

DETERMINANTS OF UTILIZATION OF COMMUNITY HEALTH AGENTS
IN RURAL COMMUNITIES

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Determinants of Utilization of CHAs in
Rural Communities


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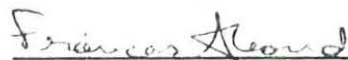
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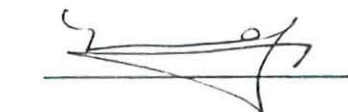
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LIST OF ABBREVIATIONS

CHA -	Community Health Agent
CHS -	Community Health Service
CHW -	Community Health Worker
EPI -	Expanded Program on Immunization
MCH -	Maternal and Child Health
MOH -	Ministry of Health
PA -	Peasant Association
PHC -	Primary Health Care
PPCA -	Peasant Producers Cooperative Association
PSCA -	Peasant Service Cooperative Association
TBA -	Traditional Birth Attendant
UDA -	Urban Dwellers Association

SUMMARY

A study of the determinants of utilization of community health agents among rural communities was conducted in the district (Awraja) of Buno-Bedelle, south western part of Ethiopia. The main objectives of the study were to determine the prevalence of utilization of CHAs and to see the relation between utilization of CHAs and knowledge, attitude and participation of the community.

There were a total of 311 CHAs trained in the Awraja, up to May 1988. Only 221 were found during a survey conducted in May 1988. 80 PAs were randomly selected from those where a CHA had been found regardless of functionality. A structured questionnaire was administered to a systematic sampling of 2400 heads of households.

It was found that 83.6% of the study population used at least one service of the CHA in the past year. The most used services were preventive and promotive activities, particularly, health education and home visits (59.7% and 58.0% respectively). The least used services were treatment activities, death and birth registration. Utilizers of CHA services had better access to safe water supply and sanitary facilities. People who are members of PPCAs, literate, have knowledge about CHAs and their services, have a positive attitude towards CHAs and their services, and participated in the selection of their CHAs and related matters are more likely to be utilizers of CHAs. It was also found that a positive attitude towards CHAs and their services was the best predictor of utilization of CHAs.

INTRODUCTION

Primary Health Care is being promoted in many parts of the world as a means of improving the health status of the people. It can be inserted into a broad spectrum of political, socioeconomic and cultural settings, ranging from those in which basic health services are well developed and supported by auxiliaries working from institutions at the village level to areas in which coverage is poor and most health needs are handled by indigenous practitioners. The key agent of Primary Health Care is the community health worker (CHW) who is based in the community, performs a wide range of health related tasks, and encourages new development initiatives.

In areas where most of the population resides very far from government health institutions, training and placement of CHWs is a sound approach to the extension of health care services. It is assumed that with minimal training they will be effective in the promotion of health and prevention of diseases.

In Ethiopia the Community Health Agent (CHA), a type of CHW, (the other type is Traditional Birth Attendant) is expected to perform a wide range of functions, that generally include:

- Health education
- Environmental health activities

- Treatment of simple and common ailments
- MCH and Family planning
- Control of communicable diseases
- Referrals, record keeping and collecting data on vital events and
- Community Development Activities.

Training of CHAs in Buno Bedele Awraja is conducted in a health center by a staff nurse, an MCH nurse (if available) and a sanitarian. There is also one national center in Bale Administrative region, (Agarfa Multipurpose Farmers Training Center) that gives training to CHAs in addition to other disciplines. The total duration of the former course is 12 weeks. It has both theoretical and practical sessions but much of the training time is allocated to the theoretical part. The course includes topics on personal hygiene, environmental sanitation, common communicable diseases (cause, diagnosis, treatment, prevention and control measures), MCH and family planning, nutrition, collecting and reporting of health information, and the use, handling and side effects of selected drugs. They attend practical sessions in the out-patient department on how to take history, as well as how to examine and treat patients with common diseases and injuries.

Trainees are selected from peasant associations and urban dwellers associations in rural areas and towns, respectively, according to the criteria set by the Ministry of Health. It is assumed that community members are involved in the recruitment and selection of their CHAs. They are also expected to bear the cost for the training of the CHA, to construct a health post, to equip him/her with essential furniture and stationery, to give financial support to the CHA, to cover the cost for buying drugs, and to supervise the CHA administratively. However, some external donor agencies like UNICEF and others collaborate with the Ministry of Health in the training programme by covering the cost of training and providing first aid kits. Technical supervision of CHAs is the duty of health assistants working in the area.

Training of CHAs and TBAs in Buno-Bedelle Awraja was started in 1978. Since this time a total of 311 CHA's were trained and deployed in the Awraja. Nearly 250,000 birr was spent on training the CHAs (excluding the cost for refresher courses and for trainers). The attrition rate is very high and the whereabouts of more than 100 CHAs is unknown to the health institutions to whom they are expected to report.

According to the results of a recent survey conducted in the Awraja, 80% of the CHAs are nonfunctioning (see footnote 1); most of the CHAs get no remuneration, have no drugs to dispense, no health post, no stationery and have never been technically and administratively supervised. In short, they are neglected and left unsupported (1).

As mentioned above, a great sum of money was spent in the training of the CHAs and in providing them with first aid kits. Precious time of trainers and trainees was consumed in the training. Much trust was laid by the government on CHAs with regard to the delivery of community health services to the population. A lot of non-functioning CHAs means a very critical problem for a country with very meagre resources. The one question left unanswered is to what extent the CHAs are respected and utilized by the community members.

Footnote 1

A CHA was considered as functioning if he fulfilled all of the following four points:

1. if he/she was reporting to his/her supervising health institutions on a monthly basis;
2. if he/she was keeping records of birth and death;
3. if he/she was giving health education sessions;
4. if he/she made home visits.

If a CHA did not fulfill the above criteria he/she was considered as nonfunctioning.

Although methodologically difficult, the level of functioning of CHAs can be measured via community utilization of the services rendered by CHAs. This study will try to assess the utilization of the services delivered by CHAs in their respective communities. In addition, it will examine some of the factors associated with utilization of CHA services.

OBJECTIVE

The objectives of this study are:

1. To assess the utilization of CHAs in the rural communities in the Awraja.
2. To examine the relation between the utilization of the CHA services and involvement of the community members in the selection of CHAs, and their knowledge and attitude towards CHA's.

The results of the study could provide the necessary clues that are important to solve these problems in the near future. They will ultimately help to strengthen community health services, which are the cornerstones for the universal goal of "Health for All" by the Year 2000 through the PHC approach.

LITERATURE REVIEW

General health services in Ethiopia include a network of health stations, including community health services, health centers and hospitals (2). The Kebele or community health service is community based playing a vital role in the delivery of PHC. It serves a community of approximately 1000 people (3). In Buno-Bedelle Awraja the mean size of population served by one CHW is 1279, ranging from 293 to 8323 (1). The CHW acts as a link between the community and the conventional health services (health stations, health centers and hospitals). Technical advice, training and supervision only is provided by the Ministry of Health (2).

Following the revolution of 1974, the general health policy in Ethiopia was oriented towards improving the health of the rural population, through the provision of health service units and community participation (2). By 1984 a 10-year plan was developed. Its major objectives included 80-85% coverage of the population with basic health services, and the training and development of CHAs and TBAs, the strengthening of urban health facilities, control of communicable diseases, improved environmental health, and maternal and child health and immunization.

THE CONCEPT OF COMMUNITY HEALTH WORKER

There are different names in different countries for community health workers; such as village health aides (Kenya), health cadres (Indonesia), and bare foot doctors, countryside doctors or simply health aides (China). For example, the barefoot doctor in China was actually neither a doctor of medicine nor barefoot. He or usually she, was an agricultural worker trained as a paramedic. When these barefoot doctors first appeared in Chuan Sha, the rice-growing region of east China near Shanghai, where with their medical kits they often went barefoot in the fields, as was the custom, their peasant patients affectionately called them "barefoot doctors". Beginning in January 1985, the Ministry of Health of the People's Republic of China abolished the term "barefoot doctors" and renamed them either "countryside doctors" if they passed the qualifying examination or "health aides" if they failed the examination (4).

Also the duration of basic training for the CHW varies from an initial orientation period of five days followed by in-service training, in the case of the village health communicator in Thailand, to two years in Iran (5). They also differ greatly from each other in selection, training, tasks, relationship with the community and the formal health services, supervision and reward mechanisms. They may work full time or part time, alone or as a member of a team. They may belong to the indigenous health care system or work beside it.

Despite these differences there is a common understanding of what is meant by a community health worker. Most community health workers are described as people who are selected by the community and from the community. A WHO review of national experience in the use of CHW described them as a person from the community who is trained to function in the community in close relationship with the health care system (6).

A later definition suggested that CHWs are generally local inhabitants given a limited amount of training to provide specific basic health and nutrition services to the members of their surrounding communities. They are expected to remain in their home village or neighborhood and usually only work part-time as health workers. They may be volunteers or receiving salary. They are generally not, however, civil servants or professional employees of the MOH (7). This definition of CHWs is more or less similar to the definition of CHWs in Ethiopia.

Bryant makes the comment that the CHW is not only a health worker but also a system involving a network of functions and relationships that converge on and emanate from him. He claims that to see the CHW merely as a health worker misses the essential nature of the concept, risks failure because of underestimating the support required and detracts from its greatest potential namely achieving universal coverage in meeting health and development needs (8).

UTILIZATION OF CHW SERVICES

The actual utilization of CHW services varies widely from country to country. Because of their greater accessibility and acceptability, it is expected that the presence of a CHW in the community will improve utilization rates. The Kudus / Blora study in Indonesia has reported that between 77% and 91% of households reported at least one visit to a health cadre for illness care in the previous 18 months (9). This same study found high levels of contact through home visits 74.0% and 87%. In Gembongem and Brambangan (Indonesia), respondents reported on all illness cases in the previous 9 months, according to where they sought treatment. In both villages, treatment by CHWs was the most common (34% and 25% respectively). 67% of all households surveyed in Glagah reported at least one contact with a CHW in the month preceding the interview. These data strongly support the expectation that CHWs can significantly expand the coverage of illness care (9).

A household survey of two subdistricts with a population of 50 000 in Indonesia was conducted to establish whether the CHW program increased equity and coverage. The results showed that CHW services achieved greater coverage than clinic services and reached proportionately more poor households and individuals than did clinics (9). Thus, the program was having some benefits.

An evaluation of CHWs in India showed that common diseases were being treated, although insufficient attention was given to promotive and preventive activities. This study also found that community mobilization was weak but that most community members and health service staff were satisfied with the services of CHWs (10). Similarly a study of the current functions of CHWs in Tanzania was conducted using multiple approaches for data collection. It was found that CHWs were appreciated by villagers and health staff although their effectiveness was unclear (11). Currently in Ethiopia, a number of studies have shown that the drop-out rate among CHWs is very high (1,5,12). From this it might be expected that utilization is very low, however no figures on this are available.

DETERMINANTS OF CHW UTILIZATION

Many factors have been proposed to explain why some CHWs are frequently used and others rarely so. These include desire of the community to provide remuneration to the CHW, participation in his/her selection, and knowledge about his/her resources. It may also depend on the visibility of preventive services initiated by CHW in the areas of sanitation.

According to Wood, community support is the most important requirement and the hardest to achieve. For projects with a clear end point such as a building, it is much easier to get community support. For an on-going

activity like PHC, however, community support only comes with real understanding by the community of what it is expected, or wants to support. Wood mentions cost as one of the constraints. The main sources of funds include the government through budgetary allocations, the community through the mobilization of community resources, and fee-for-services, or any combination of these. Wood claims that if communities are going to pay for the service, they are more likely to concentrate on curative services (13).

All CHWs do provide some basic curative care. The extent to which they emphasize curative services as opposed to promotive and preventive functions varies from country to country. In countries like Botswana, Papua New Guinea, and the Solomon Islands, the CHW does a lot of clinic-based or curative work with less or very little activity in the community and in the area of preventive and promotive health. In some countries, such as China, Costa Rica, Guatemala, Ethiopia, Mozambique, Nepal, Venezuela, the tasks of the CHW are mainly preventive and promotional. In countries where the CHW has been emphasizing preventive and promotive activities, however, encouraging results have been reported, particularly in the areas of environmental sanitation, provision and protection of water supply and sources, and health education (5).

Community participation in the selection and planning of CHWs and their activities has often been raised as an important determinant of utilization. The Saradidi rural health development program has been successful in an environment which is generally hostile to community participation and one with severely limited resources and opportunities. The project has succeeded because it was begun, planned, organized, implemented, managed and evaluated by the community (14,15).

Lack of community participation often stems from a lack of understanding of the role of the CHW by local leaders (16). The experience of most countries underscores the importance of taking measures to inform and educate the community about the activities of the CHW and about PHC in general (5).

Costa Rica and Liberia, for instance, have made conscious efforts to educate and sensitize community leaders and members of the village health committee about the role and functions of their respective CHWs and the part that the communities are expected to play. These leaders are, in turn, expected to transmit such information to other members of the community and to stimulate community participation (19).

The results of a study of 533 senior students at 10 medical colleges in different parts of India demonstrate how little students understand the concept of PHC. 54.4% of them even called it bad. The basic aspects of the CHW

scheme such as description, selection process, and training aspects were known to only about 12% of the students: 16.82% had no idea at all about the scheme (17).

Community leaders and community organizations which are expected to mobilize support for the CHW, are often not prepared and activated for such responsibilities. It was found that in Thailand one of the major obstacles to resource mobilization at the community level was the lack of understanding among community members of the concept of PHC. In Botswana, one of the problems that the family welfare educator program faced was the lack of information about the program, not only among health workers but also among members of the community (5). In Papua New Guinea, many community members were not even aware of what their CHWs did (18).

Gill stressed that community satisfaction remains an open question. He claims that for most communities, curative and emergency care are first priorities, and where CHWs cannot provide such help they may not be valued (19). He also claims that rigorous evaluation of CHW programs are rare. This is partly because many of the programs have not been in place for long but more importantly, there are enormous methodological problems of research design and logistics to carrying out an evaluation of a CHW program.

MATERIAL AND METHODS

DESIGN

The study used a cross-sectional design to describe the utilization rates of CHAs and to analyze concurrent sociodemographic and knowledge factors in relation to utilization.

SOURCE POPULATION

The source population for the study was the rural population of Buno-Bedelle Awraja, Illubabor Administrative Region. The study was conducted in all the nine woredas, which includes 363 peasant associations. The names and specific addresses of all the 311 CHAs trained up to May 1988 were obtained. A survey conducted 6 months earlier found 221 (87%) of these CHAs. Using these CHA staffed PAs as the sampling frame, 80 PAs were selected randomly regardless of functionality. Excluded from the survey were:

1. All Kebeles under the UDAs
2. All Peasant Associations whose CHA were not found during the survey.
3. All PAs that have either no trained CHA or more than one CHA.

STUDY POPULATION

The total number of households was obtained from the offices of each kebele in all of the 80 sample PAs. From each, 30 heads of households were selected for the study by systematic sampling (every 5th household) (see Figure 1).

Sample size was calculated using differences between two proportions (P_1 = Proportion of households not using CHA services with high participation in CHA selection and P_2 = Proportion of households using CHA services with high participation in CHA selection).

$p_1 = .30$	alpha = .01	$z(\text{alpha}) = 2.58$
$p_2 = .45$	beta = .05	$z(\text{beta}) = 1.96$

Using the formula:

$$n = \frac{[z_{\alpha} \sqrt{p_1(1-p_1)} + z_{\beta} \sqrt{p_2(1-p_2)} + p_2(1-p_1)]^2}{\Delta^2}$$

the group size was calculated to be 381. Utilizers were estimated to be 20% of the population. The sample size was therefore calculated to be 2000 but it was increased to 2400.

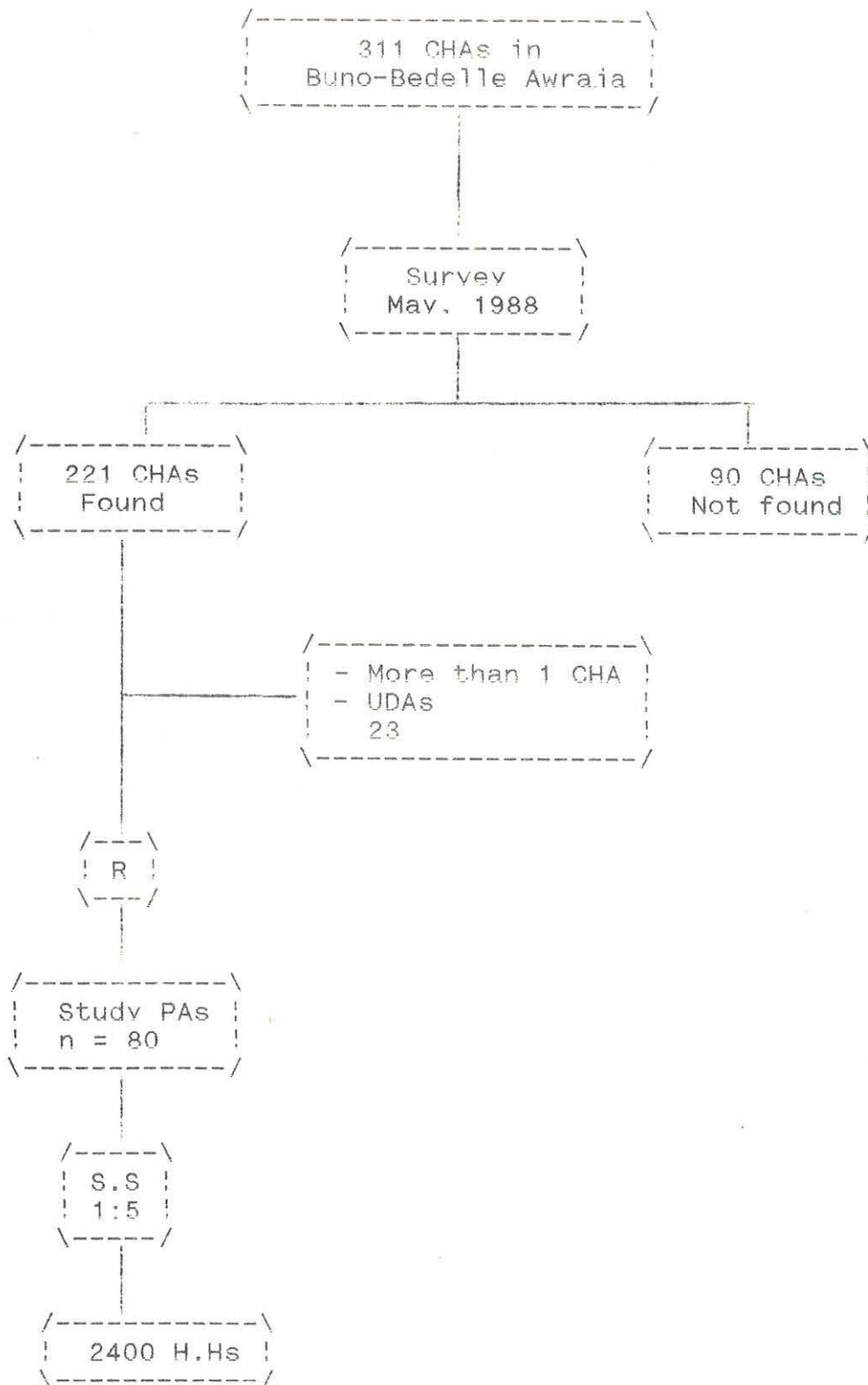


Figure 1. Selection hierarchy.

MEASUREMENT

A structured questionnaire was prepared to collect information from respondents on their utilization of CHA services. The questionnaire was first written in English and back-translated into Amahric. The interview was conducted in the respondents' native language oromigna.

The questionnaire included 40 items concerning the following information (see Appendix):

- a. Demographic information regarding the respondent's age, sex, marital status, educational status and occupation.
- b. Utilization of the services provided by CHAs in the past year such as health education, curative services, vital events registration, delivery services and home visits.
- c. Knowledge regarding the CHAs and services provided.
- d. Attitude towards the CHA and CHS
- e. Participation in CHA recruitment, and
- f. Water and sanitary facilities available (used as indirect measures of CHA activity).

DATA COLLECTION

Two sanitarians and one staff nurse working in a health center were given a one-day training in how to conduct the study and used as field supervisors for the

interviewers. Twenty interviewers were selected according to the following criteria:

- a. Completed 12th grade
- b. Resident in that Awraja
- c. Speak the native language

A manual for interviewers was prepared and a two day orientation was given to all the interviewers. Pretesting of the questionnaire was done in three peasant associations on a total of 60 households. Data for the study were collected in a 2-week period.

DATA ANALYSIS

Data was analyzed using an SPSS/PC+ computer package. Frequency distributions were calculated for the different variables included in the questionnaire. For the purpose of comparison and statistical analysis new variables were created by combining questionnaire items measuring the same concept. The sum of points given for each constituted the composite score.

- a. Utilization of CHA. One point was given if the person used a CHA for each of the following events. The possible range of scores was 0-10.
 1. Person attended delivery
 2. Birth registration
 3. Treatment of case 1
 4. Treatment of case 2

5. Treatment of case 3
6. Death registration
7. Home visit
8. Health education
9. Preference for Rx of diarrhea
10. Any other service

b. Sanitation and water supply. For each of the following services/facilities provided in the community, 1 point was given. The possible range of scores was 0-3.

1. Safe water supply
2. Latrine available
3. Safe method of solid waste disposal.

c. Knowledge regarding CHAs and CHSs. Knowledge about each of the following items contributed 1 point. The possible range of scores was 0-13.

1. Existence of CHA
2. Name of the CHA
3. Services offered by the CHA
4. Number of services known (contributed up to 4 points)
5. Work place of CHA
6. Drug availability
7. Who provides drugs
8. Remuneration of the CHA
9. Who provides the CHAs salary
10. What problems exist in CHA services

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8. Remuneration of the CHA
9. Who provides the CHAs salary
10. What problems exist in CHA services

d. Attitude. A positive response to each of the following items contributed 1 point. possible range of scores 0-7.

1. Satisfaction with the service
2. Community should pay the CHA's salary
3. Community should provide drugs
4. Willingness to reward CHA
5. Helpfulness of CHA
6. CHA is the right person for the job
7. Attitude towards the CHS in general.

e. Participation. Participation in the following activities contributed 1 point. The possible range of scores was 0-2.

1. In the selection of the CHA
2. In problem discussion.

Using the scores computed for the above new variables, utilizers (score of 1-6) and non utilizers (score of 0) were compared using chi square and rate ratios. To determine whether knowledge, attitude or participation best predicted utilization, a multiple regression analysis between the dependent variable utilization and the predictor variables was done.

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RESULTS

POPULATION CHARACTERISTIC

Table 1 presents the demographic characteristics of the study population.

A total of 2400 heads of households were included in the study. As expected most are members of PAs, are males and farmers.

WATER SUPPLY AND SANITATION

One of the duties of the CHA is to identify and implement appropriate measures for the prevention and control of communicable diseases. Their main role in this respect is to mobilize the community, to protect water sources, dig garbage pits and construct latrines, through health education and home visiting. Thus, water supply and sanitation were taken as an indirect measures of the effectiveness of the CHA.

It was found that 44.6% of the study population fetch water from a relatively safe sources, 39.3% have their own latrine and 31.0% practice proper method of solid waste disposal (refer to table 2). As will be discussed in the later section a statistically significant association was found between the indirect measures and utilization of CHAs.

UTILIZATION OF CHAs

The number of people using eight CHA services is presented in table 3.

It was found that 46.3% of the study population said that someone from their family had used a "CHA service" in the past year. However, for reasons that will be discussed later, a very high percent of the study population attended health education sessions (59.7%) and have had their homes visited for health activities (58.0%) by their CHA in the past 12 months. The next most frequently utilized services, in descending order of frequency, were registration of births, deaths and treatment of diarrhea. Treatment of other illnesses was very rare.

Overall, 83.6% of the study population responded that they or one of their family members had received at least one of the listed services in the past year. An interesting finding, here, is that although the overall percentage of utilization is 83.6%, only 46.3% of the study population claimed that the service came from a CHA. The others, presumably, received the service but did not know that it came from a CHA.

Table 1
Demographic Characteristics of the
Study population

Variable	Frequency (%) (N=2400)
Association	
PAs	1920 (80.0%)
PPCAs	480 (20.0%)
Sex	
Female	39 (1.6%)
Male	2361 (98.4%)
Age group	
15-24 yrs.	127 (5.3%)
25-34 yrs.	470 (19.6%)
35-44 yrs.	663 (27.6%)
45-54 yrs.	497 (20.7%)
55-64 yrs.	302 (12.6%)
65+ yrs.	341 (14.2%)
Education	
Illiterate	650 (27.1%)
Literacy campaigner	1239 (51.6%)
Formal school	511 (21.3%)
Marital status	
Single	33 (1.4%)
Married	2293 (95.5%)
Separated	12 (0.5%)
Divorced	8 (0.3%)
Widowed	54 (2.3%)
Occupational status	
Farmer	2349 (97.9%)
Gov't employee	26 (1.1%)
Others	25 (1.0%)

Table 2
Water Supply and Sanitation

Variable	Frequency (%) (N = 2400)
Water supply	
River/bond	775 (32.3%)
Unprotected spring/well	545 (22.7%)
Protected spring/well	1071 (44.6%)
Non - response	2 (0.4%)
Latrine Facility	
Available	943 (39.3%)
Not available	1447 (66.3%)
Non response	10 (0.4%)
Solid waste disposal	
Open field	1640 (68.3%)
Garbage pit	658 (27.4%)
Burning	87 (3.6%)
Non response	15 (0.7%)

Note. Water supply and sanitation could be used as an indirect measure of the CHA's activities in the area of prevention.

Table 3
Utilization of CHA Services

Type of Service	Utilizers Freq (%)	Eligible* (100%)
Health education	1433 (59.7)	2400
Home visit	1391 (58.0)	2400
Any type of CHA services	1111 (46.3)	2400
Birth registration	157 (24.1)	652
Preference for diarrhea Rx	525 (21.9)	2400
Death registration	28 (10.9)	258
Treatment of sick cases	15 (1.4)	1110
Delivery service	1 (0.0)	652

*The total number of people eligible for the service is less than the study population for certain services.

Note. Health education and home visits are initiated by the CHA and therefore are not necessarily indicative of the respondent's attitude or motivation to seek services.

FACTORS ASSOCIATED WITH UTILIZATION OF CHA SERVICES

Table 4 presents the statistics resulting from the bivariate analyses of utilization and determinants.

1. Type of association

In Ethiopia farmers are organized at the grassroot (kebele) level in three different types of associations: Peasant service co-operative association (PSCA), and peasant producers cooperative association (PPCA), and peasant association (PA) which is neither of the previous ones. Since the majority (greater than 90%) of the PAs in the study Awraja are members of PSCAs, the study compared only two types of Association (PAs and PPCAs).

It was found that there is a statistically significant association between utilization of CHA service and type of association ($\chi^2(1) = 24.41, p < .0001$). Members of PPCAs are twice as likely as PAs to utilize CHA services.

2. Educational Status

A statistically significant association between utilization of CHA services and level of education was observed ($\chi^2(2) = 17.12, p < .001$). People who had formal schooling or attended the literacy campaign program were more likely to utilize CHA service than those who were illiterate.

3. Water supply and sanitation ("Indirect measures")

Indirect evidence of the CHAs effectiveness in the areas of water and sanitation were also strongly associated with utilization of CHA services. Utilizers of CHA services were, more likely than non-utilizers to have 2 of the 3 services ($\chi^2 (3) = 144.56, p < .0001$).

4. Knowledge

Knowledge of the study population regarding CHAs and CHSs was assessed (see table 5). It was found that greater than 90% of the study population were aware of the existence of the CHA in their kebeles, knew his usual work place and his name. Only 70.9% of the study population knew at least one duty of a CHA. The most commonly known duties were health education and environmental health activities.

Table 4

Factors Associated with Utilization of CHA Services

	Utilizers (1-6) (N = 2007) Freq. (%)	Non utilizers (0) (N=393) Freq. (%)	RR	C.I (95%)
Association ***				
P.A's	1571 (78.3)	331 (89.3)		
P.P.C.A's	436 (21.7)	42 (10.7)	2.19	(1.54,3.11)
Education **				
Illiterate	512 (25.5)	132 (33.6)		
Literacy camp.	1033 (51.5)	195 (49.6)	1.37	(1.06,1.76)
Formal school	447 (23.0)	23 (5.8)	5.01	(3.10,8.17)
Knowledge ***				
Score 0-4	178 (8.9)	202 (51.4)		
" 5-7	674 (36.6)	135 (34.4)	5.67	(4.27,7.52)
" 8-9	914 (45.5)	50 (12.7)	20.7	(14.4,29.9)
" > 10	241 (12.0)	6 (1.5)	45.6	(19.0, 116)
Attitude ***				
Score 0-2	411 (20.5)	247 (62.9)		
" 3-4	923 (46.0)	131 (33.3)	4.23	(3.30,5.43)
" > 5	673 (33.5)	15 (3.8)	27.0	(15.4,40.0)
Participation *				
Score 0	1180 (58.8)	260 (66.2)		
" 1	776 (38.7)	129 (32.8)	1.32	(1.05,1.68)
" 2	51 (2.5)	4 (1.0)	2.80	(0.96,8.25)

Note: Rate ratios calculated using the first category as the referent.

Chi square significance level

- * p < .01
- ** p < .001
- *** p < .0001

The mean score for knowledge was 6.83 with a standard deviation of 2.56 and a range from 0 to 12. The knowledge score was divided into four levels.

A statistically significant difference between utilizers and non-utilizers of CHA services was found when their level of knowledge was taken into consideration ($\chi^2(3) = 498.72, p < .0001$). Those with scores of 8 and above out of 13 were much more likely to be utilizers.

5. Attitude

Scores out of 7 reflect the extent to which the person holds a positive attitude toward the CHA and his services. The mean attitude score was 3.48 with a standard deviation of 1.66 and a range from 0 to 7. The statistically significant difference in attitude between utilizers and non utilizers indicated that those with a score of 3 and above were more likely to be utilizers ($\chi^2(2) = 328.43, p < .0001$).

6. Participation

60% of the study population did not participate in either the selection of their CHA or in discussions that were related to CHSs. Only 2.3% of the study population participated in both the selection and in discussions.

Those with participation in one or more of these activities were more likely to utilize the services ($\chi^2 (2) = 9.27, p < .01$).

A multiple regression was conducted to control for overlaps among the factors and to determine which was the best predictor of CHA utilization. It was found that attitude towards CHAs and their services was the best predictor of CHA utilization. Community participation was the least predictive.

Table 5
Percentage of Sample Population Having Knowledge,
Positive Attitude and Participation

Variable	Frequency	%
Knowledge regarding		
1. Presence of CHA	2246	93.6
2. Work place of their CHA	2215	92.3
3. Name of their CHA	2208	92.0
4. Duties of a CHA	1702	70.9
Health education	1032	43.0
Environmental Health act	888	37.0
First aid/treatment	523	21.8
E.P.I agitation	406	16.9
Epidemic report	250	10.4
Home visits	53	2.2
Birth registration	7	0.3
Other services	15	0.6
5. Availability of drug	1894	78.9
6. Source of money for buying drugs	384	16.0
7. Remuneration status of their CHA	1886	78.9
8. Who remunerates their CHA	26	1.1
9. Problems / obstacles	955	39.8
Attitude		
1. Satisfied by the service they got	489	44.0
2. Community should provide drugs	348	14.5
3. Community should reward CHA	849	35.2
4. Willing to reward the CHA	1886	78.6
5. CHA services improved health	808	33.7
6. Positive attitude toward CHA	1665	69.4
7. Positive attitude toward CHS	1994	83.1
Participation		
1. During selection of the CHA	974	40.6
2. In discussions regarding CHS	224	9.3

DISCUSSION

In the present study, the percentage of population that had access to safe drinking water and latrine facility was higher than for the Awraja population as a whole according to a 1986 RIBS study. The figures for the later were 20% and 30% respectively for safe water supply and latrine facility (20). This difference can be attributed partially to a time gap of two and half years between the two studies and the launching of the villagization scheme in 1984 in the Awraja. It could also be due to the differences in the sample population characteristics included in the two studies. The present study included only Kebeles where there were CHAs.

If the difference in the sample population is the reason for the observed differences between the two studies, the role of CHAs in enhancing water and sanitation services cannot be ignored. Similar results have been reported from countries where the CHW has been emphasizing preventive and promotive services, particularly in the areas of environmental sanitation, provision and protection of water supply and source, and health education (5).

83.6% of the population used one of the services rendered by CHAs. The results of the household survey in Gladar, Indonesia, showed that 67.0% of all households surveyed reported at least one contact with a VHW in the month preceeding the interview (9). Because of the

difference in the time period, one year versus one month, it is difficult to compare the rates of utilization.

The percentage of population that used only one service was 24.2%. Another 24.1% used two services. Certain services were utilized more than others. The most utilized services were health education and home visit services. The least utilized services were treatment activities and death registration. This contrasts with the rate of utilization found in Indonesia, where between 77% and 91% of households reported at least one visit to a health worker for illness care in the previous 18 months. However, similar to this study, high levels of contact through home visits (74% and 87%) were reported (9).

In the present study there were 1110 family members with illness in the two weeks prior to study period. From these only 15 were treated or seen by a CHA. This very low figure could be probably due to the shortage of drugs seen in most of the CHSs that are present in the Awraja (1).

There were 652 deliveries, in the study population, in the year prior to the study period. From this, only 1 and 157 (24.1%) deliveries were attended and registered, respectively, by CHAs. This very low figure was probably due to the lack of awareness of the services by the study population. Another, but less important, reason was the lack of stationery possessed by most CHAs (1).

In general, it was found that the most used services, health education and home visit (environmental health activity), were the one most known by the community and the least used were the least known.

In this study, it was found that the following variables were associated with utilization of CHA services, in order of importance: positive attitude towards CHAs and their services, knowledge about CHA and CHS, and participation in the selection and in related matters. Because the association was only correlational, it is not clear whether attitude and knowledge are determinants or consequences of utilization.

CONCLUSIONS AND RECOMMENDATIONS

The study findings have revealed that CHAs are well utilized, particularly in areas of health education and environmental health activities.

Utilizers of CHA services were significantly different from non-utilizers in that utilizers are more likely:

- to have a positive attitude towards CHAs and their services
- to have better understanding and knowledge about the CHAs and CHSs
- to have better education
- to have participated in the selection process and in related matters.

Based on the results of the study the following recommendations were made:

1. Sensitizing the community about the concept, the role of CHAs and their responsibility in the program. This sensitization of the community should be a continuous process and aim to achieve a positive attitude of the community towards the program and the CHW.
2. If the situation allows, it is better to give priority to train CHAs in PPCAs than in PAs.
3. It is better to defer training a CHA if one is not guaranteed other related factors such as community awareness and attitude.
4. Continuous evaluation of the program and operational research in the area of CHS are important.

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22. Do you/or your family member ever get services in the past year from the CHA?

1. No, Why? _____
2. Yes, what service? _____
for whom? _____
when? _____

(If the answer is "No" go to question number 24)

23. Were you satisfied with the service you got?

1. Yes
2. No

24. Are there drugs for use by the CHA?

1. Yes
2. No
3. I don't know

(If the answer is "either "no" or "I don't know" go to question No. 26).

25. Who provides the money to buy the drugs? _____

26. Who do you think should provide money for buying drugs? _____

27. Did the CHA get rewarded for his service?

1. Yes
2. No
3. I don't know

(If the answer is "yes" go to question 28, If "no" to question 29 and if "I don't know" to question 30)

28. If yes, from where? _____

29. If No, why not? _____

30. Whom do you believe should reward the CHA? _____

31. If you asked to reward him/her, are you willing to do so?

1. No
2. Yes, how much? _____
or in what way? _____

32. Do you think the CHA is beneficial/helpful in improving the health status of your community?

1. No
2. Yes

33. Who selected the CHA?

1. I don't know
2. I know _____ (specify)
Where you/your family members participated
 - 2.1. Yes
 - 2.2. No

34. Did the CHA visited your home in the past year for health activities?

1. No
2. Yes, for what? _____
when was his last visit? _____

35. Did the CHA gave health education in the past year?

1. Yes
2. No

(If the answer is "No" go to question No. 37)

36. Have you/or your family members attended?

1. Yes
2. No

37. Did the CHA have problems in delivering the service?

1. No
2. Yes, what 1 _____
 2. _____
 3. _____

(If the answer is "No" go to question number 39)

38. Did the community discussed the problem(s)?

1. No
2. Yes, where you or your family members participated?
 - 2.1. No
 - 2.2. Yes

39. Do you think that the CHA is the right person for the service?

1. No
2. Yes

40. Do you have any suggestions that you believe would improve your community health service?

1. _____
2. _____
3. _____
4. _____

DECLARATION

I, the undersigned, declare that this thesis is my work and that all sources of material used for this thesis have been duly acknowledged.

Name Seid Mohammed, M.D.

Signature

M

Place Addis Ababa, Ethiopia

Date of Submission April 1989
