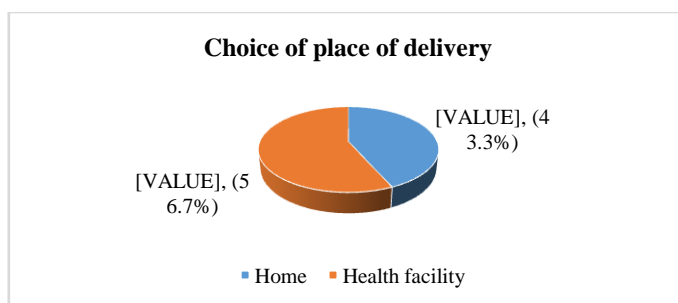


Fig 4.1: Choice of place of delivery among respondents

4.1.2 Reasons for home delivery

Results revealed that 75 (42.1%) of the respondents reported instant labor pains as the main reason for home delivery followed by 51 (28.6%) who delivered at home just because their previous deliveries were at home. Results were as shown in figure 4.2 below:

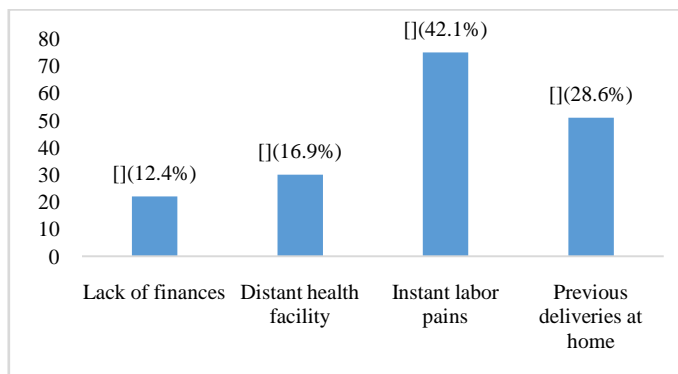


Fig 4.2: Reasons for home delivery among respondents

4.1.3 Reasons for hospital delivery

The results revealed that 100 (42.9%) of respondents delivered at the hospital because of the perceived quality of services followed by 93 (39.9%) who feared complications. The results were as presented in table 4.1. One of the discussants during focused group discussion session said;

“...delivering at home can be risky. Imagine you get complication while delivering at home at night yet the hospital is very far from here? So that is my main worry which makes me deliver in the hands of trained health care worker. My cousin lost her child because of complications when she was delivering at home. So, it’s better to always take precautions...” (FGD Discussant).

Table 4.1: Reasons for health facility delivery among respondents (n=233)

Reasons for health facility delivery	Frequency (N)	Percentage (%)
Fear of complications	93	39.9
Quality health services	100	42.9
Referral	17	7.3
Health facility is near	15	6.4
Spouse recommended	8	3.4

4.1.4 Assistance during delivery

Majority 241 (58.6%) of the respondents reported that they delivered under the assistance of the health care provider followed by 136 (33.1%) who delivered with the help of the traditional birth attendant. The results were as shown in the figure 4.3 below:

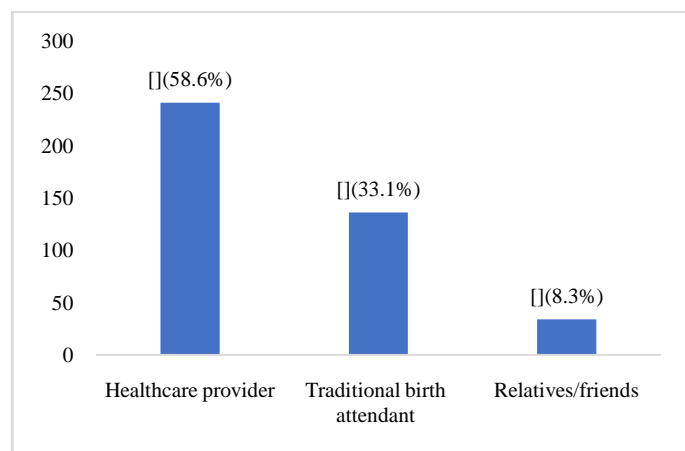


Fig 4.3: Person who assisted during delivery

4.2 Health facility factors and choice of place of delivery

4.2.1 Health facility factors

The study revealed that less than a half 164 (39.9%) of the respondents approximated the distance to the nearest health facility to more than 4 kilometers. Slightly more than a third 164 (39.9%) of the respondents perceived the cost of accessing hospital delivery to be free. Regarding hindrances to hospital delivery, the results showed that 170 (41.4%) of the

respondents would not deliver at the facility because of distance. More than half 238 (57.9%) of the respondents had a good experience with care providers during service delivery.

Regarding the ease of access to buildings and physical structures, results showed that most 305 (74.2%) of the respondents accessed the structures with ease while the rest 106 (25.8%) did not. The results showed that most 329 (80.0%) liked the perceived quality of services while the rest 82 (20.0%) did not like. Further results showed that 343 (83.5%) of the respondents were given information before and after services while the rest 68 (16.5%) were not given. Results were as presented in table 4.2 below:

Table 4.2: Distribution of health facility factors among respondents (n=411)

Variable	Respondent response	Frequency (N)	Percentage (%)
Approximate distance to the nearest health facility	Less than 1 KM	104	25.3
	2-3 KM	143	34.8
	Over 4 KM	164	39.9
Perceived cost associated with hospital delivery	None/free	164	39.9
	1-99	25	6.1
	100-199	41	10.0
	200-299	74	18.0
	≥ 300	107	26.0
Hindrances from delivery in health facility	Lack equipment	59	14.4
	Lack enough finances	33	8.0
	Poor provider attitude	42	10.2
	Poor quality of services	33	8.0
	Distant health facility	170	41.4
	No hindrance	74	18.0
Experience with care providers during service delivery	Good	238	57.9
	Fair	115	28.0
	Poor	58	14.1
Easier to access buildings and physical structures	Yes	305	74.2
	No	106	25.8
Liked the quality of services received	Yes	329	80.0
	No	82	20.0
Given information before and after services	Yes	343	83.5
	No	68	16.5

4.2.2 Health facility factors associated with choice of place of delivery

The results revealed that less than a half 77(43.3%) of the respondents whose approximate distance to the health facility was more than 4 kilometers delivered at home. There was a significant statistical association between distance to the nearest facility and choice of place of delivery (p=0.001). Less than a half 115 (49.3%) of respondents who felt it would be free to access delivery services delivered at the hospital.

There was no association between cost of accessing delivery services and choice of place of delivery ($p=0.053$). Most 110 (61.8%) of the respondents delivered at home due to distant health facilities. There was a significant statistical association between hindrances to delivery at the facility and choice of place of delivery ($p=0.008$). Most 137 (58.8%) of the respondents who had a prior good experience with health care providers delivered at the hospital. Experience with health services providers significantly influenced choice of place of delivery ($p=0.012$). The results revealed that 161 (90.4%) of the respondents who delivered at home had liked the quality of services. There was no statistically significant association between liking the quality of services one received and choice of place of delivery among the respondents ($p=0.091$). However, results from qualitative data disagreed with quantitative data as women felt that the perceived quality of services was not good. During a FGD session, a woman revealed,

“... I went to the hospital when my son had diarrhea disease, I did not like the way I was handled, the way nurses were shouting at me and my son was so discouraging. They were blaming me for my son's illness, although they treated my son, I really felt bad and humiliated. I cannot advise any woman to go to that hospital again...” (FGD Discussant).

Majority 174 (74.7%) of the respondents who had easy access to buildings and physical structures delivered at the hospital. There was a significant statistical association between ease of access to buildings and physical structures and choice of place of delivery ($p=0.804$). The results revealed that 189 (81.1%) who had been given information delivered at the hospital. Further results showed a significant statistical association between being given information about services and choice of place of delivery among the respondents ($p=0.001$). Results were as presented on table 4.3.

Table 4.3: Health facility factors associated with choice of place of delivery among respondents (n=411)

Independent variable	Respondent response	Choice of place of delivery		Statistical significance
		Home (N=178)	Hospital (N=233)	
Approximate distance to the nearest health facility	Less than 1 KM	40(22.5%)	64(27.5%)	$\chi^2=50.489$ df=2 p=0.001
	2-3 KM	61(34.2%)	82(35.2%)	
	Over 4 KM	77(43.3%)	87(37.3%)	
Cost of accessing antenatal care services in Kshs	None/free	49(27.5%)	115(49.3%)	$\chi^2=7.623$ df=4 p=0.053
	1-99	9(5.1%)	16(6.9%)	
	100-199	18(10.1%)	23(9.9%)	
	200-299	37(20.8%)	37(15.9%)	
	≥ 300	65(36.5%)	42(18.0%)	
Hindrances from delivery in health facility	Lack equipment	11(6.2%)	48(20.6%)	$\chi^2=80.087$ df=5 p=0.008
	Lack enough finances	9(5.1%)	24(10.3%)	
	Poor provider attitude	26(14.6%)	16(6.9%)	
	Poor quality services	10(5.6%)	23(9.9%)	
	Distant health facility	110(61.8%)	60(25.7%)	
	No hindrance	12(6.7%)	62(26.6%)	
Experience with care providers during service delivery	Good	101(56.7%)	137(58.8%)	$\chi^2=10.825$ df=2 p=0.012
	Fair	46(25.8%)	69(29.6%)	
	Poor	31(17.4%)	27(11.6%)	
Easier to access buildings and physical structures	Yes	131(73.6%)	174(74.7%)	$\chi^2=0.602$ df=1 p=0.804
	No	47(26.4%)	59(25.3%)	
Liked the quality of services received	Yes	161(90.4%)	168(72.1%)	$\chi^2=21.267$ df=1 p=0.091
	No	17(9.6%)	65(27.9%)	
	No	25(14.0%)	46(19.7%)	
Given information about antenatal care services	Yes	154(86.5%)	189(81.1%)	$\chi^2=46.486$ df=1 p=0.001
	No	24(13.5%)	44(18.9%)	

IV. DISCUSSIONS AND CONCLUSIONS

4.1 Discussions

4.1.1 Choice of place of delivery

The study sought to establish the proportion of respondents who delivered at home and at the health facility respectively. The results showed that 56.7% of respondents delivered at the health facility. This shows a significant increase in facility based deliveries in the county as compared to previous rates which showed that health facility deliveries had stood at 44.4% in 2017³². This may be attributed to various interventions including mother pack incentives and existence of a working community based referral agents. The results were contrary to a study done among rural Indian women which showed that about a half (50.0%) of pregnant women interviewed ended up delivering in health facilities¹⁵. In another study done in Guinea Bissau, it was reported that only 39.8% of deliveries occurred in hospital settings³³. According to a comparative study done in rural Ghana, it was reported that 52.7% of women from the savanna zone delivered at home while 65.6% of women from the forest zone delivered at health facilities³⁴.

According to this study results, instant labor pains was the main reason for occurrence of home deliveries. This was followed by successful previous deliveries occurred at home. This may be attributed to the fact that the health facilities were far distances apart and accessing them could be an issue especially if one experiences instant labor pains. The results were similar to a study done in rural Zambia where occurrence of shorter than expected labor pains prompted women to deliver at home³⁵. According to another study that was done in Nigeria, it was noted that lack of husbands to give their wives consent hindered them from delivering at health facilities³⁶. Contrary results were also reported by another study done in coastal Kenya among HIV/AIDS positive women who concluded that lack of good access to information was the main hindrance to deliver in health facilities³⁷.

The study results also revealed that perceived quality of service provision was the main motivation for having their children born in health facilities. This means that they knew the dangers of home deliveries and believed in deliveries under the hands of skilled birth attendants to help minimize occurrence of complications. The results were contrary to a study done in Dodoma municipality in central Tanzania where nearness to the health facility was the main reason for hospital deliveries³⁸. In another study done in Zambia, inconsistent results were reported where fear of complications among pregnant women was the main driver for health facility deliveries³⁹. In a study done in Northwest Ethiopia it was noted that free availability of delivery services was the main reason for hospital deliveries⁴⁰.

The study further sought to find out who assisted the respondents during delivery. The results revealed that 58.6% of the respondents were assisted by health care providers. This is probably because most of the deliveries occurred in health

facilities hence attended by skilled birth attendants. However, still this was below the national average which stood at 62% skilled birth attendant deliveries¹. The results were in agreement with a study done in Dodoma region of Tanzania where three quarters of child deliveries were conducted under the care of skilled birth attendants⁴¹. In a study in Guinea Bissau, it was reported that slightly more than a third of deliveries were conducted by skilled birth attendants³³.

4.1.2 Health facility factors and choice of place of delivery

Results from health facility factors revealed that the respondents approximated the distance to the nearest health facility to be more than 4 kilometers. The results concur with a study done in Ghana in which showed that the average distance to the nearest health facility was 4.7 kilometers²⁵. There was a significant statistical association between distance to the nearest facility and choice of place of delivery. Home deliveries increased with increase in distance to the nearest health facility. Long distances and poor road networks were associated with low hospital deliveries among pastoralist women in Kenya²⁶. In another study done in Northwest Ethiopia, distance was among the factors that hindered women from delivering in health facilities²⁴.

Majority of the respondents reported that the cost associated with health facility delivery was free. This could be attributed to the fact in Kenya due to introduction of Linda Mama Insurance Cover which guarantees free deliveries in public health facilities. The results were inconsistent with a study done in ethnic minority villages of Lao which revealed that it was extremely expensive to access hospital delivery services²⁷. There was no association between cost of accessing delivery services and choice of place of delivery. According to other studies, they concluded that women deliver at home to avoid the costs incurred in hospital delivery²⁶. The indirect costs associated with hospital deliveries in remote areas of Sierra Leone were high hence opting for home deliveries²¹.

Most of the respondents had a good experience with care providers during service delivery. Good handling of patients means they can seek subsequent services in the health facilities thus more hospital deliveries. Mistreatment of women during delivery has been noted as factor that affected hospital delivery among pregnant women in Nigeria¹⁷. Experience with health services providers significantly influenced choice of place of delivery. Healthcare providers criticize and provide fragmented care during pregnancy and child birth⁴².

The findings of this study there was ease of access to buildings and physical structures as reported by majority of respondents. There was a significant statistical association between ease of access to buildings and physical structures and choice of place of delivery. Friendly structures coupled organized channels of service delivery means pregnant women can easily access services without struggles. The results concur with a study done in Northwest Ethiopia where it was reported that existence ease of access to hospital

infrastructure was significantly associated with hospital deliveries²⁸. Good physical accessibility of services influenced choice of place of delivery among women from ethnic minority villages in Lao²⁷.

The study further revealed that most of the respondents liked the reception they received from health care providers. Poor handling of clients may make them shy off from making subsequent visits to the health facilities. There was a significant statistical association between liking the reception one got at the facility and choice of place of delivery. Perceived potential behavior and reception from the healthcare staff was an issue in Serra Leone that significantly influenced hospital delivery²¹. Perceived support from care providers during service delivery improves maternal as most women would cooperate and deliver in health facilities²⁰. In a qualitative study done in Tanzania, most people preferred to deliver at private hospitals and/or at home because they reported bad reception at government facilities²².

Perceived quality of service delivery especially among pregnant women has been noted to be a significant determinant of choice of place of delivery. However, in this study there was no statistically significant association between liking the quality of services one received and choice of place of delivery. This may be because they had already been admitted to deliver in the facilities hence this could only affect their subsequent visits. Choosing to deliver at home is associated with concerns about the quality of services prompting women to shy from hospital facilities¹⁶. The patients' perception concerning the quality of service provision is very important since it influences their health outcomes. Provision of services which meet the needs, wishes and expectations of women leads to high hospital deliveries¹⁴.

Further, the results showed that most of the respondents were given information before and after services. People have reported lack of provision of the right information thus persisted practice of home deliveries²⁶. There was a significant statistical association between being given information before and after service and choice of place of delivery. Information empowers women to make informed decisions on the most appropriate place of delivery. Provision of information to pregnant women has been associated to great impact the choice of place of delivery¹⁸.

4.2 Conclusions

The study concluded that there was a significant number of women who are still delivering at home in Marsabit County. Majority of the health system factors were associated with choice of place of delivery. This requires concerted efforts by relevant stakeholders to ensure improved access health facility delivery through mobile clinics to assist women deliver under the hands of skilled birth attendants thus discouraging home deliveries.

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