

Factors affecting home delivery in rural Tanzania

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Summary

BACKGROUND Studies of factors affecting place of delivery have rarely considered the influence of gender roles and relations within the household. This study combines an understanding of gender issues relating to health and help-seeking behaviour with epidemiological knowledge concerning place of delivery.

METHODS In-depth interviews, focus group discussions and participant observation were used to explore determinants of home delivery in southern Tanzania. Quantitative data were collected in a cross-sectional survey of 21 600 randomly chosen households.

RESULTS Issues of risk and vulnerability, such as lack of money, lack of transport, sudden onset of labour, short labour, staff attitudes, lack of privacy, tradition and cultures and the pattern of decision-making power within the household were perceived as key determinants of the place of delivery. More than 9000 women were interviewed about their most recent delivery in the quantitative survey. There were substantial variations between ethnic groups with respect to place of delivery ($P < 0.0001$). Women who lived in male-headed households were less likely to deliver in a health facility than women in female-headed households (RR 0.86, 95% CI 0.80–0.91). Mothers with primary and higher education were more likely to deliver at a health facility (RR 1.30, 95% CI 1.23–1.38). Younger mothers and the least poor women were also more likely to deliver in a health facility compared with the older and the poorest women, respectively.

CONCLUSIONS To address neonatal mortality, special attention should be paid to neonatal health in both maternal and child health programmes. The findings emphasize the need for a systematic approach to overcome health-system constraints, community based programmes and scale-up effective low-cost interventions which are already available.

keywords Home delivery, Risk factors, Tanzania

Introduction

Although the debate about safety and women's right to choose between home or hospital delivery continues in the developed world, an undesirable outcome of home delivery has been documented in developing countries (Ackermann-Liebrich *et al.* 1996; Sorensen *et al.* 2000; Wagle *et al.* 2004 & Walraven *et al.* 1995). Demographic and Health Survey (DHS) data from 40 countries collected between 1995 and 2003 document that more than 50% of neonatal deaths occur after home birth without skilled care attendance (Lawn *et al.* 2005). Walraven *et al.* (1995) documented that home births without a trained attendant resulted in a three times higher perinatal mortality than those in a health facility with trained attendants in rural

Tanzania. In addition Ganer *et al.* (1994) reported a high rate of obstetric complications among apparently normal pregnancies delivering at home in Papua New Guinea.

The Tanzanian health system comprises a well-established network of health facilities throughout the country, and the government encourages all pregnant women deliver at health facilities (Mosha *et al.* 2005). The government has also mandated that maternal and child health services, including deliveries, be exempted from fees at any government facility (Ministry of Health (MOH) 2005). The reality, however, is that women are asked to bring delivery kits, such as razor blade, gloves and cotton wool. In Tanzania, although health facilities are closer to rural households than in many African countries, more than half of children are delivered at home despite a high

coverage (94%) of antenatal care (ANC) (National Bureau of Statistics & Macro International Inc. 2005). Most previous studies in Tanzania and elsewhere have shown that most mothers attend antenatal clinics at least once during pregnancy, but that only a small proportion of them deliver in health facilities (Otim-Adoi 1981; Hitimana-Lukanika 1988; Munaaba 1995; Amooti-Kaguna & Nuwaha 2000; National Bureau of Statistics & Macro International Inc. 2005; & Lugina *et al.* 2004).

The place of delivery and its determinants have long been on the research agenda (Campbell & MacFarlane 1986; Hodgkin 1996; Campbell *et al.* 2006). Socioeconomic variables and physical distance from a health facility influence the place of delivery (Elo 1992; Nwakoby 1994; Bolam *et al.* 1998; Yanagisawa *et al.* 2006). In rural Tanzania for instance, 84% of women who gave birth at home intended to deliver at health facility but did not because of distance and transportation problems (Bicego *et al.* 1995). Such studies show the importance of socioeconomic determinants (among others) on the place of delivery; however, there is little literature that takes into account the possible influence of gender factors and relations.

Based on the gender framework (Figure 1) (Rathgeber & Vlassoff 1993; Tanner & Vlassoff 1998), this study combines an understanding of gender issues relating to health and help-seeking behaviour with epidemiological knowledge concerning the place of delivery. The framework consists of three components: first, economic and productive activities which determine the place of delivery, such as available cash and opportunity cost of action (e.g.

time and distance). Secondly, social and reproductive activities which include health roles within the households, cultural norms affecting exposures to the place of delivery, decision power within the households and use of health services. Lastly, personal factors which can influence the place of delivery include knowledge about the risk of neonatal mortality and the provider-client relationship.

A gender relations analysis reveals power relations between men and women. Women carry the major share of the responsibility for the well-being of the household in most societies. This responsibility is rarely matched by autonomy to make decisions or by access to necessary resources (Tanner & Vlassoff 1998). Using the example of place of delivery, we describe here a modified gender approach to examine knowledge concerning the risk of neonatal mortality, women's roles regarding health within the household, cultural norms affecting exposure, decision-making power within the household, use of health services and factors influencing it, such as the provider-patient relationship. The study reported in this paper was designed to understand factors influencing the choice of place of delivery and discuss their implications for neonatal survival.

Methods

Study area

Nachingwea, Lindi Rural, Ruangwa, Tandahimba and Newala Districts are located in southern Tanzania and have a total population of about 900 000 (NBS 2004). A division is a local administrative area constituting a number of villages: there are between 3 and 10 divisions in each district and a total of 24 divisions in these five districts. Parts of Tandahimba and Newala are on the Makonde Plateau, up to 900 m above sea level. Lindi Rural, Ruangwa and Nachingwea have mountainous areas as well as low lying plains. The major permanent rivers in the region are the Ruvuma, Lukuledi, Matandu and Mavuji. There are two main rainy seasons, November–December and February–May. The area has a wide mix of ethnic groups, the most common being Yao, Makonde, Mwera, Matumbi, Ndonge, Ngindo, Nyasa, Ngoni and Makua. Although most people speak the language of their own ethnic group, Swahili is widely spoken. The most common occupations are subsistence farming, fishing and small-scale trading. Cashew nuts, sesame and groundnuts are the major cash crops while food crops are cassava, maize, sorghum and paddy. Most people live in mud-walled and thatched-roof houses, but some houses have corrugated roofs. Water is often available in hand-dug wells, communal boreholes, natural springs and river water. Most rural roads are unpaved and hence some are

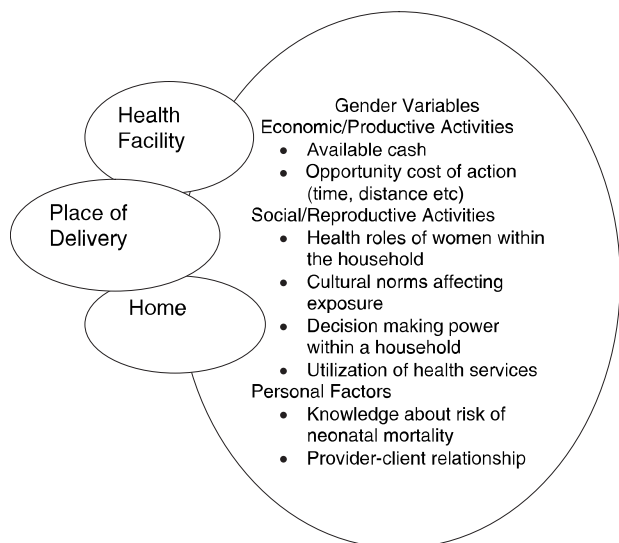


Figure 1 Gender framework

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not passable during rainy seasons while others are so steep that some villages are not accessible by car. The public health system comprises a network of dispensaries, health centres and hospitals offering a varying quality of care. In the study area there are also few private not-for-profit dispensaries and hospitals run by NGOs, generally Christian Mission organizations. With the exception of Lindi Rural, each district has a District hospital. Some villages have village health workers.

Qualitative methods

Ethnographic approaches aiming at triangulation [in-depth interviews, focus group discussions (FGD) and participant observation] were used to explore and identify determinants for home delivery. It is usual for studies such as this to approach the issues qualitatively at first, but we did not do this because we needed the quantitative information rapidly for the Intermittent Preventive Treatment for infants (IPTi) study. The research tools were translated into Swahili, field-tested and subsequently applied in eight villages of Lindi Rural and Tandahimba districts. Each of the study villages had a female project informant collecting and recording information on any health-related event in the village. Informed consent was sought from all individuals participating in interviews and FGDs. The interviews were designed to gather information on the choice of delivery place, merits and demerits of delivery places, who decided where to deliver, cash for emergency deliveries, preparation for delivery, barriers for delivery place and ANC. Data collection took place between March and October 2005.

We conducted 32 in-depth interviews, four in each village with women who had recently delivered at home or at a health facility, and a detailed follow-up of in-depth interviews and FGDs. A trained observer, the village female informant, recorded practices related to newborn survival in the village. Two FGDs based on the methodology described by (Dawson *et al.* 1993) were conducted in each of the study villages with six to eight women who were pregnant or had experienced at least one delivery and had similar backgrounds and experiences. The FGD generally took place at the village based informant's home or sometimes at a school when it was raining. Before the FGD, the moderator introduced all participants, explained the general topic of discussions, and let participants know that everyone should contribute his/her ideas. An experienced moderator (a trained sociologist), along with a note-taker, led the discussions, each taking notes. The FGDs were recorded using an MP3 voice recorder. After the FGD, the note-taker and the moderator reviewed their hand written notes together

while listening to the recording. After revisions of the notes, the transcripts were typed, saved and exported to the NVIVO program for analysis.

Quantitative methods

Quantitative data were collected in a cross-sectional survey between July and August 2004. The survey was designed to give a reasonably precise estimate of the mortality rate in children aged 2–11 months in each division of the study area, as a baseline measure for a study of the community effectiveness of IPTi (<http://www.ipti-malaria.org>). In brief, 30 clusters of 30 households were sampled from each division, giving a total of 720 clusters and 21 600 households. The number of clusters selected from different wards (an administrative sub-unit of a division) was determined by probability proportional to the size of the ward, as estimated by the 2002 National Census population figures. The required number of clusters was then selected at random from a list of all sub-villages (*vitongoji*, singular *kitongoji*) supplied by each district council. Within each sub-village, 30 households were selected at random using a modified EPI-type (Expanded Program on Immunization) sampling scheme that ensure an equal probability of each household being selected. For this purpose a household or *kaya* is a group of people who eat from the same pot.

In consenting households, all women aged 15–49 years were asked about all children born in the 3 years prior to the survey. For the most recent pregnancy we asked whether their children were born at home or at a health facility, the use of Intermittent Preventive Treatment for malaria and ANC. Consequently, information on demographic and socioeconomic status of all women who gave birth at home and health facility were collected. Demographic variables included ethnic group, gender, mothers' education and mothers' age at child birth. A summary measure of socioeconomic status, the wealth quintile, was derived. Data were entered into a Personal Digital Assistant at the point of collection.

Ethical approval

The study received ethical approval from the institutional review boards of the Ifakara Health Research and Development Centre, the National Tanzania Medical Research Co-coordinating Committee, the Tanzania Commission for Science and Technology and the London School of Hygiene and Tropical Medicine. During field work, information sheets about the study in Swahili were given out, explaining why it was carried out, by whom, and what it would involve. In the household survey, written consent of all

household heads was sought. Confidentiality of all study participants was assured.

Statistical methods and analysis

The qualitative data were analysed using NVIVO software (QSR International 2002). We categorized and coded our nodes according to the themes of our interest. Quantitative data were analysed using STATA software, version 8 (Stata 2003). We adjusted for clustering using standard STATA commands such as `svytab`. Socio-economic status was assessed by constructing a household 'wealth index' based on principal components analysis and household asset ownership of a radio, a bicycle, animals, poultry, whether the house had a corrugated iron roof, whether the house was owner-occupied or rented, and whether it was connected to the mains electricity supply (Filmer & Pritchett 2001). Tables showing the proportion of women delivering in health facility by ethnic group, gender of the household head, mother's education, mother's age at child birth and wealth quintile were prepared. We calculated risk ratios to summarize the relative risk of delivering in health facility in different sub-groups. Approximately 95% confidence intervals (CI) and *P*-values for testing hypotheses concerning home and health facility delivery by ethnic group, gender of household head, mother's education, mothers age at child birth and wealth quintile were from design-based *F*-tests, equivalent to ordinary chi-squared tests for variability adjusted for clustering. In multivariate analysis we used a generalized linear regression model with a log link (the STATA `binreg` command) adjusted for clustering and looked at the relationships between all variables simultaneously. We checked for any evidence of two-way interactions between all variables in the model by calculating stratum-specific risk ratios with CIs and checking whether these CIs overlapped. For example, for ethnic group we calculated risk ratios with one stratum for each ethnic group, and checked whether the CIs for each factor overlapped between the different strata. The *P*-values for testing hypotheses concerning place of delivery by socio-economic status quintile were based on a test for linear trend. In multiple regression models, the term for socio-economic status quintile was included as a numeric score taking values 1–5. Both analyses (adjusted and unadjusted) were carried out on the same subsets.

Results

Qualitative findings

The following perceived reasons for home delivery, grouped by key topics, emerged from the qualitative dataset. Most

women, from nearly all villages, reported that they give birth at home because of lack of money to pay for delivery kits, fare and food. Home delivery cost was said not to exceed 600 Tanzanian shillings (roughly \$0.5) for gloves and a razor blade. In some private hospitals they had to pay about 5000 Tanzanian shillings (equivalent to \$4). Some health facilities were thought not to discharge women with no money until their debts were paid. When cash was not available for delivery at the health facility, the options were to borrow money from relatives or friends, to sell land or produce, casual labour, and to offer a valuable object, such as a bicycle to someone in exchange for a temporary loan and reclaim it after returning the money. Availability of cash for transport was an important influence on whether health facility delivery was sought. This was substantiated by the quantitative data showing wealth quintiles as predictors of home births (see below). The following typical statements were recorded:

There was no reason for me to pay for a bed at a health facility while I could give birth for free at home. (In-depth-interview, Chikonji)

I heard from the radio that delivery services for the government health facilities are free of charge but when I went to the health facility for delivery I was asked to buy everything, even a Panadol, so what services are considered to be free of charge? (A mother of a neonate, Maundo)

Women who go to deliver at health facilities usually should have money to buy gloves, food and transport while those who deliver at home need thread and a razor only. (In-depth-interview with MT, Chikonji)

I spent about four thousand shillings to buy gloves, food, and I had to pay for my transport. I used normal transport and I paid one thousand shillings, otherwise I could pay up to twenty thousand shillings for hiring a car. I couldn't manage to eat good food at hospital, so I spent less money on food; one thousand and five hundred shillings. (FGD-Chikonji)

Lack of transport was reported in all villages as a contributing factor for home delivery. In most rural areas, public transport is the only means available and services can be irregular. For example, it was reported in one of the in-depth interviews that public transport was only available at 5 AM.

'If you don't own a bicycle, you should prepare to give birth at home.' (FGD, Nahukahuka). Other FGD groups made the same comment.

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I decided to give birth at home because of the lack of reliable transport to the nearby health facility, two hours walking distance. It is so dangerous to cross the forest at night; there are wild animals such as lions. (A mother of a neonate from Nahukahuka village)

Sometime, one can be referred to the big hospital during labour, but lack of transport can force the mother to deliver at home, lose a baby or die. (FGD-Mtakuja)

Another factor that influenced the choice of place of delivery was sudden onset of labour or short labour. This was mentioned in almost all of villages. Health facility delivery was perceived to be desirable for prolonged labour:

When a woman experiences sudden onset of labour she usually gives birth at home. Those who have given birth before usually give birth at home. (A mother of a neonate from Maundo village)

Health system factors, such as staff attitudes also had an impact on the choice of place of delivery. Poor staff attitude was perceived to exist in most health facilities; including abusive language, denying women service, lacking compassion and refusing to assist properly.

During my last few days before I delivered, I went to the clinic, the midwife advised me to go to the district hospital because the child was too big. The midwife threatened me that I would die if I didn't go to the hospital. Are these words good to tell someone who is pregnant like me? (An in-depth interview, Maundo village)

Another experience from an in-depth interview with a mother who had given birth recently, gave a clear picture of a provider–client relationship.

When I went for ANC (mobile clinic in the village) in the 9th month of my pregnancy, the health worker (nurse) instructed us that she would start with those who came to report their pregnancy for the first time, followed by those who had just delivered, and then with those who are in their last months of pregnancies. She called my name three times, but I couldn't hear because I was outside. She stopped other women who wanted to call me from outside, and instead, she decided to throw my card under a scrap milling machine which is in the same building where we get clinic services. I went inside after been told about this by other women, and she said I would either be the

last to be attended, or be obliged to go to the health facility the next day. At the end of the day, she told me to come to the health facility next Tuesday. When I asked her what the reason was, she replied that she was tired. Imagine, I stayed hungry for the whole day, my children hadn't eaten. I didn't understand that it was a crime for not hearing my name. I left with sorrow, and ended up crying at home. I walked to the health facility on Tuesday as instructed, but I was told there was preparation for laboratory day ceremony (special day in the health facility organized for emphasizing importance of clinic diagnostic), I went back and delivered at home the day after. (In-depth interview with mother of neonate, Nahukahuka village)

In general, woman's expectation of the choice of place of delivery was influenced by a positive attitude of staff at the health facility.

When I went to the health facility (X) for delivery, I was impressed by the midwife who cared for me so much. She was so human, polite and sympathetic. (In-depth interview, Maundo)

Lack of privacy in some of the health facilities was also mentioned as a contributing factor for home delivery. Sometimes, older women give birth at home to avoid contact with younger mid-wives at the health facility, who they think of as their children. Some young women also do not deliver at health facilities because of the presence of male health workers during delivery.

Some health facilities have no special room for delivery; the room is small and all treatment for both men and women are taking place in the same room; you can easily be seen while giving birth. (a mother of a neonate, Kilimahewa village)

Traditional beliefs and culture were also mentioned as contributing factors for home delivery. It is perceived that long labour may be caused by extramarital affairs during pregnancy (*nunumalila*).

One of the reasons for home delivery is to keep the secret. If it is a woman's time for delivery and the child doesn't come out, a woman would be asked to mention all men who she has slept with apart from her husband; she would then be given some water to drink and then she mention that I have slept with so and so..., please my baby come out. She then drinks some water again; and if God wishes, she would deliver her baby safely otherwise, she would be taken to the hospital for major

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operation. It is the responsibility for all who participated in that delivery process to keep the secret. (FGD, Hingawali)

Some participants mentioned that this tradition is one of the causes of misunderstanding between husband and wife, and has led to many marriage breakdowns. This tradition was reported from most of our study villages but in some places it was said to be disappearing.

Most women who delivered at health facilities did not do so because they wished to, but were persuaded by a nurse, spouse, parents or grandmothers. The major reason given for why they were reluctant to make their own decision was lack of money.

When I went to the clinic in the last month of my pregnancy, the nurse advised me to go to the district hospital because the child was so big. I went to inform my husband and he agreed. It is my husband who decides the place of delivery because he has money. (An in-depth interview, Maundo village)

My last child was born at the health facility because my parents wanted me to deliver at health facility. I couldn't decide on my own because I had no money. (FGD, Nahukahuka village)

The decision for place of delivery was also influenced by the availability of a caregiver, regardless of the distance involved.

I was advised by nurse to go to the district hospital but decided to go to the regional hospital, because I had a relative who lives near the regional hospital. (FGD, Maundo village)

These findings corroborate the result of the quantitative work that women from female headed-households were more likely to deliver in health facilities.

Quality of services

The choice of place of delivery was not only determined by income. Quality of services was perceived to play a major role in choice of place of delivery. Although some government health facilities were equally close to where a majority of women lived, and were free of charge, some women decided to go to more distant private health facilities, despite the user charges involved. In some FGDs, the participants said that they were asked to bring water to clean the labour ward after delivery. Quality of services provided directed most women's choices.

I decided to deliver in that private health facility (X) because they provide good services. They are empathetic and can solve any problem; they have a car and can probably take you to the next level of services if need arises. In addition they don't ask you to bring water. (FGD, Mtakuja village)

Carelessness and lack of education were also perceived to be factors for home delivery. These reasons were mentioned in some FGD sessions.

...Lack of education is another factor for home delivery. Some expectant mothers can just stick to their decision regardless of their condition. (In-depth interview, Mnolela)

What needs to be done?

Mothers were asked to make their own suggestion concerning improvements of delivery services. The following suggestions were put forward;

Please, remind all health workers, especially nurses, that they deal with fellow women; we can't respect them unless they treat us well too; if they love us we will respect them. (In-depth interview, Nahukahuka village)

Besides qualitative results as shown above, demographic and socio-economic status and place of delivery were also looked at quantitatively and results are presented below.

Quantitative findings

We visited 21 482 households representing 99% of the 21 600 households expected. A total of 98% of heads of household were present during the survey and only 0.004% refused to take part. A total of 94% of 20 138 women of reproductive age (15–49) visited were interviewed. Data were available for 9152 women who had delivered in the 3 years prior to survey. For their most recent births 5317 (58%) delivered at home and 3835 (42%) at a health facility.

Table 1 presents the predictors of place of delivery. In univariate analysis comparing home and health facility deliveries, differences between subgroups reached statistical significance ($P < 0.05$) for all variables considered (ethnicity, gender of the household head, mothers education, mothers age at the time of child birth and wealth quintiles).

There was variation between ethnic groups with respect to place of delivery ($P < 0.0001$), with the Yao being more likely to deliver at health facility than the Makonde or Mwera (RR 1.48, 95% CI 1.34–1.63). Women who lived in

Table 1 Factors associated with place of delivery in Lindi and Mtwara

Group	Predictor	Category	Home %	Health facility %	Unadjusted			Adjusted				
					RR	CI	P-value	RR	CI	P-value		
Demographic	Ethnic group	Makonde	2353	62	1359	38	1		<0.001	1		<0.001
		Mwera	2197	57	1575	43	1.14	1.08–1.20		1.18	1.08–1.29	
		Yao	199	43	235	57	1.48	1.34–1.63		1.54	1.38–1.72	
		Others	567	48	666	52	1.48	1.38–1.58		1.48	1.33–1.65	
			5316	58	3835	42						
	Gender of household head	Female	975	53	874	47	1		0.001	1		<0.001
		Male	4337	59	2959	41	0.86	0.81–0.91		0.8	0.75–0.85	
	Mothers' education	None	1730	64	937	36	1		<0.001	1		<0.001
		Some education	811	59	555	41	1.16	1.06–1.26		1.13	1.03–1.24	
		Primary and higher education	2773	55	2341	45	1.30	1.23–1.38		1.29	1.20–1.38	
	Mother's age at child birth	15–19	5314	58	3833	42						
		20–24	1151	54	1017	46	1		0.005	1		<0.001
		25–29	1431	57	1022	43	0.89	0.83–0.95		0.88	0.82–0.93	
		30–34	1149	61	740	39	0.84	0.78–0.89		0.81	0.75–0.87	
		35–49	758	59	534	41	0.88	0.81–0.95		0.85	0.78–0.93	
		828	60	522	40	0.82	0.76–0.89		0.81	0.74–0.88		
		5317	58	3835	42							
Social economic status	Wealth quintiles	Poorest	1012	63	634	37	1.07	1.05–1.10	<0.001*	1.08	1.06–1.10	<0.001*
		Very poor	1219	61	762	39						
		Poor	905	59	620	41						
		Less poor	1183	61	772	39						
		Least poor	940	49	992	51						
			5259	58	3780	42						

* χ^2 test for linear trend.

male headed household were less likely to deliver in a health facility (RR 0.86, 95% CI 0.8–0.91). Mothers with primary and higher education were more likely to deliver at health facility than mothers with no education (RR 1.30, 95% CI 1.23–1.38). Younger mothers were more likely to deliver at a health facility than other age groups (RR 0.89, 95% CI 0.83–0.95). The least poor women were more likely to deliver in a health facility than the poorest with a 7% increase in the risk of delivering in health facility for every increase in wealth quintile (RR 1.07, 95% CI 1.03–1.43)

Using a generalized linear regression model, all variables (ethnicity, gender of the household head, mother's education, mother's age at the time of child birth, wealth quintile) remained independently associated with place of delivery. There was no evidence of two-way interaction between the variables. Risk ratio coefficients were similar in adjusted and unadjusted models, and thus there was little evidence of confounding.

Discussion

We have quantitatively and qualitatively documented the delivery patterns and the characteristics of mothers

having home or health facility deliveries in five districts of southern Tanzania. Moreover, by combining quantitative and qualitative methods, weight has been added to various issues related to healthcare utilization and place of delivery. The qualitative findings of this study provide important preliminary insights into the combination of factors shaping the choice of delivery place. Although Bolam *et al.* (1998) working in Nepal pointed out that economic factors were of little importance, we found that lack of money was a major factor for home delivery. Availability of cash for transport was noted as an important factor on whether health facility delivery is sought.

Other factors biasing decisions towards home deliveries included sudden onset of labour or short labour. Health facility delivery was perceived to be desirable for prolonged labour. This means that there is a need to ensure a high level of awareness among expectant women to address the importance of planned delivery. On the other hand, the use of abusive language and lack of income, as barriers to delivery at health facilities (Bolam *et al.* 1998; Amooti-Kaguna & Nuwaha 2000; D'Ambruoso *et al.* 2005; National Bureau of Statistics & Macro International Inc.

2005; Borghi *et al.* 2006; Koblinsky *et al.* 2006 & Brieger *et al.* 1994).

Other factors biasing decisions towards home deliveries included sudden onset of labour or short labour. Health facility delivery was perceived to be desirable for prolonged labour. Similar results are documented in a study conducted in rural Cambodia, where prolonged labour was one of the strongest determinants of birth attendant change, with those experiencing it being 12 times more likely to change birth attendants than those who did not (Yanagisawa *et al.* 2006). This means that there is a need to ensure a high level of awareness among expectant women to address the importance of planned delivery. On the other hand, the use of abusive language and lack of tolerance by the health workers were felt to be discouraging the use of health facilities for delivery. Similar experiences have been documented (D'Ambruoso *et al.* 2005) for instance in Ghana, where women changed their place of delivery, and recommended the same to others when they experience degrading and unacceptable behaviour. Staff attitudes were an important component in deciding where to deliver. Lack of privacy in some health facilities was mentioned as a contributing factor for home delivery.

Hodnett *et al.* (2004) and Roosmalen *et al.* (2005) have shown that continuous supportive care during childbirth, especially when the caregiver is not a member of the hospital staff, improves the outcome of labour. Roosmalen *et al.* (2005) has shown that in many of the delivery rooms of health facilities in sub-Saharan Africa and Asia, women in labour are generally not allowed to bring a relative with them into the labour ward. In his observational study in Tanzania, the author was dissatisfied with the child birth experience, as women in labour lay in bed in complete isolation, in pain, without support.

This study confirms that there are other social-cultural factors and decision-making practices within the household that need to be addressed to improve maternal health services. In Nigeria for instance, (Brieger *et al.* 1994) showed that despite adequate local provision of maternity services, 65% of women still delivered at home. The authors pointed out that this was mainly because of fees for delivery services, level of income, cultural beliefs and education. In Uganda, access to maternity services was one of the influencing factors in choosing the place of delivery (Amooti-Kaguna & Nuwaha 2000). The provision of relatively accessible services did not guarantee their use, and other social and cultural considerations governed decision-making. Ensor and Cooper (2004) mentioned important barriers, such as financial, geographical and cultural factors, which, combined with inadequate quality

of care within the formal health sector, affect the demand for care—care seeking and serve to discourage service use.

Quality of services was perceived to play a major role in choice of place of delivery. For example, some women decided to go to private health facilities, where they had to pay, despite government health facilities with free delivery services being closer to their homes. This decision to pay for services was associated with perceived good quality of care, and the presence of relatives available for post-delivery assistance. The study also provides evidence that women's decisions about the place of delivery are not only determined by the risk associated with pregnancy but also by a combination of factors, such as household income and quality of service. This suggests that improving women's access to income might strengthen their bargaining power to influence place and timing of delivery. In addition, advice from the partner, nurse and parents, emerged as important in influencing the place of delivery. Consequently, any measure aimed at encouraging women to deliver in health facilities will have to involve people who influence their decisions if they are to be successful. Although women carry the major share of the responsibility for the well-being of the household in most societies (Tanner & Vlassof 1998), this responsibility is rarely matched by the autonomy to make decisions, or by access to the necessary resources. Women may have to ask permission from husbands, mothers-in-law or and senior household males before being permitted to seek care. Urassa *et al.* (1997) showed that for most women, the decision about the place of delivery was made by a nurse. However, when the woman developed complications, the decision on where to take her was made by the mother or husband.

We have also shown that ethnicity, gender of the household head, mother's education, mother's age at child birth, and socio-economic status were important independent factors in determining the choice of delivery place. Our results are in line with other studies conducted in Tanzania and other parts of the world. For example, Tanzania's Demographic and Health Survey also indicated that a mother's education is strongly related to place of delivery. The proportion of births delivered at health facilities increased from 29% among mothers with no education to 79% among mothers with a secondary or higher education (National Bureau of Statistics & Macro International Inc. 2005). In Nepal, maternal education was among the important independent factors in determining the place of delivery (Bolam *et al.* 1998). Yanagisawa *et al.* (2006) also documented that woman who had at least

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7 years of school attendance being six times more likely to deliver babies at a health facility than those who did not attend.

Demographic features, wealth quintiles and socio-cultural factors play a major role in the choice of place of delivery. Limited access in rural areas, mainly caused by lack of money and long distances to healthcare facilities, is a particularly problem. Moreover, mid-wife-assisted home births could possibly improve the safety of the mother and the newborn. Finally, promoting female education, especially primary and higher education, as well as continued health education, will lead to sustainable safer motherhood practices.

Campbell *et al.* (2006); Koblinsky *et al.* (2006) & Borghi *et al.* (2006) provides best practices for maternal health. In these series, authors assessed pros and cons of different interventions for maternal health and the newborns. Policy makers should therefore decide which approach best suits their local situation, especially on the most vulnerable groups, in the rural areas.

Although this study was carried out in five rural districts for the quantitative data and two districts for qualitative data, the findings may be generally applicable to other rural areas of Tanzania. Nevertheless, local variations must be considered when interpreting findings for areas outside these study districts. The study has advantage of combining both qualitative and quantitative methods, with corroborative findings on the influence of socio-economic status, the gender of the household head and maternal education on the place of delivery. The gender framework model revealed interesting findings from the client's point of view. Further studies will need to look at the provider (health worker) perspective. The findings provide new information for policy-makers responsible for maternal care and child health in low-income settings.

In conclusion, we identified important factors influencing the choice of place of delivery in rural Tanzania. The information will assist in planning interventions focused on reducing neonatal mortality with short- and long-term perspectives. The key issues for sustainable effects are increasing information available for women at village level and in the long run trying to raise the level of women's education accompanied by the provision of a suitable and effective healthcare delivery system.

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M. Mrisho *et al.* **Factors affecting home delivery in rural Tanzania****Facteurs affectant l'accouchement à domicile en zone rurale en Tanzanie**

DONNÉES DE BASE Les études sur les facteurs affectant le lieu de l'accouchement ont rarement pris en compte l'influence du rôle des sexes et des relations dans le ménage. Cette étude combine une compréhension des problèmes entre sexes par rapport à la santé et au comportement de recours à la santé avec la connaissance épidémiologique sur le lieu de l'accouchement.

MÉTHODES Des interviews détaillées, des discussions focalisées de groupe et l'observation des participants ont été utilisées pour examiner les causes déterminantes de l'accouchement à domicile dans le sud de la Tanzanie. Des données quantitatives ont été collectées au cours d'une étude transversale sur 21600 ménages aléatoirement choisis.

RÉSULTATS Des questions concernant le risque et la vulnérabilité tels que le manque d'argent et de transport, le commencement soudain du travail, le travail de courte durée, les attitudes du personnel, le manque d'intimité, la tradition et les cultures ainsi que le modèle du pouvoir de prise de décision dans le ménage ont été perçues comme des causes déterminantes principales pour le lieu de l'accouchement. Dans l'étude quantitative, plus de 9000 femmes ont été interviewées au sujet de leur plus récent accouchement. Il y avait des variations substantielles entre les groupes ethniques en ce qui concerne le lieu de l'accouchement ($p < 0,0001$). Les femmes vivant dans les ménages à pouvoir masculin étaient moins susceptibles d'accoucher dans un service de santé par rapport à celle vivant dans des ménages à pouvoir féminin [RR = 0,86, IC95%: 0,80-0,91]. Les mères avec une éducation primaire et plus élevée étaient plus susceptibles d'accoucher dans un service de santé [RR = 1,30; IC95%: 1,23-1,38]. Les plus jeunes mères et les moins pauvres étaient également plus susceptibles d'accoucher dans un service de santé, contrairement aux femmes plus âgées et plus pauvres.

CONCLUSIONS Afin de répondre à la mortalité néonatale, une attention particulière devrait être prêtée à la santé néonatale, à la fois dans les programmes de santé des mères et ceux des enfants. Les observations soulignent le besoin d'une approche systématique pour surmonter les contraintes des systèmes de santé, des programmes basés sur la communauté et pour introduire des interventions efficaces peu coûteuses déjà disponibles.

mots clés accouchement à domicile, facteurs de risque, Tanzanie

Factores que afectan los partos domiciliarios en Tanzania rural

ANTECEDENTES Los estudios sobre los factores que afectan el lugar del parto rara vez toman en consideración la influencia de los roles de género y las relaciones dentro del hogar. Este estudio combina un entendimiento de los temas de género relacionados con salud y del comportamiento de búsqueda de ayuda, con conocimientos epidemiológicos relacionados con el lugar del parto.

MÉTODOS Se utilizaron entrevistas en profundidad, discusiones focalizadas de grupo y observación de los participantes, con el fin de explorar los determinantes de los partos domiciliarios en el sur de Tanzania. Se recolectaron datos cuantitativos durante un estudio coseccional de 21,500 hogares escogidos al azar.

RESULTADOS Las cuestiones de riesgo y vulnerabilidad, tales como la falta de dinero, la falta de transporte, el inicio repentino del trabajo de parto, un trabajo de parto corto, las actitudes del personal sanitario, la falta de privacidad, la tradición y cultura y los patrones de poder en la toma de decisiones dentro del hogar, fueron percibidos como determinantes clave para el lugar del parto. Más de 9,000 mujeres fueron entrevistadas, en la encuesta cuantitativa, sobre su parto más reciente. Había variaciones sustanciales entre grupos étnicos con respecto al lugar del parto ($P < 0,0001$). Las mujeres que vivían en hogares con cabeza de familia masculina, tenían menos probabilidad de dar a luz en un centro sanitario que aquellas provenientes de un hogar con una mujer como cabeza de familia. [RR 0.86, 95% IC 0.80-0.91]. Las madres con una educación primaria o superior tenían mayor probabilidad de dar a luz en un centro sanitario [RR 1.30, 95% IC 1.23-1.38]. Las madres más jóvenes y las mujeres menos pobres también tenían una mayor probabilidad de dar a luz en un centro sanitario, comparado con las mujeres mayores y las más pobres respectivamente.

CONCLUSIONES Para hacer frente a la mortalidad neonatal, se debe prestar especial atención a la salud neonatal en programas materno-infantiles. Este hallazgo enfatiza la necesidad de un acercamiento sistemático, con el fin de sobrepasar las restricciones del sistema sanitario, los programas basados en la comunidad y de extender las intervenciones efectivas y de bajo costo que ya están disponibles.

palabras clave parto domiciliario, factores de riesgo, Tanzania