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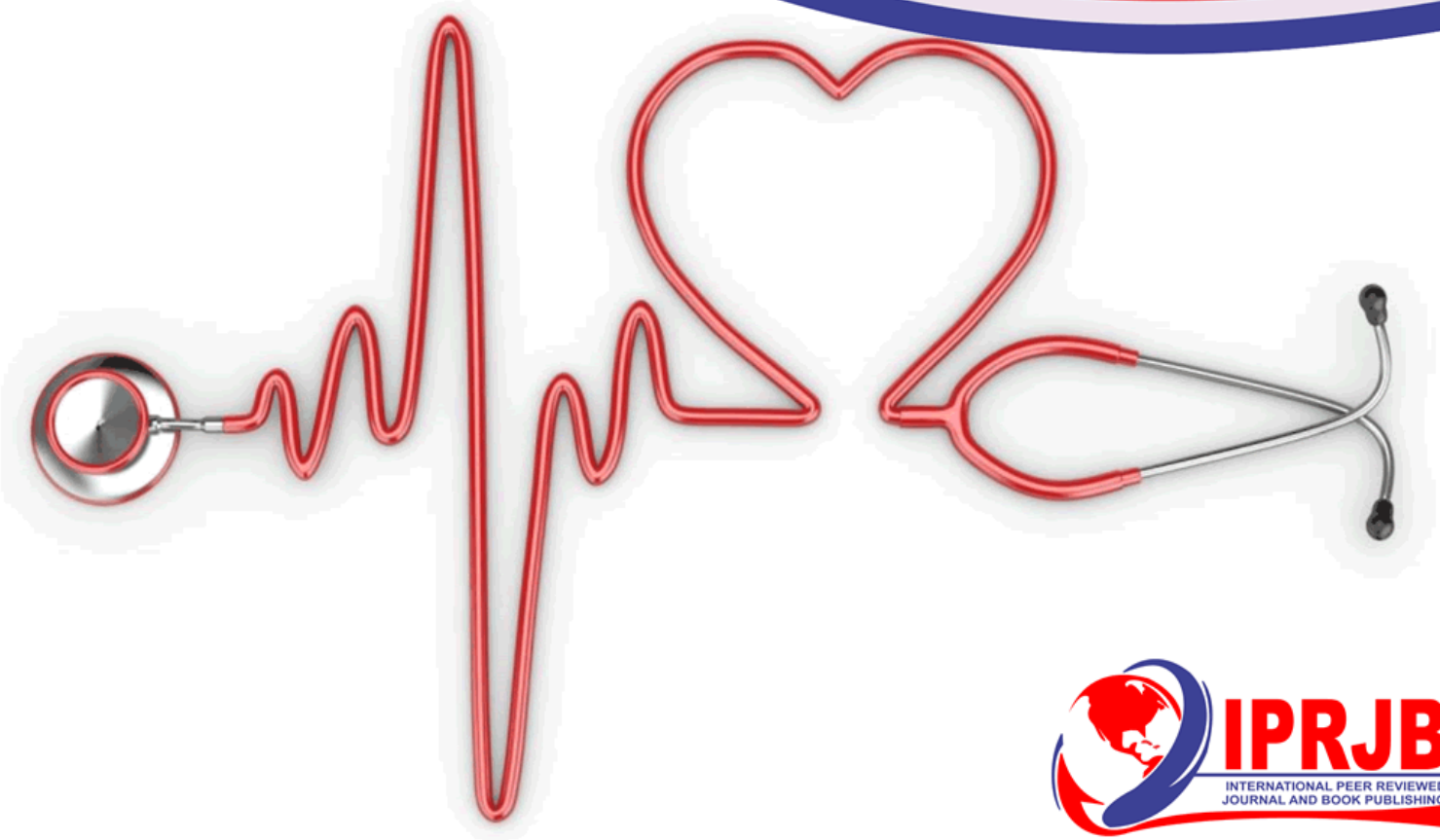

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DETERMINANTS OF BYPASSING COUNTY PUBLIC HEALTH FACILITIES AMONG WOMEN SEEKING CHILDBIRTH SERVICES AT MOI TEACHING AND REFERRAL HOSPITAL, ELDORET-KENYA

[1*]Damaris Jepkosgei
Post Graduate Student: School of Nursing, Midwifery and Paramedical Sciences
Masinde Muliro University of Science and Technology
[*]Corresponding author's Email: dlagat09@gmail.com

[2] Mr. John Arudo
Lecturer: School of Nursing, Midwifery and Paramedical Sciences
Masinde Muliro University of Science and Technology

[3] Dr. Mary Kipmerewo
Lecturer: School of Nursing, Midwifery and Paramedical Sciences
Masinde Muliro University of Science and Technology

Abstract

Purpose*:* This study aimed at determining the individual and health facility factors that inform a woman's decision to bypassing county public health care facilities and seek childbirth services at Moi Teaching and Referral Hospital

Methodology: This was a hospital based cross sectional study using quantitative approach. The study was carried out in Moi Teaching and Referral Hospital, Uasin Gishu County. Simple random sampling method was employed to attain the sample size (n=399). Data analysis was done using descriptive statistics, bivariate and multivariate logistic regressions. Strength of association between the dependent variable and independent variables was measured using odd ratio with a p value ≤ 0.05 considered statistically significant at 95% confidence interval.

Results: Out of the 399 respondents, 306 (76.7%) bypassed lower level public health facilities while 93 (23.3%) were actual referrals. Among the individual characteristics that influenced bypassing were older age (OR: 2.5; CI: 1.4-4.4; p= 0.001), primiparity (p=0.0001), history of previous pregnancy complications (OR: 3.7; CI: 2.2-6.2; p< 0.0001) and home county (OR: 4.3; CI: 2.7-7.2; p< 0.0001). Health facility characteristics that were significant in this study were availability of ambulance (OR: 0.4; CI: 0.2-0.9; p= 0.03) and a functional theatre and doctor to handle emergency cesarean sections (OR: 0.4; CI: 0.2-0.9; p= 0.01).

Unique contribution to theory, practice and policy: The research brings in a wealth of knowledge that the expectation of quality maternal care plays a key role in the selection of childbirth facilities by women irrespective of their individual characteristics.

Key words: Bypassing, County public health facilities, Actual referral

1.0 INTRODUCTION

Bypassing proximal lower levels of care for childbirth in higher level facilities has significant implications for maternal health service delivery and human resources in a health organization (Salazar *et al*., 2016). It has been linked with extra expenses imposed on the woman and her family, as well as the ineffective use the resources within the health system (Salazar *et al*., 2016). In Nepal, bypassing proximal health facilities and traveling to relatively distant place/ secondary care unit to receive the same service contributes for poor delivery service provision and maternal death (Karkee *et al.*, 2014). Perception of low quality of care by mothers seeking childbirth services is stated as a major determinant factor for non-utilization or bypassing of health services in primary health care units. Women alleged that unlike hospitals, health centers typically cannot offer emergency operation and are deficient in competent midwives and doctors (Karkee *et al*., 2014).

In Sub-Saharan Africa, studies done in Mozambique by Yao and Agadjanian, (2018) and in Tanzania by Kruk and colleagues (2014) found out that bypassing lower level facilities by women seeking prenatal services occurs in pursuit for service quality. Bypassing behavior among women revealed that their behavior is tied to their understanding of various measures of quality at the facilities that they visit and bypass (Leonard *et al*., 2002). Atkinson *et al* (1999) also found that in urban Zambia, people sought care at hospital facilities, not for alleged improved quality services, but for the reason that they thought they were inexpensive and better stocked with drugs.

The Kenyan government is the core provider and financer of healthcare delivery. It has an established four-tier healthcare delivery system comprising the community services, primary health facilities, county referral facilities and national referral facilities, organized as a two way referral connection (Kenya Health Sector Referral Implementation Guidelines 2014).Several strategies have been developed by the Kenyan government with the aim of improving maternal and neonatal health. For instance, in 2013, the government developed a guideline that aimed at providing maternal health services at no cost, abolishing delivery fees in all government health facilities (Gitobu *et al*., 2018). Currently, women access childbirth services and antenatal care in all public facilities under Linda Mama program up to 6 months post-delivery, after which they have to be enrolled in the National Hospital Insurance Fund (NHIF). Additionally, Beyond Zero Campaign is another safe motherhood strategy that was launched in January 2014. The campaign is a program that provides a fully equipped ambulance to each of the 47 county governments so as to conduct outreaches to the inaccessible communities (WHO, 2018). It aims at providing ambulatory maternal and neonatal community outreaches and allows skilled birth attendants (SBAs) to conduct deliveries in rural communities in conjunction with County Governments (Gitobu *et al*., 2018). Devolution of the health system has also focused on addressing the accessibility and efficiency in the provision of health services with accelerated expansion of primary health care facilities (Oketch and Lelegwe, 2016). The health care delivery system has thus addressed one of the most important barriers in the access to the health system, which in this case is the availability of essential services within a reasonable distance. However, the inadequate utilization of services at the majority of the marginal public amenities has continued, while at the same time patients incur avoidable costs due to self-referral to far-away and more costly centers (Turin, 2010).

According to Uasin Gishu County annual performance for the year 2017/2018, a total of 34,896 deliveries were done across the county public health facilities. Out of these, 13,268 (38%) deliveries were in the Moi Teaching and Referral Hospital (MTRH), which is a tertiary facility (DHIS2, 2018). Two hundred and seventy (270) mothers who delivered at MTRH in the same period had formal referral letters from other health facilities while 12, 998 (98%) had not sought childbirth services in any other health facility at the lower tier facilities. This is regardless of the accessibility of these services at the county health facilities. This study therefore aims to examine the extent of bypassing county public health facilities and its determinants among women seeking child birth services at the MTRH.

2.0 MATERIALS AND METHODS

This study was a hospital based cross sectional study using quantitative method of data collection. It was carried out in the post natal ward of the Moi Teaching and Referral Hospital (M.T.R.H) which is in Uasin Gishu County. M.T.R.H is one of the national referral hospitals in Kenya besides Kenyatta National Hospital. It's situated in Eldoret town, western Kenya. The catchment population is estimated to be 15 million serving residents of entire western region of Kenya. The Riley Mother and Baby Hospital in M.T.R.H serves as a specialized unit for maternal and newborn cases. It is equipped with modern delivery beds, spacious and it houses a mother's hostel for those with children admitted at the new born unit. It has a bed capacity of 112 beds with 18 bed labour unit. The average bed occupancy is 134. The labour ward is staffed with 49 nurses working at a ratio of 1: 4 clients. The target population was women admitted at the post natal ward who delivered at MTRH irrespective of the mode of delivery. MTRH was chosen purposively since it represented the highest level of care at the county and is designed to handle specialized care but it continues to manage health conditions that could easily be handled at the county public health care facilities. Simple random sampling technique was used to select the respondents. A sample size of 422 women was determined using the single population proportion formula developed by Cochran.

A self administered questionnaire was used to collect data. The outcome variable was bypassing county primary health facilities while the independent variables were sociodemographic factors (e.g. age, maternal and spouse education level, marital status, parity and occupation); perceived benefit/need (level of care at facility, information available, ANC use, previous facility delivery, birth order, complication during pregnancy); Physical accessibility (geographical distance, transport). Data cleaning and coding was done prior to entering in SPSS software for statistical analysis version 21. Descriptive statistics of frequency were performed. Multiple logistic regressions were estimated on the variables to establish the association between the dependent and independent variables. Results that were statistically significant from bivariate analysis were included in multivariate logistic regression model. For this study, *p* value of 0.05 was considered as statistically significant at 95% confidence interval. The strength of association between the dependent (bypassers) and independent variables (individual and health facility factors) was determined by use of odds Ratio (OR) at 95% confidence interval (CI). Ethical clearance from the Institutional research committee of Masinde Muliro University of Science and Technology, National Commission of Science and Technology (NACOSTI) and Moi Teaching and Referral

Hospital was obtained prior to data collection. A written informed consent was obtained from the study participants before data collection.

3.0 FINDINGS AND DISCUSSION

3.1 Sociodemographic Characteristics of the Respondents

Table 1 below shows socio-demographic characteristics of respondents who were included in the study. Three hundred and ninety nine (399) respondents participated in the study.

Table 1: Respondents characteristics according to referral status

Variable	Total number of respondents (%)	Bypass status		χ^2	P value
		Bypassed (%)	Referred (%)		
Age group in years					
15 – 24	126 (31.6)	109 (86.5)	17 (13.5)	10.0	0.007
25 – 34	198 (49.6)	142 (71.7)	56 (28.3)		
35 – 45	75 (18.8)	55 (13.8)	20 (26.7)		
Mean age ± SD (Range) in years	28.2±6.3 (18.0 – 44.0)	27.9±6.5 (18.0-44.0)	29.3±5.6 (18.0 – 41.0)	t=1.9; df=397	0.06
Marital status					
Single, separated, divorced, widow	98 (24.6)	83 (84.7)	15 (15.3)	4.7	0.03
Married	301 (75.4)	223 (74.1)	78 (25.9)		
Level of education					
None/Primary	115 (28.8)	81(70.4)	34 (29.6)	3.8	0.1
Secondary	159 (39.9)	124 (78.0)	35 (22.0)		
Tertiary	125 (31.3)	101 (80.0)	24 (19.2)		
Spouse level of education					
None/Primary	78 (25.7)	54 (69.2)	24 (30.8)	3.2	0.2
Secondary	53 (17.4)	44 (83.0)	9 (17.0)		
Tertiary	173 (56.9)	128 (74.0)	45 (26.0)		
Religion					
Christian	374 (94.4)	284 (75.9)	90 (24.1)	1.3	0.3
Muslim	22 (5.6)	19 (86.4)	3 (13.6)		
Occupation					
Student	63 (15.8)	57 (90.5)	6 (9.5)	20.6	0.0001
Unemployed	108 (27.1)	69 (63.9)	39 (36.1)		
Self-employed	141 (35.3)	117 (83.0)	24 (17.0)		
Employed	87 (21.8)	63 (72.4)	24 (27.6)		
Income (KSh.)					
0 – 5000	192 (48.1)	147 (76.6)	45 (23.4)	4.3	0.1
5001 – 10,000	78 (19.5)	66 (84.6)	12 (15.4)		
≥10,000	129 (32.3)	93 (72.1)	36 (27.9)		
County					
Uasin Gishu	237 (59.4)	207 (87.3)	30 (12.7)	37.0	<0.0001
Other counties	162 (40.6)	99 (61.1)	63 38.9)		

3.1 Extent of by-passing public county health facilities

Figure 1 below illustrates the extent of bypassing county health facilities.

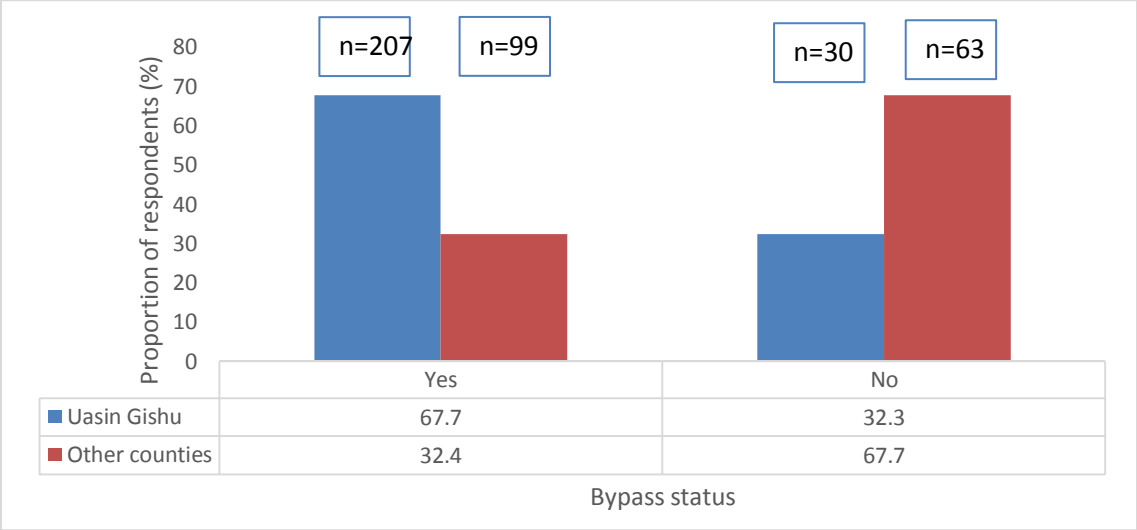

Figure 1: Extent of by-passing county health facilities

Out of 399 mothers who were admitted in MTRH, 306 (76.7%) by-passed lower level public health facilities while 93 (23.3%) were actual referrals. Among those who were not referred, two-thirds (67.7%) were from Uasin Gishu while 32.4% were from other counties.

3.3 Socio-demographic factors associated with bypassing county public health facilities

Table 2 below shows socio-demographic factors influencing bypassing health facilities in the study area.

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Table 2: Socio-demographic determinants associated with respondents' bypassing health facilities

Variable	Total number of respondents (n)	Bypass status		OR	95% CI	P value
		Bypass (%)	Referred (%)			
Age group (years)						
15 – 24	126	86.5	13.5	2.5	1.4 – 4.4	0.001
≥25	273	72.2	27.8			
Marital status						
Single, separated, divorced, widow	98	84.7	15.3	1.9	1.1 – 3.6	0.03
Married	301	74.1	25.9			
Level of education						
None/Primary	115	70.4	29.6	0.6	0.4 – 1.0	0.06
Secondary/Tertiary	284	79.2	20.8			
Spouse level of education						
None/Primary	78	69.2	30.8	0.6	0.4 – 1.1	0.08
Secondary/Tertiary	321	78.5	21.5			
Religion						
Christian	374	75.9	24.1	0.4	0.1 – 1.5	0.2
Muslim	25	88	12			
Occupation						
Student or Unemployed	171	73.7	26.3	0.7	0.5 – 1.2	0.2
Self or employed	228	79	21			
Income (KSh.)						
0 – 5000	192	76.6	23.4	1	0.6 – 1.6	0.9
≥5001	207	76.8	23.2			
County						
Uasin Gishu	237	87.3	12.7	4.3	2.7 – 7.2	<0.0001
Other counties	162	61.1	38.9			

3.4 Association between past obstetric history and respondents' bypassing health facilities

Table 3 below shows the association between past pregnancy history of the respondent and bypassing health facilities.

Table 3: Association between past history and respondents' bypassing health facilities

Variable	Total number of respondents (n)	Referral status		OR	95% CI	P value
		Bypass (%)	Referred (%)			
Parity						
First pregnancy	129	88.4	11.6	3.1	1.7 – 5.6	0.0001
More than 1 parity	270	71.1	28.9			
Mode of previous delivery						
Assisted or CS	105	62.9	37.1	0.4	0.2 – 0.6	<0.0001
Normal	294	81.6	18.4			
History of previous pregnancy complications						
Yes	93	54.8	45.2	0.2	0.1 – 0.4	<0.0001
No	306	83.3	16.7			
Complications detected during recent pregnancy						
Yes	72	33.3	66.7	0.1	0.04 – 0.1	<0.0001
No	327	86.2	13.8			
Had been admitted in recent pregnancy						
Yes	60	40.0	60.0	0.1	0.07 – 0.24	<0.0001
No	339	83.2	16.8			

The odds ratio of respondents with first pregnancy bypassing health facilities was three-fold that of women with more than one parity (OR: 3.1; 95% CI: 1.7 – 5.6; p = 0.0001). This finding suggests that women as well as their antenatal care providers regard first time pregnancies risky and therefore seek specialized obstetric care for these women. Equally, women who had previous delivery in MTRH were twice as likely to have been bypassers unlike their counterparts who had delivered in other facilities (OR: 2.9; 95% CI: 1.7 – 4.8; p <0.0001) On the other hand, referral was 2.9 times more likely among women who had assisted or Caesarean Section than those who had normal birth (OR: 2.0; 95% CI: 1.0 – 3.8; p = 0.04). The chances of women with previous assisted or C/S delivery bypassing health facilities and seeking delivery services in MTRH was 60% lower than mothers who had normal previous delivery (OR: 0.4; 95% CI: 0.2 – 0.6; p <0.0001).

3.5 Bivariate analysis on antenatal visits and respondents' bypassing health facilities

Bivariate analysis on antenatal visits and respondent's bypassing health facilities was done and results presented in table 4 below.

Table 4: Bivariate analysis on antenatal visits and respondents' bypassing health facilities

Variable	Total number of respondents (n)	Referral status		OR	95% CI	P value
		Bypass (%)	Referred (%)			
Received ANC						
Yes	339	74.3	25.7	0.3	0.1 – 0.8	0.08
No	60	90.0	10.0			
Where received ANC						
MTRH	93	93.6	6.4	5.7	2.4 – 13.7	<0.0001
Other facilities	306	71.6	28.4			
No. of ANC visits made for recent pregnancy						
≥4	99	72.7	27.3	0.7	0.4 – 1.3	0.3
<4	300	78.0	22.0			
Means of transport to ANC facility						
Public	195	70.8	29.2	0.5	0.3 – 0.8	0.006
Other (foot, car)	204	82.4	17.6			
Average waiting time at ANC facility						
Less than 1 hour	285	77.9	22.1	1.2	0.8 – 2.1	0.4
More than 1 hour	114	73.7	26.3			
During ANC told where to go when labour starts						
Yes	129	67.4	32.6	0.5	0.3 – 0.8	0.003
No	270	81.1	18.9			

Findings from this study show that mothers who attended ANC at MTRH were 5.7 times more likely to have bypassed health facilities in comparison to those who attended other health facilities (OR: 5.7; 95% CI: 2.4 – 13.6; p <0.0001). Results also show that women who were told where to go when labour starts were 50% less likely to have bypassed other health facilities in order to deliver in MTRH (OR: 0.5; 95% CI: 0.3 – 0.8; p = 0.003).

3.6 Multivariate logistic regression model of individual characteristic determinants of bypassing health facility

A multivariate logistic regression was conducted controlling for confounding factors to analyse individual determinants of bypassing county health facilities and results presented in Table 3.5.

Table 5: Multivariate logistic regression model of individual characteristics determinants of bypassing health facility

Variable	Estimate	OR	95% CI	P value
Home county	1.6	4.9	2.2 – 11.1	0.0001
Assisted delivery or C/S	-1.5	0.2	0.1 – 0.6	0.006
Received ANC at MTRH	4.5	9.6	8.1 – 14.6	<0.0001
Use of public transport to ANC facility	-1.5	0.2	0.1 – 0.5	0.0003
Complications detected during pregnancy	-1.9	0.1	0.04 – 0.42	0.0004
Had been admitted in recent pregnancy	-1.4	0.2	0.1 – 0.8	0.02
On medication for chronic illness	-2.2	0.1	0.03 – 0.41	0.0009

Factors that predicted increase in the proportion of respondents who bypassed included home county of residence ($p = 0.0001$) and received ANC at MTRH ($p < 0.0001$). Factors that result in a significant decline in the proportion of those who are referred includes assisted delivery or cesarean section ($p = 0.006$), use of public transport ($p = 0.0003$), complications detected during pregnancy ($p = 0.0004$), having been admitted in recent pregnancy ($p = 0.02$) and being on medication for chronic illness ($p = 0.0009$).

3.7 Health facility characteristics associated with bypassing county public health facilities

3.7.1 Association between accessibility and bypassing county health facilities

Table 6 presents the relationship between ease of access of the nearest county health care facility and bypassing.

Table 6: Association between accessibility and bypassing county health facilities

Variable	Total respondents (n)	Referral status		OR	95% CI	P value
		Bypass (%)	Referred (%)			
Mean distance nearest health facility						
<5 km	180	75.0	25.0	0.8	0.5 – 1.3	0.5
≥5 km	219	78.1	21.9			
Mode of transport						
Walking	69	78.3	21.7	1.1	0.6 – 2.1	0.7
Motorized means	330	76.4	23.6			
Distance to MTRH						
<5 km	18	66.7	33.3	0.6	0.2 – 1.6	0.4*
≥5 km	381	77.2	22.8			
Mode of transport to MTRH						
Public means	162	85.2	14.8	2.3	1.4 – 4.0	0.0009
Other means	237	70.9	29.1			

*Fishers Exact Test

Out of the four variables that were examined, only one: mode of transport to MTRH elicited statistically significant results. Mothers who used public transport to MTRH were 2.3 times more likely to have been bypassers (OR: 2.3; 95% CI: 1.4 – 4.0; p = 0.0009). Mean distance from nearest health facility, mode of transport and distance from MTRH were not significantly associated with referral to MRTH.

3.7.2 Association between availability of services and bypassing county health facilities

Respondents were asked about service availability in the nearest health facility and bivariate analysis was done to determine the relationship between service availability and bypassing health facilities. The results are presented in Table 7 below.

Table 7: Association between availability of services and bypassing county health facilities

Variable	Total respondents (n)	Referral status		OR	95% CI	P value
		Bypass (%)	Referred (%)			
Birth in public facility before						
Yes	171	59.6	40.4	0.2	0.1 – 0.3	<0.0001
No	228	89.5	10.5			
If Yes, Waiting time						
<1 hr	135	57.8	42.2	0.7	0.3 – 1.5	0.3
≥1 hr	36	66.7	33.3			
Service charges						
Yes	81	55.6	44.4	0.7	0.4 – 1.3	0.3
No	90	63.3	36.7			
Water available						
Yes	75	48.0	52.0	0.4	0.2 – 0.8	0.006
No	96	68.7	31.3			
Ambulance available						
Yes	99	48.5	51.5	0.3	0.2 – 0.6	0.0005
No	72	75.0	25.0			
Delivery beds available						
Yes	111	54.1	45.9	0.5	0.3 – 1.0	0.04
No	60	70.0	30.0			
Functional theatre & doctor available						
Yes	54	33.3	66.7	0.2	0.1 – 0.4	<0.0001
No	117	71.8	28.2			
Drugs and supplies						
Yes	84	50.0	50.0	0.4	0.2 – 0.8	0.01
No	87	69.0	31.0			

Respondents who confirmed that water was available in public facilities were 60% unlikely to have bypassed county facilities (OR: 0.4; 95% CI: 0.2 – 0.8; p = 0.006). Availability of ambulance in county health facilities was equally negatively associated with bypassing health facilities. Findings reveal that those who claimed of the public facilities having ambulance were 70% less likely to have been bypassers (OR: 0.3; 95% CI: 0.2 – 0.6; p = 0.0005). Available evidence shows that mothers who agreed that the public health facility has enough delivery beds were 50% less likely to have bypassed the facilities in comparison to those with contrary opinion (OR: 0.5; 95% CI: 0.3 – 1.0; p = 0.04). Similarly, mothers who agreed that public health facility has functional theatre and doctor to conduct C/S were 80% less likely to have been bypassers (OR: 0.2; 95% CI: 0.1 – 0.4; p <0.0001). Drugs and basic supplies availability in county public

facilities also acted as a demotivating factor to seeking delivery services in MTRH as the mothers who confirmed that such commodities were available were 60% less likely to have bypassed the health facilities (OR: 0.4; 95% CI: 0.2 – 0.8; p = 0.01).

3.7.3 Multivariate logistic regression model of health facility determinants of bypassing health facility

Multiple logistic regressions was performed on referral of mothers controlling for confounders to analyse health facility determinants of bypassing health facilities and results reported in Table 8 below.

Table 8: Multivariate logistic regression model of health facility determinants of bypassing health facility

Variable	Estimate	OR	95% CI	P value
Ambulance available in public health facility	-0.8	0.4	0.2 – 0.9	0.03
Public health facility has functional theatre and doctor to handle C/S	-1.0	0.4	0.2 – 0.8	0.01

Findings from this study showed that only two factors were identified as determinant of bypassing health facilities. Mothers who come from areas where the nearest health facility has an ambulance are 60% less likely to be bypassers (OR: 0.4; 95% CI: 0.2 – 0.9; p = 0.03). The same is true of those who come from facilities with functional theatres and where doctors can handle C/S where such mothers are also 60% unlikely to have bypassed health facilities (OR: 0.4; 95% CI: 0.2 – 0.8; p = 0.01).

4.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This section presents the summary to the study findings in relation to previous studies as well as the conclusions and recommendations.

4.1 Summary

Extent of bypassing county health facilities for childbirth services

The proportion of women accessing MTRH for childbirth without going through county public health facilities for the same service was found to be 76.7%. This is comparable with Nepal where 70.2% of women who delivered at the hospital had bypassed their proximal birthing facility (Karkee *et al.*, 2015). It is however, significantly higher than that of the studies in India and Tanzania that reported proportions of 37.7% and 41.8% respectively (Salazar *et al*., 2016; Kruk *et al*., 2014). This variation might be attributed to the differences in the tiers of the health care facilities, whereby the current study was carried out in a teaching and referral facility which is a tertiary facility whereas the studies in India and Tanzania were in the rural district hospitals. The preference for MTRH in the current study despite the proximity of county public health facilities suggests that access to higher level of maternal care occurs in the quest for specialty care which is a main aspect in household-level choice of where to access appropriate health care.

Furthermore, the urban population living within Eldoret town easily access Moi Teaching and Referral Hospital (MTRH) without necessarily going through other county public health facilities. Women using public means of transport simply access the hospital without the need to incur additional transport costs due to the proximity of hospital to the town centre.

Individual characteristics associated with bypassing health facilities

Women aged 25 years and above were found to bypass county public health facilities. Comparable results were reported in a previous study by Karkee *et al* (2013) where women aged above 25 years and above had higher odds of bypassing than women aged below 25 years. Having attained 35 years or more in rural Tanzania was also related with higher probability of bypassing than younger age (Kruk *et al*., 2014). It is apparent that as women's age continue to advance, pregnancy related complications are expected and as a result these women are encouraged during antenatal visits to seek childbirth services from facilities that can handle pregnancy related complications should they arise during delivery. Bypassing was prevalent among women delivering their first child than the subsequent child. This finding suggests that women as well as their antenatal care providers regard first time pregnancies risky and therefore seek specialized obstetric care for these women. Literature has cited that first time pregnant women are likely to be more apprehensive about the delivery than women who have previously given birth. This is deemed to have an impact in their choice of delivery health facility in addition to the health care provider (Rajani, 2016).

Antenatal use has been found to be among the determinants of bypassing of county health facilities. This suggests that women bypassing county health facilities attended less than the recommended four visits. Contrary to this finding, a study by Rajani (2016) demonstrated no relationship between the number of antenatal visits and bypassing. It is apparent in this study that women attending MTRH antenatal clinic were more likely to utilize the same facility for childbirth services. In addition, respondents who were informed during antenatal visit about where to go when labor starts were more likely to be official referrals compared to those who were not informed. Experience of complications during the previous pregnancy and the mode of the previous childbirth were also associated with higher probability of bypassing. These results are comparable with previous studies conducted in other countries that report a direct relationship between the severity of a disease (Gauthier and Wane, 2011), obstetric complication during in the recent pregnancy (Karkee *et al*., 2016) or a previous childbirth (Kante *et al*., 2016), and the bypassing of facilities for childbirth.

Health facility factors associated with bypassing health facilities

Accessibility in terms of geographical distance to the nearby health facility offering childbirth services is recognized as a significant factor that informs women's choice of childbirth facility. The current study reported no significant association linking mean distance to the woman's close facility and it being bypassed. In as much as most women's nearby county health facilities were found to be accessible and offering delivery services, this did not deter them from bypassing. The mode of transport to MTRH was established to be significantly associated with bypassing. This suggests that the proximity of the hospital to the town centre with a bus stage closer to the hospital allows clients to access the facility without incurring further transport costs. Among the parameters on service availability at the county health facilities reported in the current study,

multivariate analysis established a significant association between availability of standby ambulance and a functional theatre at the facilities and bypassing. These findings can be related with results reported by Kahabuka *et al* (2011) that showed 59% of caretakers did not utilize their nearer primary health facilities due to poor services (9.7%), lack of skilled health workers (3.4%), lack of adequate facilities (42.2%) and non-availability of drugs (15.5%). The expectation of quality maternal care plays a key role in the selection of childbirth facilities as women tend to access facilities staffed with health care providers who are competent enough to handle them with due respect and kindness. Low and colleagues (2011) in their study cited that more than 50% of women seen at the hospital who were self referred were motivated by the women's perception of obstetric care quality as well as attitude and respect for women among the health providers.

4.2 Conclusion

In conclusion, bypassing county public health facilities for childbirth was found to be a common occurrence in Uasin Gishu County. In essence, we document here that in Uasin Gishu County, the availability of maternal and neonatal services in county health facilities does not translate into their use by women seeking childbirth services. This observation occurs despite the devolution of health services and the elimination of user fees in all facilities by the government which has brought about an improvement in health services across the county. The individual characteristics that predicted increase in proportion of respondents who bypassed health facilities included residing in Uasin Gishu County and receiving antenatal care at MTRH. History of assisted or cesarean delivery, having complications detected during pregnancy, admitted in the recent pregnancy and being on medication for chronic illnesses were also associated with bypassing. The variations in facilities' functionality in terms of accessibility and availability of services were important health facility determinants of bypassing. Availability of functional theatres, a doctor and a standby ambulance at the nearby health facilities were significantly associated with bypassing. Perception of improved service quality in the tertiary facilities in terms of satisfaction with health care services was also a reason for patients to travel past the nearby county health facility.

4.3 Recommendations

Based on the findings of this study, it is recommended that the County Health Administrator should shift the focus of maternal care to the sub-county and county referral hospitals that are equipped to handle childbirth services, creating public awareness on the services offered at these facilities mainly to reduce the number of women bypassing county public health. The County Executive officer should also communicate with the concerned bodies to get supplies, equipments and medications necessary for maternal and neonatal care, particularly for labour and delivery service.

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