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Factors Associated with Home Deliveries in Rural Communities, Tanzania: A Cross-Sectional Study

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Abstract

Background: In Tanzania, about two-thirds of deliveries occur in a health facility, in varying proportions in different communities. We investigated factors that were independently associated with home deliveries in a rural district in Tanzania.

Methods: A facility-based cross-sectional study was conducted in 2018 in rural communities of Rorya district. A survey of 430 women who delivered within the past 3 years was performed using a questionnaire adopted from Tanzania Demographic Health Survey 2015/16. Bivariate and multivariate analysis was performed to identify independent association of home delivery to demographic, socio-cultural and geographical factors and utilization for maternity services.

Results: Out of 430 women, 183 (43%) delivered at home in the near past 3 years. Home deliveries were more likely among women whose husbands were older than 50 years [adjusted odds ratio (AOR), 2.0; 95% confidence interval (CI), 1.09-3.88]; and without formal employment (AOR, 3.62; 95% CI, 2.02-6.49). In addition, women who delivered at home were more likely to live more than 10km from a health facility (AOR, 2.22; 95% CI, 1.07-4.59). During the most recent delivery, home delivery was less likely for women who attended more than 4 antenatal visits (AOR, 0.49; 95%CI, 0.26-0.94), but more likely among those with a previous history of home delivery (AOR = 1.88; 95% CI=1.21-2.93).

Conclusion: The rate of home delivery is still high. Family factors such as a husband's advanced age and lack of formal employment, and habitation far from health facility were predictors of home delivery. Limited use of maternity services was also a predictor for home delivery.

Keywords

Home childbirth, Antenatal care, Access to health facility, Local traditions and norm

Introduction

Socio-cultural and economic factors affecting maternal and new-born health in limited resource settings remain an important global health concern [1,2]. Consequences of poor access to health facility services include unsafe and unhygienic home deliveries in the absence of skilled birth attendants to implement emergency obstetric and neonatal care (EmONC). Thus, health facilities ought to provide timely and appropriate care [3]. Rural and remote communities in developing countries suffer socio-cultural hindrance for delivering in a health facility because of gender decision-making norms, inappropriate communication, and generational discontinuity in addressing the importance of delivering in a health facility [4]. In Tanzania, efforts to increase accessibility to facility-based maternity care include providing free of charge and subsidised health services through national and community health insurance financing [5], health care infrastructure development [6] and improving quality of maternal and new-born care [2] especially in a health facility of patients' first contact. Despite an increase in adherence to antenatal care of at least 4 visits (98%) during the whole period of pregnancy, only one one-third of women receive

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postpartum care and nearly a similar proportion deliver at home, with wide regional variation [2,7]. Thus, universal interventions to improve quality of health care and general measures taken to increase accessibility to health facility services have not yet overcome barriers for accessing EmONC.

Over the years, sub-Saharan African studies identified factors influencing place of delivery including level of maternal education, family wealth status, distance to health facility, adherence to antenatal care, husband's age, occupation and level of economic support and perceived quality of service [8-12]. Wide diversity of individual and community factors predicting health facility utilization preferences require deeper assessment of perspective of health service recipients and demands and supplier of health care in individual communities. Further, without deliberately addressing access to timely, safe, evidence based and client centred care [13,14] in individual communities, there is a risk of losing the value of investment put into universal health financing and infrastructure development.

Evidence from Tanzania highlighted low household wealth, transport cost and infrastructural constraints [15-17] to be associated with lack of desire for facility-based delivery. In some communities, home delivery implied bravery [18], while in others, home delivery provided flexibility of services offered and as an alternative to non-appealing health facility maternity services [19]. In some sub-Saharan African studies, high-level household wealth was associated with home deliveries [12,20], while another study pointed out the need for women to be engagement in birth preparedness so that they accept health facility delivery [21]. Disagreeing evidence of different socio-cultural circumstances highlighted the importance of identifying and addressing specific socio-economic enablers of health facility delivery based on individual preferences and environment. Therefore, it is essential to know what works and what does not work in encouraging women to deliver in health facilities in rural disadvantaged areas. Doing so demanded understanding of unique circumstances influencing childbirth in specified communities that should enable designing and implementing appropriate intervention to increase utilization of health facility deliveries during childbirth. The study aimed to investigate factors that were independently associated with home deliveries in a rural remote district in Tanzania.

Methods

Study design

A hospital-based cross-sectional survey of women who delivered within the past 3 years was conducted for 13 months from 2017, using a questionnaire adopted from Tanzania Demographic Health Survey 2015/16 [2]. Women who received postnatal care and maternal and child health service during Reproductive Maternal and Child Health (RCH) service were recruited from 14 health facilities in Rorya district using a cluster randomised sampling.

Settings

Rorya District [22] is one of seven districts in Mara region in the lake zone of Tanzania with estimated population of 302,552 people in 9,345,496 square kilometres by 2015. Fifty-three percent of inhabitants of Rorya were women served in Shirati hospital, a private hospital designated as a public district hospital, and other private hospitals including Kowak and Rao hospitals. There were 6 health centres of which half were under government ownership (Kinesi, Utegi and Changuge) and 32 dispensaries of which 24 among them were under government ownership, and the rest were privately owned. On average health facility delivery rate for Mara Region was 60% in year 2017. Rorya district managed 1800 deliveries of which 15% were conducted in Shirati hospital, the highest referral facility in the district. Despite high immunization rate of 84%, postnatal care attendance was as low as 30% in a government owned health facilities. Inhabitants of Rorya district practise agriculture, farming and fishery, and the majority live in mud-walled and thatched-roof houses. Most of the road infrastructure is unpaved and impassable during rainy seasons; hence, some homes are inaccessible by a motor car.

Study participants

All women of 16-49 years of age who attended postnatal care and RCH services in selected health facilities in Rorya district were prospectively assessed for eligibility. The inclusion criteria was women whose last childbirth was within the past 3 years. Women who were mentally ill or could not be interviewed because of any other severe illness, and those who delivered on the way to the hospital were excluded.

Study size and sampling

The sample size was calculated using Kish Leslie's formula, $n = (z^2\ p(100-p))/\varepsilon^2$, where the minimum sample size required was computed at standard deviation (z) of 1.96 at level of confidence of 95% with maximum likely error (Ɛ) of 5%. Given that the estimated prevalence (p) of home deliveries among women living in the study settings was unknown, we estimated 50%. The minimum required sample size was 384 women that was then adjusted, in consideration of expected non-response rate of 10%, to become 427 women. Cluster random sampling was performed in three steps: First, we acquired the list of health facilities in Rorya district from Rorya district council health office, and thereafter divided the number of health facilities into three clusters based on the geographic location. We then randomly selected 3-5 health facilities in each cluster to make a total of 14 health facilities including the designated district hospital - Shirati hospital. A sampling frame was

drawn and maternal and child health care schedules, protocols and routine activities were inquired and documented. Finally, in consideration of wide variation of attendance for postnatal care and maternal and child health services, 25-60 eligible women from each health facility were subsequently identified, assessed for eligibility and consented to join the study, until the sample size was reached.

Data collection tool

Data was collected from March 2018 to April 2019 using a pretested questionnaire adopted from the Tanzania Demographic Health Survey in Kiswahili language [2]. The principal author collected data with 10 researcher assistant who were enrolled nurses that were familiarised with research procedures and protocols in the respective study settings. The questionnaires were examined for data completeness before the participants left the clinic. Participants who were unable to read and write were interviewed and their responses were filled in the questionnaire by research assistants.

Study variables and data source

The variables of interest included demographic characteristics of the participants (such as age, level of education, occupation, parity, and marital status), socio-cultural economic characteristics, geographic location from the nearest health facility and women's previous history of maternity service utilization including antenatal care attendance and history of childbirth in a health facility. Home delivery was considered as childbirth outside health facility including in a house, at a farm or at a traditional birth attendant's house. Antenatal care visit record from Tanzania Reproductive Child Health Card number 4 (RCH 4) was used to verify some information, when needed. The absence of the antenatal care visit record was not an exclusion criterion.

Statistical methods

All data was entered and analyzed using SPSS ver. 20 (IBM, SPSS, Chicago, IL). We performed descriptive comparison of percentages of background characteristics, geographic location from the nearest health facility, antenatal attendance and history of previous health facility delivery to place delivery, whether health facility or home delivery, by using chi-square test. Bivariate and multivariate regression models were used to estimate independent association of home delivery (with 95% confidence intervals) with factors of interest when p-value < 0.05.

Ethical approval and consent to participate

Ethical approval was obtained from Research and Publication Committee of Muhimbili University of Health and Allied Sciences (MUHAS) Senate (Ref. No. DA.287/297/03A). Approval to conduct the study in Rorya district was granted by the District Executive Director for Rorya district council. All methods were performed in accordance with the relevant guidelines and regulations under each health facility as permitted by respective administrative officers. Participants' willingness to volunteer was observed through written informed consent. A written informed consent was obtained from all participants in Kiswahili. Participants were informed of their right to withdraw from the study at any point and that their information was kept confidential. Patients' names or hospital registration numbers were not used to ensure confidentiality, and access to participants' information was given to researchers only. Private space was provided during data collection. Questionnaire responses were coded and no names were used.

Results

Characteristics and description of participants

Out of 430 women, 183 women (43%) delivered at home in recent 3 years (Table 1). The median age (range) of studies group was 29 years (23-42). The majority of home deliveries were of women between 29-39 years-old (51%) compared to other age groups ($p < 0.03$). A higher proportion of home deliveries were of women who did not have formal education (53%), compared those with primary level of education (39%) or secondary level of education and above (40%; $p < 0.02$). Likewise, majority of home deliveries constituted women who were self or informally employed women, compared to their counterparts (46% vs. 8.8%; $p < 0.001$). When comparing husbands' characteristics, higher proportion women who delivered at home had husbands of above 50-years-old (57%) compared those below 31 years (33%) and between 31-50 years (42%; $p = 0.004$). Women who delivered at home also had husbands that were self or informal employed compared to their counterparts (52% vs. 17%; $p < 0.001$). Additionally, a majority of home deliveries were also from women whose husbands had no formal education (58%) compared with those who had a primary level of education (48%) or a secondary level of education and above (35%; $p < 0.001$). When comparing utilisation of maternal health care, a higher proportion of home deliveries were of women who lived more than 10 km from health facility (51%) compared to others who lived 5-10 km (44%) or less than 5 km (31%) from the health facility ($p < 0.04$). The majority of home deliveries were also from women who did not at all attend antenatal clinic (61%) compared to those who attended 1-3 visits (46%) or others who attended 4 or more visits (35%; $p = 0.001$). Additionally, a higher proportion of home deliveries was of women who had a previous history of at least one home delivery compared to those who had not (52% vs. 32%; $p < 0.001$).

Factors associated with home delivery

In the multivariate regression model (Table 2), home deliveries were twice as likely among women whose

Table 1: Difference in percentage of backgrounds characteristics, geographical factors and home deliveries using chi-square test.

Characteristics	Total number of participants N = 430	Number of home deliveries n = 183(%)	p-value
Women's Age (years)			
< 29	247	92 (37.4%)	**0.028**
29-39	153	77 (50.7%)	
≥ 40	30	14 (48.3%)	
Parity			
1	66	24 (38.1%)	0.508
2 or more	364	159 (43.7%)	
Marital status			
Cohabiting	58	22 (38.6%)	0.645
Separated	13	8 (61.5%)	
Divorced	33	13 (39.4%)	
Widow	10	4 (40.0%)	
Married	316	136 (43.3%)	
Woman's education level			
No formal education	112	59 (52.7%)	**0.015**
Primary school	161	62 (39.0%)	
Secondary school +	157	62 (39.7%)	
Woman's Occupation			
Self/Informally employed	396	180 (45.8%)	**< 0.001**
Formally employed	34	3 (8.8%)	
Husband/partner age (years)			
< 31	107	35 (33.0%)	**0.004**
31-50	239	100 (42.2%)	
> 50	84	48 (57.1%)	
Husband/partner occupation			
Self/Informally employed	317	164 (52.1%)	**< 0.001**
Formally employed	113	19 (17.0%)	
Husband/partner education level			
No formal education	76	44 (57.9%)	**< 0.001**
Primary school	109	52 (48.1%)	
Secondary school and above	245	87 (35.8%)	
Distance from the health facility (km)			
< 5	70	22 (31.4%)	**0.044**
5-10	278	120 (43.5%)	
> 10	82	41 (50.6%)	
Attendance of antenatal care			
Did not attend	57	35 (61.4%)	**0.001**
1-3 visits	180	81 (45.5%)	
4 or more visits	193	67 (34.9%)	
Previous facility delivery[†]			
No	206	108 (52.4%)	**< 0.001**
Yes	158	51 (32.3%)	

[†]Those who had first delivery (66) were excluded.

husbands were older than 50 years of age [adjusted odds ratio [(AOR) = 2.05; 95% CI 1.09-2.88] compared to their counterparts. Likewise, home deliveries were three times more likely among women whose husbands were self or informally employed [(AOR) = 3.60; 95% CI 2.02-6.49] compared to those whose husbands were formally employed. The odds of home delivery were higher for women who live more than 10 km from

Table 2: Bivariate and multivariate logistic regression correlated to home delivery.

Characteristics	Home delivery (N = 430)	Crude Odds ratio		Adjusted odds ratio	
		OR	95 CI	AOR	95 CI
Woman's Age (years)					
< 29	92	**0.64**	0.29-0.88	0.88	0.38-2.06
29-39	77	1.1	0.49-2.43	1.30	0.55-3.05
≥ 40	14	1		1	
Parity					
1	24	1			
2 or more	159	1.26	0.73-2.18		
Marital status					
Cohabiting	22	1			
Separated	8	2.54	0.74-8.78		
Divorced	13	1.03	0.43-2.49		
Widow	4	1.06	0.27-4.19		
Married	136	1.22	0.68-2.17		
Woman's education level					
Not attended school	59	1		1	
Primary school	62	**0.57**	0.35- 0.94	0.77	0.44-1.34
Secondary school **+**	62	**0.59**	0.36-0.97	1.01	0.57- 1.79
Woman's occupation					
Self or informally employed	180	**8.73**	2.62-29.04	2.96	0.81-10.85
Formally employed	3	1		1	
Husband/partner age (years)					
< 31	35	1		1	
31-50	100	1.48	0.92-2.39	1.42	0.84-2.38
> 50	48	**2.71**	1.50-4.89	**2.05**	1.09-3.88
Husband/partner occupation					
Self or informally employed	164	**5.32**	3.10-9.13	**3.62**	2.02-6.49
Formal employed	19	1		1	
Husband's education level					
Not attended school	44	1		1	
Primary school	52	0.68	0.37-1.22	1.15	0.58-2.27
Secondary school+	87	**0.41**	0.24-0.69	0.99	0.52-1.91
Distance to the health facility (km)					
< 5	22	1		1	
5-10	120	1.36	0.90-2.04	1.60	0.87-2.95
> 10	41	**2.53**	1.20-5.32	**2.22**	1.07 -4.59
Attendance of antenatal care					
Did not attend	35	1		1	
1-3 visits	81	**0.53**	0.29-0.97	0.56	0.29-1.07
4 or more visits	67	**0.34**	0.18-0.62	**0.49**	0.26-0.94
Previous facility delivery[†]					
No	108	**2.16**	1.43-3.25	**1.88**	1.21-2.93
Yes	51	1		1	

[†]Those who had first delivery (66) were excluded.

the nearest health facility and those without prior delivery in health facility [(AOR) = 2.22; 95% CI 1.07-4.59] and [(AOR) = 1.88; 95% CI 1.21-2.93] compared to their counterparts, respectively. Furthermore, home deliveries were 50% less likely among women who attended at least 4 antenatal visits [(AOR) = 0.49; 95% CI; 0.26-0.94].

Discussion

Main findings

This study assessed factors associated with home delivery among women who had childbirth in the near past 3 years in a rural community in Tanzania. Nearly half of women had their most recent delivery at home, a rate higher than the national average of 37% [2] but comparable to other studies in developing countries [19,21,23]. Home deliveries were significantly associated with husbands' individualities rather than women characteristics. These findings not only signify males' role in the maternal health decision-making process and household leadership [16], but also implies a high likelihood of men's availability, when labour starts [24]. Close proximity to health facility might have increased women's contact to health care services offered during antenatal period and/or childbirth, and therefore, in this study, limited prior contact to health facility-based maternity care increased the likelihood of home delivery.

Interpretation of results

Similar to our findings, African and Asian studies [25] found women with older husbands to be less likely to deliver in a health facility than their counterparts. The reason behind the observation could be a high likelihood of younger men understanding the importance of safe and skilful attendance of childbirth through formal education and exposure to social media information. Contrary to expectations [25], home deliveries were not associated with women's level of education, which could highlight male dominance in maternal health care [26]. On the other hand, male partners' support during pregnancy and childbirth has been perceived as modernity [27] that discourages home delivery. Additionally, gender roles in decision-making [16,28], family norms [28] and male household headedness [24] have a bearing to women's choices of place of delivery. Hence, male partner engagement is crucial in order to facilitate joint and sound decision-making for safe motherhood.

Our study found an almost four times increased likelihood of home delivery of women whose husbands were self/informally employed compared to their counterpart, which was contrary to other evidence in Africa and Asia where home deliveries were associated with couple being on formal employment [25]. However, the study settings were inhabited primarily by peasants and farmers that mostly contributed in an informal sector, and therefore, were unlikely to access public health information and health insurance that improves access to health facility. Varying evidence of effectiveness of information regarding safe childbirth in public media [29,30] demands a better understanding of the context in specified communities, when developing interventions that are culturally-acceptable and locally-responsive.

Supported by other studies [11,20], living more than 10 kilometres from the health facility contributed to childbirth outside a health facility possibly because of unbearable and costly travel at the time of childbirth, due to long distance and poor infrastructure. Similar reasons could have contributed to less than 50% of participant not attending at least 4 antenatal visits. Good antenatal care alone could decrease the odds of home delivery by more than 50% by intervening on mothers' complaints [31] and promoting behavioural change [32] including health-seeking behaviour and desire for childbirth in the hands of a skilled attendant in a health facility. Conversely, cultural beliefs in our study settings might have antagonised health seeking behaviour where home deliveries were regarded as a sign of courage [21]. Previous evidence [33] highlighted reasons for home delivery such as lack of awareness of service delivery points, limited gender selection of care providers in health care facilities or just an attempt to minimise a probability of caesarean delivery. In our study, prior childbirth in a health facility encouraged subsequent delivery in a health facility, possibly because of good childbirth experience, as previously reported [16,17,20]. However, availability, accessibility and friendly attitude of traditional attendants have also shown to increase desire for home delivery [34] despite the associated risks. Thus, compassionate care continues to be one of the cornerstones of improving the experience of maternal health care, and subsequently increasing the desire of women to deliver in a health facility.

Study strength and limitation

We employed cluster random sampling that was representation of the population and health infrastructure in Rorya District and other rural districts in Tanzania and Africa in general. The findings were generalizable in rural communities of African context. The cross-sectional nature of the study did not ratify cause and effect relationship as the independent factors were measured at one point in time. Recall bias cannot be ruled out because the collected data was based on women's previous experience. Further, low postnatal care attendance might have led to loss of data that could have affected our conclusion. Other important factors associated with choice of place of childbirth health system failures including lack of delivery supplies, and substandard structure and process of care, which were beyond the scope of the study.

Conclusion

The rate of home delivery is still high. Family factors such as a husband's advanced age and lack of formal employment, and habitation far from health facility were predictors of home delivery. Prior limited use of maternity services was also a markers of home delivery. Educational interventions for women and their partners are crucial, in order to highlight benefits of delivering in

a health facility that is capable of providing emergency obstetric and new-born care by skilled care providers.

Decision making norms, local customs regarding childbirth, poor infrastructure and limited contact to maternity services remain among the core challenges to be addressed, in order to increase and sustain a high demand of health facility deliveries. Therefore we recommend: a) Innovative steps in provision of compassionate care during childbirth and standardised quality of antenatal and postnatal care in individual health facilities; b) Provision of comprehensive antenatal care that encourage male partner involvement in birth preparedness and support during childbirth; c) Qualitative exploration of local communities' perception and attitude of home delivery from time to time that shall subsequently inform the health system of appropriate mitigation measures against poor decision-making norms and local customs compromising maternal health care.

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Authors Contributions

All authors contributed equally.

References

1. Millogo T, Agbre-Yace ML, Kourouma RK, Yameogo WME, Tano-Kamelan A, et al. (2020) Quality of maternal and newborn care in limited-resource settings: a facility-based cross-sectional study in Burkina Faso and Côte d'Ivoire. BMJ Open 10: e036121.
2. United Republic of Tanzania (2016) Tanzania Demographic and Health Survey. In: National Bureau of Statistics Dar es Salaam, Tanzania, 2016. Calverton: ICF Macro 1-482.
3. Ministry of Health and Social Welfare (MOHSW) (2016) The National Road Map Strategic Plan to Improve Reproductive, Maternal, Newborn, Child & Adolescent Health in Tanzania (2016-2020) One Plan II. In: MoHSW, editor. Dar es Salaam.
4. Ronsmans C, Graham WJ (2015) Maternal Survival 1 Maternal mortality: who, when, where, and why. Lancet 368: 1189-1200.
5. Kapologwe NA, Kalolo A, Kibusi SM, Chaula Z, Nswilla A, et al. (2019) Understanding the implementation of Direct Health Facility Financing and its effect on health system performance in Tanzania: A non-controlled before and after mixed method study protocol. Health Res Policy Sys 17: 11.
6. Kapologwe NA, Meara JG, Kengia JT, Sonda Y, Gwajima D, et al. (2020) Development and upgrading of public primary healthcare facilities with essential surgical services infrastructure: A strategy towards achieving universal health coverage in Tanzania. BMC Health Serv Res 20: 218.
7. Ministry of Health and Social Welfare (2010) Health sector performance profile. UNFPA 2009 skilled attendance at births. United republic of Tanzania.
8. Ngowi AF, Kamazima SR, Kibusi S, Gesase A, Bali T (2017) Women's determinant factors for preferred place of delivery in Dodoma region Tanzania: a cross sectional study. Reprod Health 14: 112.
9. Mwewa D, Michelo C (2010) Factors associated with home deliveries in a low income rural setting-observations from Nchelenge district, Zambia. Med J Zambia 37: 234-239.
10. Nakel MP, Gattani PL, Goel AD (2014) Study of Risk Factors Associated with Home Deliveries: A Cross Sectional Study in Rural Areas of Marathwada. Natl J Res Community Med 3: 238-244.
11. Ogolla JO (2015) Factors Associated with Home Delivery in West Pokot County of Kenya. Adv Public Heal 2015: 1-6.
12. Kitui J, Lewis S, Davey G (2013) Factors influencing place of delivery for women in Kenya: An analysis of the Kenya demographic and health survey, 2008/2009. BMC Pregnancy Childbirth 13: 40.
13. Elmusharaf K, Byrne E, O'Donovan D (2015) Strategies to increase demand for maternal health services in resource-limited settings: Challenges to be addressed. BMC Public Health 15: 870.
14. Renggli S, Mayumana I, Mshana C, Mboya D, Kessey F, et al. (2019) Looking at the bigger picture: how the wider health financing context affects the implementation of the Tanzanian Community Health Funds, Health Policy Plan 34: 12-23.
15. Exavery A, Kanté AM, Njozi M, Tani K, Henry VD, et al. (2014) Access to institutional delivery care and reasons for home delivery in three districts of Tanzania. Int J Equity Health 13: 1-11.
16. Mrisho M, Schellenberg JA, Mushi AK, Obrist B, Mshinda H, et al. (2007) Factors affecting home delivery in rural Tanzania. Trop Med Int Heal 12: 862-872.
17. Mageda K, Mmbaga E (2015) Prevalence and predictors of institutional delivery among pregnant mothers in Biharamulo district, Tanzania: a cross-sectional study. Pan African Med J 21: 51.
18. Khanal V, Lee AH, Lourenca J, Rajendra K (2014) Factors associated with non-utilization of health service for childbirth in Timor-Leste: evidence from the 2009-2010 Demographic and Health Survey. BMC Int Health Hum Rights 14: 14.
19. Dodzo MK, Mhloyi M (2017) Home is best: Why women in rural Zimbabwe deliver in the community. PLoS One 12: e0181771.
20. Anyait A, Mukanga D, Oundo GB (2012) Predictors for health facility delivery in Busia district of Uganda: a cross sectional study. BMC Pregnancy Childbirth 12: 132.
21. Webber GC, Chirangi BM, Magatti NJ (2019) Challenges and Successes of Distributing Birth Kits with Misoprostol to Reduce Maternal Mortality in Rural Tanzania. Afr J Reprod Health 23: 68-78.
22. United Republic of Tanzania (2022) Strategic Plan 2015-2020, Rorya District Council, PMRALG, Tanzania.
23. Kifle M, Kesete H, Gaim H, Angosom G, Araya M, et al. (2018) Health facility or home delivery? Factors influencing the choice of delivery place among mothers living in rural communities of Eritrea. J Health Popul Nutr 37: 22.
24. Lewis S, Lee A, Simkhada P (2015) The role of husbands in maternal health and safe childbirth in rural Nepal: a qualitative study. BMC Pregnancy Childbirth 15: 162.
25. Diamond-smith N, Sudhinaraset M (2015) Drivers of facility deliveries in Africa and Asia: regional analyses using the demographic and health surveys. Reprod Health 12: 6.

26. Mapunda B, August F, Mwakawanga D, Mhando I, Mgaya A (2022) Prevalence and barriers to male involvement in antenatal care in Dar es Salaam, Tanzania: A facility-based mixed-methods study PLoS One 17: e0273316.

27. Kashaija D, Mselle L, Mkoka D (2020) Husbands' experience and perception of supporting their wives during childbirth in Tanzania. BMC Pregnancy Childbirth 20: 85.

28. Shah N, Rohra DK, Shams H, Nusrat HK, et al. (2010) Home deliveries: reasons and adverse outcomes in women pre-setting to a tertiary care hospital. J Pak Med Assoc 60: 555-558.

29. Ekukudo IW (2015) Information as a determinant of utilization of family planning services in rural Akwa Ibom state of south-south Nigeria. Mediterr J Soc Sci 6: 445-453.

30. Jah F, Connolly S, Barker K, Ryerson W (2014) Gender and reproductive outcomes: the effects of a radio serial drama in northern Nigeria. Int J Popul Res 2014: 326905.

31. Ongeso A, Okoth B (2018) Factors influencing male involvement in antenatal care among clients attending antenatal clinic: A case of Kenyatta national hospital, Kenya. Int J Adv Res 6: 72-82.

32. Yeoh PL, Hornetz K, Dahlui M (2016) Antenatal care utilisation and content between low-risk and high-risk pregnant women. PLoS One 11: 1-17.

33. Sarker BK, Rahman M, Rahman T, Hossain J, Reichenbach L, et al. (2016) Reasons for Preference of Home Delivery with Traditional Birth Attendants (TBAs) in Rural Bangladesh: A Qualitative Exploration. PLoS One 11: e0146161.

34. Cheptum JJ, Gitonga MM, Mutua EM, Mukui SJ, Ndambuki JM, et al. (2017) Perception about traditional birth attendants by men and women of reproductive age in rural Migori County, Kenya. Int J Afro Knur Sic 7: 55-61.