

Factors Influencing Obstetric Home Delivery and Outcome Among Women of Reproductive Age in Dismareb District, Somalia

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Abstract

Background: Homebirth (home delivery) is a birth that takes place in a residence rather than in a hospital or a birth center.

Aims: The aim of the study is to determine factors influencing obstetric home delivery and the outcomes among women of reproductive age in Dusmareb district, Somalia.

Methods: The study was used a descriptive cross-sectional study in Dusamreb district of Somalia with both qualitative and quantitative techniques of data collections and random technique was used to select 228 women of reproductive age. Well-structured questionnaires were administered by the interviewer to participants who gave their consent and also two focus group discussion sessions were conducted with discussion guides. Data were analysed using the Statistical Package for Social Sciences version 20.0. Descriptive , and Inferential statistics were used to test association, with the level of significance set at 5%.

Results: The findings of this study show that 41% have had at least one child delivery at home. The mean age of the respondents was 32.9 ± 8.1 years; 15(6.6%) had tertiary education and Women with 4 – 6 children were four times more likely to have a home delivery (OR = 3.65, p = 0.002), Women with employment were 59% less likely to have a home delivery (OR = 0.41, p = 0.009); the study also found as outcome of home delivery that 22% of the women reported their baby was not okay and have taken to hospital, while 41(73.2%) reported the child died within 28 days following delivery while 24 (42.8%), women experienced prolonged labour during their last delivery at home.in the focus group discussion the women reported that there is poor communication relationship between the mothers and health staff.

Conclusion: the study is highly recommended the government to create employment for the women,also the hospital directors were recommended to monitor the relationship between the care giver and the pregnant mother.

Background

Globally more than half a million women of reproductive age (15–49 years) die every year due to pregnancy and childbirth complications, and 300 million women suffer from serious injuries. The maternal mortality ratio in developing countries in 2015 is 239 per 100 000 live births versus 12 per 100 000 live births in developed countries¹.

Maternal mortality is unacceptably high. About 830 women die from pregnancy- or childbirth-related complications around the world every day. It was estimated that in 2015, roughly 303 000 women died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented².

Skilled attendance during labor, delivery and in the early postpartum period could prevent many of these deaths. WHO defines a skilled birth attendant (SBA) as someone “trained to be proficient in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management, and referral of complications in women and new-born. Providing antenatal care and ensuring that births are attended by skilled/trained health personnel contribute to reducing maternal deaths. However, in sub-Saharan Africa, only 51 percent of births were attended by a skilled birth attendant in 2016, compared to 99 percent of births in Europe and in Northern America. Globally, 79 percent of births were assisted by trained health personnel³.

Women die as a result of complications during and following pregnancy and childbirth. Most of these complications develop during pregnancy and most are preventable or treatable. The major complications that account for nearly 75% of all maternal deaths are severe bleeding (mostly bleeding after childbirth), infections (usually after childbirth), high blood pressure during pregnancy (pre-eclampsia and eclampsia), complications from delivery and unsafe abortion⁴.

Complications of pregnancy and unsafe deliveries carried out at home are also one of the leading causes of maternal mortality. Home delivery (home birth) is a birth that takes place in a residence rather than in a hospital or a birth center. They may be mostly attended by, traditional birth attendance especially in developing country.

The enormous majority of women who deliver outside the health facilities give birth at home, where risks of mortality are on the increase in the absence of professional attendance. However, it has been estimated that only 50% of the women in the world have access to such skilled care in developing countries, most women deliver at home for some reasons. These include distance to health services and rural locations do not have adequate maternal health services⁵.

Barriers to accessing skilled birth attendant services are many. The poor access to skilled birth attendance causes many women delivering at home which may result in maternal death, child death and other complication related to pregnancy and labour.

Case in somali

In Somalia, only one out of six pregnant women receive appropriate care due to lack of accessible basic and obstetric emergency care resulting in high levels of maternal mortality and morbidity.⁶ The Federal government of Somalia reported that 53% of women in reproductive age deliver in their homes.⁷ In Somalia, the infant mortality rate is 132/1000 live births and the maternal mortality rate is 732/100 000 live births. ⁸one out of every 12 women dies due to pregnancy-related causes. Access to maternal health services is low with 44% of births in Somalia being attended by a skilled birth attendant. This is why the maternal mortality rate in Somalia is increasing ⁹.

Apart from the reports of the Somali Federal Government, WHO and UNICEF, no study that has assessed the factors determining home delivery and its outcome in Somalia is reported in the literature. However, researches have been done among Somalis in Ethiopia which showed 84% prevalence of home delivery¹⁰. This study was investigate the factors that influence the home delivery and its outcome in Dusmareb district, Somalia.. This study has great significance as it was highlight Outcome and factors influencing obstetric home delivery and provide information that was helped to plan interventions to improve maternal and prenatal mortality. The researchers wanted to answer the following questions:

- What is the proportion of women of reproductive age who practice home delivery
- What are the determinants of home delivery among women of reproductive age residing in Dusmareb district, Somalia?
- What is the outcome of home delivery among women of reproductive age residing in Dusmareb district, Somalia?

The results was also enhance the formulation of policies by the concerned communities and the Central Government.

Methods And Materials

Study area.

This study was conducted in Dusmareb district, Galguduud, Somalia. Dusmareb is the capital city of Galmudug State of Somalia in east Africa and the administrative Capital of Galguduud region. Galguduud is an administrative region in the central Galmudug state of Somalia. It occupies 49,258 Sq. Km of land and has approximately 800,000 population [(2005, population census)]. Somalia is a member of the African Union (AU), African Economic Community (AEC), and the Council of Arab Economic Unity (CAEU). The city has five main villages, Dayax, Horseed, wabari, Wahar Ade. And Bulo, oog. The population of Dusmareb is approximately 91,000. [(2005) population census] It has two main hospitals, Galguduud hospital and Hanano hospital. The health facilities in Dusmareb town are two main referral hospital and 7 health centres.

Study Design

A descriptive cross-sectional study design was used . The study used both qualitative and quantitative techniques of data collection addressing various aspects of home delivery, the outcome and causal factors among women of reproductive age residing in Dusmareb district.

Inclusion/Exclusion criteria

This study involved women in the reproductive age group (15-49) residing in the Dusmareb district, Somalia. The participant was included if they have previous birth also the participants was not included if they have psychological disorder or non-consenting women.

Sample Size Determination

The sample size was determined by this formula [See supplementary files] [Leslie kish Formula 1965], also the sample size was based on the work of ¹⁰done in Ethiopia with home delivery proportion of 84%.

Substituting into the formula, the sample size was computed as follows

[See supplementary files]

10% of the sample size (21) was added to adjust for possible nonresponse.

[See supplementary files]

The calculated minimum sample size was a total of 228 women.

SAMPLING METHOD technique

In the qualitative sampling ten participants each from home delivery and institutional delivery (total 20) was purposively selected for Focus Group Discussion (FGD). These comprised two women who delivered at home and another two who delivered in institution from each of the five villages of the Dusmareb district then divided into two group, group with home delivery and groups with institutional delivery while the quantitative sampling was conducted in two randomly selected villages in Dusmareb district using lottery method. Each village was given a unique number written on piece of paper, placed in a bowl and mixed thoroughly. The community member (e.g. children) was picked two numbers from the bowl and the villages that have the numbers selected was sampled. The sample size was equally divided into two villages selected from the district because the number of mothers in reproductive age in these villages is unknown but probably they are same. The centre of the community was identified as the starting point and a bottle will spun to determine the direction to be followed. The survey then started from the nearest house to the direction of the bottle top, and continued in a pre-determined direction. Households were surveyed sequentially until the desired number was obtained.

Data collection procedure

The principal investigator introduces first objective of the study and obtain informed consent from participants. The investigator will ask broad questions according to the FGD guide to elicit responses and generate discussion among the participants. The investigator's goal is to generate the maximum amount of discussion and opinions within a given time period. The focus group discussion was recorded by using Audio-tape recorder from The 20 experienced women selected in all villages of Dusmareb district proportionately while the survey data was collected by face to face interview technique using structured and pretested questionnaire. The principal investigator was involved in the data collection process. He recruited and trained research assistants on how to manage data collected questionnaires. Each questionnaire validation and pre-test earlier have done face ensure the quality and completeness of the

questionnaire and if the questionnaire match the specific objectives of the study. Recruitment of participants and data collection was started in January and ended in February 2019.

Data Analysis and Management

The completed copies of the questionnaire were collected by the principal investigator. Data arrangement, coding, entry and analysis was done by the research team with the help of a professional biostatistician and technical supervision from my research supervisors. Each questionnaire was coded and entered into IBM SPSS version 21. Data were analysed using the same software. Descriptive and inferential statistics were used. Frequencies, proportions/percentages, means, medians, standard deviations were computed and presented in form of tables and graphs as appropriate to describe/summarise specific demographic characteristics. On the other hand bivariate analysis using Chi square test was conducted to test the association between the dependent variable and each specific categorical independent variable. For any variables whose association is found to be statistically significant at $p < 0.05$, multivariate analysis using logistic regression analysis was undertaken to rule out confounders and determine the factors which independently influence home delivery among women in reproductive age. All analyses were done at 5% level of significance.

The thematic analysis was carried out using the ATLAS.TI software maker for the qualitative data. Data from focus group discussion were analysed by transcribing the discussion from the audio recorder verbatim then coding and grouping into themes. The data collected were coded into themes, looking for similar words or phrases mentioned by the discussants. Once these phrases have been identified, they were used to locate emerging sub-themes on home delivery among women in reproductive age. The results were reported in narratives and supported by quotes.

Results

Result of quantitative parts (A)

Two hundred and twenty-eight (228) questionnaires were administered to selected respondents and all completed the questionnaire; thus, a response rate of 100% was achieved.

Descriptive characteristics of respondents

Socio-demographic characteristics

The mean age of women who participated in the study was 32.9 ± 8.1 years; classification of the age record showed that. 50 (21.9%) were in the age range of 15 - 25 years, 80 (35.1%) were in the age range 26 - 35 years, 88 (38.6%) were of ages between 36 - 45 years, and 10 (4.4%) were above 45 years. Two thirds of the respondents were married as at the time of this study 154 (67.5%), 41 (18.0%) were divorced, 28 (12.3%) widowed, while only. 5 (2.2%) were single. A bit more than half of the women had no

formal education 118 (51.8%), almost a quarter had just primary education 55 (24.1%), about 40(17.5%) had not more than secondary education, not more than 15(6.6%) had a tertiary education. Almost half of the participants were unemployed 108 (47.4%) as at time of the study, 55(24.1%) were self-employed, about 27(11.8%) engaged in farming or agricultural businesses, 26(11.4%) engaged in a form of skilled labour, while 12 (5.3%) engaged in an unskilled labour. (Table 4.1)

The report on monthly income of the women's household revealed an average income of \$225; classification of the income record showed that about 84 (36.8. %) earned between \$50 - \$150,80(35.1%) earned between \$160 - \$250, 36(15.8%) reported a monthly income level of \$260 - \$350, and 28(12.3%) reported monthly earning above \$350. Record of the women's partner's educational level showed that half of the women 113 (49.6%) had partners with no formal education, 39 (17.1%) had partners with just primary education, 36(15.8%) reported their partners had attained secondary education, while 40(17.5%) reported they had partners with a tertiary level of education.

Table 4.1: Socio-demographic Characteristics of respondents [n = 228]

Frequency Percentage (%)

	Frequency	Percentage (%)
Age Group (Years) (
15 - 25 years	50	21.9
26 - 35 years	80	35.1
36 - 45 years	88	38.6
> 45 years	10	4.4
Marital Status		
Single	5	2.2
Married	154	67.5
Divorced	41	18.
Widowed	28	12.3
Highest Level of Education		
Non-formal education	118	51.8
Primary education	55	24.1
Secondary education	40	17.5
Tertiary	15	6.6
Occupation		
Unemployed	108	47.4
Self-employed	55	24.1
Farming/Agriculture	27	11.8
Skilled labour	26	11.4
Unskilled labour	12	5.3
Monthly Income (\$)		
50 - 150	84	36.8
160 - 250	80	35.1
260 - 350	36	15.8
Above 350	28	12.3
Partner's Level of Education		
Non-formal education	113	49.6
Primary education	39	17.1
Secondary education	36	15.8
Tertiary	40	17.5

Obstetrics experience of the respondents

The parity record of the women showed that 79 (34.6%) had between 1 - 3 children, 84 (36.8%) reported having 4 - 7 children, 56(24.6%) had delivered up to 8 - 10 children, and just 9(4.0%) had more than 10 children.

Information obtained on the delivery experience of the women showed that an average woman from the study had conceived about 5 pregnancies; 75(32.9%) reported having had 1 - 3 pregnancies, 68(29.8%) reported having had 4 - 6 pregnancies, 51(22.4%) hinted having 7 - 9 pregnancies prior the study, and 34(14.9%) reported having 10 or more pregnancies. Averagely, a woman from the study had delivered 5 children; further revealing was that, 80 (35.1%) had 1 - 3 children, 72(31.6%) had delivered 4 - 6 children, and

47(20.6%) reported having delivered 7 - 9 children, while 29(12.7%) had 10 or more children.

Record of the women's delivery at the health facility revealed that, on the average, a woman had delivered about 3 children at the facility; categorization of the record exposed that, 26(11.4%) had not delivered at a health facility prior the study, 102(44.7%) had delivered 1 - 3 children at a health facility, 56(24.6)% have had 4 - 6 deliveries at a health facility, 25(11.0%) have had 7 - 9 deliveries at a health facility, while19(8.3%) have had 10 or more deliveries at a health facility. Averagely, a woman from this study had delivered a child at home; approximately 134(58.8%) had no record of home delivery among the women, 53 (23.2%) have had 1 - 3 child deliveries at home, 53(13.2%) stated they delivered 4 -6 of their children at home, 9(3.9%) have had 7 - 9 deliveries at home, not more than 2(0.9%) have had 10 or more deliveries at home.

Table 4.1.2: Obstetric experience of respondents [n = 228]

	Frequency	Percentage (%)
Parity		
1 - 3	79	34.6
4 - 7	84	36.8
8 - 10	56	24.6
>10	9	4.0
Number of Pregnancies		
1 - 3	75	32.9
4 - 6	68	29.8
7 - 9	51	22.4
≥10	34	14.9
Number of Deliveries		
1 - 3 children	80	35.1
4 - 6 children	72	31.6
7 - 9 children	47	20.6
10 or more children	29	12.7
Number of Deliveries at Health Facilities		
No delivery	26	11.4
1 - 3 deliveries	102	44.7
4 - 6 deliveries	56	24.6
7 - 9 deliveries	25	11.0
10 or more deliveries	19	8.3
Number of Deliveries at Home		
No delivery	134	58.8
1 - 3 deliveries	53	23.2
4 - 6 deliveries	30	13.2
7 - 9 deliveries	9	3.9
10 or more deliveries	2	0.9

4.1.3 Prevalence of home delivery

Figure 1 shows that 41% have had at least one child delivery at home, while 59% of the women had never delivered a child at home.

FIGURE 2. Reasons respondents gave for not delivering in health facilities

Figure 2 is showing Common reasons for not using the health facilities among the women who had a delivery at home is presented on Figure 2. Most of them hinted that their delivery happened without prior plan (17%); a few indicated their mother recommended a TBA to them, which prevented them from using the health facility (16%); about 13% indicated they lived far away from the health center (13%); 12% indicated that they decided not to use the health facility because there were no health institution available at that time; 12% indicated their reason was due to not liking the available health institution for delivery; almost 10% stated they held belief that home delivery is better than using a health facility; 7% reported they have had a bad experience on their first delivery at a health institution; 7% reported they could not afford the cost of health institution; 4% stated that their husband took them to a TBA; about 1% hinted the available health institution was not well-equipped or they rather chose to use the TBA by themselves.

THE FACTORS INFLUENCING THE CHOICE OF OBSTETRIC HOME DELIVERY

141 (.61.8%) women decided by themselves as to where they delivered their last child 50(22.0%); a few reported their husbands decided for them, while the remaining. 37 (16%) reported the decision was taken by their mother. Only 89(39.0%) of the women affirmed they lived in an area near or not more than 5km to a health facility where they could deliver their children. Regarding believe that home delivery can lead to maternal death, 71 (31.1%) of the women claimed they had this believe. 157 (68.9%) reported they had traditional custom that require pregnant women to deliver their babies at home. On Holds traditional custom that require pregnant women to deliver at home 122 (53.5%) were said yes while 106(46.5) of them said no.

Table 4.1.3: Frequency distribution of factors influencing obstetric home delivery among respondents [N = 228]

	Frequency	Percentage (%)
Decision maker on where to deliver		
Myself	141	61.8
Husband	50	22.0
Mother	37	16.2
Residential Area near or within 5-km to Health Facilities		
Yes	89	39.0
No	139	61.0
Believes that Home Delivery can lead to Maternal Death		
Yes	71	31.1
No	157	68.9
Holds traditional custom that require pregnant women to deliver at home		
Yes	122	53.5
No	106	46.5

Experience of delivery in last home delivery

Further information collected among women (94) who had delivered a child at home revealed the experiences they had and outcome of their last home delivery.

Many 59 (62.8%) of the women hinted that their babies cried immediately at delivery; 21(22.3%) reported their baby was not okay, but were taken to a nursery or new born baby health facility for care; 14 (14.9%) reported their babies were born dead (still birth) or died immediately after birth. The condition of the mothers after the home delivery was also explored. It was revealed that 6 (6.4%) were infected by tetanus, 10(10.4%) had haemorrhage or retained placenta or ruptured uterus, 10(10.4%) reported feeling feverish or experienced a lower abdominal pain afterwards, 20(21.3%) reported experiencing an obstructed labour, 4(4.3%) reported having a swollen face or swellings of the hand or leg or felt tired and breathless, 1(1.1%) reported having felt mentally imbalanced after the home delivery 43 (45.7%) reported not experiencing any complications. The incidence of fistula after home delivery was reported by 5(5.3 %.)

From the ninety-four women who had a home delivery, 38 (40.4 %) hinted all the children delivered at home were still alive; 56(59.6%) stated they had lost at least one of the children delivered at home to death. Further inquiry made among those with all children living showed that; among the thirty-eight women with no record dead child from home delivery, exactly half of them reported the children grew up well as they expected19 (50.0%), about 3(7.9%) reported their children grew well above their expectations, while16 (42.1%) hinted their children had a stunted growth. Among those who had lost a child delivered at home, 41(73.2%) reported the child died within 28 days following delivery. Common causes of neonatal death experience of the women were: prolonged labour 24 (42.8%), hypoxia 6 (10.8%), haemorrhage 6 (10.8%), sepsis 5(8.9%), fever 5(8.9%); and.5 (8.9%) each mentioned difficulty in breastfeeding of the child, refusal of the child to drink, diarrhoea, and measles; ... 5(8.9 %) attributed their child loss to unknown causes.

Table 4.1.4: Experiences and Outcome of delivery in last home delivery among respondents.

	Frequency	Percentage (%)
Condition at birth of last baby delivered at home (N = 94)		
Cried immediately	59	62.8
Baby “not okay”: Taken to nursery/new born unit/health facility	21	22.3
Born dead/died immediately	14	14.9
Mother’s experience at last home delivery (N = 94)		
Had Tetanus	6	6.4
Haemorrhage/retained placenta or ruptured uterus	10	10.6
Fever/lower abdominal pain (puerperal sepsis)	10	10.6
Swollen face, hands, legs/tiredness and breathlessness	4	4.3
Obstructed labour	20	21.3
Mental Imbalance	1	1.1
Had no untoward experience	43	45.7
All children delivered at home still alive (N = 94)		
Yes	38	40.4
No	56	59.6
Current health condition of child delivered at home and still alive (N = 38)		
Growing well as expected	19	50.0
Growing well above expectation	3	7.9
Stunted growth	16	42.1
Loss of child within 28-days of birth among those whose child delivered at home is not alive (Neonatal death; N = 56)		
Yes	41	73.2
No	15	26.8
Cause of death of child delivered at home (N = 56)		
Difficulty in breathing	1	1.8
Refuse to drink	1	1.8
Diarrhoea	1	1.8
Measles	1	1.8
Fever	5	8.9
Sepsis	5	8.9
Unknown cause	5	8.9
Haemorrhage	6	10.8
Hypoxia	6	10.8

Prolonged labour	24	42.8
Experienced Fistula after Home Delivery [N=94]		
Yes	5	5.3
No	89	94.7

Bivariate analysis: factors associated with home delivery

As part of the study objectives, possible factors associated with home delivery was determined using the Chi-square. The results are shown in Table 4. Results showed that there was significant association between home delivery among the women and parity ($X^2 = 13.66$, $p = 0.003$), women's level of education ($X^2 = 11.06$, $p = 0.001$), occupation of the women ($X^2 = 9.56$, $p = 0.002$), marital status ($X^2 = 9.56$, $p = 0.031$), and person who decides where to deliver ($X^2 = 34.05$, $p < 0.001$). Women with 4-6 children had the highest proportion of those who delivered at home while the least was among those with 1-3 children ($X^2 = \dots$; $p = 0.003$). More than half of the women with non-formal education had delivered at least a child at home, while not more than 30% of those with formal education had a home delivery ($X^2 = 11.06$; $p = 0.001$). About 52% of the women in the unemployed group had a home delivery, while 32% of those in the employed group had a home delivery ($X^2 = 9.56$; $p = 0.002$). 46% of women in the married group have had a home delivery, while 31% from the unmarried category - single, divorced, or widowed - had a home delivery ($X^2 = 4.66$; $p = 0.031$). The highest occurrence of home delivery was among those who had their mothers decide where to deliver for them (81%), 38% of those who decided themselves had a home delivery, while 20% of those whose husbands decided for them had a home delivery ($X^2 = 34.05$; $p < 0.001$).

Other factors found not to be significantly associated with home delivery were: age of the women, educational level of their partners, monthly income of the women's household, proximity of the women to a health facility, belief that home delivery can lead to maternal death and traditional custom that pregnant women should deliver at home.

Table 4.1.6... Factors associated with home delivery among respondents

	Home delivery		(p-value=0.05 significant)
	No	Yes	
	N= 134 n (%)	N= 94 n (%)	
Age Group (Years)			
15 - 25	34 (68%)	16 (32%)	2.48
26 - 35	46 (57.5%)	34 (42.5%)	(0.480)
36 - 45	49 (55.7%)	39 (44.3%)	
> 45	5 (50%)	5 (50%)	
Parity			
1 - 3	59 (73.8%)	21 (26.2%)	13.66
4 - 6	33 (45.8%)	39 (54.2%)	(0.003)
7 - 9	24 (51.1%)	23 (48.9%)	
≥10	18 (62.1%)	11 (37.9%)	
Mother's Educational Level			
Non-formal education	57 (48.3%)	61 (51.7%)	11.06
Formal education	77 (70.0%)	33 (30.0%)	(0.001)
Partner's Educational Level			
Non-formal education	65 (57.5%)	48 (42.5%)	0.14
Formal education	69 (60.0%)	46 (40.0%)	(0.704)
Monthly Income (\$)			
50 - 150	51 (60.7%)	33 (39.3%)	1.71
160 - 250	44 (55.0%)	36 (45.0%)	(0.635)
260 - 350	20 (55.6%)	16 (44.4%)	
>350	19 (67.9%)	9 (32.1%)	
Occupation			
Unemployed	52 (48.1%)	56 (51.9%)	9.56
Employed	82 (68.3%)	38 (31.7%)	(0.002)
Marital Status			
Married	83 (53.9%)	71 (46.1%)	4.66
Unmarried	51 (68.9%)	23 (31.1%)	(0.031)
Decision maker on where to deliver			
Self	87 (61.7%)	54 (38.3%)	34.05

Husband	40 (80%)	10 (20%)	(< 0.001)
Mother	7 (18.9%)	30 (81.1%)	
<hr/>			
	No home delivery	Home delivery	(p-value)
Residential Area near or within 5-km to Health Facilities			
Yes	58 (65.2%)	31 (34.8%)	2.47 (0.116)
No	76 (54.7%)	63 (45.3%)	
Believes that home delivery can lead to maternal death			
Yes	43 (60.6%)	28 (39.4%)	0.14 (0.712)
No	91 (58%)	66 (42%)	
Has traditional custom that require pregnant women to deliver at home			
Yes	70 (57.4%)	52 (42.6%)	0.21 (0.646)
No	64 (60.4%)	42 (36.9%)	

Factors associated with home delivery among respondents using binary logistic regression

The unadjusted odds-ratio estimate from the binary logistic regression gave result showing that women with 4 - 6 children were three times more likely than those with 1 - 3 children to have had a home delivery (OR = 3.32, p = 0.001); those with 7 - 9 children were about 2.7 times more likely to have had a home delivery as compared to those with 1 - 3 children (OR = 2.69, p = 0.010); lastly, women with 10 or more children born were 1.7 times more likely to have had a home delivery than those with 1 - 3 children born (OR = 1.72, p = 0.239). [Table....]

Women with formal education (primary - tertiary) were 60% less probable to have had a home delivery, when compared with those who had no formal education (OR = 0.40, p = 0.001). Women who were employed had 57% less chances of having a home delivery, in comparison with those who were unemployed (OR = 0.43, p = 0.002). Married women

were almost twice likely as the unmarried women to have a home delivery (OR = 1.90, p = 0.032). Women who had their husbands decide where they delivered were 60% less probable to have delivered at home than those who decided themselves (OR = 0.40, p = 0.021); women who had decision on where they deliver taken by their mothers were almost seven times likely to deliver at home than those who decided themselves (OR = 6.91, p < 0.001).

Table: 4.1.7 Factors associated with home delivery among respondents using binary logistic regression

	OR (95%CI)	p-value
Parity		
1 - 3 (Ref)	1	
4 - 6	3.32 (1.68 - 6.56)	0.001
7 - 9	2.69 (1.26 - 5.75)	0.010
≥10	1.72 (0.70 - 4.23)	0.239
Mother's Educational Level		
Non-formal education (Ref)	1	
Formal education	0.40 (0.23 - 0.69)	0.001
Occupation		
Unemployed (Ref)	1	
Employed	0.43 (0.25 - 0.74)	0.002
Marital Status		
Unmarried (Ref)	1	
Married	1.90 (1.06 - 3.41)	0.032
Decision on where to deliver		
Self (Ref)	1	
Husband	0.40 (0.19 - 0.87)	0.021
Mother	6.91 (2.84 - 16.81)	< 0.001

Ref: Reference category

Predictors of home delivery among respondents

Result from the multivariate logistic regression is as presented in Table This showed that, despite controlling for confounders, women with 4 - 6 children were four times more likely to have a home delivery (OR = 3.65, p = 0.002), those with 7 - 9 children were almost two and half times more likely to have a home delivery (OR = 2.38, p = 0.056); women with employment were 59% less likely to have a home delivery (OR = 0.41, p = 0.009); women whose husbands decided their place of delivery for them were 58% less likely to deliver their child at home (OR = 0.42, p = 0.038); women who had their mothers decided for them were ten times more likely to deliver their babies at home (OR = 10.02, p < 0.001).

Table: 4.1.8 Predictors of home delivery among respondents

	Adjusted Odds Ratio (AOR) (95%CI)	p-value
Parity		
4 - 6	3.65 (1.64 - 8.14)	0.002
7 - 9	2.38 (0.98 - 5.79)	0.056
≥10	2.16 (0.76 - 6.19)	0.150
Mother's Educational Level		
Formal education	0.62 (0.32 - 1.18)	0.144
Occupation		
Employed	0.41 (0.21 - 0.80)	0.009
Marital Status		
Married	1.83 (0.87 - 3.85)	0.114
Decision on where to deliver		
My husband	0.42 (0.18 - 0.95)	0.038
My mother	10.02 (3.71 - 27.05)	< 0.001

Results on focus group discussion (B)

Among the 20 participants interviewed factors influencing obstetric home delivery and outcome, were split among mothers (home delivery-10 and facility delivery-10) from the five different villages of

Dusmareb district (Dayax, Horseed, wabari, Wahar Ade and Buló'og). Each village was selected of 4 participants comprising two home delivery and two with institutional delivery gathering at center of the town. For each group category,

The definition of home delivery were asked. Followed by their perceived on difference between hospital delivery and home delivery. Then, the reasons behind home delivery practices and the impact of home delivery to mothers, infants, and the community were questioned. Finally, the participant's experiences in pregnancy, labor and subsequent birth outcomes were discussed.

Definition of home delivery

Various descriptions of home delivery practices were presented by the participants which, could be summarised into three categories. Category one, believed that home delivery practices means the delivery that take place at home. Category two, describe it as a delivery assisted by non- hospital staff worker while the last category, assisted by non-professional staff rather than skilled professional staff like midwives, nurses or doctors.

Category one: (*Home delivery is delivery occur in my home without going outside*).

Category two: (*Home delivery is delivery assisted non-hospital staff worker*)).

Category three: (*home delivery is the delivery assisted by non-professional staff rather than skilled professional staff, like midwife, nurse doctor*).

Difference between hospital and home delivery

On the perception of the home delivery versus hospital delivery according to the women in the focus group. There has been variation on the ideas of the respondents. Three of home delivery mothers perceived that the hospital delivery may be assist by hospital workers using equipment to assist their delivery in case encountered by a complication, in which TBAs does not have. They also believed that home delivery is more hygienic than the hospital delivery.

The other three from the hospital delivery group said that there is no a trained person who can assist the mother at home, that is why most of the TBAs are assisting the mother at home. The TBAs waits the baby until the baby comes out, on the other hand, hospitals has trained personnel with a good experience, equipment and drugs for the use to be assisted to mothers in labour. Also other parts of the participants presented that injections, pain killers, and blood transfusion are available at hospitals while the home doesn't have. A mothers with a good experience to home delivery assumes that the TBAs who helped the mother at home is more experienced than the girls work at the hospital.

Three mothers from home delivery parts were said: (*The hospital delivery may assist equipment if the complication will occur, while the home does not. Also, the home delivery has more hygiene then the hospital.*)

The majority of mother had hospital delivery were said: *(in the home mostly there is no trained person who assists the mother, so that TBAs will help her, and the TBAs mother will wait until the baby will come out, while in the hospital there is a training person with good service so that the trained person can give me a drug to help the labor process)*

While the group majority of participants said: *(The mother can get the hospital what she cannot get at home like injection, ant pain, bleed transfusion if needed).*

The mother with good experience of home delivery said *(In the home there is a mother with a good experience while the hospital have little girls with no experience, and they don't know how to manage the mother in labour)*

Why do women deliver at home?

What makes women delivery at homes were asked for all members of the group discussion. Different reasons were outlined by the participants, this included, that mothers deliver at home have no relationship with staffs at the health facilities, which was believed by the majority of the participants. They further emphasised that they do not get any support from the health facilities staff.

Mothers deliver at home due to low awareness of the importance of hospital delivery while others are due to previous bad experience they had from the hospital and might be due to financial considerations as some of some of participants said.

The mother with previous home delivery shared that delivery is an urgent that it cannot be controlled till hospital delivery. Also some mother said that the mothers prefer home delivery due to long distances to hospital as well as less number of hospitals in the district.

While some of them said that they are not going to hospital due to fear of incision made in the perineum — the tissue between the vaginal opening and the anus — during childbirth), and also fear of episiotomy and Caesarean section (the use of surgery to deliver babies) while another mother tells that she does at home due to fear of vaccination at the hospital.

The majority of home delivery parts: *(We don't have any relationship with health workers in health centers and health posts. They don't want us. And we don't get any support from them)*

The majority of hospital delivery parts were said : *(People may delivery at home due to low awareness on the importance of hospital, delivery, while other people may delivery at home due to previous bad experience met them at the institution. Some others are delivery due to financial consideration, because they don't have money use for transport.)*

The mother with previous home delivery was said: *(the vomiting will not wait for you, that mean when vomiting comes, will not wait until you reach the suitable place of it, and also the labour is like that, it occur mostly without prior planned. Thus it is mandatory to call my nearest mother, who can assist me.)*

Some mother said: *(we are refusing going long distance to hospital,)*

While some of them said *(She may also fear an episiotomy mostly the hospital people are not asking you if you accept the episiotomy or not and also due to fear of Caesarean section (he use of*

surgery to deliver babies)

The one mother said (*I am not going to hospital due to fear of vaccination*)

Impact of home delivery to mother

Mothers in the focus group were asked about the impact of home delivery to mothers and the most of them were said that the mode delivery may results vaginal bleeding, or dearth, also they said that TBAs may use unclean equipment that may results diseases like tetanus or HIV. The remaining parts told that home delivery may result in fistula or hysterectomy.

The most of mother said

(The mother of home delivery may experience, of vaginal bleeding, infection, or even death, also they may use non cleaned equipment that may result in a disease like tetanus or HIV).

The remaining parts said (*If the mother at home may have prolonged labour then resulted fistula, or may have May the child may die inside the mother, them cause's infection to the uterus that finally causes removal of the uterus.*)

Impact of home delivery to infant

The impact of home delivery to an infant were also discussed among participants of the FGD. The most of the respondent were said that baby delivered at home may die due to hypoxia, while other parts of the group were said that the TBAs may cut the cord in an improper way that may cause bleeding or infection.

The last group of the study were said the condition of child is under god's control

Whether delivered at home or hospitals.

Most of the respondent were said (*Also the baby may die due to hypoxia, (last year, the mother was delivering at home with TBAs, and the baby was shoulder presentation the one hands of the baby first came out then the TBAs drag the baby's hand and resulted to cut the baby's hand, then the baby started bleeding, an finally die the baby also the mother developed infection)*)

The other parts of the group were said (*The child also may experience, improper cutting of cord, that can cause bleeding or infection to the baby, example the last months, a mother delivery at home, then the mother who assisted her, cut the cord below the normal place, then it resulted in excessive bleeding then dearth finally.*)

The last parts of the study were said (*first the child's condition is under Allah control, but it does not depend on the home delivery or institutional delivery.*)

Impact of home delivery to the community

Finally, we asked the group, the impact of home delivery to the community?

The most of them said they don't know any impact of home delivery to society. While others said if the mother or child died it may affect the economic growth of the country, also if it resulted fistula it may cause divorce or end of the marriage.

The most of them were said (*we don't know I impact of home delivery to society*)

While others said (*If the mother died, or met the complication, she may affect economic growth of the country, also if the home delivery resulted the fistula, it may result from divorce or end of marriage,*)

Discussions

This study was conducted to determine outcome and factor influencing obstetric home delivery by women of reproductive age in Dusmareb district, Somalia. The community based cross-sectional study design was used. The study recruited 228 women of reproductive age and (.94 %) of them had home delivery experience while 134 had never delivered a child at home.

Generally, it was found that 41% have had at least one child delivery at home. There is no similar research done in Somali thus comparison was a challenge. However, we compared our findings with those from neighboring countries. For example, in Ethiopia they found the contrary of that in Somalia which showed 84% prevalence of home delivery (Shiferaw, Solomon, et al. 2013) while in Kavrepalanchok district of Nepal it was discovered that home delivery practice rate decreased from 66.2% to 54.8% during the period of 5 to 10 years. Similarly the trend has decreased up to 36.1% in last five yrs.¹¹. The prevalence different between these studies and the one in Ethiopia is due to time difference this study was conducted 2019 while the study in Ethiopia was conducted in 2012 The time changed also the knowledge was also changed.

The women of reproductive age who participated in this study had the average mean age of 32.9 ± 8.136219 years. A similar study had shown also almost same average mean age of mother of reproductive age participated in that study have average mean age of 31.8 ± 9.0 years (Shrestha & Thapa, N. (2012). Common reasons for not using the health facilities among the women who had a delivery at home is that most of them hinted that their delivery happened without prior plan (17%); a few indicated their mother recommended a TBA to them, which prevented them from using the health facility. Another similar study was also revealing the Onset of labour before the expected date was the most common reason not delivery at health facilities¹².

The outcome of home delivery among women of reproductive age

The information we got among women (94) who had delivered a child at home revealed the experiences they had as an outcome of their last home delivery. Firstly we asked how the conditions of their babies were after delivery at home. Many of the women hinted that their babies cried immediately at point of delivery (63%); while 22% reported their baby was not okay but were taken to a nursery or newborn baby

health facility for care; similar study conducted in rural Ghana got similar result The mother from Ghana was eventually sent to a health centre to receive further birth assistance, as the TBA's efforts were unsuccessful¹³.

The condition of the mothers after the home was also found out from the study; it was revealed 21% reported experiencing an obstructed labour although the majority 46% reported not experiencing any complications, while in similar study conducted in Goba District, Bale Zone, South East Ethiopia was also revealed contrary of that, and they reported as the most of home delivery practice outcome among women of reproductive age was Vaginal bleeding. This is due to variation of the culture, and location¹⁴.

Additional review made among those with all children living reported among the thirty-eight women with no record dead child from home delivery, exactly half of them reported the children grew up well as they expected (50%), about 8% reported their children grew well above their expectations, while 42% hinted their children had a stunted growth. Among those who had lost a child delivered at home, while the similar was found like this.¹⁵ Common causes of neonatal death experience of the women were prolonged labour and hypoxia, a similar study from India has reported that Infection accounts for up to 40% of neonatal deaths caused by severe asphyxia. The variation of result may be the time and culture, although the variation is not more¹⁶.

The factors influencing the choice of obstetric home delivery

As part of the study objectives, possible factors associated with home delivery was determined using the Chi-square and logistic regression and found that women's education, occupation of the women, person who decides where to deliver, number of children women had, Marital Status were statistical significant both Chi-square and binary logistic regression with adjusted and without adjusted.

The women's level of education was statistically significant ($p = 0.001$), and 0.40 (0.23 – 0.69) that indicated the women with formal education (primary – tertiary) were 60% less probable to have had home delivery when compared with those who had no formal education. A similar study conducted in Jharkhand state, India was found the similar result of this study, compared literates women to illiterate women were found that the illiterate women, 1.67 times more likely to go to home delivery¹⁷.

Women who had their husbands decide where they delivered were 60% less probable to have delivered at home than those who decided themselves ($p < 0.001$) (OR 0.42 (0.18 – 0.95)); women who had decision on where they deliver taken by their mothers were almost seven times likely to deliver at home than those who decided themselves ($p < 0.001$), OR 10.02 (3.71 – 27.05), the similar study conducted in,.. was found the result. Found that women's, decision making are more associated the home delivery practice of that said indicated that women with the power to take decision are 76% more likely to go to institutional delivery than others¹⁸.

The occupation of the women was statistically significant with home delivery practice ($p = 0.002$). (OR 0.41 (0.21 – 0.80), the women who were employed had 57% fewer chances of having a home delivery, in

comparison with those who were unemployed, the similar study conducted in Northern Ethiopia also found the contrary of this one, and they reported that the occupation was not significant (p -value = 0.428) influenced the home delivery practice. This variation is due to geographical and cultural variation between two people¹⁹.

The Marital Status were statistical significant, (OR= 1.90 (1.06 – 3.41) (p = 0.032), The Married women were almost twice likely as the unmarried women to have a home delivery, the similar study conducted in Ghana found the similar result showed the marital status is statistical significant associated with home delivery practice with (p = 0.01)²⁰.

The number of children women had was statistical significant, (13.66, (p = 0.003), also the logistic regression was statistically significant, The women with 4 – 6 children were four times more likely to have a home delivery (OR = 3.65, (1.64 – 8.1) those with 7 – 9 children were almost two and half times more likely to have a home delivery (OR = 2.38, p = 0.056); other study conducted in Debreworkos town, North West, Ethiopia, was found the same result of this study, they reported that the number of children that a woman has (p = 0.0078) significantly influenced for home delivery practice²¹.

Additional to that, is that there was another variable which may associated with the home delivery practice, but after we have statistically tested it became non- statistically significant. Age of the women, educational level of their partners, monthly income of the women's household, proximity of the women to a health facility, belief that home delivery can lead to maternal death and traditional custom that pregnant women should deliver at home.

The age of women was statistically non- significant with (2.48), (p -0.480), another conducted in In Ethiopia found with similar result of this, and reported that the age of women was not statistically significant with (p -0.58), this because the age of the mother does not make change to the women's desire also the chance of getting the health facilities¹⁰.

The partner's educational level was statistically non- significant with (0.14), (p -0.704) while another similar study conducted found it contrary, and they reported educational status of the husband/ wife p <0.001, this is due to variation of culture between the population, the Somali's man does not influence to the women's desire or choose while Ethiopia does²².

The monthly income of the women's household was statistical non- significant with (1.71), (p -0.635), another study conducted in Malawi was found the contrary of this, and they showed that the Poor women are more likely to deliver at the TBAS's home than rich ones, with (p -0.001) this variation is because of the different policy of the country, in Somalia, women of labour do not incur the cost of delivery, while Malawi the incur it²³.

The belief that home delivery can lead to maternal death was statistically non-significant with (0.14), (p -0.712), another similar study revealed the similar result of this, they reported the women with belief that home delivery can lead to maternal was nor statistical significant (p = 0.56¹⁸)

The traditional custom that pregnant women should deliver at home was not statistically significant (0.21), (p=0.646), another study conducted in Kenya was found that having traditional custom was not influenced the home delivery (Siajabu, 2009).

The proximity of the women to a health facility was not statistically significant (2.47

), (p=0.116), while similar study conducted in Tanzania was found the contrary to this, and they reported that distance to health facility was statistically significant (p<0.0001), this is due to cultural variation, date variation also that study in Tanzania was conducted at rural area where getting of health facilities was problem and this study was conducted in urban where the distance was not big deal of them²⁴.

Majority of study participants mentioned several similar ideas on description of home delivery, difference between home and hospital delivery, reasons why women prefer home delivery with a TBA and impact of home delivery to mother, child and community.

Our findings revealed that the most reasons to delivery at home were due to a low awareness of important of hospital, fear regarding Caesarea delivery and vaccination, poor relationship with the hospital workers and bad previous experiences. The outcome of this study agrees with a similar study conducted in rural Bangladesh ²⁵.

For the impact of home delivery, it was found that most of home delivery women experienced vaginal bleeding to mothers and death of children as well as fistula and tetanus to mothers. the infant may have hypoxia, and cutting the cord in an improper way that mostly results excessive bleeding and finally death of the child, while similar study conducted in rural Uganda women found a similar result reported by ¹⁵.

In terms of differences between hospital and home delivery found that most of the respondents were complaining about the relationship between the mother and hospital staff, also some mother told that they got bad experience in their delivery at hospital. A similar study found that 75% of the women in the study were satisfied the service of the hospital,²⁶, which is contrary to current findings of this study. This is may be due to variation in peoples culture and policies of the health facilities.

Limitations of the study

Despite having the limitation on this study, we managed it. First the some of the interview refused to answer some question due to cultural views regarding delivery practices, we selected the participants who accepted to answer it. There is lack of the exact number of women in the reproductive age (15-49) living in Dusmareb district and it might affect the sample size of this study but we got statistical estimate data from the ministry of health at Galmudug state of Somalia.

Conclusion

The study shows that there is significant association between mothers' level of education and home delivery practices, which means the women with high education are less likely to go to home delivery practice. Women occupation were significantly associated with home delivery practice thus women with employment were less likely to have home delivery. There is significant association between Decision maker and home delivery. This implies that the women whose husbands decides for them were less likely to practise home delivery. The number of children was statistically significant associated with home delivery practices because women with more children were likely to go to home delivery. The marital status also was significantly associated with home delivery while age of the women, educational level of their partners, monthly income of the women's household, proximity of the women to a health facility and other variables were not statistically significant.

The study shows that almost half stated they had lost at least one of the children delivered at home. Half of them stated that their children had stunted growth. Among those who had lost a child delivered at home, the majority reported the child died within 28 days following delivery, and the Common causes of neonatal death experience of the women were prolonged labour as the women reported also that the reasons for not using the health facilities were that the labour occur without prior plan. The study found out that 41% have had at least one child delivery at home, while 59% of the women had never delivered a child at home.

It was found that most of the participant describes the home delivery as a delivery practices which occur at home or a delivery assisted by non-professional staff rather than skilled professional staff, like midwives, nurses and doctors. Also the study found that the practice of home delivery was due to inadequate awareness on the importance of hospitals, fear regarding Caesarean delivery, vaccination, poor relation to the hospital worker staff and there previous experiences. The study further showed that the outcome of home delivery could be vaginal bleeding, tetanus, HIV, hypoxia, fistula and death of a mother or infant.

Recommendation

1. It is recommended that the government provide health education campaign related the signs and symptoms of labour and to increase women's level of education, then the women will recognize the labour time and the effect of home delivery.
2. It is highly recommended that government should create employment for the women, and increase the gender balance for the jobs as the study showed that employment status of the women were influencing their choice to deliver their babies at home.
3. The number of children was statistically significant associated, thus this study is recommended the male should assist the women in their chores.
4. The study found that there is poor communication relationship between the mothers and health staff so that the study recommended to hospital directors to monitor these conditions, also give training to the health staff.

5. The study found that most of the participants are not going to hospital due to fear of Caesarean delivery and vaccination and lack of awareness of the importance of hospital delivery, thus the study recommended to the government to increase the community health education related to this issue.
6. Finally, further studies focusing on the home delivery, and its outcome with different study design to compare their outcomes is required to help improve the national and regional health of Somalia.

Declarations

Ethical consideration

Ethical approval was obtained from the University of Ibadan/University College Hospital Ethics Review Board. Ethical approval in Somalia to conduct research was obtained from the Federal Ministry of Health and permission to conduct study in Dusmareb was obtained from the village chiefs and gate keepers of the villages. The purpose, general content and nature of the study were explained in a language suitable to each respondent/participant to obtain a verbal and written consent before they were included in the study. Each respondent was required to endorse with a signature and those respondents who have no formal education were asked to thumb print and clearly write their first names on a space provided for signature on the consent form with help of a research assistant present and those less than 16 years their parent were required to sign on behalf of them.

Consent for publication

The participant was given verbal consent for publication without mentioning their names.

Availability of data and materials

The original data from this research is available in SPSS and excel spreadsheet.

COMPETING INTEREST

The authors stated that they have no competing interest whatever.

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We are declaring that we contributed the amount of money used for this research, from proposal to manuscript preparation.

Authors' contributions

The first author is the student who has done the thesis with his graduation requirement, while the second and the third authors are the supervisor of the thesis, and they contributed all the thesis activities, including the proposal, data collection, data analysis and manuscript writing. All authors have read and approved the final manuscript

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Ethical approval

Not applicable

DECLARATION

This is to declare that, this research study thesis titled “Factors influencing obstetric home delivery and outcome among women of reproductive age in Dusmareb district, Somalia”. Is our original work to the best of my knowledge and has not been to another journal.

Also not applicable for any personal data.

List Of Abbreviations And Acronyms

ANC:	Antenatal care
FGD:	focus group discussion
IDPs:	Internally displaced persons
LMIC:	Low and middle-income countries
LGA:	Local government area
MMR:	Maternal mortality rate
MDG:	Millennium development goals
PAULESI:	Pan African University Life and Earth Science Institute
SBA:	Skilled birth attendant
SPSS:	Statistical package for social science

TBAs:	Traditional birth attendants
TT:	Tetanus Toxoid
UN:	United Nations
UNICEF:	United Nations Children's Fund
UNFPA:	United Nations Population Fund
UCH:	University College Hospital
US:	United States
WHO:	World Health Organization

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Figures

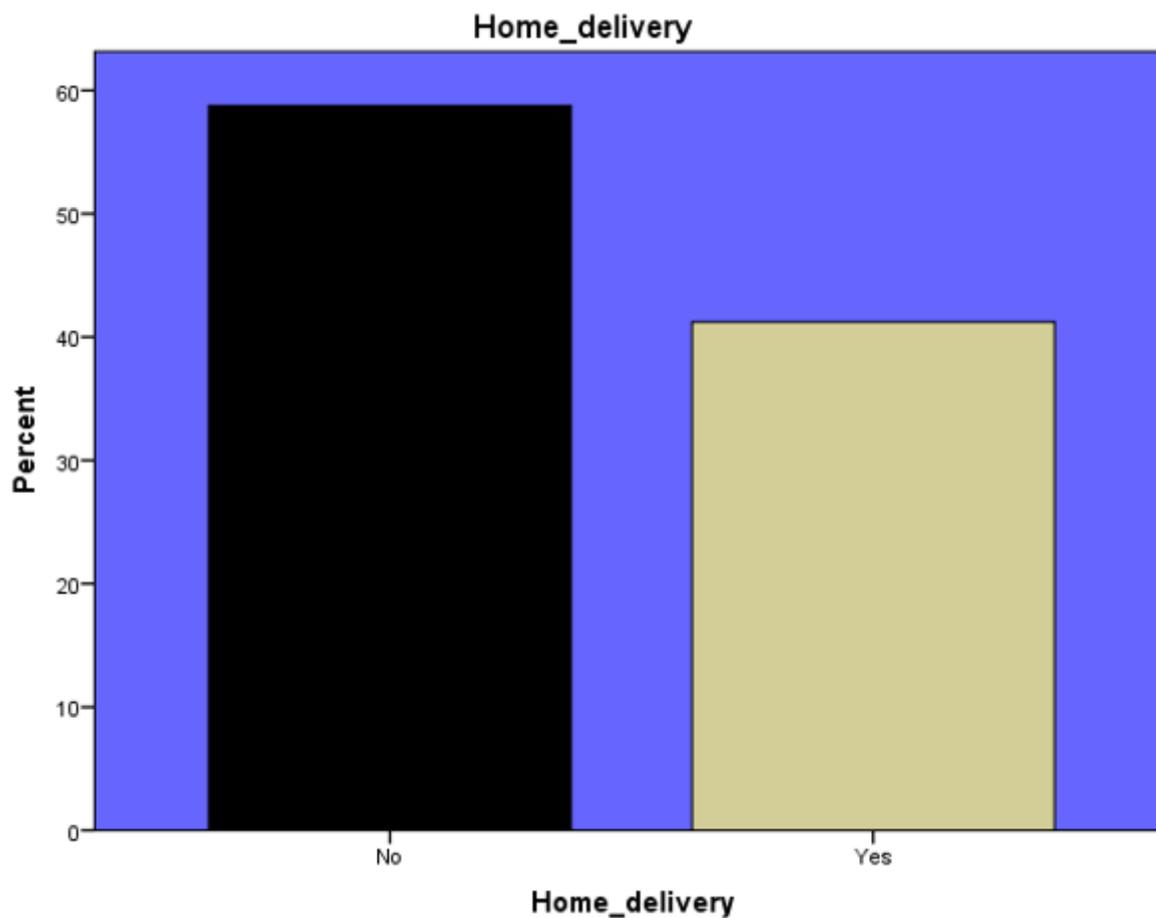


Figure 1

41% have had at least one child delivery at home, while 59% of the women had never delivered a child at home

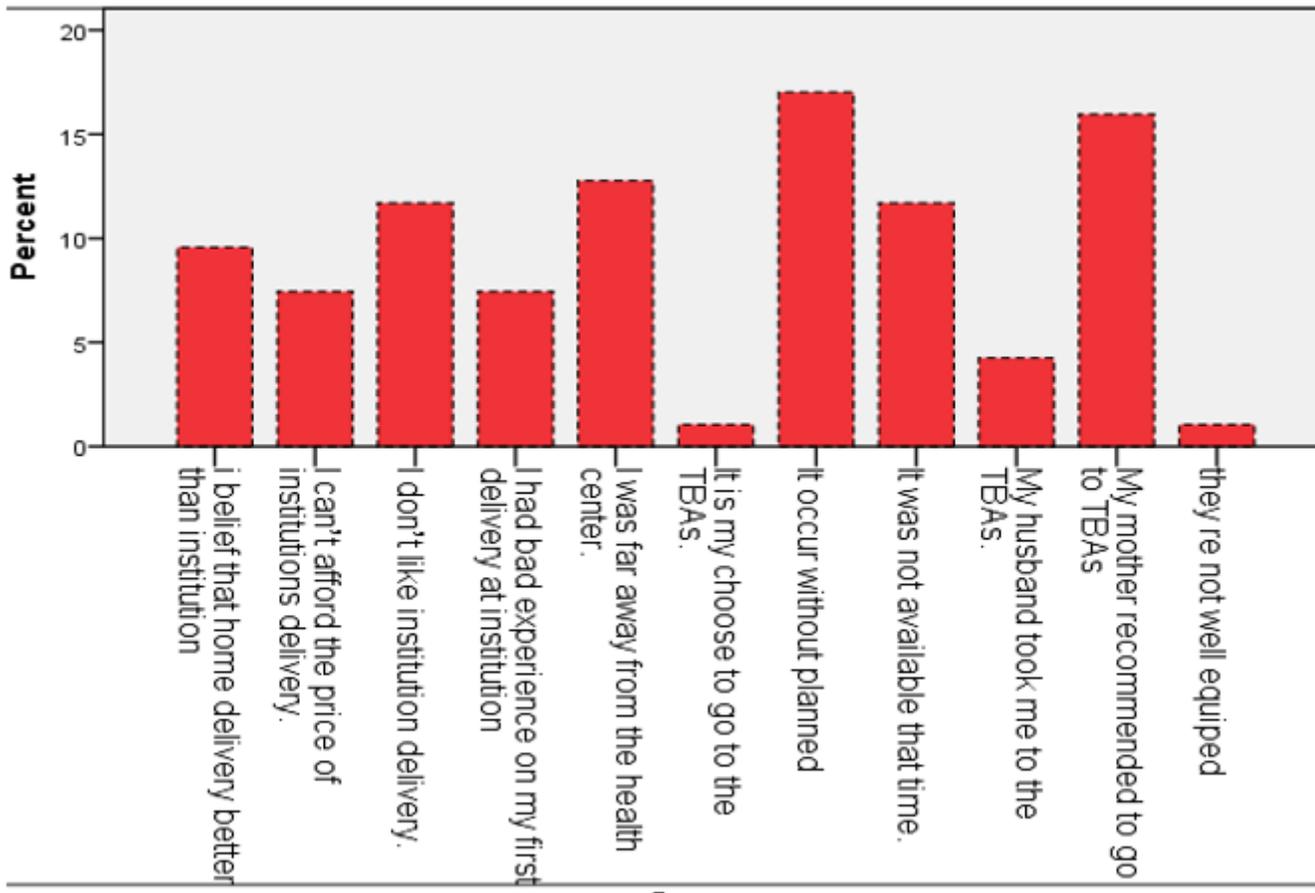


Figure 2

Reasons respondents gave for not delivering in health facilities

Supplementary Files

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- [Formulas.docx](#)