Determinants for Choice of Home Birth over Health Facility Birth among Women of Reproductive Age in Tanzania: An Analysis of Data from the 2015-16 Tanzania Demographic and Health Survey and Malaria Indicator Survey

Fabiola Vincent Moshi (✉ fabiola.moshi@gmail.com)
University of Dodoma College of Health Sciences  https://orcid.org/0000-0001-8829-2746

Christopher H. Mbotwa
Mbeya College of Health and Allied Sciences-University of Dar es Salaam

Research article

Keywords: Place of Childbirth, determinants, Reproductive Age, Tanzania

DOI: https://doi.org/10.21203/rs.3.rs-18240/v2

License: ☑️ This work is licensed under a Creative Commons Attribution 4.0 International License.  Read Full License
Abstract

Background

While evidence has shown an association between place of childbirth and birth outcomes, still factors contributing to the choice of home childbirth have not been adequately investigated. Childbirth assisted by unskilled birth attendants has been cited as a contributing factor for the high maternal and neonatal mortalities in low resources countries. This study aimed at determining determinants of preference for home childbirth assisted by unskilled attendants in Tanzania.

Method

The study used the 2015-16 Tanzania Demographic and Health Survey and Malaria Indicator Survey (2015-16 TDHS-MIS) dataset. A total of 2286 women of reproductive age (15-49 years) who had childbirth within one year preceding the survey were included in the analysis. Both univariate and multivariable regression analysis was used to determine predictors for home-based childbirth.

Results

A total of 805(35.2%) of women had home childbirth assisted by unskilled providers. After adjusting for confounders, the determinants of preference for home childbirth were the level of education (primary education, AOR=0.666; p=0.001; secondary and higher education, AOR=0.417; p<0.001); not owning mobile phone, AOR= 1.312; p=0.018; parity (parity 2-4, AOR=1.594; p=0.004; Parity 5 and above, AOR=2.158; p<0.001); inadequate antenatal visits, AOR=1.406; p=0.001; wealth index (poorest, AOR=9.395; p<0.001; poorer, AOR=7.701; p<0.001; middle, AOR=5.961; p<0.001; richer, AOR=2.557; p<0.001) and Zones (Southern Highlands, AOR=0.189; p=0.001; Southern, AOR=0.225; p<0.001; Zanzibar, AOR=2.55; p<0.001).

Conclusion

There are large proportions of women who use home childbirth assisted by unskilled birth attendant’s mainly traditional birth attendants (TBA). Predictors for home-based childbirth were being illiterate women, poor access to communication, inadequate antenatal visits, low socio-economic status and those from Zanzibar. Innovative strategies targeting these groups are highly needed to increase the use of health facilities for childbirth and hence reduce maternal and neonatal mortalities in Tanzania.

Background

Maternal mortality remains a public health problem worldwide. In 2015, maternal mortality was the second leading cause of mortality among women of reproductive age worldwide [1]. Ninety four percent of these deaths occurred in developing counties, of which African countries accounted for 65% [1]. Tanzania is among the countries in Africa with the highest maternal mortality estimated to be 546 deaths per 100,000 live births [2]. Most of these deaths are due to preventable causes if women receive appropriate antenatal and intrapartum care by skilled attendants [3]. Direct causes of maternal mortality contribute to up to 80% of all maternal deaths, and these include severe bleeding usually after childbirth (hemorrhage), high blood pressure during pregnancy (preeclampsia and eclampsia), infection usually after childbirth and complication of abortion [1].

In a 10 years retrospective study undertaken in Tanzania reported that the leading cause of maternal mortality was eclampsia (34.0%), followed by obstetric haemorrhage (24.6%) and maternal sepsis (16.7%). The main indirect caused
of maternal mortality were anaemia (14.9%) and cardiovascular disorders (14.0%). The study also reported the trend of maternal death due to haemorrhage and cardiovascular disorder to increase during the period [4]. Likewise, 2.5 million neonates died in 2017 [3]. Sub-Saharan African and South Asia were big contributors to global neonatal mortality[3]. Tanzania is also among the sub-Saharan countries contributing to this rate, with an estimated 25 deaths per 1000 live births [2].

The risk of dying due to maternal cause in low-income countries is high as 1 woman dies in every 41 live births compared to developed countries where 1 woman dies in every 3300 live births [1]. Tanzania as one of low-income countries, the risk of maternal death is 1 maternal death in 44 deliveries. The existing discrepancy needs a collective effort to reduce the gap which exists between the global north and the global south. Learning from the global north is a cornerstone strategy towards decreasing the risk of maternal and neonatal mortalities in the global south. One of the strategies used by the global north is the use of skilled attendants to assist women during labor and childbirth. Almost all births in these regions are assisted by skilled birth attendants regardless of the place of birth [1]. In Tanzania, more than 30% of all births occur outside health facility and 96% of those births are assisted by unskilled providers such as traditional birth attendants (TBAs) or relatives or friends [2]. These birth attendants lack the necessary skills to identify signs of complications and most of the cases when they are referred, they are referred too late to reduce neonatal and maternity mortality and morbidity [5].

Skilled birth attendance is defined as the process by which a delivering woman is provided with satisfactory care during labor, delivery and the early postpartum period by a trained health care provider who can provide both basic and comprehensive maternal care [6]. Although the use of skilled birth attendance has shown to be an effective strategy towards the reduction of maternal and neonatal mortality, still a number of women in Tanzania end up with home births mostly being assisted by unskilled attendants. These birth attendants in Tanzania play an important role in reduction of maternal and neonatal mortality through maternal and neonatal health counseling and escorting woman in labor to health facility for skilled birth [7,8]. They are not officially allowed to assist birth because they lack formal training on how to handle normal deliveries and identify danger signs which need timely referral [8]. Unlike developed countries, Tanzania like other low-income countries lacks skilled attendants who assist birth outside health facilities hence many births occurring outside the health facilities are assisted by unskilled providers. In this study, home birth refers to all birth which occurred outside health facilities.

The World Health Organization (WHO) has reported several factors that may hinder pregnant women from accessing skilled antenatal and intrapartum care. These includes poverty, distance to a health facility, lack of information, inadequate services and cultural practices [1].

Previous studies undertaken in rural Tanzania have also reported socio-cultural factors as being one of the main determinants of maternal preference regarding place of birth [9]. For example, a socio-cultural tradition in some of the tribal cultures in Tanzania requires that when a married woman becomes pregnant for the first time has to go back to her parent's home and the decision of where to deliver rest on her mother [10].

Home delivery is a risk factor for the health of both a mother and a newborn [7]. In the effort of promoting hospital delivery, the government of Tanzania has established a program of building one health facility per village to address the challenge of walking distance to a nearby health facility [11]. The government of Tanzania has also removed the financial barrier to maternity services by removing out of pocket cost-sharing for delivering services [12]. It is stated in the health policy that all direct costs associated with pregnancy care and birth are covered by the government. The ultimate goal here is to remove financial barrier to access maternal care and hence increase skilled birth attendance. On top of that, there are community campaigns done by both government and non-governmental organizations to encourage health facility birth [13].
Despite all this effort, there is a large proportion of women who choose home childbirth over health facility childbirth in the country. The study was conceptualized to explain the determinants of home childbirth assisted over health facilities childbirth.

Methods

Study design and data

This study was a national based cross-sectional study utilizing the 2015-16 Tanzania Demographic and Health Survey and Malaria Indicator Survey (2015-16 TDHS-MIS) dataset [2]. The primary objective of the 2015-16 TDHS-MIS was to provide up-to-date estimates of basic demographic and health indicators. The survey collected information on fertility levels, marriage, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutrition, childhood and maternal mortality, maternal and child health, malaria, and other health-related issues.

The sample design for the 2015-16 TDHS-MIS was done in two stages and was intended to provide estimates for the entire country, for urban and rural areas in Tanzania Mainland, and for Zanzibar. The first stage involved selecting sample points (clusters), consisting of enumeration areas (EAs) delineated for the 2012 Tanzania Population and Housing Census. A total of 608 clusters were selected. In the second stage, a systematic selection of households was involved. A complete households listing was carried out for all 608 selected clusters prior to the fieldwork. From the list, 22 households were then systematically selected from each cluster, yielding a representative probability sample of 13,360 households for the 2015-16 TDHS-MIS. All women age 15-49 who were either usual residents or visitors in the household on the night before the survey were included in the 2015-16 TDHS-MIS and were eligible to be interviewed. Out of a total of 13,360 households selected for the 2015-16 TDHS, 12,767 were occupied. Of the occupied households, 12,563 were successfully interviewed, yielding a response rate of 98%. In the interviewed households, 13,644 eligible women were identified for individual interviews; interviews were completed with 13,266 women, yielding a response rate of 97%.

Four questionnaires based on the DHS program’s standard were used for the 2015-16 TDHS-MIS: The Household Questionnaire, the Woman's Questionnaire, the Man's Questionnaire, and the Biomarker Questionnaire. In particular, the Woman's Questionnaire was used to collect information from all eligible women age 15-49. The information collected includes background characteristics, birth history and childhood mortality, knowledge and use of family planning methods, fertility preferences, antenatal, delivery, and postnatal care, breastfeeding and infant feeding practices, vaccinations and childhood illnesses, marriage and sexual activity, women’s work and husbands’ background characteristics, adult mortality, including maternal mortality, malaria, domestic violence, and other health issues.

Study population and data extraction

Women of reproductive age (15-49). We included women with birth within the year preceding the survey. We extracted the data of eligible women from individual file recode (TZIR7BFL) which resulted into a total of 2286 women. We then dropped unnecessary variables for this study from the data file.

Study variables

Through a literature review, the conceptual framework was developed to guide the review. The conceptual framework had primary independent variables (socio-demographic and obstetric characteristics of a woman), the intermediate variable which was the antenatal services utilization and the original outcome variable which was place of delivery and
later dichotomized into a dummy variable coded as 1 if women delivered at home (out of health facility) and 0 if she delivered at health facility.

**Data analysis**

Data were analyzed using Statistical Package for Social Sciences (IBM SPSS version 20). Data analysis started by describing all study variables using frequencies and percentages, we then assessed the association between a dependent variable and independent variables using the chi-squared test, and finally, we performed binary logistic regression analysis (univariate and multivariable) to determine significant predictors of the choice of place of delivery. All analyses were based at a 5% level of significance.

**Results**

**Socio-demographic characteristics**

The majority of women 1549 (67.8%) were aged between 20-34 years, reside in rural Tanzania 1767 (77.3%), had primary level of education 1357 (59.4%), had inadequate antenatal visits 1262 (55.2%), were married 2003 (87.6%) (Table 1).

**Place of birth**

The majority of study respondents 1,481 (64.8%) had health facility childbirth while a total of 805 (35.2%) of women had home childbirth assisted by unskilled providers

**Relationship between socio-demographic and obstetric characteristics with choice of place of childbirth**

Socio-demographic characteristics which showed a significant relationship with the place of birth were the place of residence, p<0.001; age group, p=0.005; education level p<0.001; current marital status, p=0.001; Zones p<0.001; working status, p=0.033, wealth index p<0.001 and ownership of mobile phones, p<0.001; the obstetric characteristic which showed significant relationship were number of antenatal visits, p<0.001 and parity p<0.001 (Table 2)

**Determinants of choice for home over health facility childbirth**

After adjusting for confounders, the determinants of home birth were the level of education [primary education, (AOR=0.666, p=0.001; secondary and higher education, (AOR=0.417, p<0.001)] no formal education was a reference population; not own mobile phone, (AOR= 1.312, p=0.018); parity [para 2-4, (AOR=1.594, p=0.004), para 5 and above, (AOR=2.158, p<0.001)] para one was used as a reference population; inadequate antenatal visits, (AOR=1.406, p=0.001); wealth index [poorest, (AOR=9.395, p<0.001); poorer, (AOR=7.701, p<0.001); middle, (AOR=5.961, p<0.001); richer, (AOR=2.557, p<0.001) richest was the reference population and Zones [Southern Highlands, (AOR=0.189, p<0.001); Southern, (AOR=0.225, p<0.001); Zanzibar, (AOR=2.55, p<0.001)] Western zone was a reference population (Table 3).

**Discussion**

This study was conducted to provide information on determinants of choice of home birth over health facility birth in Tanzania. Women who choose home birth have increased risk of maternal and neonatal morbidity and mortality. The government of Tanzania has invested on increasing health facility birth as one of the strategies to decrease maternal and neonatal morbidity and mortality. Remove of financial barrier, increasing number of health facilities and increasing human resource for health are among the strategies employed by the government to increase skilled birth attendance
[14]. With all these efforts, one wonders why pregnant women still deliver at home associated with high likelihood of being assisted by unskilled birth attendants. The study used national survey data in order to provide a general picture on determinants of choice of home birth over health facility birth in the country.

The study found that the determinants of choice of home birth assisted by unskilled birth attendants in Tanzania to be education level of pregnant woman, parity, access to mobile phone, number of antenatal visits and zone where a pregnant woman reside in Tanzania.

It was found that the odds of a pregnant woman to choose home birth over health facility birth decreased as a woman advance in education. Pregnant women with primary education and at least secondary level were 33% and 58% respectively, less likely to choose home birth over health facility birth when compared with women with no formal education. The possible explanation could be advance in education level increase expose to health information as well as income. Similar studies based on population-based surveys in Ethiopia reported similar findings [15,16].

The study also found that pregnant women who had higher parity were more likely to choose home childbirth over health facility birth. Pregnant women who had two to four children were 1.5 and those who had five and above were 2.2 times more likely to have a homebirth compared to primiparous women. Similar findings have been reported by a study done in Ethiopia [15]. The possible reason could be history of uneventful birth assisted with unskilled attendants which lower their risk perception towards childbirth [7]. This means that women who had several births attended by traditional birth attendants without complications are more likely to go for the same attendants. They think birth assisted by unskilled birth attendants are not risky because of the history of uneventful birth they had assisted by these attendant. On contrary they are at risk because each pregnant is risk of complications some of which come unnoticed.

Also, pregnant women who had access to mobile phones were more likely to use health facilities for childbirth than those without mobile phones. The possible explanation for this could be many women with access to mobile phones are at a better chance of receiving reproductive health information through their mobile devices when compared to those who have no access to phones. The study showed that there was a significant relationship between income and choice of place of delivery. Better off women economically were also more likely to use health facilities for childbirth. Even though the government of Tanzania has removed out of pocket payment for childbirth services, there other hidden costs associated with health facility childbirth. For example, transport costs for delivering women and relatives who accompany pregnant women to a health facility may be a challenge and make pregnant women opt for home childbirth. There are also costs needed to prepare birth items requested by health care providers. If pregnant women in the course of pregnancy fail to gather the items needed for childbirth, they may decide to opt for home childbirth to avoid embarrassment in the health facility. The income factor has been reported by similar studies done elsewhere in low resources countries [17,18].

The study also revealed that adequate antenatal visits predicted the choice of place of delivery. Pregnant women who had inadequate antenatal visits were 1.4 times more likely to opt for home birth than those who had adequate antenatal visits. Despite the fact the majority of pregnant women in the survey had at least one antenatal visit, only 44.7% had the recommended four or more antenatal visits in Tanzania. Similar findings have been reported by a similar study done in Ethiopia [14] and Kenya [17]. The possible explanation could be that a pregnant woman who has adequate antenatal visits has more opportunity to be aware of obstetric danger signs which may increase their perception towards risks associated with childbirth.

Zones were used as a variable in determining choice of place of childbirth in order to ascertain the differences in use of home birth among them. Zones in Tanzania differ in their geographical locations and are used by national survey to facilitate data collection. The study found that zones predicted the place of childbirth. Women from Southern, Southern...
highlands and Eastern zones were less likely to choose home birth over health facility birth when compared with women from Western zone. But women from Zanzibar had higher odds to choose home birth over health facility birth when compared to pregnant women from Western zone. The study recommends innovative strategies to address the challenge of home birth assisted by unskilled birth attendants. More effort such as community sensitization on maternal services utilization and increase access to maternal services utilization are recommended to be directed to Zanzibar which showed a significant increase in choice of home-birth.

Some studies done in Tanzania have revealed that there are no collective decision making in the household on place of childbirth [9,19]. Decision making on place of childbirth is influenced by gender division of roles and responsibilities where pregnant women and her mother and mother in-law have to decide the place of childbirth while men given the responsibility of providing money [9]. Men in Tanzania like other developing countries have dominative power and control the family economy [20]. Including them in deciding the place of childbirth is a cornerstone towards increasing birth attended by skilled birth attendants.

This study was limited by its exclusive use of quantitative methods, which work to form an association between two variables, but does little to explain it. As such, a corresponding qualitative review for a more narrative overview of the findings might be useful to explore the research question in greater depth. Furthermore, the study by nature of being a population survey, cannot prove a causal relationship between variables, it can only posit a connection. More research is needed to confirm and explore these findings. Also, the study lacks the causal effect relationship but this was minimized by use of population survey data and use of regression analysis which controlled for the confounders.

**Conclusion**

There are large proportions of women who use home childbirth many being assisted by unskilled birth attendant’s mainly traditional birth attendants (TBA), relatives and friends. Predictors for home-based childbirth were illiterate women, poor access to communication, inadequate antenatal visits, low socio-economic status and those from Zanzibar. Based on the data and findings, the authors provide the following three recommendations: Firstly, education and awareness programs should be designed on the importance of delivering at hospitals and the risks associated with delivering at home. Secondly, innovative interventions targeting these groups are needed to increase the use of health facilities for childbirth and hence reduce maternal and neonatal mortalities in Tanzania. Thirdly, Maternal health services at all levels of health facilities including dispensaries and health centers should be improved and be friendly to users. This will motivate women, particularly those of low socioeconomic status to utilize health facilities for delivery. Findings from this study are useful in informing policy makers and public health experts on the area required to intervene so as to improve maternal health services by improving the utilization of health facilities for delivery.

**Abbreviations**
Declarations

Ethics approval and consent to participate

Data collection and the survey content and protocol were approved by Tanzania's National Institute for Medical Research (NIMR), the Zanzibar Medical Ethics and Research Committee (ZAMREC), the Institutional Review Board of ICF International, and the Centers for Disease Control and Prevention in Atlanta, USA. Participants provided verbal consents and the household interviews took place privately. For participants under the age of 18, written consent was requested from their parent or guardian.

Consent for publication

Not applicable

Availability of data and material

The data that support this analysis are available from the 2015-16 Tanzania HIV and Malaria Indicators Survey (THMIS). This survey was conducted by the National Bureau of Statistics (NBS) in collaboration with the Tanzania Commission for AIDS (TACAIDS) and the Zanzibar AIDS Commission (ZAC), the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDEC) (Tanzania) and the USAID-Funded Measure DHS project. Data is available from the authors upon reasonable request and with permission from MEASURE DHS

Competing interests

Authors declare there is no competing interest

Funding

The study was not funded

Acknowledgments

The authors are grateful to MEASURE DHS for providing them with the data set.

Authors’ contributions
FVM did data analysis and drafted the manuscript and led the process of critical revision of the manuscript. CHM developed the design section of the manuscript, data extraction and critical review of the manuscript. All authors read and consent for the manuscript to be submitted for peer review.

Availability of data and materials

Data set is available and can be shared on request

References

1. WHO. Monitoring Health for the SDGs [Internet]. Vol. 8, Ayaq. 2019. Available from: https://apps.who.int/iris/bitstream/handle/10665/324835/9789241565707-eng.pdf
2. Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) [Tanzania Mainland], Ministry of Health (MoH) [Zanzibar], National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS) and I. Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015-2016 [Internet]. Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS) 2015-16. Dar es Salaam, Tanzania, and Rockville, Maryland, USA; 2016. Available from: https://www.dhsprogram.com/pubs/pdf/FR321/FR321.pdf
3. UN. The sustainable development goals report 2016. Sustain Dev goals Rep 2016 [Internet]. 2016; Available from: https://unstats.un.org/sdgs/report/2019/The-Sustainable-Development-Goals-Report-2019.pdf
4. Bwana VM, Rumisha SF, Mremi IR, Lyimo EP, Mboera LEG. Patterns and causes of hospital maternal mortality in Tanzania A 10-year retrospective analysis. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0214807
5. Hug L, Sharrow D, Sun Y, Marcusanu A, You D, Mathers C, et al. levels and Trends in Child Mortality. 2017; Available from: http://www.childmortality.org/files_v21/download/IGME report 2017 child mortality final.pdf
6. World Health Organization, United Nations Population Fund, United Nations Children's Fund, International Confederation of Midwives, International Confederation of Nurses, International Federation of Gynecology and Obstetrics, et al. Definition of skilled health personnel providing care during childbirth. 2018;1–4. Available from: https://apps.who.int/iris/bitstream/handle/10665/272818/WHO-RHR-18.14-eng.pdf?ua=1
7. Mahiti GR, Kiwara AD, Mbekenga CK, Hurtig A-K, Goicolea I. "We have been working overnight without sleeping": traditional birth attendants’ practices and perceptions of post-partum care services in rural Tanzania. BMC Pregnancy Childbirth [Internet]. 2015;15(1):8. Available from: http://www.scopus.com/inward/record.url?eid=2-s2.0-84924213233&partnerID=tZOtx3y1
8. Vyagusa DB, Mubyazi GM, Masatu M. Involving traditional birth attendants in emergency obstetric care in Tanzania: Policy implications of a study of their knowledge and practices in Kigoma Rural District. Int J Equity Health. 2013;12(1):1.
9. Moshi F, Nyamhanga T. Understanding the preference for homebirth; an exploration of key barriers to facility delivery in rural Tanzania. Reprod Health [Internet]. 2017;14(1):132. Available from: http://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-017-0397-z
10. Lyimo FS, Beran TN. Demographic, knowledge, attitudinal, and accessibility factors associated with uptake of cervical cancer screening among women in a rural district of Tanzania: Three public policy implications. BMC Public Health [Internet]. 2012;12(1):22. Available from: http://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-12-22
Tables

Table 1: Socio-demographic characteristics of study respondents
| Variable                        | Frequency | Percentage |
|--------------------------------|-----------|------------|
| **Age groups (years)**         |           |            |
| 15-19                          | 324       | 14.2       |
| 20-34                          | 1549      | 67.8       |
| 35-49                          | 413       | 18.1       |
| **Place of residence**         |           |            |
| Urban                          | 519       | 22.7       |
| Rural                          | 1767      | 77.3       |
| **Level of education**         |           |            |
| No formal education            | 454       | 19.9       |
| Primary education              | 1357      | 59.4       |
| Secondary+                     | 475       | 20.8       |
| **Wealth index**               |           |            |
| Poorest                        | 555       | 24.3       |
| Poorer                         | 476       | 20.8       |
| Middle                         | 405       | 17.7       |
| Richer                         | 477       | 20.9       |
| Richest                        | 373       | 16.3       |
| **Number of antenatal visits during pregnancy** | | |
| 0-3                            | 1262      | 55.2       |
| 4+                             | 1021      | 44.7       |
| **Parity**                     |           |            |
| Para One                       | 589       | 25.8       |
| Para 2-4                       | 1015      | 44.4       |
| Para 5+                        | 682       | 29.8       |
| **Owns a mobile telephone**    |           |            |
| No                             | 1265      | 55.3       |
| Yes                            | 1021      | 44.7       |
| **Marital Status**             |           |            |
| Never Married                  | 186       | 8.1        |
| Married                        | 2003      | 87.6       |
| Separated                      | 97        | 4.2        |
| Respondent currently working | 612 | 26.8 |
|------------------------------|-----|------|
| Working                      | 1674| 73.2 |

| Zones                        |     |      |
|------------------------------|-----|------|
| Western                      | 212 | 9.3  |
| Northern                     | 186 | 8.1  |
| Central                      | 233 | 10.2 |
| Southern Highlands           | 145 | 6.3  |
| Southern                     | 69  | 3    |
| South West Highlands         | 271 | 11.9 |
| Lake                         | 665 | 29.1 |
| Eastern                      | 180 | 7.9  |
| Zanzibar                     | 325 | 14.2 |

**Table 2**: The relationship between maternal services utilization during pregnancy and choice of place of childbirth
| Variables                           | Health Facility | Home | χ²   | p-value |
|-------------------------------------|-----------------|------|------|---------|
|                                     | n (%)           | n (%)|      |         |
| **Place of residence**              |                 |      |      |         |
| Urban                               | 448(86.3)       | 71(13.7) |      | <0.001 |
| Rural                               | 1033(58.5)      | 734(41.5) | 136.479 |         |
| **Age group**                       |                 |      |      |         |
| 15-19                               | 227(70.1)       | 97(29.9) |      | 10.516  | 0.005  |
| 20-34                               | 1011(65.3)      | 538(34.7) |      |         |
| 35-49                               | 243(58.8)       | 170(41.2) |      |         |
| **Educational level**               |                 |      |      |         |
| No education                        | 201(44.3)       | 253(55.7) |      |         |
| Primary education                   | 882(65)         | 475(35) |      |         |
| Secondary+                          | 398(83.8)       | 77(16.2) | 158.952 | <0.001 |
| **Parity**                          |                 |      |      |         |
| Para one                            | 455(77.2)       | 134(22.8) |      |         |
| Para 2-4                            | 679(66.9)       | 336(33.1) |      |         |
| Para 5+                             | 347(50.9)       | 335(49.1) | 99.897  | <0.001 |
| **Owns a mobile telephone**         |                 |      |      |         |
| Not owning                          | 696(55)         | 569(45) |      |         |
| Owning                              | 785(76.9)       | 236(23.1) | 118.404 | <0.001 |
| **Wealth index**                    |                 |      |      |         |
| Poorest                             | 256(46.1)       | 299(53.9) |      |         |
| Poorer                              | 250(52.5)       | 226(47.5) |      |         |
| Middle                              | 246(61)         | 158(39) |      |         |
| Richer                              | 380(79.7)       | 97(20.3) |      |         |
| Richest                             | 348(93.3)       | 25(6.7) | 297.847 | <0.001 |
| **Number of antenatal visits during pregnancy** |     |      |      |         |
| 0-3                                 | 729(57.8)       | 533(42.2) |      |         |
| 4+                                  | 749(73.4)       | 271(26.6) | 59.441  | <0.001 |
| **Marital**                         |                 |      |      |         |
| Status          | Never Married | Married | Separated |
|-----------------|---------------|---------|-----------|
|                 | 146(78.5)     | 1272(63.5) | 63(64.9) |
|                 | 40(21.5)      | 731(36.5)  | 34(35.1) |
| Respondent currently working |           |         |          |
| Not working     | 418(68.3)     | 194(31.7)  |
| Working         | 1063(63.5)    | 611(36.5)  | 16.764    | <0.001 |
| Zones           |               |         |          |
| Western         | 119(56.1)     | 93(43.9)  |
| Northern        | 134(72)       | 52(28)    |
| Central         | 147(63.1)     | 86(36.9)  |
| Southern Highlands | 134(92.4) | 11(7.6)   |
| Southern        | 60(87)        | 9(13)     |
| South West Highlands | 168(62) | 103(38)   |
| Lake            | 352(52.9)     | 313(47.1) |
| Eastern         | 154(85.6)     | 26(14.4)  |
| Zanzibar        | 213(65.5)     | 112(34.5) | 150.926   | <0.001 |

**Table 3:** Determinants of choice for home over health facility childbirth
| Variable                     | OR  | 95%CI     | p-value | AOR  | 95%CI     | p-value |
|------------------------------|-----|-----------|---------|------|-----------|---------|
|                              |     | Lower     | Upper   |      | Lower     | Upper   |
| **Place of residence**       |     |           |         |      |           |         |
| Rural (ref)                  | 1   | 1         | 1       |      | 1         | 1       |
| Urban                        | 0.223 | 0.171      | 0.291<0.001 | 0.774 | 0.55      | 1.09    | 0.142  |
| **Age group**                |     |           |         |      |           |         |
| 15-19 (ref)                  | 1   | 1         | 1       |      | 1         | 1       |
| 20-34                        | 1.245 | 0.96       | 1.615<0.098 | 1.134 | 0.795     | 1.617   | 0.488  |
| 35-49                        | 1.637 | 1.203      | 2.228<0.002 | 0.886 | 0.555     | 1.414   | 0.611  |
| **Level of educational**     |     |           |         |      |           |         |
| No education (ref)           | 1   | 1         | 1       |      | 1         | 1       |
| Primary education            | 0.428 | 0.345      | 0.531<0.001 | 0.666 | 0.523     | 0.85    | 0.001  |
| Secondary+                   | 0.154 | 0.113      | 0.209<0.001 | 0.417 | 0.284     | 0.614   | <0.001 |
| **Parity**                   |     |           |         |      |           |         |
| Para one                     | 1   | 1         | 1       |      | 1         | 1       |
| Para 2-4                     | 1.68 | 1.331      | 2.121<0.001 | 1.594 | 1.158     | 2.193   | 0.004  |
| Para 5+                      | 3.278 | 2.568      | 4.185<0.001 | 2.158 | 1.47      | 3.168   | <0.001 |
| **Owns a mobile telephone**  |     |           |         |      |           |         |
| No                           | 2.719 | 2.265      | 3.265<0.001 | 1.312 | 1.048     | 1.643   | 0.018  |
| Yes                          | 1   | 1         | 1       |      | 1         | 1       |
| **Antenatal visits**         |     |           |         |      |           |         |
| 4+                           | 1   | 1         | 1       |      | 1         | 1       |
| 0-3                          | 2.013 | 1.685      | 2.406<0.001 | 1.406 | 1.146     | 1.724   | 0.001  |
| **Wealth index**             |     |           |         |      |           |         |
| Poorest                      | 16.258 | 10.483     | 25.214<0.001 | 9.395 | 5.435     | 16.24   | <0.001 |
| Poorer                       | 12.584 | 8.073      | 19.615<0.001 | 7.701 | 4.48      | 13.24   | <0.001 |

Page 15/16
|          | Middle | Richer | Richest | Working status | Not working (ref) | Working | Marital Status | Zone | Supplementary Files |
|----------|--------|--------|---------|----------------|-------------------|---------|----------------|------|---------------------|
|          | 8.904  | 3.553  | 1       | 0.807          | 0.663             | 1       | 1              | 1    |                     |
|          | 5.665  | 2.236  | 1       | 0.983          | 0.934             | 1       | 1              | 1    | STROBEchecklistcrosssectional.doc |
|          | 13.997 | 5.646  | 1       | 3.011          | 0.767             | 1       | 1              | 1    |                     |
|          | <0.001 | <0.001 | <0.001  | <0.001         | 0.767             | 1       | 1              | 1    |                     |
|          | 5.961  | 2.557  | 2.557   | 0.979          | 0.767             | 1       | 1              | 1    |                     |
|          | 3.5     | 1.555  | 1.555   | 1.248          | 1.248             | 1       | 1              | 1    |                     |
|          | 10.15   | 4.206  | 4.206   | 0.861          | 0.861             | 1       | 1              | 1    |                     |
|          | <0.001  | <0.001 | <0.001  | <0.001         | <0.001            | 1       | 1              | 1    |                     |
|          |         |        |         |                |                   |         |                |      |                     |
| Working status |       |        |         |                |                   |         |                |      |                     |
|          |         |        |         |                |                   |         |                |      |                     |
|           |         |        |         |                |                   |         |                |      |                     |
| Marital Status |       |        |         |                |                   |         |                |      |                     |
|          |         |        |         |                |                   |         |                |      |                     |
|           |         |        |         |                |                   |         |                |      |                     |
| Zone |       |        |         |                |                   |         |                |      |                     |
| Western | 1       |        | 1       |                |                   |         |                |      |                     |
| Northern | 0.497   | 0.326  | 0.755   | 0.001          | 1.062             | 0.657   | 1.718          | 0.805|                     |
| Central  | 0.749   | 0.512  | 1.095   | 0.135          | 1.001             | 0.656   | 1.529          | 0.994|                     |
| Southern Highland | 0.105 | 0.054  | 0.206   | <0.001         | 0.189             | 0.093   | 0.384          | <0.001|                     |
| Southern | 0.192   | 0.091  | 0.407   | <0.001         | 0.225             | 0.103   | 0.493          | <0.001|                     |
| Southern Highland | 0.784 | 0.544  | 1.131   | 0.193          | 0.842             | 0.564   | 1.259          | 0.403|                     |
| Lake | 1.138   | 0.834  | 1.553   | 0.416          | 1.4               | 0.993   | 1.973          | 0.055|                     |
| Eastern | 0.216   | 0.132  | 0.355   | <0.001         | 0.573             | 0.328   | 1.002          | 0.051|                     |
| Zanzibar | 0.673   | 0.472  | 0.959   | 0.029          | 2.55              | 1.601   | 4.061          | <0.001|                     |

**Supplementary Files**

This is a list of supplementary files associated with this preprint. Click to download.

- [STROBEchecklistcrosssectional.doc](#)