Factors associated with home deliveries among women attending childrens' immunization clinics in rorya district, mara region.

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FACTORS ASSOCIATED WITH HOME DELIVERIES AMONG WOMEN ATTENDING CHILDRENS' IMMUNIZATION CLINICS IN RORYA DISTRICT, MARA REGION.

By

Nazarius J. J. Gecke

A Dissertation Submitted in Partial Fulfilment of the Requirements for the Degree of Master Medicine in Obstetrics and Gynaecology of

Muhimbili University of Health and Allied Sciences

October, 2019

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance of dissertation entitled **Factors associated with home deliveries among women attending childrens' immunization clinics in Rorya district, Mara region**in partial fulfilment of the requirements for the degree of Master of Medicine in Obstetrics and Gynaecology of Muhimbili University of Health and Allied Sciences.

_____

Prof. Siriel Massawe

(Supervisor)

Date_____

DECLARATION AND COPYRIGHT

I, **Nazarius J. J. Gecke,**declare that this **dissertation** is my own original work and that has not been presented and will not be presented to any other University for a similar or any other degree award.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
HIV	Human Immuno- Deficiency Virus
MIS	Malaria Indicator Survey
MUHAS	Muhimbili University of Health and Allied Sciences
SBA	Skilled Birth Attendance
TBA	Traditional Birth Attendants
TDHS	Tanzania Demographic and Health Survey

ABSTRACT

Background: Maternal and neonatal morbidity and mortality arising from limited access to health care services together with socio-cultural and economic factors are of important global health concern. High number of maternal and neonatal morbidity and mortality may be due to some factors that hinder the use of health care facilities availableresulting to home deliverires.In Tanzania the deliveries that occur in health facilities is 63%, the rest occur outside health facilitiesand this varies between zones and regions.

Objective: This study aims at identifying the factors associated with home deliveries among women of reproductive age inRorya district, Mara region.

Materials and methods: Facilitybased cross sectionalstudy was conducted in Rorya district, in Mara region. A total of 427women who delivered a child in the past two years were enrolled in the study. Informed consent was sought from eligible respondents after being provided with information on the aim of the study, benefits and right to withdrawal. A researcher administered Swahili questionnaire was used to collect information from the study participants. Data was collected on demographic, socio-cultural economic, geographical and facility factors by interviewing the participants through questionnaire that was translated in Swahili language, for one month and analysed using SPSS statistical software version 23. Bivariate analysis was done to find out factors associated with home delivery and later multivariate analysis was done to find out the predictors for home deliveries.

Results: Among the study participants 42.9% had home delivery in their recent childbirth. The most common reasons for home deliveries were transport cost to facilities, cultural and customs, no transport, religious beliefs, husband decision, bad language from health care workers (HCW) as well as poor roads. The factors associated with home delivery were Husband/partner's age > 50 years (AOR=2.0; 95% CI=1.09-3.88); husband with informal employment (AOR=3.62; 95% CI=2.02-6.49); distance from the health facility> 10km (AOR=2.22; 95% CI=1.07-4.59);no attendance of antenatal care and no history of previous facility delivery (AOR=1.88; 95% CI=1.21-2.93).

Conclusion: There was high proportion (42.9%) of home deliveries among women of reproductive age.Husband/partner's old age and informal employment; long distance from the health facility, no attendance of antenatal care services and no history of previous delivery in the health facility were major factors associated with homedelivery.

Recommendation

Programmes aimed at enhancing education on importance of antenatal care and dangers of home delivery to men and women may reduce the problem. Reduction of unemployment rates in men and women by providing entrepreneurship education in order to increase family income and be able cover health costs whenever needed

OPERATIONAL DEFINITIONS

Home delivery – Child birth outside health facility. It includes home delivery,at farmor at traditional birth attendant (TBA). But not on the way to hospital for delivery.

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Home delivery – Child birth outside health facility. It includes home delivery, at farm or at traditional birth attendant (TBA) and on the way to hospital for delivery.

INTRODUCTION

BACKGROUND

Maternal and neonatal morbidity and mortality arising from limited accessof health care services together with socio-cultural and economic factors are of important global health concern. Nearly 300,000 women worldwide die from pregnancy and childbirth-related causes each year (1,3).However, more than 80% of these deaths still come from developing countries. Disparities in accessing preventive interventions are particularly challenging in remote areas with high poverty(1). Currently, maternal mortality ratio in Tanzania is 556 per 100,000 live births (2).

Of all health indicators, maternal mortality reveals the greatest disparity between rich and poor countries (4). Though 98% of women who gave birth in Tanzania 5 years before current survey (2016) received antenatal care from the skilled health provider for their birth, there is high percentage of home deliveries of 37% and only 24% of pregnant women started antenatal clinic at first trimester. Skilled birth attendance (SBA) during labour has been identified as most important factor in maternal and neonatal good outcome(5).Increased accessibility to facility based deliveries in developed world has lead to significant reduction of maternal and neonatal morbidity and mortality(1,3). In low resource countries, accessibility to facility based deliveries is significantly low (1). Home deliveries in low resource countries is common and unhygienic.

In Tanzania maternal and neonatal mortality has remained unacceptably high(2). This is due to limited access tohealth care services, together with socio-cultural and economic factors. Deliveries in Tanzania that occur outside the health facilities acount for 37%(1,2). Child birth services in Tanzania is given free of charge in public health facilities in order to increase access to it. However poverty and poor infrastructure to reach the health facilities is another hindering problem.

Various factors can influence the decision on facility-based childbirth, including maternaleducation, wealth status, residential location, distance to health facility, antenatal care, and perceived quality of service (6,8). In particular, antenatal care provides an opportunity to educate the women, enhances their communication with health workers, and also facilitates them to prepare for childbirth (7). Similarly, when the quality of antenatal

care meets expectation and medical standard, the rate of facility-based childbirth will be high (6,9). Therefore, identifying factors that influence place of delivery among women of reproductive age is paramount.

LITERATURE REVIEW

Global rates of facility and home deliveries

Health facility delivery rates are over 95% in Europe and America (1). In the least developed countries, facility-based delivery rates in 2014 averaged 43% (1). It is estimated that, facility-based delivery are disappointingly low in several regions. These include 48% in sub-Saharan Africa, 44% in South Asia, and 71% in the Middle East and North Africa (1).

In Tanzania 63%of deliveries occur in health facilities(1,2) and this varies between zones and regions. Facility based delivery rate is highest in Coastal regions of Dares Salaam, Lindi and Mtwara as well as Northern region of Kilimanjaro. It is lowest in western regions Rukwa, Kigoma and Tabora as well as lake zone regions including Mara, Mwanza, Geita, Shinyanga and Kagera(2).Proportion of health facility deliveries in Mara region is very low, approximately 50% (2). The percentage of births taking place in Tanzania health facilities is 63%, while 37% of them occuring outside health facilities (2). Evidence-based clinical and preventive interventions aimed at reducing maternal and neonatal morbidity and mortality are well documented (6,8). One such intervention is increasing facility-based deliveries under skilled attendance (6).

Factors affecting home delivery

The diversity of factors that influences the decision for home based delivery have been studied. These include demographic factors which are maternal age, marital status, number of living children, number of births and education(6,8). Socio-cultural economic factorsinclude family's economic status, husband age and occupation, husband support and transportation cost. Others are geographical factors, distance, availability of transportation(6,9), as well as health facility factors which include experience of mothers in previous deliveries, influence from antenatal care or availability of delivery equipment and supplies (7).

Demographic factors.

Maternal age is a recognised factor that influences the choice of place of delivery. Some studies have found no association of age of the woman and place of delivery (10,11). In India older women are more likely to deliver at home than younger ones (12). This may be due over confidence of safe previous deliveries. In Kenya studies have shown that younger women are twice more likely to deliver at home than older women (13).

Marital status of a women influences the decision for place of delivery in different ways. Some studies have shown that being married increases chances of delivering at home (14). While other studies have found no any association between the marital status and the place of delivery (11,15,16). This difference could be attributable to husband support or poverty in the families. One study in Kenya revealed that being married is associated with increased chances of delivering at home (13). In Tanzania a study done in Rufiji, Kilombero and Ulanga found that there is an association of home delivery for women who are married(17). This is due to fact that men are decision maker in the family.

The number of deliveries the that woman has previouly undergone, has been documented to affect choice of place of delivery in the subsequent pregnancies. Parity greater than 3 is significantlyassociated with home delivery (16,18). In Kenya parity of 2 or more was found to be associated with home delivery (13,15). This may have resulted from previous experience of delivery at hospital. Some studies have shown no significant association between marrital status and place of delivery (11).In Tanzania grand multi- parity was found to be associated with home delivery (17).This is due to succesful delivery of the previos pregnancies.

The relationship between the women level of education and home delivery has showed varying results. In Sri-Lanka Low level of education has more than three times increased risk of home delivery (16). Studies in most African countries and Asia have revealed that high educational level is significantly associated with delivering in health facility (14,18). This can be due to increased understanding of the importance of delivering under skilled birth attendance. In Tanzania lack of education as been shown to be associated to home delivery (19). The studies done in Tanzania at Biharamulo and Rufiji, Kilomber and

Ulanga showed higher that level of education is significantly associatiated with facility delivery(17,20).

Home delivery in relation to woman's occupation has varying findings. Being employed is has been shown to be associated with delivering at the health facility(18). Some studies however have shown that employment status of the woman does not affect the place of delivery, though the husband employment may affect the place of delivery(14). Such differing results may be due to social economic in families. In Kenya employed women are more likely to deliver at home while house wives have higher chances of delivering in a facility (13). This difference can result from the geographical location or may be attributable to poor quality health care services that make pregnant woman not to attend health facilities for delivery.

Socio-cultural economic factors

The family's social economic status affects place of delivery in different ways. Some studies have shown that level of income does not affect the choice of place of delivery (16). One study done in Kenya revealed supprising results, women from high income families had higher chances of delivering at home than those from low income families (13). Like in Zambia women from high income family are at higher risk of delivering at home (11). But in Timor, low household wealth status is associated with non-utilisation of facility based delivery (18). In Uganda study high family income favours the woman to deliver in health facility (21). In Tanzania at Ifakara shows that one of the factor associated with home delivery was lack of money to pay for delivery kit, fare and food(19). At Rufiji, Kilombero and Ulanga found that those families which were poor had prefered home deliveries(17)This was due to low social economic status. At Biharamulo the study done showed that mothers who had regular source of income had associated with facility delivery(20).

Traditional culture and beliefs also affect the place of delivery, in a study done in Tanzania at Ifakara, people believed that if the woman had long labour may be due to extramarital during pregnancy,this was associated with home delivery. The reason for home delivery was to keep the secret(19). In Tanzania a study was done at Biharamulo (20).

Ruijfi,Kilombero and Ulanga found that traditiona culture and beliefs was associated with the home delivery (17). This is due to myth which some people receive and believe on it.

Geographical factors

Distance from the place of residence to the health facility affects home delivery among women of reproductive age. In Kenya a distance of more than 10 kilometres from home to the health facility most of them deliver at home (13).This shows that distance from the health facility influence place of delivery (15). This may be due to increased cost of transporting or difficult to passage of roads from remote areas to health facilities. In Zambia women whose residence are 5 kilometres from the health facility are more likely to deliver at home than those who live furthest (11). This difference could be due to difference in availability of transport (21), level of education or difference in previous experiences of deliveries.

In Tanzania study done at Ifakara reveals that lack ot transport leads to home delivery this was due to availabiity of only public transport that was also irregularly available(19). At Biharamulo,in Tanzaniafound that distance of more than 5 kilometers was significantly associated with home dlivery (20). Anotherstudy done at Kasulu showed that the distance from home to health facility does not matter, even at village where there is facility still associated with home delivery(23).This may be contributed by bad treatment provided by facility or poor understandind due to low levelof education.

Health facility related factors

Previous heath facility delivery affects place of delivery in different ways. Place of delivery is determined by theability to manage complicated deliveries based on theirprior delivery experiences and birth outcomes. Theseprevious birth experiences may act as either a facilitatoror barrier to future deliveries. Women who have no previous experiences which include awoman’s first delivery is likely to deliver in the health facility (24).Women whohad previous delivery complicationshave higher chances of having future facility delivery(21).However, women who gave birth to their first child withoutcomplications are likely not to utilize facility delivery (24). This may be seen as utilizing a facility for subsequent births is unnecessary.In Tanzania at Biharamulo a study showed that the mothers who previously received good and satisfactory services of delivary care were

associated with facility delivery (20). However the study done at Kasulu, Tanzania pregnant women were travelling at a distance to by pass other facilities due to good and satisfactory services (23). This was different in study done at Kongwa, Tanzania showed that poor and unsatisfactory facility delivery care was significantly associated with home delivery (22).

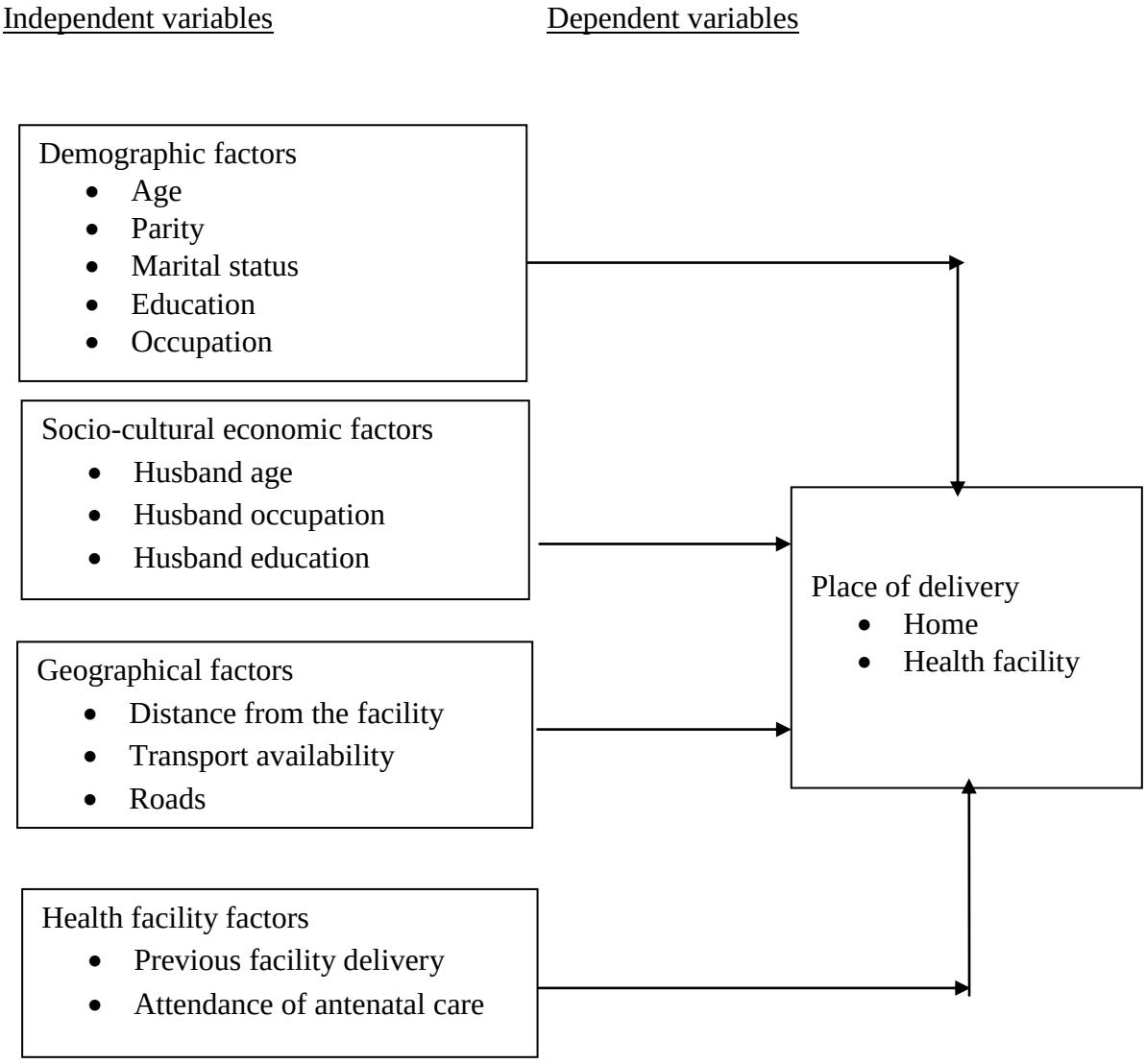
Attendance of antenatal care during prengnancy may influence the place for delivery. Some studies have shown that attending antenatal care during pregnancy is associated with facility delivery(18). The study done in Sr-Lanka showed that attending for antenatal care for 4 times or more is associated with health facility delivery(16), whereas in Zambia fewer or no antenatal care attendance was associated with home delivery (11). This can be due to the fact that pregnancies with risks are likely to attend more often for delivery. It has been shown that not being examined during antenatal care is significantly associated with home delivery (16). This may be the result of not examining the woman may show nothing additional is to be done at the health facility.When the patients are respectedby health care providersthat can be a factor that influences the place of delivery. In Tanzania study showed that, when the health providers were not empathetic, not showing love and not treating well the patients that were significantly associated with home delivery (19).Also in Tanzania a study done in Rufiji, Kilombero and Ulanga found that those pregnancy women who attend antinatal visits had influenced with the facility delivery (17).May be contributed to good health services received during antenatal visits.

Other factors.

There are other factors which influence the place of delivery, a study that was done in Tanzania showed that sudden onset of labour was association with home delivery(19).Various factors that can influence the decision on place of delivery in different settings. These factors affect place of delivery differently from one region to another. Consequently undesired home deliveries are prevalent which predisposes women and their newborn to risk of death from complications resulting from lack of skilled attandants and unhygienic conditions.

CONCEPTUAL FRAMEWORK

The study assumes that demographic factors (age, marital status, number of children, number of births and education), Socio-cultural economic factors (family's economic status, husband age and occupation, transportation cost), geographical factors (distance, availability of transportation) and health facility factors (experience of mothers in previous deliveries,availability of delivery equipment and supplies) as independent variables, are important in influencing whether a mother will deliver at home or at a health facility(11,18,25).



Source: Siajabu, Michael J. 2009.

Figure 1 conceptual framework

PROBLEM STATEMENT

Maternal and newborn morbidity and mortality are still unacceptably high in Tanzania. These morbidities and deaths are contributed by many factors including delivering outside heath facility, that is occuring atpay homes or traditional birth attendants. In Rorya the proportion of home delivery is not known,but Mara region as a whole has highrate of 50% (TDHS-MIS 2016). The study will find out this proportion and the factors associated with home delivery.Evidence-based clinical and preventative interventions aimed at reducing maternal and neonatal morbidity and mortality are well documented (6,8). One such intervention is increasing facility-based deliveries under skilled attendance (6). The martemal motality also is high in Rorya.Through this study will help to pay attention about the importance of facility deliveries which is done by the skilled health attendats, therefore will result to help the pregnant mothers to have safe deliveries and reduce the rate of maternal and neonatal morbidity and mortality for those due to home deliveries as complications in Rorya district. The figures of the magnetude of maternal mortality / morbidity in Rorya is 92/100,000.

RATIONALE OF THE STUDY

The study will create awareness and contribute to knowledge advancement in health facility delivery services in the region and country at large. The results will help during health education campaign, Reproductive and child health clinics to improve the health facility delivery, policy makers and managers to provide specific interventions in order to encourage women to deliver in health facilities.

RESEARCH QUESTION.

What are the factors associated with home delivery among women of reproductive age inRorya district, in Mara region?

OBJECTIVES

Broad objectives

To determine factors that are associated with home deliveries among women of reproductive age in the past 2 yearsin Rorya district.

Specific objectives

1. To detemine the proportion of home deliveries among women attending immunization clinics for children in Rorya district..
2. To determine the factors associated with home delivery among women attending immunization clinics for children in Rorya district.

METHODOLOGY

Study design

It was a facilitybased cross-sectional study. This design was chosen for this study because it intended to determine the proportion of home and facility deliveriesamong all women attending for immunization clinic of children of lessthan 2 years of age during the study period of 1 monthand its associatedfactors.

Study setting

Rorya district council is one among the seven councils in Mara region. Its district hospital is Shirati, a designated district hospital (DDH) and considered as a public hospital. Its area is 9,345.496 km^2. Its total population is 265,241 people; women 126,247 (47%) and men 138,994 (53%)-as per census in 2012. The main economic activities of the residents is fishing and agriculture (animal keeping and crop cultivation). It comprises of 4 divisions, 26 wards and 87 villages. Most people live in mud-walled and thatched-roof houses, but some houses have corrugated roofs. Most rural roads are unpaved and hence some are not passable during rainy seasons while others are so steep that some villages are not accessible by car. In health sector there are 41 health facilities. There are 3 Hospitals which are Shirati, Kowak and Rao hospitals (2 faith based and 1 private), 6 Health centers (3 public and 3 faith based). Those of public are Kinesi,Utegi and Changuge and there are 32 Dispensaries (24 public, 3 faith based, 5 private) where delivery services are offered.

In Rorya district there are some traditional-cultural reasons that leads to home deliveries like mothers in law or mothers are also decision maker to induce or augument labour by local herbs. So they do not need to attend at health facility they believe that if you deliver at facility you at not brave or strong, also they believe that to deliver while lying on bed at health facility causes prolonged labour, in order to facilitate it one should be on labour and deliver at squarting position. There are many TBAs who encourage women to deliver at home since they are paid little some of money for their work. In the community,clan or family women can not participate in decision makiing even to contribute on the discussion. They can are only listen,It is shameful if woman cannot tolerate labour pain and seek help at facility and men have last say on every matter. Some donot care and have no time to take their spouse to health facility for delivery.

The immunization rate is 84% in Rorya. About 750 pregnant women attend at antenatal clinic per month. There are 300- 350 deliveries per month and about 200 patients will attend post natal care per month in district facility centres. The number of children brought for immunization per month is district is 1980 - 2400.

Study population

Women attending for children immunization clinics in fourteen health facilities in Rorya, done from September to October 2017 done by cluster sampling.

Study sample

All women with children less than two years old, who attended for children immunisation in period of study.

Sample size

The sample size was calculated using the prevalence of home deliveries 50% amongst women of reproductive age in Mara region from TDHS-MIS 2016. Estimated sample size will be calculated by the formula below (26), for cross-sectional studies.

$$n = \frac{z^2 p(100 - p)}{\varepsilon^2}$$

Where n=the minimum sample size required, z=level of confidence is this is 95% therefore z is 1.96, Ɛ=maximum likely error which is 5%, and p=prevalence of home deliveries among women of reproductive age in Tanzania is 50% from TDHS-MIS 2016.

$$n = \frac{1.96^2 \times 50(100 - 50)}{5^2}$$

n= 384, When adjusted to 10% non-response rate = 384/0.9 = 427,

The total sample size of 427 women who delivered children less than2 years will be studied.

Inclusion criteria

All women who delivered children in past two years.

Exclusion criteria

Refusal of the client to participate.

Sampling technique

Among the women of reproductive age who delivered less than 2 years were involved in the study,they were invited in the study through structured questionnaire. It was for those who were attending at immunization clinic of children less than two years during study period. The sampling was done by using convenience sampling, where sample was obtained from those who happened to available at time of the data collection. The sampling size used was 427. Thestudy was conducted in1public hospital, 2 public health centres, and 11 public dispensaries. Where each facility had 30 participants. The hospital wasinvolve 30 participants, Health centres had 60 participants and Dispensaries had 330 participants, approximation the duration of 1 month. The number of participants were recruited consecutively until the desired number was reached.

Research assistants.

There were 10 research assistants in the study, who by cadre were enrolled nurses. They were trained one day before the data collection, their main function was to recruit participants about data collection and interviewing them with the guide of the questionnaire that was translated in Swahili. In the remaining 4 facilities the data collection was done by the principal investigator.

Data collection

Data wascollected through interview using a Swahili structured questionnaireadopted from the Tanzania demographic health survey.Some facilities provided rooms for data collection and at some faacilities data was collected under the trees. The information collected focused on demographic characteristics of the participants (such as age, level of education, occupation, parity, and marital status),socio-cultural economic characteristics, geographic location from the nearest health facility and facility related factors that influence choice of place of delivery.They were asked to provide their antenatal cards for verification if available. Absence of the antenatal card was not used as a criteria to ignore the information provided by the respondent.

Data analysis.

Data was coded, entered and analysed by SPSS version 23 and cleaned. The demographic, socio-cultural economic and other variables were presented as frequency distribution and percentage. The proportion of home delivery was determined by calculating the proportion of women delivered outside the facility (home,roads and TBAs) from total sample size.Bivariate analysis was done to find out the factors associated with the home deliveries,the p-value of less than 0.05 was considered significant. Multivariate analysis was doneto find out the predictors home deliveries.

Ethical clearance.

The ethical clearance for the study was obtained from the Senate Research and Publication Committee for Muhimbili University of Health and Allied Sciences (MUHAS).Permission to conduct the study was sought from District Executive Director for Rorya district, in Mara and the administrative officers for health facilities where the study was conducted.

Ethical issues.

Client confidentiality was assured and maintained as rooms were provided and in some facilities under the trees with the certain distance were used, no names were used. Written informed consent was obtained from the participants after being informed about the purpose of the study. Participants were informed the benefits of participating in the study, in which there is almost no health risks that was associated with participating in this study. Participants had the right to withdraw from the study and their information waskept confidential.

RESULTS:

A total of 427 women of reproductive age were recruited to participate in the study, 9 women refused to participate in the study,Those who were recruited intered in data analysis. The mean age among the study participants was 28 years (27.9 ± 2.1S.D). Of the study participants, 183 (42.9%) had home delivery in the recent childbirth. The most common reasons reported for home deliveries were transport cost to facilities, cultural and customs, no transport, religious beliefs, husband decision, bad language from health care workers (HCW) as well as poor roads (see figure 2).

Table 1.Proportion of home deliveries by backgrounds characteristics.

Variable	Total	Home	P value
		N=183 n (%)	
Woman's Age (years)			
< 29	246	92 (37.4)	**0.028**
29-39	152	77 (50.7)	
≥ 40	29	14 (48.3)	
Parity			
1	63	24 (38.1)	0.408
2 or more	364	159 (43.7)	
Marital status			
Cohabiting	57	22 (38.6)	0.645
Separated	13	8 (61.5)	
Divorced	33	13 (39.4)	
Widow	10	4 (40.0)	
Married	314	136 (43.3)	
Woman's education level			
Not attended school	112	59 (52.7)	**0.015**
Primary school	159	62 (39.0)	
Secondary school +	156	62 (39.7)	
Woman's Occupation			
Informal employed	393	180 (45.8)	**0.000**
Formal employed	34	3 (8.8)	
Husband/partner age (years)			
< 31	106	35 (33.0)	**0.004**
31-50	237	100 (42.2)	
> 50	84	48 (57.1)	
Husband/partner occupation			
Informal employed	315	164 (52.1)	**0.000**
Formal employed	112	19 (17.0)	
Husband/partner education level			
Not attended school	76	44 (57.9)	**0.000**
Primary school	108	52 (48.1)	
Secondary school +	243	87 (35.8)	
Distance from the health facility (km)			
< 5	70	22 (31.4)	**0.044**
5-10	276	120 (43.5)	
> 10	81	41 (50.6)	
Attendance of antenatal care			
Did not attend	57	35 (61.4)	**0.001**
1-3 visits	178	81 (45.5)	
4 or more visits	192	67 (34.9)	
Previous facility delivery †			
No	206	108 (52.4)	**0.000**
Yes	158	51 (32.3)	

† Those who had first delivery (63) were excluded

From Table 1, there was association between home delivery and women's age, education level and occupation; husband/partner's age, education level and occupation; antenatal care attendance as well as previous facility delivery.

Table 2 Bivariate and multivariate logistic regression analysis for home delivery

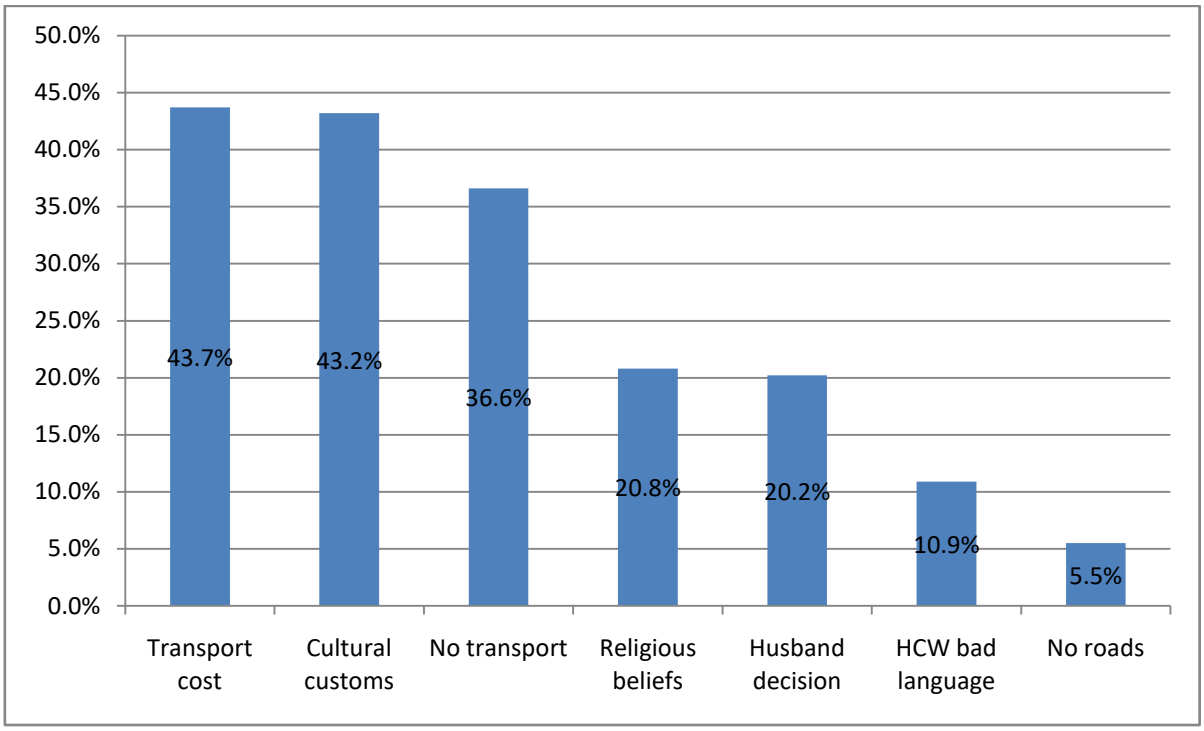
Variable	Home delivery N (%)	Bivariate analysis		Multivariate analysis	
		COR	95% CI	AOR	95% CI
Woman's Age (years)					
< 29	92	**0.64****	0.29 – 0.88	0.88	0.38 – 2.06
29-39	77	1.1	0.49 – 2.43	1.30	0.55 – 3.05
≥ 40	14	1		1	
Parity					
1	24	1			
2 or more	159	1.26	0.73 – 2.18		
Marital status					
Cohabiting	22	1			
Separated	8	2.54	0.74 – 8.78		
Divorced	13	1.03	0.43 – 2.49		
Widow	4	1.06	0.27 – 4.19		
Married	136	1.22	0.68 – 2.17		
Woman's education level					
Not attended school	59	1		1	
Primary school	62	**0.57****	0.35 – 0.94	0.77	0.44 – 1.34
Secondary school +	62	**0.59****	0.36 – 0.97	1.01	0.57 – 1.79
Woman's Occupation					
Informal employed	180	**8.73****	2.62 – 29.04	2.96	0.81 – 10.85
Formal employed	3	1		1	
Husband/partner age (years)					
< 31	35	1		1	
31-50	100	1.48	0.92 – 2.39	1.42	0.84 – 2.38
> 50	48	**2.71****	1.50 – 4.89	**2.05****	1.09 – 3.88
Husband/partner occupation					
Informal employed	164	**5.32****	3.10 – 9.13	**3.62****	2.02 – 6.49
Formal employed	19	1		1	
Husband/partner education level					
Not attended school	44	1		1	
Primary school	52	0.68	0.37 – 1.22	1.15	0.58 – 2.27
Secondary school +	87	**0.41****	0.24 – 0.69	0.99	0.52 – 1.91
Distance to the health facility (km)					
< 5	22	1		1	
5-10	120	1.36	0.90 – 2.04	1.60	0.87 – 2.95
> 10	41	**2.53****	1.20 – 5.32	**2.22****	1.07 – 4.59
Attendance of antenatal care					
Did not attend	35	1		1	
1-3 visits	81	**0.53****	0.29 – 0.97	0.56	0.29 – 1.07
4 or more visits	67	**0.34****	0.18 – 0.62	**0.49****	0.26 – 0.94
Previous facility delivery †					
No	108	**2.16****	1.43 – 3.25	**1.88****	1.21 – 2.93
Yes	51	1		1	

† Those who had first delivery (63) were excluded; ** and bold=significant finding at p <95%.

From table 2, the likelihood to deliver at home to women whose spouse were informalemployment were almost four times higher than those whose spouse were employed. The likelihood to deliver at home was higher in women without any history of facility delivery. Attending antenatal clinic at least four times reduced the likelihood to

deliver at home by 51%. Living more than 10km from the facility had 2-fold likelihood to deliver at home than living less than 5km.

Figure 2 reasons for home deliveries



Among the cultural customs mentioned were “to deliver at home is being very strong” and respected

DISCUSSION

More than one-third of the study participants had home deliveries in their most recent childbirth. Home delivery was significantly associated with husbands/partners age and occupation, distance from home to the health facility, attendance of antenatal care as well as previous facility delivery.

The study showed that 42.9% of women interviewed had their recent delivery outside health facilities where as the rest had facility delivery.This is a little bit higher than the national average of home deliveries which is 37% This study was conducted in the district where home deveries are still conducted. This finding is similar to studies done in developing countries (1).

Women whose husbands/partners were more than 50 years old were more likely to deliver at home than those whose husbands/partnesr were aged 30 years or less. This perhaps is due to the fact that younger men are likely to have gone to school and educated about importance of taking their wives or partners to deliver in health facilities. Older men are likely to be conservative and stick to the culture and customs that influence delivery by traditional birth attendants. Young men are more exposed to media and therefore are likely to get the messages that encourage women to deliver in health facilities for attendance by a trained health providers. These findings are similar to to those of the other studies that were done involving African (14). Those were the multi-country study which revealed husband's increase in age was associated by increase in likelihood of home delivery, but it was viceversa in Asian countries (14). Younger men are born in era of increased communication and therefore assist their wives or partners to deliver at health facility.

Wives or partners of unemployed men were almost four times likely to deliver at home than those whose men were employed. This perhaps could be due to interaction with other men and women at work places where messages for importance of facility delivery are communicated. Work places can increase exposure to health related messages. But also employment is highly related to education acquisition, that employed men are likely to be more educated and therefore possesses high understanding of the importance of having health facility delivery. The results found by the study done in many African and Asian countries were husbands being employed increased the likelihood of delivering at home in

both Africa and Asian population (14). Occupation status of a person varies from one locality to another which may bring the observed differences.

Women living more than 10 kilometres from the health facility were having higher odds of delivering at home than those who live less than 5 kilometres from the facility. This could be due to lack of transport to health facility especially at night. It can also be due to absence of good roads for transport especially during rainy season. The distance could result into more cost to travel for the woman and the care givers. The results are similar to studies done elsewhere(13,21).

Attending antenatal care during pregnancy was associated with reduction in the odds for home delivery by more than 50%. Women who did not attend antenatal care during pregnancy were more likely to deliver at home than those who attended. This is due to the fact that those who attended received health education on the importance of delivering in the hands of trained health care provider. Due to health education that is routinely given to all pregnant women at antenatal clinic lead to behavioral change and increase health seeking behaviour. These services are given free of charge, therefore health care provider languages to women can influence their attendance. Other studies have revealed decreased home delivery with attendance of antenatal care (17). But poor providers' language to delivering women leads to decrease of likelihood to deliver in the facility and favour home delvery (19).

Women who had never delivered in the health facility before had two-fold likelihood of delievring at home compared to those who had ever delivered in the health facility. Those who had never delivered in health facility are poorly exposed to health related messages and are likely to have poor health seeking behaviour. They are those who likely to possess the religious beliefs or the traditional customs that discourage women to deliver in health facility. Delivering in the health facility increases the likelihood of delivering in the facility during the subsequent deliveries. This could be due to good experience of delivering under trained health care provider where good delivery services are offered. Studies done elsewhere had similarfindings that women who had ever delivered in a health facility are less likely to deliver at home(21). The language they receive from health care workers determines their return to health facility during their next delivery(18,20).

There was an association between home delivery and education level of the woman or partner. An increase in education level of the woman or partner was associated with reduced odds of having home delivery. Perhaps it is because educated men and women are likely to possess good health seeking behaviour. This association was lost in the multivariate analysis. Other woman's characteristics which include age, parity and marrital ststus had no association with home delivery. However some studies done in India revealed older age to be associated with high chances of home delivery (12). But this study was community based and therefore there is some methodological differences.

STUDY LIMITATIONS AND MITIGATION

This study has some limitations.Nine women didnt partipate in the study due to their husbands / partners refusal. There was a potential to miss women who did not attend child immunization services during the study period. This makes the findings difficult to generalize. Despite these limitations, data are reliable and can be used as approximation to proportion of home deliveries in Rorya district.

CONCLUSION

There was high proportion (42.9%) of home deliveries among women of reproductive age. The common reasons for home deliveries are transport cost to facilities, cultural and customs, no transport, religious beliefs, husband decision, bad language from health care workers (HCW) as well as poor roads. Husband/partner's old age and unemployment; long distance from the health facility, no attendance of antenatal care services and no history of previous delivery in the health facility were major factors associated with homedelivery.

RECOMMENDATION

Programmes aimed at enhancing education on importance of antenatal care and dangers of home delivery to men and women may reduce the problem. Reduction of unemployment rates in men and women by providing entrepreneurship education in order to increase family income and be able cover health costs whenever needed. Health care provider should be trained for good customer care to delivering women. Women should be encouraged to go and stay wtith relatives who are living closer to health facilities when the time of delivery is about to take place to easen access to services. The government

shouldimprove infrastructure such as roads for transportation to health facilities when the woman is labour.A qualitative research can be done to identify the specific cultural customs and religious beliefs that are associated with home delivery.

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APPENDICES

Appendix 1: Consent Form

I: INFORMATION

Introduction:Greetings! My name is _____. I am representing Dr. Nazarius Gecke from Muhimbili University of Health and Allied Sciences. I invite you to participate in a study on factors associated with home deliveries among women of reproductive age in Rorya district, in Mara region.

Aim: To determine the factors associated with home deliveries among women who attending for immunization clinic with children less than 2 years old in Rorya district, in Mara region.

Participation: Specifically I'm going to ask you some questions about your reproductive life and about your previous last delivery.

Benefits and risks: By participating in this study you will contribute to knowledge advancement rates of home deliveries in Tanzania. You will help policy makers and managers to provide specific interventions in order to encourage women to deliver in health facilities.

Confidentiality: The information that you will provide during the study will be kept confidential. Only the researcher will have access to the questionnaires. Even in reporting or publication there will be no where your identity or name displayed.

Right to withdrawal: Your participation in this study is voluntary. You have the right to get out of the study anytime if you change your mind even after you have signed the consent form. You won't lose your health or social rights of which you are entitled even if you decide not participate.

In case of injury: No harm on you or your family that is expected as a result of participating in this study.

Who to contact: In case you have questions about this study, you should contact the following: Dr. Nazarius John Joseph Gecke (Principal Investigator) department of

Obstetrics and gynaecology, Muhimbili University of Health and Allied Sciences, P. O. Box 65001, Dar es Salaam, mobile phone**: 0713 227 578/ 0786 227 578.**

In case of questions about your rights as a participant, you may contact Dr. Joyce Masalu, Chairperson of the Senate Research and Publications Committee, Muhimbili University of Health and Allied Sciences, P. O. Box 65001, Dar es Salaam. Tel: 2150302-6.

II: CERTIFICATE OF CONSENT

I have read the above information (has been read for me). I have asked (had opportunity to ask) questions and have been answered. I have understood the aim of the study. I understand the benefits, risks and my rights to withdrawal from the study. I hereby consent voluntarily to participate in this study.

Signature of participant	
Date (DD/MM/YY)	
Signature of researcher	
Date (DD/MM/YY)	

FORM YA IDHINI YA KUSHIRIKI

I: TAARIFA

Utangulizi: Salamu! Kwa majina naitwa_____. Ninamwakilisha Dr. Nazarius Gecke wa Chuo Kikuu cha Afya na Sayansi shirikishi Muhimbili. Ninakualika kushiriki katika utafiti unaohusu mambo yanayohusiana na kina mama kujifungulia nyumbani katika wilaya ya Rorya vijijni, mkoani Mara.

Dhumuni: Kutambua mambo yanayohusiana na kina mama kujifungulia nyumbani katika wilaya ya Rorya vijijini, mkoani Mara.

Ushiriki: Nitakuuliza maswali kuhusu uzazi wako na mahali ulipojifungulia mtoto wako wa mwisho.

Faida na hatari: Kwa kushiriki kwako katika utafiti huu utasaidia katika kukuza na kuongeza maarifa na uelewa juu ya kiwango cha kina mama kujifungulia nyumbani katika Tanzania. Utasaidia watunga sera na wapanga mipango kuhusu mahitaji na tija ya kina mama kujifungulia katika sehemu za kutolea huduma za afya

Usiri: Taarifa utakazotoa katika utafiti huu ni siri. Mtafiti pekee ndiye atakayeweza kuziona taarifa hizi. Hata katika utoaji wa taarifa au uchapishaji wa taarifa za utafiti jina lako halitatajwa sehemu yoyote.

Haki ya kujitoa: Ushiriki wako katika utafiti huu ni hiari. Una haki ya kujitoa wakati wowote ukibadili mawazo hata kama ulisaini fomu ya idhini ya kushiriki. Hautopoteza haki yako yoyote ya kiafya au ya kijamii hata pale utakapoamua kujitoa kushiriki katika utafiti huu.

Endapo utapata madhara: Hakuna madhara yoyote kwako au familia yako yanaweza kutokea kutokana na ushiriki wako katika utafiti huu.

Kwa mawasiliano: Endapo utakua na swali lolote linalohusu utafiti huu, wasiliana na wafuatao: Dr. Nazarius John Joseph Gecke (Mtafiti mkuu) idara ya magonjwa ya akina mama na wanawake, Chuo kikuu cha Afya na sayansi shirikishi Muhimbili, S. L. P 65001, Dares Salaam. Simu 0713 227 578/ 0786 227 578.

Kwa maswali kuhusu haki zako kama mshiriki, unaweza kuwasiliana na Dr. Joyce Masalu, Mwenyekiti wa kitengo cha utafiti, Chuo cha Afya na sayansi shirikishi Muhimbili, S. L. P 65001, Dar es salaam. Simu: 2150302-6.

II: IDHINI YA KUSHIRIKI

Nimesoma (nimesomewa) taarifa hii kama ilivyoelezwa hapo juu. Nimeuliza (endapo ulipata nafasi ya kuuliza) maswali na nimejibiwa. Nimeelewa dhumuni la utafiti huu. Nimeelewa faida, athari na haki yangu ya kujitoa katika utafiti wakati wowote. Ninakubali kwa hiari yangu kushiriki katika utafiti huu.

Sahihi ya mshiriki	
Tarehe	
Sahihi ya mtafiti	
Tarehe	

Appendix 2: Questionnaire

IDENTIFICATION
FACILITY NAME..... NAME OF ADMINISTRATIVE OFFICER..... FACILITY NUMBER ..... PARTICIPANT NUMBER.....`.....

QUESTIONS	CATEGORIES
01. How old are you?	.Age
02. What is the level of school you attended: primary, secondary or didnt atttent?	Didnt attend Primary Secondeary
03. I would like to ask, if you are employed, or not or a farmer.	Informed employed Formal employed
04. I would like to ask you if you are married, separeted, divorsed, widow or living with a man as if married.	Married Separareted Divorsed Widow Cohabiting
05. Now I would like to ask about all the births you have had during your life.	Total number of deliveries.....
06. When was the last birth?	Weeks Months
07. Did you attend antenatal care?	NO YES
08. How many times did you attend antenatal care?	1- 3 visits 4 or more visits
09. Did you deliver in health facility?	NO YES ⟶ SKIP TO NUMBER 12

10. Where did you deliver?	Home At the farm At traditional birth atttendat
11. Why did you deliver outside health facility?	NO YES No trasport to facility 0 1 Transport cost to facility 0 1 No roads 0 1 Delivery cost at facility 0 1 Traditional customs 0 1 Religous beliefs 0 ` 1 Husband decision 0 1 Your own decisio 0 1 Decision of motherin law/ yourmother 0 1 Bad language of health care workers 0 1
12. Have you ever delivered at health facility?	NO YES
13. Estimate of the distance in kilometers from health facility	< 5 km 5-10 km >10 km
14. How old was your husband/partner on his last birthday?	Age.....
15. Does your husband provide support?	During antenatal During delivery During child immunization
16. Did your husband/partner attended school?	Did not attend school Primary Secondary
17. What is your husband's/partner's occupation? That is, what kind of work does he mainly do?	Informal employed Formal employed
18. How much do you earn in your family per month, you and your husband/patner? Approximatio	< 100000TZS 100000-1000000TZS > 1000000TZS