

Original Research Article

**Factors Influencing Choice of Place for Child Delivery Among
Child Bearing-Aged Women in Balambala Sub-County,
Garissa County, Kenya**

ABSTRACT

Background: There has been little progress made in Sub-Saharan Africa in achieving the Sustainable Development Goal of reducing the rate of maternal deaths. Maternal and infant mortality rates have been proven to be reduced most significantly by institutional deliveries. Most of women in low-income nations still choose home deliveries despite the risks. In Kenya, maternity care is offered free-of-charge to mothers in all public health facilities. The government reimburses costs incurred by registered public health facilities after helping a mother deliver and, non-cash incentives to the mother. The purpose of the study was to investigate factors influencing choice of place of child delivery among women of child bearing-age in Balambala Sub-County.

Methods: Cross-sectional study design was used and the participants were recruited through systematic random selection procedure. A sample size of 384 mothers, who had 1-year-old child or children, registered for ante-natal care services during their latest pregnancy in a health facility in Balambala were interviewed at the household level. Data collected by structured questionnaires and analyzed using statistical package for the social sciences version 25. A p-value of .05 was considered for statistical significance. Descriptive statistics and inferential statistics such as chi-square were computed to determine the nature and magnitude of the association between the dependent and independent variables.

Results showed that all socio-cultural factors were statistically significant impacting on where mothers decided to give birth (p-value < .05). On obstetric characteristics, the mode of delivery and age at first child were also statistically significant, (p-value < .05). Health care-related factors such as availability of service/commodities required during labor and delivery in the nearest health facility, gender of the skilled attendant was found to be statistically significant, (p-value < .05). In conclusion, the proportions of home deliveries and hospital deliveries in Balambala Ward were found to be 52% and 48% respectively reflecting a very low margin

between the number of women who delivered at home and those who delivered at a health facility. The researcher recommends the inclusion of literacy sessions/lessons into the present ANC profile. Further, men to accompany their pregnant wives to health facilities at least 2 of the 4 scheduled ANC visits.

Keywords: Hospital-delivery, Home-delivery, TBAs, Commodities, Skilled-assistant.

Comment [H1]: ABSTRACT

1. Abstract of over 250 words
2. Background = The problems are unclear, the supporting data for the maternal death rate is not stated; the research aim is to adjust the relationship between variables with a statistical test.
3. Methods = The type of research has not been stated, including whether it is quantitative or qualitative; The research variables have not yet been stated.
4. Results = the p-value is not stated and the Conclusion is not placed separated from the results.
5. Keywords = The words chosen adjust to the content of the title and abstract.

INTRODUCTION

Twenty years after the inception of the International Safe Motherhood Initiative, maternal mortality is still a global public health concern, Gwamaka, 2012⁽¹⁾. Globally, 830 women die daily due to pregnancy-related complications. Most of them found in third-world nations and over half in Sub-Saharan Africa, WHO, 2008⁽²⁾. Distance to the nearest public health facility, lack of reliable transport system, poverty and the lack of basic health care services at public institutions are commonest barriers to health access in SSA. Maternal mortality is an indicator that shows a very wide gap between the rich and the poor; in urban and in rural areas, both between and within countries, WHO, 2015⁽³⁾. Generally, the death or serious illness of a woman is a tragedy for her husband, children, extended family and the community at large, WHO, 2006⁽⁴⁾.

With a risk of death from pregnancy-related complications standing at 1 in every 16, Sub-Saharan Africa has the highest maternal mortality rates in the world, Ohuwole, D. 2014⁽⁵⁾.

Kenya is one of the top ten most hazardous nations in the world for a pregnant woman to give birth in, UNFPA, 2020⁽⁶⁾. The counties in Kenya's northeast have the worst maternal indicators, with the highest maternal death rate recorded in Garissa. MMR at 641/100,000 live birth, an infant mortality ratio (IMR) of 42.1, and under-5 mortality rate (U5MR) of 64.6, Caroline et al., 2020⁽⁷⁾.

Public health facilities in Kenya have suffered from a lack of funding, inadequate infrastructure, inadequate equipment and, personnel across all cadres. A recent assessment revealed that only 36% of public health institutions providing maternity services have the bare minimum of necessary infrastructure and equipment.

According to projections made by the Kenya Health Sector Strategic & Investment Plan (KHSIP), present personnel levels only account for 17% of what is needed to run a health facility efficiently. The government of Kenya promotes skilled-birth attendants (SBAs) to reduce the influence of TBAs by making all maternity services in all of its public health facilities available free of charge. Birthing with skilled help, having access to proper treatment in case of problems and providing quality postnatal care within the first 24 hours of delivery improve the health of mothers and babies, Gabrysch, S. et al., 2009⁽⁸⁾. The broad objective of the study was to investigate why mothers in Balambala Administrative Ward continue to give birth at home despite the government providing maternity services free-of-charge in all public facilities.

The health-facility centered approach proved crucial in lowering mother and infant mortality rates. Intrapartum care where trained professionals efficiently oversee the birthing process and any difficulties that may arise including a comprehensive, high-quality postnatal care package, Gabrysch, S. et al., 2009⁽⁹⁾. Despite of these efforts, the nation still has an approximate maternal mortality rate of 530 deaths per 100,000 live births. Many women still gave birth at home with the help of their families or TBAs, only turning to public health care when issues arose, most commonly too late for effective intervention.

The role and the contributions of government-registered private health facilities in the study area towards provision of maternity services had not been given due considerations by many researchers in the field. The number of mothers who had one or more underlying medical conditions such as diabetes, hypertension and bleeding disorders that increase the risk of maternal mortality were not taken into consideration when auditing the causes of maternal mortality.

Comment [H2]: INTRODUCTION =

1. Factors that affect the choices of facility or place of delivery for maternal deliveries from existing studies have not been stated clearly.
2. Objectives of the study did not include all birthing centres chosen by the mothers.
3. The implications of the problem are not clearly stated

To significantly increase the uptake of hospital deliveries in the sub-county, this study recommends the inclusion of the importance of ante-natal care services in health promotion campaigns at public places. Deployment of at least one female midwife in all health facilities offering maternity services. Inclusion of adult literacy lessons/sessions for pregnant women into the ante natal care profile. Emphasizing risk communication and community engagement on hospital deliveries. High profile advocacy of the opinioned leaders on importance of hospital delivery. Initiation and support for mother-to-mother support groups to enhance uptake of ante natal services. Male partner of the pregnant woman to accompany her to the health facility in at least 2 of the 4 mandatory ante-natal care visits.

METHODS

A community-based, cross-sectional research was undertaken with 340 mothers who had given birth during the previous year. Multi-stage sampling procedure was used to select the village and households. Primary data were collected between July and September 2023.

The study used one-to-one interview to collect quantitative data at the household level. The reason for choosing questionnaires was because it is less costly. Pretesting corrections made with the help of the university supervisors. Using Fishers formula, a sample of 384 was decided.

Balambala sub-county had 5 Administrative Wards and to get the sample required from the population; multi-stage probability sampling techniques was used involving the following steps:

Stage 1, name of each Ward in Balambala sub-county was written on a piece of paper. The papers were folded, mixed and 1 randomly picked. The name of the Administrative Ward that appeared on the picked paper was considered in the study to represent the entire Balambala sub-county.

Stage 2: Villages in the chosen ward were sampled as above and 80% of them considered for the study.

Stage 3: The sample size was divided among the chosen villages in the chosen Administrative Ward.

Stage 4: To identify the particular household to visit in every village, systematic random sampling technique was used.

This was continued until the required sample of three hundred and eighty-four (384) mothers who meet the criteria were interviewed in all the villages.

Comment [H3]: METHODS =

1. The type of research has not been stated, including whether it is quantitative or qualitative; The research variables have not yet been stated.
2. Research variables have not been stated
3. Data processing and data analysis have not been stated
- 4.4. Statistical tests have not been stated

RESULTS

Quantitative data was collected in this study. Things like means, ages, and population sizes may all be described in terms of this quantifiable number. Methods, procedures, and instruments used in quantitative studies are those that provide measurable, quantifiable results. In order to guarantee that the sample is really representative of the whole, a random sampling method was used. Consenting mothers' data were gathered, input into Microsoft Excel, coded, and analyzed using Statistical Analysis Software for the Social Sciences version 25. The data was checked and cleaned by looking at the ranges of answers for each question and checking for missing data values. Members of the household had their demographic information compiled. Measures of central tendency were computed as

descriptive statistics. The multiple logistical regression model included only the factors whose bivariate relationships with hospital birth were statistically significant at a p-value of .05 level. The model was refined by excluding explanations that were not statistically significant.

Obstetric features, cultural customs, and health service-related variables that influence women of reproductive age in the sub-county were rated on a 5-point Likert's scale. Counts and proportions were used to summarize the categorical variables, such as marital status, number of members in the household and the highest educational level of the family head. Finally, the strength of the correlation between the independent and dependent variables was determined using Spearman's Rank correlation.

The study was successful judging from the questionnaire return rate of the responses from the participants in the study. Out of 384 copies of questionnaires administered to the respondents 340 copies were successfully returned having been duly filled, which translated to 88.54%. The rest of the questionnaires, (22) were either rejected for unit bias while several others for (7) for item bias. The rest of the questionnaires (10) had missing pages that had important data whereas the remaining (5) participants discontinued themselves after initiation of the interview.

The number of valid responses (88.5%, n=340) illustrates that majority of women of the child bearing-age consented to the study. This was adequate enough to provide valid and reliable generalization. Mugenda and Mugenda, 2003⁽¹⁰⁾ asserted that a response rate of 60% was considered as very good, while a rate of 70% was considered as excellent.

Demographic characteristics

In this study, the respondents comprised of women of child bearing-age alone in the area of study. In terms of religion, the women in Balambala sub-county were majorly Muslims. Thus, the dominant religion in the area was Islam with 99.4% being Muslims, (n=338).

In terms of education, 80.3%, (n=273) of the women had not attended school for formal education, 18.5% have attended primary school as their highest level of education and 1.2% have attended secondary or tertiary education in general. This implied that majority of the women had no formal education.

A look into the age distribution of the respondents showed that 30.6% represented the age group 17 to 25, while 55.9% represented aged group 26 and 33 years, while those above 33 years were the minority, cumulatively accounting for less than 13.5% of the total population.

On occupation, the dominant occupation was housewife represented by 92.6%, teachers at 5% and business women at 2.4%. The households with a family size of 1 to 5 was reported to be 48.4%, 6 to ten people represented by 45.9%, and eleven to fifteen people at 4.7%. Majority of the respondents had a household size of 1 to 5 members, corresponding to 49.4% (n=168). Finally, on the marital status of the respondent, 90% (n=306) of the mothers were married while 10% were either divorced, single or separated. This meant that most of the women had stable families and raising their children with the presence of their husbands.

About 72.6% (n=241) of the households were living on less than KSH. 500 a day, (Gunn village leading with 64 households and Kuno, the least with 1 while 15.3% (n=52) families spending between KSH 501 and KSH 999 per day, and only 3.8% (n=13) were spending above KSH 999.

Proportion of deliveries in home and in health care facilities

On ANC registration, 67.4% reported to have registered for ANC services in a public health facility, 32.1% did not, as shown in Table II (page 11). On the number of ANC visits made by a mother to a public health facility in the sub-county, 17.1%, (n=58) of them reported to have made only 1 visit, 65 mothers (19.1%) made 2 times, 48 (14.1 %) made 3 visits. Those who made 4 visits were 73, (21.5%) while 96, (28.2%) have not made a visit to the health facility for ANC services. Majority (n=267) 78.6%, of the women in Balambala did not make

Comment [H4]: RESULTS :

1. Write the results directly based on the research objectives
2. Citation is put in the Discussion section
3. Need to validity tests for the questionnaire results

the recommended 4 ANC visits in their last pregnancy. Therefore, the proportions of home deliveries to hospital deliveries in Balambala sub-county were found to be 52 and 48% respectively.

All pregnant women should have access to at least 4 specialized ANC check-ups with a trained professional, as recommended by the World Health Organization. It was also suggested that women go to their first ANC appointment sometime in the first trimester, WHO, 2006⁽⁴⁾.

Socio-cultural factors

The cultural beliefs among the women included TBA preference, (p-value=.000), confidentiality during delivery, (p-value=.002), the role of the husband, (p-value=.003) and religion, (p-value=.003). Cumulatively, 97% of the women believed that confidentiality was an important factor they considered when making decision on where to deliver their babies. In terms of the TBAs, 82.4% of the women agreed they preferred traditional birth attendants to skilled birth attendants.

On religion, most women agreed that their religion (Islam) does not allow male birth assistants to attend to women during child delivery. This was represented by those who agreed to the question making up 98.6%. It has been established that, Islam does not allow male birth attendants to conduct child delivery unless it was inevitable. Further, the husband was the sole decision maker on where the woman was going to deliver her baby. This view was shared by 77.1% of the mothers.

Majority of the women had their first child at the age bracket of 15- and 20-years representing 81.8%. There were 16.1% of young women (aged 21–25), 1.8% of young women (aged 26–30), and 0.3% of young women, (aged 31–35).

In terms of the gestation period in months, the modal period for delivery of a baby was 9 months representing 73.8% (n=251) of the women. The median age of the mothers who were having their first child was 18 and 78.8% of them had a gestation period less than 9 months. This indicated that early marriage was common among the community members in Balambala Ward.

However, 2.6% (n=70) reported to have delivered their babies in 10 months, .6% (n=2) in 11 months, and 5% (n=17) in 8 months. Low gestation period leads to low-birth-weight babies which are at risk for premature a passing during the first month of life. The Mean gestation period for the respondents was found to be 9.5 months. In terms of duration of labor, 66.8% had their labor pains lasting for 1 day, 27.6% for 2 days and, 5.6% for 3 days.

Furthermore, majority of the women delivered their babies through spontaneous vaginal route represented 9.6%, 5.0% through caesarean section but 4.4% did not disclose their mode of delivery. The relationship between the obstetric factors and the place for giving birth was investigated. Correlation between age at first delivery and maternal age had a p-value of .03, while the mode of delivery had a p-value <.05.

The site of delivery was heavily influenced by the mother's age and the method of delivery. However, there was no statistically significant correlation between the number of months of pregnancy and labor and the location of the birth, (p-value >.05).

Healthcare related factors and place of choice for child delivery

Majority, 97.9%, (n=333) of the mothers agreed that lack of essential commodities and other essential services required before, during labor and after delivery at public health facilities made pregnant women opt for home delivery under TBAs. The remaining 2.1% (n=7) disagreed that lack of essential services in public hospitals made them opt for TBAs.

In terms of health care access, majority interviewed women, 87.4%, (n=297) overwhelmingly believed that TBAs were superior than experienced attendants in providing care, 8.2% (n=28)

of them disagreed that TBAs offer better services than skilled-attendants. The remaining 4.4%, (n=15) were neutral.

On distance and utilization of health facility, 91.2% (n=310) of the women agreed that long distance from health facility forced them to go for TBAs assistance, 7.9% (n=27) were neutral while .9% (n=3) disagreed.

Further, 82.7% of the women agreed that TBAs provided better assistance to women during pregnancy, labour after delivery than skilled birth assistants, 12.9% of the women were neutral, while 4.4% disagreed. On Caesarean section, majority of the women agreed that the high number, 77.1% (n=262) of reported cases of Caesarean Sections, some of which ended up unsuccessful, made them avoid delivering in health facilities, while 13.2% of them (n=45) disagreed and the rest 9.7% (n=33) were neutral. Further, majority of women representing 87.4% of the women (n=297) reported that TBAs provided better home-based care for mothers, 1.9% of them were neutral, while the remaining 1.8% disagreed.

The findings on Table I (page 11) show the health care-related factors and the factor into deciding where to give birth. The influencing health care-related factors included preference for TBAs, distance to the nearest health facility, and receiving necessary assistance immediately after delivery, reports on high number of caesarean sections. The large chi-square values indicate that there was a poor fit for the model.

The final model statistically influenced the place of choice for child delivery better than the intercept only model, $\chi^2(8) = 44.929$, $p = .000$. This indicated that health care-related factors had significant association when added to the model as predictor place for delivery. Therefore, there was significant association between the health care-related factors and the choice of place of child delivery in Balambala sub-county. However, distance, $\chi^2(8) = 2.976$, p -value 0.226, was not statistically significant in the association with choice of place of child delivery.

DISCUSSION

This study found that the uptake of maternity services among the community was higher than reported by the sub-county health authorities, (reported: 29.9%, found: 47.7%). Majority of the respondents (n=333), 97.9% reported that chronic lack of essential commodities/services required during labor and delivery in public health facilities was making women opt for TBAs. The typical number of household size in the Balambala sub-county was 7.3 members (2019 National Census) while a figure of 6.2 members was obtained. This proved the internal validity of the survey. The results also confirmed home deliveries were more common than hospital deliveries proved as a form of external validity.

According to 281 mothers, TBAs are more helpful than skilled attendants during delivery. Only 32.8% (75/229) of the mothers who registered for ANC services in the sub-county delivered their babies in a health facility in the sub-county. A number of mothers, 92.1% (n=313) agreed that receiving necessary advice during pregnancy, encouragement during labor and appropriate home-based care after delivery from TBAs were the main reasons why women preferred to deliver their babies at home. Because of that, the proportion of home deliveries was slightly higher than that of hospital deliveries, figures standing at 52 and 49% respectively. This difference primarily originated from the sample sizes used in the 2 sets of data. The survey had a lower sample size considering that it focused only on 1 administrative ward among the 5 Administrative Wards while the health authorities reported

on facts accumulated from the sub-county's 5 Wards. All variables under the investigated socio-cultural factors were found to be statistically significant, $p\text{-value} < .05$. This included influence of TBA and the husband. It also included religious belief of the mother and aspect of confidentiality during delivery. Most of the home deliveries in high-income countries were attended to by skilled health professional, Vedam S, 2003⁽¹¹⁾ but not in low-income countries such as Ethiopia among others, increasing the risk for delivery-related complications and deaths, Ibrahim S, Handiso T, Jifar M, et al., 2017⁽¹²⁾. When obstetric factors such as parity, duration of labour and gestation period were investigated, the study found majority of the first-time mothers delivered at home for fear of undergoing caesarean section at the hospital. The study concurred with Bekuma et al., 2020⁽¹²⁾ results showed a significant correlation between obstetric history and where a woman chose to give birth. The study also indicated that majority of the women, 66.8% (n = 227) had a short duration of labor of 1 day. This may have hindered them from reaching the hospital for delivery and thus opted for traditional birth attendants. Women who experienced labor lasting between 24 hours to 48 hours had the option of choosing their preferred place for delivery unlike those with prolonged duration of labor. On health care related factors, distance to the nearest health facility, availability of essential services, gender of birth assistants and the mode of delivery was investigated. All except distance were found to be statistically significant, $p\text{-value} < 0.05$. The study found out that some women though registering for ANC services in public health facilities in the Ward actually delivered at home. It can be safely assumed that women who go for ANC services are not convinced strongly enough on the importance of health facility delivery. Therefore, the number of ANC visits made by a mother has no influence on her uptake of institutional delivery.

The target population became skeptical of the survey objectives as a result; some members of the community not only refused to consent but mobilized others not to allow the research assistants into their homesteads for the interview. This, in a way, affected the study sample size but, fortunately, not in a way that would affect the generalizability of the results. There was lack of adequate time to collect the required data while in the field. Some members of selected households were not available when visited for the interview.

Extensive social mobilization was carried out using the local administration while showing all the necessary documents to proof the study approval by all relevant authorities. All questions and concerns of the target population were addressed in a planned pre-survey exercise at the household level.

The strength of the study included that the pre-survey data were verified and collected by health records officers who were professionally trained on Health Records and Information. Data was analyzed by skilled data analysts with master degree in Research Methods under the supervision of the Principal Investigator.

On the other hand, the weaknesses of the study included that data on the number of Caesarean Sections conducted in the hospital and their outcomes was not ascertained. Information on whether the missing essential commodities and services was random or systemic.

Comment [H5]: DISCUSSION :

1. A discussion of the strength and weakness of the different types of delivery places should be stated.
- 2.2. The levels of maternal knowledge or educational background of the mother in childbirth should be discussed 3.
- 3.3. Conclusion has not been stated

DECLARATION

Ethical approval: The survey has been approved by the national commission of science, technology and innovation of Kenya.

REFERENCES

- (1) Gwamaka, S. M. D. (2012). Utilization and Factors Affecting Delivery in Health Facility among Recent Delivered Women in Nkasi District Master of Public Health Dissertation Muhimbili University of Health and Allied Sciences.
- (2) WHO: Trends in Maternal Mortality: 1990 to 2008. Geneva: WHO, UNICEF, UNFPA &The World Bank; 2008.
- (3) WHO. Trends in Maternal Mortality: 1990 to 2015 Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division Executive summary. 2015. [Google Scholar] [Ref list]
- (4) WHO 2006 Constitution of the World Health Organization WHO, UNICEF, UNFPA: Maternal Mortality in 2000: Estimates developed by WHO, UNICEF and UNFPA. Geneva.2006, http://www.who.int/making_pregnancy_safer/documents/maternal_mortality/en/index.html] Google Scholar
- (5) Ohuwole D. (2004). An overview of the maternal and newborn health situation in the African region, in African health monitory. A magazine of WHO Regional Office for Africa. 2004; 5:2–4. [Google Scholar] [Ref list]
- (6) WHO, UNICEF, UNFPA, World Bank (2011). Maternal mortality in 1990 to 2011. Geneva: World Health Organization.
- (7) Caroline, K. Daniel, Ester, O. Wangui, M. Situation analysis on the quality of maternal and child health in Nairobi and Garissa Counties in Kenya.

- (8) Gabrysch, S; Campbell, OM (2009) Still too far to walk: Literature review of the determinants of delivery service use. BMC pregnancy and childbirth, 9 (1). p. 34. ISSN 1471-2393 DOI: <https://doi.org/10.1186/1471-2393-9-34>
- (9) Mugenda, O.M. and Mugenda, A.G. (2003) Research Methods, Quantitative and Qualitative Approaches. ACT, Nairobi.
- (10) Vedam, S. Home Birth versus Hospital Birth: Questioning the Quality of the Evidence on Safety, (2003). <https://doi.org/10.1046/j.1523-536X.2003.00218.x>
- (11) Ibrahim S, Handiso T, Jifar M, (2017). Analyzing prevalence of home delivery and associated factors in Anlemo District, Southern Ethiopia. Int Ann Med. 2017;1; 169. [Google Scholar]
- (12) Bekuma TT, Firrisa B, Negero MG, Kejela G, Bikila H. (2020). Factors Affecting Choice of Childbirth Place among Childbearing Age Women in Western Ethiopia: A Community-Based Cross-Sectional Study. Int J Reprod Med. 2020 Apr 25;2020: 4371513. doi: 10.1155/2020/4371513. PMID: 32411781; PMCID: PMC7204181

Comment [H6]: REFERENCES =
1. The amount of references should be added with a 10-year timeline.
2. References have not referred to the destination journal, the International Journal of TROPICAL DISEASE & Health.

Table I

Correlation matrix for health care related-factors and choice of place of child delivery.

Variable	χ^2	p-value
Lack of essential services	0.276	0.000
TBA assistance during labor	0.060	0.269
Distance to health facility	4.21	0.697
TBA assist immediately	0.010	0.850
Caesarean Section	0.132	0.015
Gender of skilled assistant	6.916	0.013

Table II: Proportions of home deliveries and health facility deliveries.

Variable	Response	N	%
ANC registration	Yes	229	67.4
	No	109	32.1
	No response	2	0.5
	Total	340	100
No. of ANC visits	1	58	17.1
	2	65	19.1
	3	48	14.1
	4	73	21.5
	0	96	28.2
	Total	340	100
Place of delivery	At home	177	52.1
	Public health facility at Balambala	162	47.6
	Other places	1	.3
	Total	340	100

	Total	340	100
Who attended to you?	Healthcare worker	162	47.9
	TBA	177	52.1
	Others	1	.3
	Total	340	100
Lost New Born at Home	Yes	31	9.1
	No	309	90.9
	Total	340	100
Lost New Born at hospital	Yes	45	13.2
	No	295	86.8
	Total	340	100

UNDER PEER REVIEW