

Determinants of conventional health service utilization among pastoralists in northeast Ethiopia

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Abstract

Background: Health service utilization pattern among pastoralists in Ethiopia is not well documented. Available data are very few and mostly institution based.

Objective: To assess the determinants of conventional health care utilization among pastoralist communities in northeast Ethiopia.

Methods: The study employed a cross-sectional household survey conducted using structured questionnaires administered among 276 mobile and 262 settled subjects within the pastoral area. In addition, reviews of outpatient and inpatient records for the previous year at the local health facilities, as well as focus group discussions among the study communities were conducted to supplement the household survey data.

Results: Analysis of the collected data revealed steep distance decay in level of health service utilization, in addition to statistically significant difference in the service utilization between the settled and the mobile pastoralist communities (the odd ratio and 95% CI for utilizing health services of settlers over mobile ones were 1.38 (1.138,1.667) with P value <0.01.

Conclusions: The findings show very low health coverage and low utilization of services among mobile pastoralists in Ethiopia. [*Ethiop.J.Health Dev.*2007;21(2):142-147]

Introduction

Pastoralist communities are viewed as those whose livelihood depends on and typically derive at least 50% of their food and income from their livestock. On the other hand, pastoralist communities are those pastoralists with spatial mobility, and mobility is key to the dynamics of their life and mode of adaptation to semi-arid and arid environments (1, 2). In sub-Saharan Africa the size of pastoralist population is estimated to be around 50 million, out of which 20 million are found in Ethiopia, Eritrea, Djibouti, Somalia and Uganda.

Various studies indicated that the health care needs of mobile pastoralists have been less addressed as compared to agrarian and settled communities (3, 4, 5). This inequality in health care utilization has been shown to be common particularly among Ethiopian pastoralists (6, 7).

In identifying determinants for health care utilization of pastoralist communities, some researches (3, 5, 8, 9, 10, 11) focused on physical factors such as spatial mobility, low population density and dispersion as barriers to accessing health care resources. Other researchers identified travel distance factors and cultural values as determinants (12).

However, most of the above studies were descriptive and would not provide strong analytic base for showing cause-effect relationships between the alleged factors and health services utilization among pastoralists. The present study was, therefore, aimed at providing stronger evidence on the determinants of health care utilization by

pastoral communities using a comparative case control data.

Afar Region is one of the nine regional states of Ethiopia, with a projected population of 1,327,001 by 2002. The region is located in northeast Ethiopia, with its capital town, Samara 675 kilometers from Addis Ababa. About 92.2% of the population of this semi-arid region is pastoral and agro-pastoral with subsistence livelihood dependent on mobility in search of water and grazing areas. The mobility of these pastoralists varies seasonally and may involve geographical displacements often across hundreds of kilometers over the course of a year.

As Ethiopian pastoralists represent about 11% of the total population inhabiting nearly 52 % of the country's geographic area, they are among the economically most important groups. However, they are underserved in all forms of health care, despite the fact that they are highly affected by recurrent drought as well as by high prevalence of malnutrition and vaccine preventable diseases (6, 7).

The organization and distribution of conventional health service system in the country does not seem to take into consideration the peculiar living pattern of pastoralists. While pastoralists are relatively mobile looking for water and grazing fields for their cattle with changing seasons, the usually static health services do not often address their health care needs. Therefore, this study was conducted to assess the pattern of utilization of conventional health services as well as the effect of

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mobility on health service utilization among pastoralists in Afar Region of Ethiopia.

Methods

The study was conducted in Zone-one in Afar Region during the period of August 2004 and March 2005. The zone was selected because it has both settled as well as mobile pastoralists, reflecting the diverse geographic and socio-cultural setting of the area. The following methods of data collection were employed in the study.

Institution based secondary data: Records were reviewed using a checklist at the level of local health institutions to get outpatient and inpatient statistics for the period of one-year (September 2003 to September 2004). A total of 60,799 outpatient records from 2 hospitals (one in Dubty and another in Millie Wereda), 3 health centers (Elidar, Asayita and Chifra Weredas) and 16 government health stations and one private clinic (in all the above and Afambo Wereda), as well as in 1,789 inpatient records of one of the hospitals (Asayita) were analyzed. Using the information of the Weredas and Kebeles of the inpatient and outpatient clients for this period, utilization rates (per 100,000 populations per year) were calculated for the Kebeles within the different Weredas of the Zone. As the mobility patterns of the inhabitants of the various Kebeles are known, the rates give supplementary information on the patterns of modern health care utilization between the mobile and settled Kebeles. (Definition or description of Kebele, Woreda, and Zone are important)

Household survey: A cross-sectional interview survey was conducted among households selected using stratified random sampling technique. First, six among 19 villages in one of the Weredas (sub-districts) in the Zone (district) were stratified by the pattern of mobility of the population. People who had not moved with their households within the period of a year and half preceding the survey were considered settled while those that made such movements at least once were considered mobile. Within six stratified villages (three settled and three mobile), a total of 1,766 individuals (903 from the three settled and 863 from the three mobile villages) were screened for reports of sickness and patterns of response to sickness event during the six months preceding the survey. Among these 1,766 individuals, further interviews were done with 137 who utilized health services and 125 who did not utilize health services from settled villages as well as with 136 who utilized and 140 did not utilize health services from mobile villages for analysis of the determinants of modern health services utilization. The respondents for the detailed interview were randomly selected using a lottery method (figure 1). Then, these respondents of the household interview were classified as cases if they reported the use of modern health care, as controls if they did not report the use of modern health care during their sickness events.

Cases: those members who were ill in the last six months with at least three disability days and who had utilized modern health care services for a particular single episode of illness.

Controls: those members who were ill in the last six months with at least three disability days who did not utilize modern health care services (even though they may have utilized traditional ones) for a particular single episode of illness in the neighborhood were taken as controls.

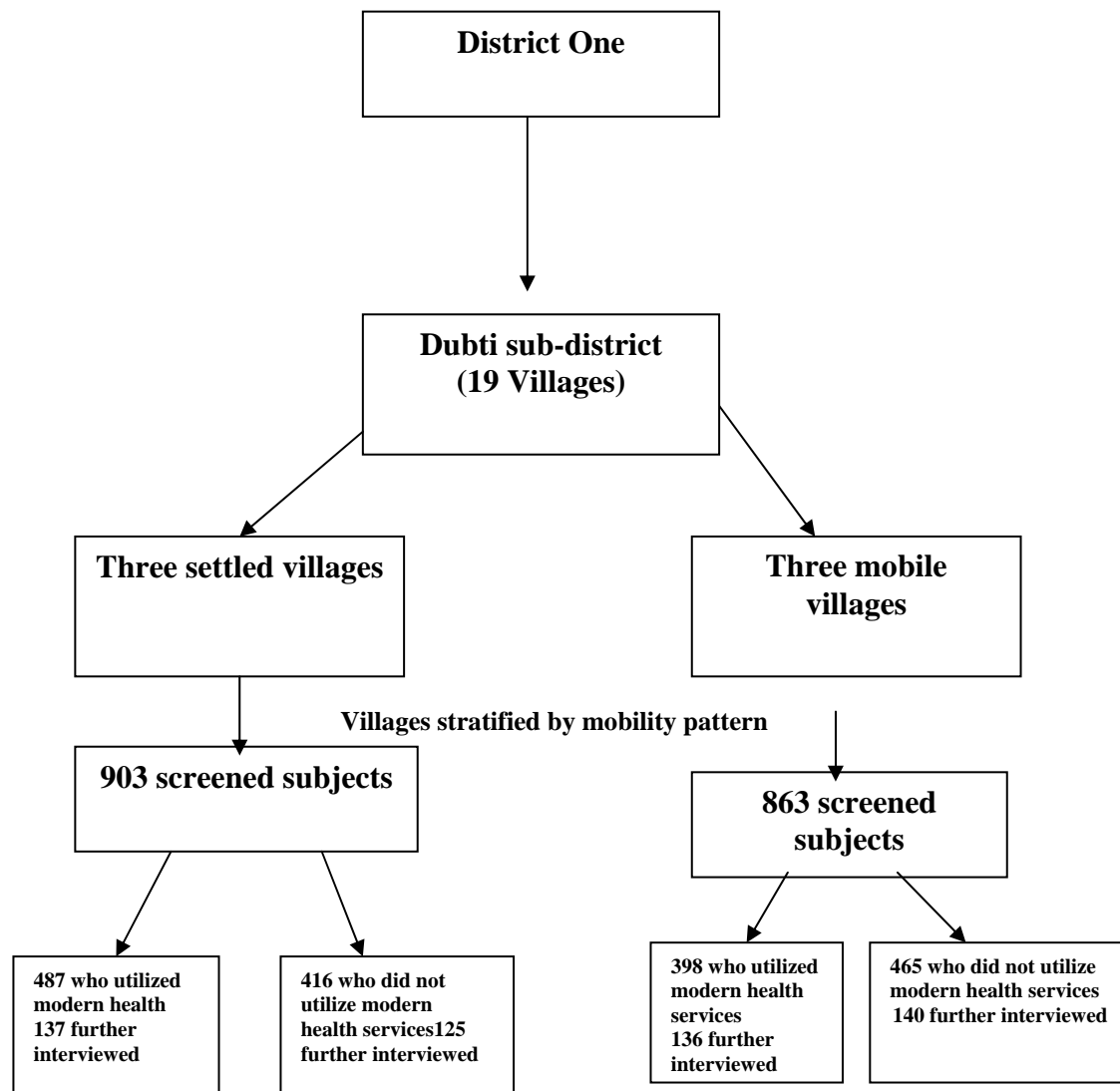
Therefore, the unit of analysis is an individual within a household with reported history of sickness within the six months preceding the survey. In instances when the cases and control were of less than 14 years, the mothers and the household heads responded for the questioners so that the study could also address issues of health service utilization among children.

Focus Group Discussions: Five focus group discussions were conducted with participants from: traditional birth attendants, official leaders, traditional clan leaders and health professionals. The focus group discussions were intended to clarify subjective issues within the findings of the quantitative part of the study and to benefit from the group interactions in getting further insight on the socio-cultural issues that impinge on health care service utilization.

Each focus group consisted of six to seven members that were homogenous in sex but drawn from different kebeles of the Wereda native Afar local clan residents, except the fifth group which contained senior health professionals (physicians and pharmacists with more than four years of experience in the area). Thus the first group was taken from traditional birth attendants, the second from female community members, the third from male community members, and the fourth from male traditional clan leaders.

The principal investigator, an Amharic speaker moderated the focus group discussions through interpreters to the local language, Afarigna.

The data came from focus group discussions were transcribed with translation and entered to the "Open Code" software for coding, recoding, reduction and for clustering to concepts. The concept clusters were finally transferred to core categories of patterns of health care utilization.

Figure 1: **Sampling Procedure****Results**

A total of 1,766 individuals (991 males and 775 females) reported to have at least one episode of illness within the recall period. These individuals were obtained from 637 households out of the sample target of 702 households (90.7%), with no one reporting sickness within the remaining 65 households. The average number of subjects with at least one episode of disabling (limiting performance of normal function) illness within the six months recall-period was (2.8) per household. The average numbers of individuals reporting disabling illness within the mobile communities (2.98) was slightly higher than the average among the settled communities (2.64) the difference being statistically insignificant (T-value of 0.10).

With regard to response to illness episodes, 343 (19.4%) did nothing, 127 (7.2%) self-treated or went to friends and neighbor, 411 (23.3%) went to traditional/transitional healers and 885 (50.1%) used modern health facilities. Among those who used modern facilities, 548 (31.1%) went to government facilities, 248 (14 %) went to private facilities and the rest 62(3.5 %) went to missionary facilities (Table 1). When utilization of modern health services was compared between the mobile and the settled communities, the proportion among the settled (53.9%) was significantly higher than those of the mobile communities (46.1%) with OR and (95% CI) of 1.38 (1.14, 1.67) and χ^2 of 10.775 (P-value<0.01) (Table 2).

Table 1: Distribution of respondents by selected characteristics, Afar region, Ethiopia (December 2004) N=538

Variables	Categories	Number	Percentage
Sex	Female	190	35.3
	Male	348	64.7
Marital status	Single	83	15.4
	Married	398	74.0
	Others	57	10.6
Family size	1-5	195	36.2
	6-10	290	53.9
	> 10	53	9.9
Sheep Owned	0-10	318	59.1
	> 15	220	40.9
Goats owned	0-15	270	50.2
	> 15	268	49.8
Educational status	Cannot read and write	470	87.4
Occupation	Pastoralist	220	40.8
	Agro-pastoralists	116	21.6
	Housewives	86	16.0
	Others	116	21.6
Paid for transport (in birr)	0-15	275	51.1
	> 15	263	48.9
Health care utilization	Modern use	273	50.7
	Non-use	265	49.3
Mobility	Mobile	276	51.3
	Settled	262	48.7

Using logistic regression analysis, statistically significant positive determinants of modern health service utilization were found to be: getting decision or advice from community leaders (OR=6.55, 95% CI (2.28, 18.81)) as well as from household members (OR= 5.84, 95% CI (2.99, 11.43)). On the other hand, being mobile (OR= 0.24, 95% CI (0.11, 0.56)) and having economic problems (OR=0.43, 95% CI 0.20, 0.92)) were found to be statistically significant negative determinants of modern health service use (table 3).

Analysis of Health Facility Record Reviews: Analysis of health facility record reviews showed utilization of hospital outpatient services to be 0.28 per 100 persons per year among the mobile and 15.32 per 100 persons per year among the settled communities. Hospital admissions were 0.5 per 100 persons per year among the settled and 0.03 per 100 persons per year among the mobile

communities. The average utilization of health center services in the better-off sub-district (Asayita) was 56.8 per 100 persons per year, with a disaggregated ratio of 18: 6: 1 among town residents, settled and mobile pastoralist villages, respectively. On the other hand, average utilization of health center services among a predominantly mobile pastoralist of sub-district (Elidar) was 7 per 100 persons per year, with a disaggregated ratio of 227: 39: 1 for town, settled, mobile pastoralist villages respectively.

The health facility record review, coupled with mapping of the villages, also showed the discrepancy in the utilization of health services between the mobile and settled communities as widening proportionally with distance of the respective communities from health services, as the mobile pastoralists were relatively situated farther from modern health facilities.

Table 2: Comparison of modern health care utilization between settled and mobile communities, Afar Region, Ethiopia (December 2004) N=1766

Variables	Category	Modern health care non-users	Modern health care users	Crude odds ratio with 95.0% CI	°Adjusted odds ratio with 95.0% CI
Mobility	Settled	416	487	1.37 (1.13,1.65)***	1.38 (1.14, 1.67)***
	Mobile	465	398		

* P<0.1 ** P<0.05 *** P<0.01

° Predictor variable adjusted for variables in the model, for mobility pattern, gender, family size, age category, and number of ill in the family for the last six months

Table 3: **Determinants of modern health care utilization among pastoralists, Afar Region, Ethiopia (December 2004) N=538**

Variables	Categories	Modern health care non-users	Modern health care users	Crude odds ratio with 95.0% CI	°Adjusted odds ratio 95.0% CI
Reason for choice	Distance	44 (33.1)	89 (66.9)	2.77 (1.59, 4.81)***	1.36 (0.72, 2.56)
	Thought it is good	72 (62.1)	44 (37.9)	0.84 (0.48, 1.47)	0.66 (0.36, 1.22)
	Economic reason	33 (60.0)	22 (40.0)	0.91 (0.46, 1.81)	0.43 (0.20, 0.92)**
	Mobility	33 (71.7)	13 (28.3)	0.54 (0.25, 1.16)	0.24 (0.11, 0.56)***
	Severity of disease	31 (31.6)	67 (68.4)	2.96 (1.63, 5.37)***	1.36 (0.69, 2.69)
	Other reasons	52 (57.8)	38 (42.2)	1	1
Decision on choice	Self	114 (45.4)	137 (54.6)	4.57 (2.63, 7.93)***	4.66 (2.49, 8.71)***
	Family member	67 (39.9)	101 (60.1)	5.73 (3.20, 10.25)***	5.84 (2.99, 11.43)***
	Tribal leader	8 (34.8)	15 (65.2)	7.13 (2.65, 19.16)***	6.55 (2.28, 18.81)***
	Others	76 (79.2)	20 (20.8)	1	1

* P<0.1 ** P<0.05 *** P<0.01

° Predictor variable adjusted for predisposing, enabling and the need factors in the model

Results of the Qualitative Data: The qualitative part of the study showed age, gender, marital status, size of household and belief systems to be important predisposing factors for utilization of modern health services. Severity of symptoms and disability days were also considered important in decisions regarding the choice of providers.

In addition, sedentarization was seen to be an important enabling factor in accessing modern health services when one gets sick. Other important enabling factors mentioned for using modern health care were household livestock reserve, education, seasonality and patterns of rainfall. Furthermore, a pattern of communal decision-making (locally called "*Daggu*") was considered as an important enabling factor in that it affects choices between modern and traditional health providers, as it influences the coordination of community-wide resources.

Discussion

The findings of this study have revealed the decline in utilization of modern health services with distance in the area, as well as significantly lower utilization of these services among mobile pastoralist communities as compared to settled ones. The later finding is similar with other studies in the horn region of Africa (1, 8, 10).

The present study has also shown the effect of mobility on pattern of health care consumption to depend on the time of the year as well as on amount and intensity of rain in the pastoral areas. This finding is in conformity with previous studies in the area and other studies elsewhere (2, 6).

As shown in studies elsewhere; price of care has a significant negative effect (3) while ownership status of livestock and other resources (4) have positive effect on

utilization. Involvement of family and kinship members was also an important enabling factor as 65.8% of the costs for those utilizing modern health services were covered by close household members.

Furthermore, the study findings have shown the importance of household economy as well patterns of communal decision making ("*Daggu*" in the current study) as community sources of advice, in people's choice of health care providers. "*Daggu*" is a traditional person-to-person communication that takes place when Afar people meet each other. It is a sort of cultural exchange of daily life experiences. The process starts with routine greetings and then it involves discussions about all sorts of household chores and events (that include health, death, birth, livelihood of animals and other situations).

The results of the household survey might be biased due to recall or desirability on the part of respondents who might tend to over-report utilization of modern health services. However, one can assume such bias, if present, to equally apply for both groups compared. In addition, the household interview data were supported by findings from the qualitative survey as well as by information form facility records.

It can also be argued that the adverse climate, drought and massive cattle loss in the area would affect the utilization of modern health services. Again, these factors would have relatively more negative effects on the settled than the mobile communities, as the latter are moving in search of water and grazing land and away from these adverse factors.

Therefore, one can conclude that there is a significant inequity in health services utilization between mobile pastoralists and settled communities in the study area.

This, in turn, calls for proper policy measures for addressing these inequities.

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