

Patterns of maternity care service utilization in Southern Ethiopia: Evidence from a community and family survey

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Abstract

Background: Despite the fact that maternal health care utilization is essential for improvement of maternal and child health, little is known about the level and patterns of use of the service in Ethiopia.

Objective: This study examined the levels and patterns of maternity care service use in the five densely populated zones of the Southern Region of Ethiopia.

Data and Method: The study utilized data collected in a Community and Family Survey (CFS), which was conducted between early May and early June 1997. The CFS was cross-sectional by design and for this particular study a total of 1401 women who had at least one live birth in the six years preceding the survey were included.

Result: The study revealed that only 26.1 % and 3.3% of the women received antenatal and delivery care services, respectively. The probability of a woman having an antenatal care for her most recent birth was 0.280, but this was significantly higher if she had received a check-up for her previous birth (0.787). On the other hand, the probability of having received delivery care for the most recent birth given that the woman had attended for her immediately preceding birth was only 0.468. The study also revealed that the use of both antenatal and delivery care services for subsequent pregnancies is less apparent among those women with more than one under-five children and those residing in the rural parts of the study area.

Conclusion: To improve coverage of maternity care services in the study area health planners need to focus not only on those women who never utilize the services but also those who are not consistent in their use. [*Ethiop.J.Health Dev.* 2003;17(1):27-33]

Introduction

In most developing countries, women of reproductive age constitute more than one-fifth of the total population. These women are exposed repeatedly to the risk of pregnancy and childbearing and, under existing socio-economic conditions and the inadequacy of medical and health facilities, are at greater risk of morbidity and mortality from causes related to pregnancy (1). The death of a woman who, in most developing countries, plays the principal role in rearing of children and the

management of family affairs, is a significant social and personal tragedy. In developing countries each year an estimated 585,000 women die from complications of pregnancy, childbirth and unsafe abortion. On average, in developing countries a pregnancy is 18 times more likely to end in the women's death than in developed countries (2).

Studies demonstrating the high levels of maternal mortality and morbidity in developing countries and research identifying causes of maternal deaths have repeatedly emphasized the need for antenatal care and availability of trained personnel to attend women during labour and delivery (3,4,5). The importance of tetanus toxoid injections given prior to birth to

reduce neonatal mortality has been documented as well (6). In spite of the clear importance of maternity care, poor access to and low utilization of such services continue to be important determinants of mortality and morbidity through out the world (7,8,9).

In Ethiopia the levels of maternal and infant mortality and morbidity are among the highest in the world. The maternal mortality rate is estimated to be between 700 and 1000 per 100,000 live births (10) with an infant mortality rate of 105 per 1000 (11). UNICEF estimates that about 13% of Ethiopian children are born with low birth weight, 63% of neonatal deaths are due to tetanus and that 60% of infant deaths occur during the first month of life (12,13). On the other hand coverage with maternity care ranged from around 20% in rural Ethiopia to 60% in urban areas of the country (14). The 1990 Family and Fertility Survey revealed that about 25% of mothers received at least one tetanus toxoid immunization and only 8% of the births were assisted by the health personnel at delivery (11).

Despite the fact that maternal health care utilization is essential for further improvement of maternal and child health, little is known about the levels and patterns of maternity care service use in Ethiopia. The present study is, therefore, based on a large scale survey in the five densely populated zones of the Southern region and attempts to estimate the levels and also examines the patterns of maternity care services utilization in the study area.

Data and method

From early May 1997 to early June 1997 a community and family survey was carried out in the five densely populated zones of the Region (Sidama, Semen Omo, Kembata-Alaba-Timbaro (K.A.T), Hadya, and Guraghe) by the Demographic Training and Research Center (DTRC) of the Addis Ababa University in collaboration with the Population Studies and Training Centre (PSTC), Brown University, U.S.A. These five zones were purposely selected based on ethnicity, religious and agro-ecological diversity, their very high population density, and their contiguous location in the

Northeastern part of the Region. The survey was designed to provide a representative sample of the five zones overall, and the rural areas of each of the five zones. And the present study utilized data collected in the survey.

Since the survey was multi-purpose and complex a conveniently large sample size was used. The sample size for the survey as a whole was 2317 households (498 urban and 1819 rural), and in these households a total of 1401 women who had at least one live birth in the six years preceding the survey were considered for this particular study. In the survey the change of government (May 1991) was taken as a reference period for the retrospective birth history questions. The distribution of the surveyed households by residence showed that 1819 (78.5%) were from rural areas while 498 (21.5%) were from the urban. However, the 1994 Population and Housing Census for the region showed that only about 6.8% of the region's population resides in urban areas, therefore, in the CFS survey the urban sample was over represented. In order to make results of this survey representative of the five densely populated zones of the region, sample weighting were employed on the original data. The weights were adjusted at the Primary Sampling Unit (i.e enumeration area) level so that the samples in each zone reflect the number of households obtained from the 1994 census. For detail about the sample weighting procedure interested readers should consult the CFS report (15).

The sampling design combined stratified and random sampling proportional to population size. All urban and rural areas in the five densely populated zones were included in the sampling frame. The selection of rural sample involved four stages; selection of weredas, selection of PAs, selection of enumeration areas and selection of households. In each zone weredas were stratified in to low and high density. A population density of 300 persons per square kilometer was taken as a cut off point. Woredas with a population density less than 300 were classified as "low density" while weredas with population density over 300 were classified as "high density". Then, one low and one high density wereda were

randomly selected from each zone. This resulted in a total of ten selected rural woredas. Each Woreda is divided into smaller administrative units known as peasant associations(PAs). The number of PAs per wereda ranges between 25 and 93.Using simple random sampling two PAs were selected from each selected wereda which resulted in a total of 20 PAs in the study. From each selected PA, one enumeration area was selected, following simple random sampling. Then 50% of households were selected from each sampled EA, using systematic sampling with a random start.

The urban sample size is representative of the surveyed zones as a whole. Ten EAs were selected using a simple random sampling method, from a total of 224 EAs found in the five zones. One third of the households in ten of the selected EAs were selected for inclusion in the study, by using a systematic sampling procedure with a random start. Data collected using a structured questionnaire on socio-demographics, birth history and utilization of maternal health services are the basis for this particular study.

A woman who visited an antenatal clinic (ANC) in the health facilities at least once during her pregnancy that terminated in a live

birth is considered as antenatal care user. Professionally Assisted Delivery (PAD) was defined as deliveries that took place in a health facility or at home with the assistance of trained health personnel.

Patterns of maternity care services use is examined by computing unconditional and conditional probabilities. The probability of receiving ANC/PAD for a given birth will give the unconditional probability while the probability of receiving ANC/PAD for the most recent birth given the immediately preceding birth received care gives the conditional probability. The difference between the conditional and unconditional probabilities indicates the statistical dependence in the use of maternity care services among subsequent pregnancies. Chi-square test was used to compare proportions in categories.

Results

Levels of maternity care use: As shown in Table 1 the proportion of women who received antenatal care for their most recent birth in the six years preceding the survey was 26.1%. Women living in rural areas were less likely to receive antenatal care than those women in urban areas. The percentages of women who received antenatal care were 21.4% and 73.1%, for rural and urban areas, respectively.

Table 1: Percentage (weighted) of women who received ANC and delivery care for the most recent birth in the six years preceding survey. SNNPR-CFS, 1997.

	% ANC	% Delivery care			Others ¹
		PAD	TTBA	TBA	
Residence					
Rural	23.5	1.2	3.4	32.0	63.4**
Urban	75.3**	42.8**	16.4**	22.8	18.0
Total	26.1	3.3	4.1	31.5	61.1

¹ These are neighbors, family member, friends etc.

ANC=antenatal care; PAD professionally assisted delivery; TBA = traditional birth attendant;

TTBA = trained traditional birth attendants

** P<0.001

In general, professionally assisted delivery is very low. Only 3.3% of the women were attended by a medically trained person during delivery of the most recent child in the past six years. What is striking, however, is the

variation in professionally assisted delivery between urban and rural areas. In rural area only 1.2% of the deliveries were attended by trained medical personnel while it was 42.8% for the urban area.

Only 4% of the women had their deliveries assisted by trained traditional birth attendants. Coverage by trained traditional birth attendants was more than 5 times higher in urban areas. More than 16% of the urban women were assisted by trained traditional birth attendants (TBAs) at delivery compared to 3.2% in the rural parts of the study area. In general untrained traditional birth attendants assisted about 31.5% of the women at delivery. On the other hand, 61.1% of the women had their deliveries attended at home by relatives, neighbors, friends or family members.

antenatal care for all births varies by the number of births. The probability of a woman having received antenatal care was higher for women with only one birth in the last six years (0.23) compared to women with two (0.17) and three (0.139) births. In the urban area the probability of not receiving antenatal care for all of the births increases with number of under five children. For women with three births, the probability that none of them will receive antenatal care was 0.263 and 0.631, for urban and rural areas, respectively.

Patterns of maternity care use: In Table 2 it can be seen that the probability of having

Table 2: Probability of a woman having received maternity care for births in the last six years, by number of births. SNNPR-CFS, 1997.

		Number of births	ANC		PAD	
			All births	None of the births	All births	None of the births
URBAN	1	0.753**	0.247	0.428*	0.572	
	2	0.655	0.161	0.253	0.529	
	3	0.579	0.263	0.237	0.605	
RURAL	1	0.235*	0.765	0.012*	0.988	
	2	0.151	0.679	0.000	0.963	
	3	0.111	0.631	0.000	0.938	
TOTAL	1	0.230*	0.770	0.046*	0.954	
	2	0.170	0.659	0.010	0.946	
	3	0.139	0.608	0.014	0.918	

*p<0.05 **p<0.001

Though in general the probability of professionally assisted delivery was very small, the probability of a woman having received delivery care was higher for women with only one birth in the last six years (0.046). For women with three births, the probability of not having delivery care for all of them was found to be very high in both urban and rural areas. For urban area it was 0.605 while it was 0.938 in the rural parts of the study area.

conditional and unconditional probabilities of receiving maternity care. The difference between the conditional and the unconditional probabilities indicate the statistical dependence between a maternity care for the first birth and that of the second (most recent) birth in the six years preceding the survey. Thus, for example, the probability of a woman having an antenatal care for her most recent birth was 0.280, but this was significantly higher if she had also received a check-up for her previous birth (0.787). In contrast there was a 0.869 probability of a woman not having benefited

Table 3 takes the analysis one step further for women with two births by presenting

Table 3: Pattern of maternity care use for women with two births in the last six years preceding survey. SNNPR-CFS, 1997.

	ANC			PAD		
	Urban	Rural	Total	Urban	Rural	Total
First Birth						
Probability of having received care (unconditional)	0.729	0.200	0.345	0.345	0.007	0.021
Probability of having received care given second birth received care (Conditional)	0.864	0.602**	0.759**	0.759**	0.000	0.456*
Probability of not having received care given second birth not receiving care (Conditional)	0.737	0.937**	0.821*	0.821**	0.993**	0.988**
Second Birth				0.376		
Probability of having received care (unconditional)	0.782	0.260	0.376	0.688**	0.011	0.024
Probability of having received care given second birth received care (Conditional)	0.919*	0.768**	0.688*	0.868**	0.000	0.468*
Probability of not having received care given second birth not receiving care (Conditional)	0.609	0.872**	0.868**	0.868**	0.991**	0.988**

*P<0.05 **P<0.001

P-values compare unconditional and conditional probabilities in pair

form an antenatal care for her most recent birth if she did not attend for the first. On the other hand the probability of having received delivery care given first birth received care was 0.468. The receipt of professionally assisted delivery care for none of the births were also found to be highly dependent. The probability of not receiving professionally assisted delivery for the most recent birth given that the woman did not attend for her immediately preceding birth was 0.988. There was substantial urban-rural differences in conditional probabilities. In the case of antenatal care the probability of having received care for the most recent birth given the immediately preceding birth received care was 0.919 and 0.768 for urban and rural areas, respectively.

Discussion

In terms of over all levels of service use, most women did not receive maternity care. Only 26.1% and 3.3.% of the women received antenatal and delivery care services, respectively. The higher coverage for antenatal care when compared to delivery care is consistent with other studies done elsewhere (12,16,17,18;19). The lower coverage for delivery care has often been attributable to the unpredictability of labour onset, and the difficulty of travel, particularly long distance, during labour and delivery.

Moreover, the relative high cost of delivery care is often blamed for the low delivery service utilization rate. Utilization rates for both antenatal and delivery care services in the study area are considered to be low even by Sub-Saharan African standard. Results of the Demographic and health Survey found that coverage of ANC ranged from 35% in Niger to 90% in Kenya. Delivery care utilization rates also ranged from a low of 15% in Niger to 69.4% in Zimbabwe (18).

To improve coverage of maternity services, health planners need information not only on those groups of women who never utilize services but also those who are not consistent in their use. Thus, for example, if women receive professional care during their first pregnancy and delivery, it may be possible to encourage them to attend during their subsequent pregnancies. Looking more closely at women with two births in the last six years, it was apparent that the probability of receiving maternity care for the most recent pregnancy was very strongly related to whether one was received for the immediately preceding birth. Similar findings were obtained in other studies (17,20). This clearly indicates some behavioral consistency in the utilization of maternity care services in the study area. However, behavioral consistency is less apparent

for the use of delivery care than antenatal care, which is similar to findings of other studies elsewhere (17). Moreover, women with more than one under-five children and those residing in rural areas were less likely to be consistent in their use of maternity care services for subsequent pregnancies. One possible reason for inconsistent use of the services among women with more than one under five children is that these women might develop confidence and become less motivated to use maternity care if they had no problem in their previous pregnancies. It is also possible that the accessibility and quality of maternity care service might limit women's ability to seek care for subsequent pregnancies. In addition such finding might also suggest that competing time demands, particularly for those women with many children, may effectively limit women seeking attention for themselves, particularly for preventive reason such as antenatal care.

In particular, for rural women access to maternity care services is relatively very low, women had to travel long distance to get the nearest health facility, which has a negative impact to maintain behavioral consistency. Therefore, health planners should be aware of the existing behavioral inconsistency in the utilization of maternity care services from one birth to the next and devise the necessary measure to minimize such problems. In this regard improving the quality of maternity care services, encouraging women to maintain behavioral consistency through existing channels and improving women's access to health service are considered good strategies.

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