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Special issue

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DEVELOPING A MODEL WOREDA TO GENERATE BASELINE DATA AND ESTABLISH CONTINUOUS REGISTRATION OF VITAL EVENTS IN CHEHA WOREDA, GURAGE ZONE

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DEVELOPING A MODEL WOREDA TO GENERATE BASELINE DATA AND ESTABLISH CONTINUOUS REGISTRATION OF VITAL EVENTS IN CHEHA WOREDA, GURAGE ZONE

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ABSTRACT

BACKGROUND: *There is lack of a sound data generating system at community level that could lend itself to proper planning and management. In light of this the project was launched with the main purpose to develop a model that could serve for generating vital events and relevant biosocial variables at Woreda level.*

METHODS: *The de jure scheme of enumeration that included all households and residents of the selected kebeles was employed. The baseline data and continuous registration of births, deaths and migration at kebele level were collected by trained community health workers.*

RESULTS: *In this project a total of 42,731 people 20,715 (48.5%) males and 22,016 (51.5%) females in 9,949 households were censused from 28 May to 25 June 2000. The population pyramid showed an indented base for the under five-age group. The population distribution was 16.4% in Dega, 64.1% in Woyina Dega and 19.5% in Kolla climatic zones. The major ethnic group was Gurage (98.5%) and the major religions were Orthodox Christians (42.4%) and Muslim (41.9%). The illiteracy rate for people 7 years and above was 57.9% and the main occupations of the population were farming (23.6%), housewife (27.3%), students (19.6%) and merchant (6.5%). The crude birth, general fertility and total fertility rates were estimated to be 27.4, 110.7 and 3.9 respectively. Data on mortality indicated that the crude death, infant and under five mortality rates were 14.4, 70.0 and 120.4 respectively and in a two weeks recall period the perceived morbidity rate was 4.9%. A regular vital events registration system is established by using the existing community and government infrastructures at the grass-root and woreda levels within existing systems.*

CONCLUSION: *The findings showed that the study communities were characterized by low fertility, mortality and morbidity rates compared to that of the regional and national values. During phase two data or vital events is being continuously collected starting right after the completion of the census to measure the change in population. The new initiative of using the data generated at the grass-root level by community health workers and then passing it to the next level has motivated all involved to keep-up the regular data generating system.*

Key words: Baseline data, Vital Events, Community Health Workers, Model Woreda

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1. INTRODUCTION

Health information systems involve the process of data collection, analysis, presentation and utilization of data by the health personnel engaged in the management and provision of health care services. Health information serves as the basis for rational policy making, planning and managing the overall health system.

Without a sound information system, good planning is impossible. Where there is no planning, there will be problems in the utilization and allocation of meager resources. The development of proper health planning within the health system requires a well-organized health information system.

To realize the above-mentioned aim of the health information system the availability of data on the population along with the vital events, which are the dynamic of population, is required. It is known that vital event registration is non-existent in this country. For this purpose there is a need to develop a model that could serve for generating vital events and relevant biosocial variables.

In the implementation of PHC activities, the district plays an important role between the government and communities in the overall socio-economic development. This is the level where health workers, other sectors and the community work together to improve the lives of society. But there is lack of a sound data generating system at this level that could lend itself for proper planning and management.

Considering the network of Community Health Workers (CHW), there is a potential to carryout continuously generating vital events information in a sustainable manner. This initiative needs the commitment and support of the community, health and other sectors. Attention should also be paid to the different data collection formats and initiation of the use of the data generated at each level of the health care system. Formats should be designed to collect minimum essential data and should also be flexible to be of use by other sectors with common consent and responsibility.

Hence, generating data using the existing community and governmental structures is by far the most important activity ever needed in the country's health care system. Therefore, the objectives of this project were:

1. To carryout mapping of study areas, numbering of houses and a census in the selected kebeles of Cheha woreda.
2. To establish a vital events registration system using community and government structures at kebele and woreda level.
3. To provide a baseline population and sampling frame on other health and health related biosocial data for planning and research activities.

Background

Southern Nations Nationalities and Peoples Region (SNNPR) is found in the southern and central part of the country and divided into nine administrative zones. According to the 1994 population and housing census (1) the population was 10,377,028 of which 93.2% are living in rural areas. Of the total population the male and female sex ratio was 99.0%. According to the reported data of the census of the region, crude birth rate, general fertility and total fertility rates were estimated to be 30.0, 127.4 and 4.3, respectively. On the other hand infant and under-five-mortality rates were 128 and 189 per 1000 live births, respectively with a life expectancy at birth of 50 years.

Gurage zone is found in the Southern Nations Nationalities and Peoples Regional State and in the central part of the country. Administratively it is divided into 11 districts with 22 urban and 366 rural kebeles. According to the 1994 population and housing census (1) report, it had an estimated population of 1,556,964 that was 15.0% of the population of the region. The majority of the population (95.1%) of the zone lives in rural areas. The Sex ratio of the zone was about 94.3 percent; 13.9 and 24.7 percent of the population were children under 5 and women 15-49 years of age respectively. The estimated total households were 327,145 with an average household size of 4.7 persons. In addition according to the report, the crude birth rate, general and total fertility rates were estimated to be 27.1, 110.2 and 3.9. The estimated infant and under five mortality rates were 145 and 218 and life expectancy at birth was 45.6 years, 44.1 for males and 47.2 for females.

Again according to the 1994 population and housing census report, the population of Cheha woreda was 115,864 of which 96.8% live in rural areas and sex ratio was 94.5.

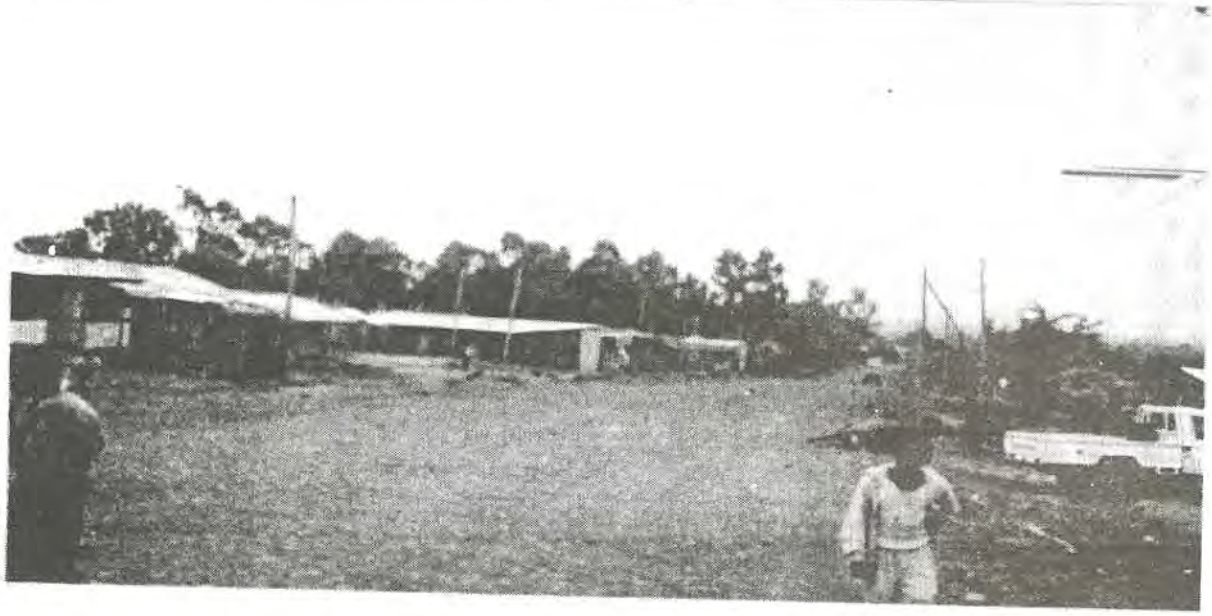
Based on the reports of the Gurage Zonal Health Department, the climate of the zone varied from 'Dega' to 'Kolla' with altitude ranging from 1,000 to 3,600 m above sea level. Health service coverage of the zone was about 44%. In the zone there was one hospital, 16 health centers, 32 health stations and 134 health posts. There were 311 different health personnel, 361 community health agents and 327 traditional birth attendants.

2. METHODS

Study Design and Area

The de jure scheme of enumeration was employed and all the characteristics of population census were observed as a basis to establish regular vital events registration system at the grassroots (kebele) level.

The study was conducted in 14 selected pilot kebeles (12 rural and 2 urban) of the total 37 kebeles. The selection of these kebeles was based on a minimum sample requirement of 10,000 households and about 50,000 population (2), taking into consideration the geography, climate, and urban and rural proportional representation of the district.



Partial View of Emdibir Town

Partial View of Yeworehe Jefforo, Yefeke Terek Endebera Kebele

Study population

The study population comprised 14 pilot kebeles from Cheha district of Gurage Zone. During the selection of the district climate, urban-rural setting, presence of community health workers and accessibility were considered. For the selection of the study communities the following were considered: about 90% of the study populations were from rural areas; 24.3%, 59.5% and 16.2% were from Dega, Woyina Dega and Kolla climate areas, respectively.

Organization

The project was organized in two phases. In phase I, the main focus was to conduct house numbering, mapping and a census of the population and collect data on some basic demographic indicators. While phase II is to generate vital events in a continuous manner and to collect cross-sectional or longitudinal biosocial data.

During phase I of the project, duties and responsibilities were organized in the following manner to carry out the activities effectively and efficiently.

1. A team of three principal investigators from Jimma University to:
   - 1.1. Co-ordinate the overall project
   - 1.2. Orient health staff of hospital, health centers and health stations
   - 1.3. Insure data quality by onsite supervision and random crosschecks
   - 1.4. Make sure the activities are within the time schedule
   - 1.5. Train data collectors, supervisors and the data encoder
   - 1.6. To provide overall supervision support and census data compilation and analysis
   - 1.7. Prepare activity report for the different partners
2. A team of two co-investigators from Gurage ZHD
   - 2.1 Involved in recruiting CHAs, supervisors and a data encoder
   - 2.2 Secure supplies and other logistics for training and data collection
   - 2.3 Secure funds for training and data collection
   - 2.4 Arrange transport for principal investigators and insure its availability during training and data collection
   - 2.5 Insure activities are within the time schedule
   - 2.6 Supervise Cheha Woreda Health Office and supervisors
   - 2.7 Coordinate activities within the zone
   - 2.8 Insure data quality by making onsite supervision and random crosschecks
   - 2.9 Arrange facilities and supplies at the different levels to establish the vital events registration system
3. Supervisors from Woreda Health Office (WHO) comprised a team of five members from Cheha Woreda Health Office was responsible for:
   - 3.1 Recruiting data collectors
   - 3.2 Insuring that the activities are within the time schedule
   - 3.3 Solving problems faced during training, house numbering and data collection
   - 3.4 Arrange transport for data collection
   - 3.5 Supervising enumerators
   - 3.6 Insuring data quality by onsite supervision and random crosschecks
4. Data encoder from ZHD:
   - 4.1 Enter data into computer
   - 4.2 Insure data quality
   - 4.3 Insure safety of completed data collection formats and electronic data files

tested at field level. The formats and registration book were prepared in Amharic. The formats were introduced and practiced by the data collectors and supervisors during the five days main and two days refresher training periods. Restructuring of some items was made to fit the community's norms; such variables were " income " and "ethnicity".

Data collection

Trained CHWs carried out a census to get baseline data on socio-demographic variables, births and deaths during the last one year prior to the census and morbidity patterns during the last two weeks by making house-to-house visits from 28 May to 25 June 2000. Three enumerators were assigned per kebele in five kebeles with two enumerators per kebele in the rest. Four supervisors were responsible for three kebeles each (6-8 enumerators) except one who was responsible for two nearby kebeles (5 enumerators) and responsible for the distribution of supplies to the rest of the supervisors. As the population sizes vary from kebele to kebele, to complete the census within one month, those enumerators who completed their work early were moved to the other kebeles to assist data collection.

Community Health Workers and supervisors who participated in the data collection

The completed data collection formats were handled with care by enumerators using canvas bags for carrying. Supervisors collected the completed data every other day for checking and storage at the Woreda Health Office. Incomplete and/or inconsistent data were returned to the respective enumerators for completion and clarification. The data were transported to ZHD for computer entry and for further checks and management. The ZHD served as a center for data entry and management on a temporary basis due to resource (trained human power and material) constraints at the WHO level.

The continuous registration of vital events such as births, deaths and migration is being undertaken by resident CHWs at

the selected kebele in Phase II where the same data collection instruments were employed for birth and death as the census with the addition of the migration formats.

Materials and equipment

The following material resources were used during house numbering and data collection.

1. Transportation: four wheel drive cars and motor cycles
2. Stationery: duplicating and typing papers, folders, writing pads, ball pens, markers
3. Canvas bags for supervisors and data collectors
4. Computer, printer and accessories
5. Data storage: room and shelf
6. Mapping and house numbering: graph paper, ink and brushes
7. Cardboard boxes

Supervisory support

I. Supervisors at field level

Each supervisor visited his respective enumerators assigned in the kebeles. The supervision included:

a) replenishing data collection formats
b) following any interruption of the data collection process due to individual problems or otherwise
c) checking for skipped houses during house numbering
d) following rate of enumeration on daily basis by each enumerator
e) collecting of completed formats every other day and checking for completeness and consistency of data
f) randomly attending data collection sessions of enumerators and making random checks on completed formats

II. Supervision by investigators

One of the co-investigators from Gurage Zonal Health Department was assigned to monitor the process continuously during the census period basing at Emdibir, the capital of Cheha woreda. He was continuously replenishing the data collection formats and took corrective measures when problems arose. Principal investigators were supervising the process at the launch (first week) and the final (the last one-week) period of data collection period. They checked the rate of enumeration during these two periods and found that on average ten households were enumerated per day per enumerator in the first two days which gradually increased to 15-20 households per day per enumerator depending on family size.

The activities of supervisors were assessed and found to be improving markedly in the first few days. Supervisors' frequency of contact with enumerators was as planned. Principal investigators contacted most enumerators if not all at their respective kebeles. Problems encountered during data collection were discussed and appropriate measures were taken in the first visit. There were very minimal problems seen in the enumeration process during the last week of data collection since most of the corrections were made in the first week. In addition investigators randomly attended data collection session on enumerators and made random checks of completed formats.

Data management and quality control

Each completed data collection format was given a house number that was identified as 'OR' followed by discrete numbers neither repeated nor skipped within one kebele. There were very few exceptions of repeated

house numbers; in the case of two or more households in one house these were differentiated by consecutive letters of the English alphabet and the skipped ones identified as skipped numbers on the special notebook. Family identification numbers were assigned by the principal investigator to each kebele on the basis of number of houses identified during house-numbering with some additional contingency numbers. Each household and family member has its own unique identification number for further matching of the data with respect to the different data generated in the vital events registration system and other study projects.

As mentioned above, the quality of the data was controlled at three levels for completeness and consistency: at the time of data collection by community health workers, district health office staffs and the data entry clerk. Specifically during computer data cleaning, frequency tables, ranges of variables and cross tabulations were used and cross-checked with the collected data files using the family identification numbers with kebele and house numbers. The computer data cleaning and edition were made by the principal investigators in collaboration with co-investigators and data entry clerks at the Zonal Health Department. Whenever an error was found during data entry, formats were returned to respective supervisors for timely rechecking and correction with the data collectors.

The completed formats were classified according to kebele and family identification number and after entered into computer shelved in a room where data entry was conducted at the Zonal Health Department till they move to the District for permanent storage. At a regular time interval, the data entry clerk has to make a backup of electronic data files in three places on floppy diskettes – these were Jimma University, ZHD and WHO to prevent losses.

Data processing and analysis

The census data were entered into the computer continuously during and right after data collection by the project data encoder at zonal level where the computer was available and data collection formats were shelved, using SPSS version 4 Data Entry 2 package. The data entry took three and a half months. After the data entry, appropriate data cleaning and edition and the necessary data compilation and analysis were made using SPSS version 7.5 for windows by principal investigators in collaboration with the co-investigators and data encoder. Appropriate tables, graphs, ratios and rates were computed and presented.

3. RESULTS

Before launching the actual census the 14 kebeles were mapped and a total of 9,949 houses were numbered by woreda health office staffs and community health workers in collaboration with staff from the Zonal Health Department. In the 12 rural kebeles, there were 120 villages with an average of 10 villages per kebele ranging from 5 to 16. The average number of households was 710 per kebele and 302 per CHW.

The Census of the population in 14 kebeles (12 rural and 2 urban with two 'Dega', nine 'Woyina Dega' and three 'Kolla' climatic zones) using the dejure scheme of enumeration was conducted from 28 May to 25 June 2000 in Cheha Woreda Gurage Zone. During the census, data on socio-demographic, fertility, mortality and morbidity were collected.

3.1. Socio-Demographic Characteristics

The total counted population of the study kebeles was 42,731 of which 20,715 (48.5%) were males and 22,016 (51.5%) were females with a sex ratio of 94.0 residing in 9,949 housing units that gave an average household size of 4.3 (SD=1.9) persons. Out of the total population 6,092 (14.3%) were children below the age of five years and the population 65 and above years of age was 1,075 (2.7%) and. the dependency ratio was calculated to be 84.8. In addition women of childbearing age constituted 10,578 (24.8%) of the total population (fig. 3.1.1). The child woman ratio was calculated to be 48 children 1-4 years of age to 100 women of childbearing age.

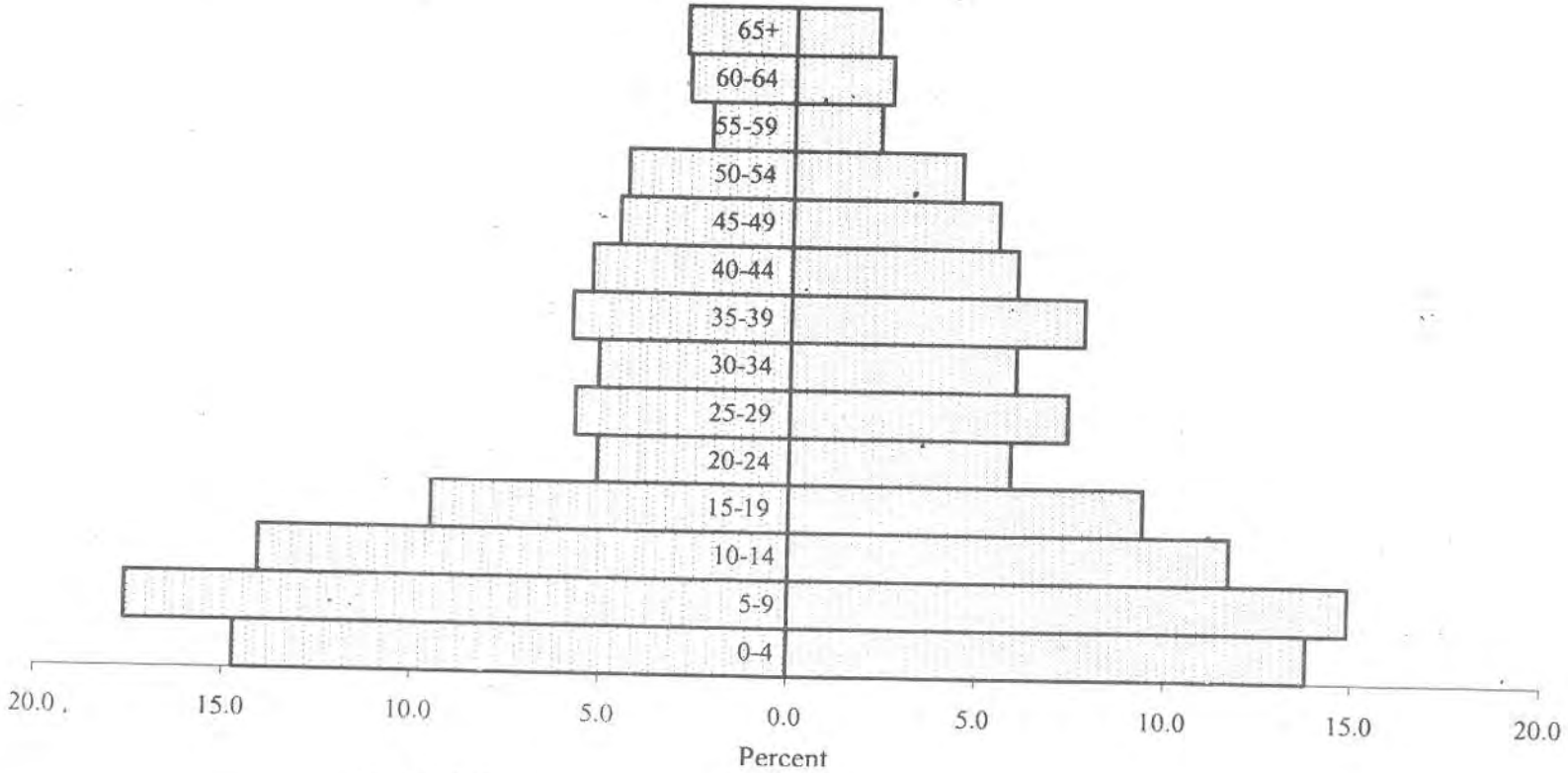


Fig. 3.1.1. Population pyramid of the study Kebeles', Cheha Woreda, Gurage Zone, June 2000

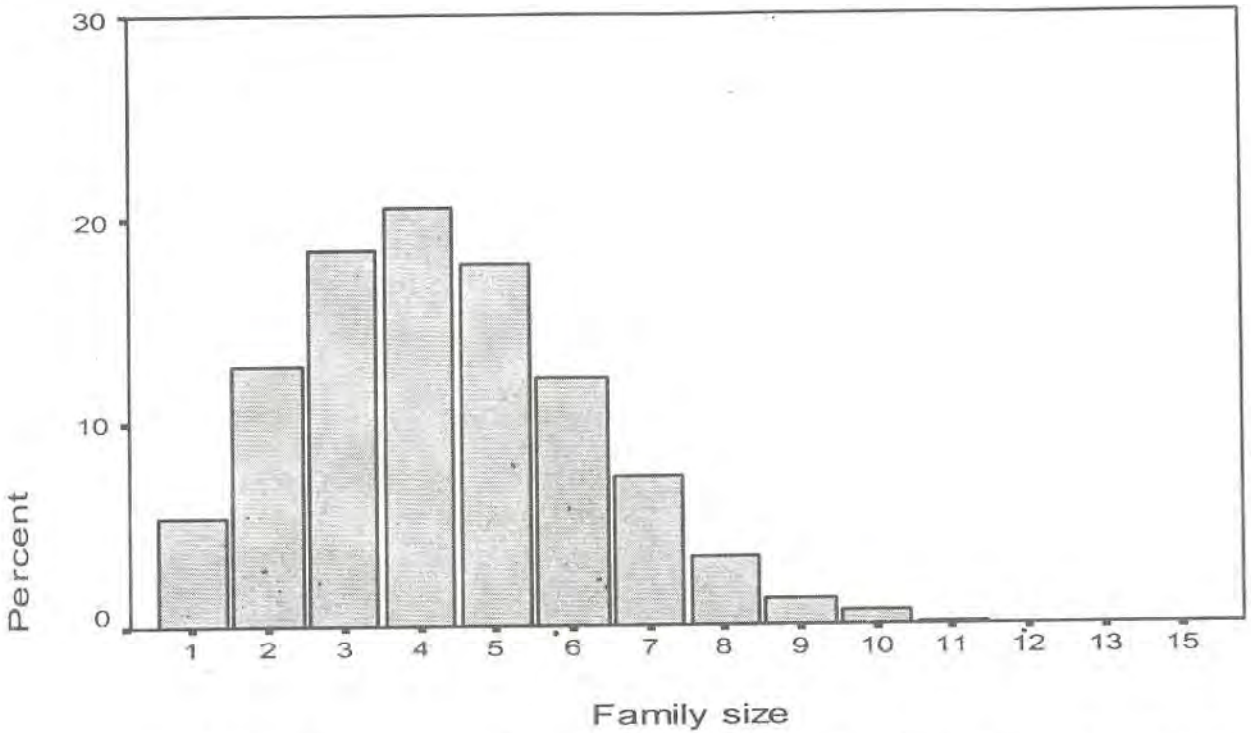


Fig. 3.1.2. Distribution of family size, Cheha Woreda, Gurage zone, June 2000

Female-headed households constituted 23.5% of the families, 26.0% were extended families –families who lived with other relatives and non-relatives in addition to parents and children. Regarding basic socio-demographic characteristics, 98.5% of the population were Gurage by ethnic group, 42.4 and 41.9% of the population were orthodox Christians and Muslims by religion (table 3.1.1).

Regarding literacy status 57.9% of the population aged 7 years and above was illiterate. Concerning marital status of the population aged 10 years and above, the data revealed that 48.5% were currently married and 8.4% were widowed. Of the married men, 5.6% had two or more wives at the time of the census. Concerning their occupation, 27.3%, 23.6% and 19.6% were housewives, farmers and students respectively (table 3.1.2).

The 14 kebeles included in the census were divided into urban and rural setting and climatic zones as Dega, Woyina Dega and Kolla. The distribution of the population by residence showed that 10.6% of the population were from urban areas and 16.4%, 64.1% and 19.5% were from Dega, Woyina Dega and Kolla climatic zone kebeles (table 3.1.3).

Table 3.1.1. Relationship to head of household, ethnic group and religion of study population, Cheha Woreda, Gurage Zone, June 2000

	Sex				Total	
	Male		Female			
	No.	%	No.	%	No.	%
Relationship to head of household						
Head	7,608	36.7	2,341	10.6	9,949	23.3
Spouse	60	0.3	6,806	30.9	6,866	16.1
Son/daughter	11,548	55.7	10,393	47.3	21,941	51.3
Brother/Sister	337	1.6	422	1.9	759	1.8
Parent	24	0.1	620	2.8	644	1.5
Other relative	929	4.5	1,101	5.0	2,030	4.8
Non relative	231	1.1	309	1.4	540	1.3
Total	20,737	100.0	21,992	100.0	42,729	100.0
Ethnic group						
Gurage	20,430	98.5	21,641	98.4	42,071	98.5
Others	307	1.5	353	1.6	660	1.5
Total	20,737	100.0	21,994	100.0	42,731	100.0
Religion						
Orthodox Christian	8,731	42.1	9,379	42.6	18,110	42.4
Muslim	8,826	42.6	9,091	41.3	17,917	41.9
Protestant	1,865	9.0	2,034	9.2	3,899	9.1
Catholic	1,312	6.3	1,488	6.8	2,800	6.6
Total	20,734	100.0	21,992	100.0	42,726	100.0

Table 3.1.2. Educational level, marital and occupational status of study population, Cheha Woreda, Gurage Zone, June 2000

	Sex					
	Male		Female		Total	
	No.	%	No.	%	No.	%
Educational level						
Illiterate	6,791	42.0	12,744	72.7	19,535	57.9
Literate (1-3 grade)	3,731	23.1	2,260	12.9	5,991	17.8
4 – 6 grade	2,571	15.9	1,152	6.6	3,723	11.0
7 – 8 grade	1,427	8.8	737	4.2	2,164	6.4
9 – 10 grade	534	3.3	265	1.5	799	2.4
11 – 12 grade	773	4.8	276	1.6	1,049	3.1
Higher education	352	2.2	107	0.6	459	1.4
Total	16,179	100.0	17,541	100.0	33,720	100.0
Marital status						
Married	6,973	49.8	7,407	47.3	14,380	48.5
Single	6,725	48.0	5,435	34.7	12,160	41.0
Divorced	166	1.2	477	3.0	643	2.2
Widowed	151	1.1	2,341	14.9	2,492	8.4
Total	14,015	100.0	15,660	100.0	29,675	100.0
Occupational status						
Housewife			8,107	51.2	8,107	27.3
Farmer	6,676	47.5	325	2.1	7,001	23.6
Students	3,601	25.6	2,215	14.1	5,816	19.6
Unemployed	1,249	8.9	1,576	10.1	2,825	9.5
Merchant	857	6.1	1,076	6.9	1,933	6.5
Civil servant	418	3.0	151	1.0	569	1.9
Other	530	3.8	487	3.1	1,017	3.4
Unspecified	696	5.0	1,763	11.2	2,459	8.3
Total	14,027	100.0	15,700	100.0	29,727	100.0

Table 3.1.3. Distribution of population, households and average family size by residence and climatic zones, Cheha Woreda, Gurage Zone, June 2000

	Total Population (%)	Total Households (%)	Average Family Size (SD)
Residence			
Urban	4,526 (10.6)	999 (10.0)	4.5 (2.5)
Rural	38,205 (89.4)	8,950 (90.0)	4.3 (1.8)
Climatic zones			
Dega	7,004 (16.4)	1,571 (15.8)	4.5 (1.8)
Woyina Dega	27,397 (64.1)	6,315 (63.5)	4.3 (2.0)
Kolla	8,330 (19.5)	2,063 (20.7)	4.0 (1.8)
Total	**42,731**	**9,949**	**4.3 (1.9)**

3.2. Fertility

Data on current fertility was obtained by asking, "Did you have a live birth during the last twelve months prior to the census day?" Based on the question asked about the number of births given in the year preceding the census day, reported fertility measures were computed.

The crude birth rate (CBR) refers to the total number of live births occurring in a year per 1000 mid-year population. The general fertility rate (GFR) is defined as the number of live births occurring in a given year per 1000 women of childbearing age (i.e. women aged 15-49 years). The total fertility rate (TFR), that takes into account the age structure of the female population, refers to the number of children a woman is likely to reproduce at the end of her reproductive period given the current age specific fertility rate (ASFR).

During the one-year period a total of 1,171 live births were reported that gave a crude birth rate of 27.4 per 1000 population. The general fertility rate was 110.7 per 1000 women of childbearing age and an estimated total fertility rate of 3.9 children per woman. The age specific fertility rates of women varied from 14.7 per 1000 per year for the older women (45-49 years of age) and 241.0 per 1000 for women in the age group of 25-29 years.

Fertility rates by residence indicated a crude birth rate, general and total fertility rates of 24.7 and 96.1 per 1000 and 3.0 for urban and 27.7 and 112.5 per 1000 and 4.1 for rural areas, respectively (fig. 3.2.1 and table 3.2.1). Whereas these rates by climatic zone indicated that the crude birth rate varied between 26.9 per 1000 for Woyina Dega kebeles and 28.6 per 1000 for Dega kebeles. Whereas the general fertility rates were 120.8, 107.4 and 114.1 per 1000 women of child bearing age for Dega, Woyina Dega and Kolla kebeles respectively. Concerning total fertility rates it was about 4.5, 3.8 and 4.1 per woman for Dega, Woyina Dega and Kolla kebeles respectively (fig. 3.2.2 and table 3.2.2).

Only 10.9% of the deliveries were conducted in health institutions – hospitals, health centers or clinic and most of the deliveries, 86.8% were home deliveries. Concerning attendant of deliveries only 20.8% were attended by trained personnel – health personnel and trained traditional birth attendants.

Table 3.1.3. Distribution of population, households and average family size by residence and climatic zones, Cheha Woreda, Gurage Zone, June 2000

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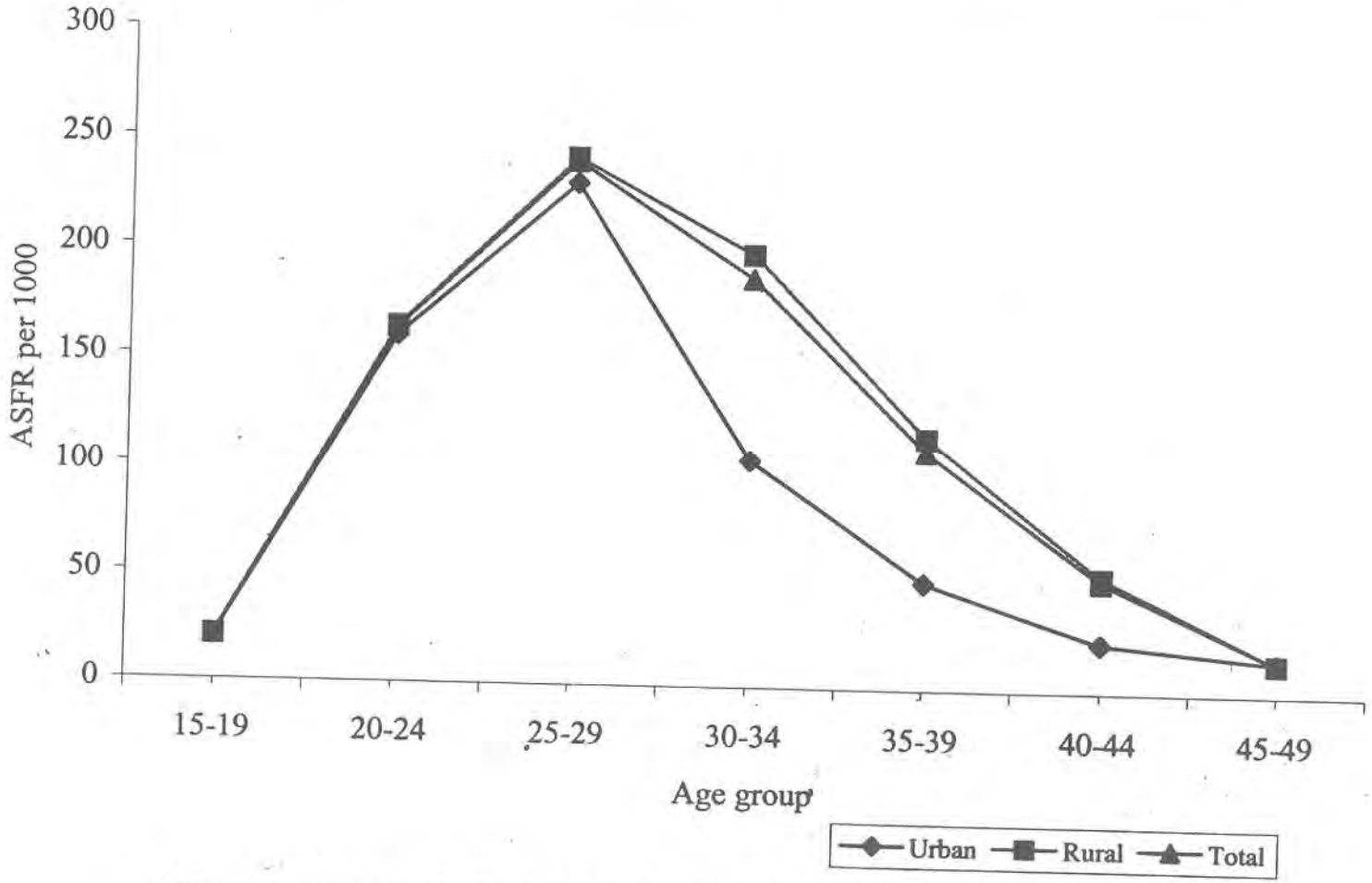

Fig. 3.2.1. Age specific fertility rates by residence, Cheha Woreda, Gurage Zone, June 2000

Table 3.2.1. Fertility rates by women's age and residential area of study kebeles, Cheha Woreda, Gurage Zone, June 2000

	Urban			Rural			Total		
Age group	Women	Live births	ASFR/1000	Women	Live births	ASFR/1000	Women	Live births	ASFR/1000
15-19	294	6	20.4	1,779	37	20.8	2,073	43	20.7
20-24	194	31	159.8	1,097	180	164.1	1,291	211	163.4
25-29	208	48	230.8	1,427	346	242.5	1,635	394	241.0
30-34	153	16	104.6	1,170	233	199.1	1,323	249	188.2
35-39	162	8	49.4	1,558	181	116.2	1,720	189	109.9
40-44	88	2	22.7	1,225	65	53.1	1,313	67	51.0
45-49	66	1	15.2	1,157	17	14.7	1,223	18	14.7
Total	1,165	112		9,413	1059		10,578	1,171	
CBR per 1000		24.7			27.7			27.4	
GFR per 1000		96.1			112.5			110.7	
TFR per 1000		3,014.0			4,052.0			3,945.0	

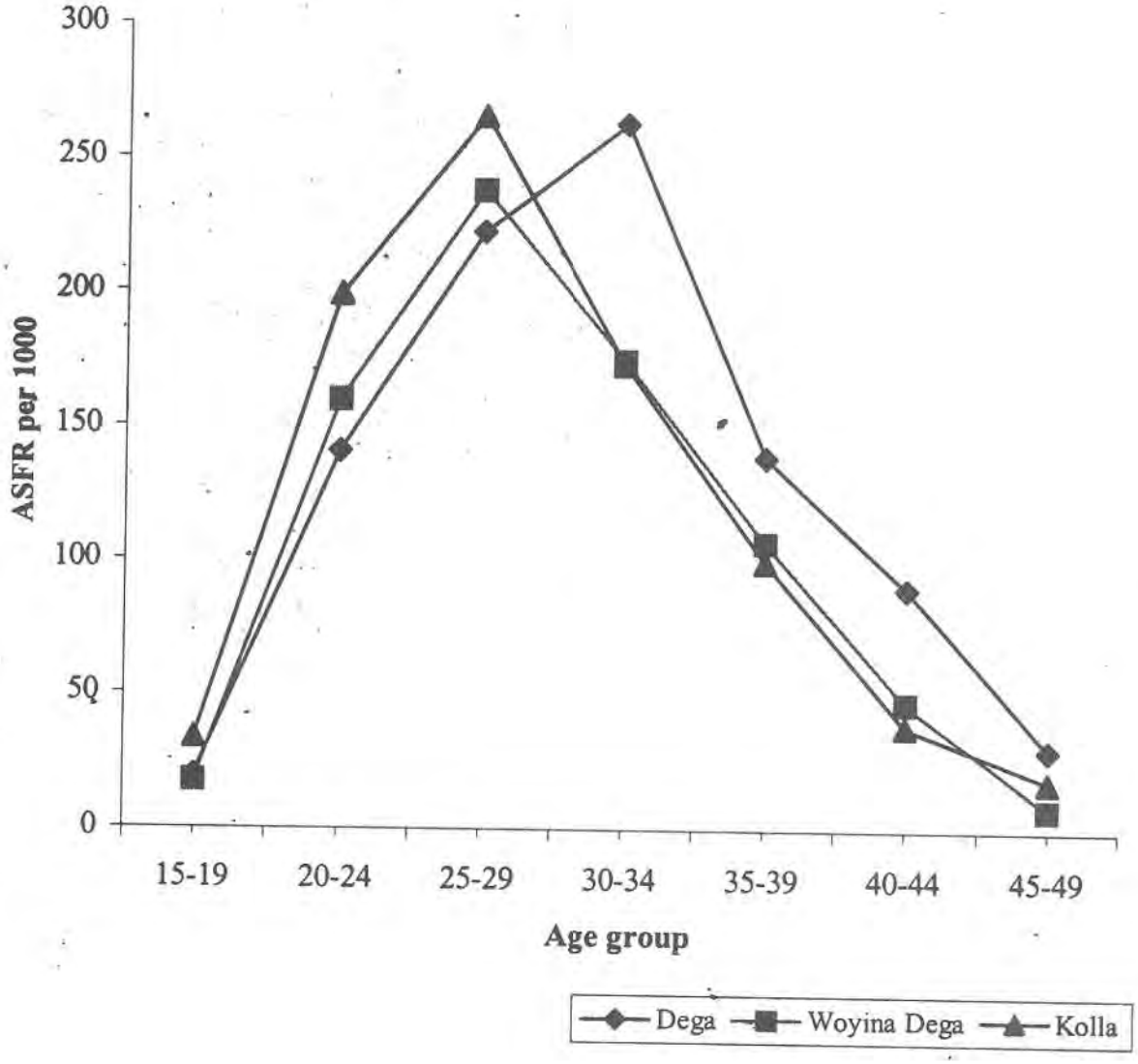

Fig. 3.2.2. Age specific fertility rates by climatic zone, Cheha Woreda, Gurage Zone, June 2000

Table 3.2.2. Fertility rates by women's age and climatic zone of study kebeles, Cheha Woreda, Gurage Zone, June 2000

	Dega			Woyina Dega			Kolla		
Age group	Women	Live births	ASFR per 1000	Women	Live births	ASFR per 1000	Women	Live births	ASFR per 1000
15-19	360	7	19.4	1,326	23	17.3	386	13	33.7
20-24	185	26	140.5	890	142	159.6	216	43	199.1
25-29	234	52	222.2	1,076	256	237.9	324	86	265.4
30-34	221	58	262.4	857	149	173.9	243	42	172.8
35-39	245	34	138.8	1,114	119	106.8	361	36	99.7
40-44	178	16	89.9	873	41	47.0	259	10	38.6
45-49	232	7	30.2	718	6	8.4	270	5	18.5
Total	1,655	200		6,854	736		2,059	235	
CBR per 1000		**28.6**			**26.9**			**28.2**	
GFR per 1000		**120.8**			**107.4**			**114.1**	
TFR per 1000		**4,517.5**			**3,754.0**			**4,139.5**	

3.3. Mortality

Based on data collected on occurrence of death in the family during the last one year prior to the census date, we found total reported deaths equaled 614 that gave a crude death rate (CDR), that measures the rate of death in the general population, of 14.4 per 1000 population per year. Of the total deaths 82 occurred to those who were below the age of one year giving an infant mortality rate (IMR), the probability of dying between birth and age one per 1000 live births in the given year, of 70.0. The under five-mortality rate, the probability of dying between birth and age five years per 1000 live births, was estimated to be 120.4.

The pattern of death by age showed that the lowest age specific death rate (1.8 per 1000) was reported in the age group 5-14 while the highest (94.9 per 1000) was in the age group 65 year of age and above. The sex specific death rate was calculated to be 15.7 per 1000 for males and that of females was 13.1 per 1000 (figure 3.3.1 and table 3.3.1).

The respective crude death rate, infant and under five mortality rates for urban areas were 5.7, 53.6 and 71.4 while for rural areas these rates were 15.4, 71.8 and 125.6 (figure 3.3.2 and table 3.3.2). The mortality measures for the different climatic zones showed the respective crude death rates of 12.8, 13.2 and 19.3 per 1000 for Dega, Woyina Dega and Kolla kebeles. While infant mortality rates varied from 35.0 per 1000 live births for Dega to 93.6 per 1000 live births for Kolla kebeles and that of under five mortality rates varied between 95.0 and 161.7 from Dega to Kolla kebeles (figure 3.3.3 and table 3.3.3).

The most common perceived causes of death reported were diarrhoea/vomiting (105 (17.2%)), sudden death (99 (16.0%)), pneumonia and tuberculosis of the lung (73 (11.9%)), malaria (63 (10.2%)), and hepatitis (33 (5.3%)). In regard to place of death 546 (89.8%) occurred at home and only 45 (7.4%) occurred in health institutions.

Table 3.3.1. Age specific death rate, Cheha Woreda, Gurage Zone, June 2000

Age group	Total Population	Total Deaths	Age Specific Death Rate per 1000 population
< 1	1,013	82	80.9
1 – 4	5,079	59	11.6
5 – 14	12,443	23	1.8
15 – 29	9,209	57	6.2
30 – 49	9,909	128	12.9
50 – 64	4,001	117	29.2
65+	1,075	102	94.9
Unknown	2	46	
Total	**42,731**	**614**	**14.4**

Table 3.3.2. Crude death, infant and under five mortality rates by residence and climatic zone, Cheha Woreda, Gurage Zone, June 2000

	Population	**Deaths**	**CDR per 1000**	**IMR**	**U5MR**
Residence					
Urban	4.526	26	5.7	53.6	71.4
Rural	38,205	588	15.4	71.8	125.6
Climatic zone					
Dega	7,004	90	12.8	35.0	95.0
Woyina Dega	27,397	363	13.2	72.0	114.1
Kolla	8,330	161	19.3	93.6	161.7
Total	**42,731**	**614**	**14.4**	**70.0**	**120.4**

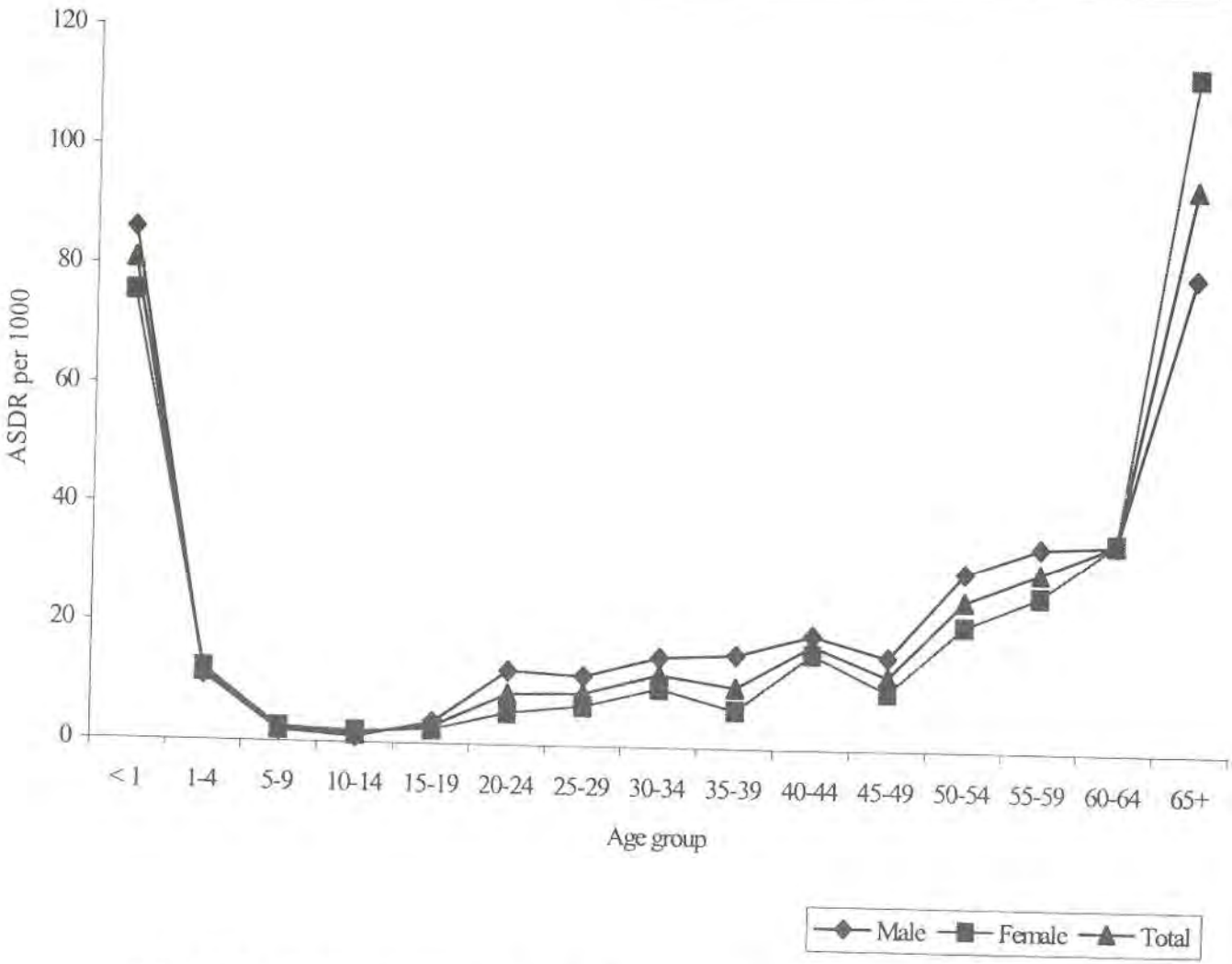

Fig. 3.3.1. Age specific death rates by sex, Cheha Woreda, Gurage Zone, June 2000

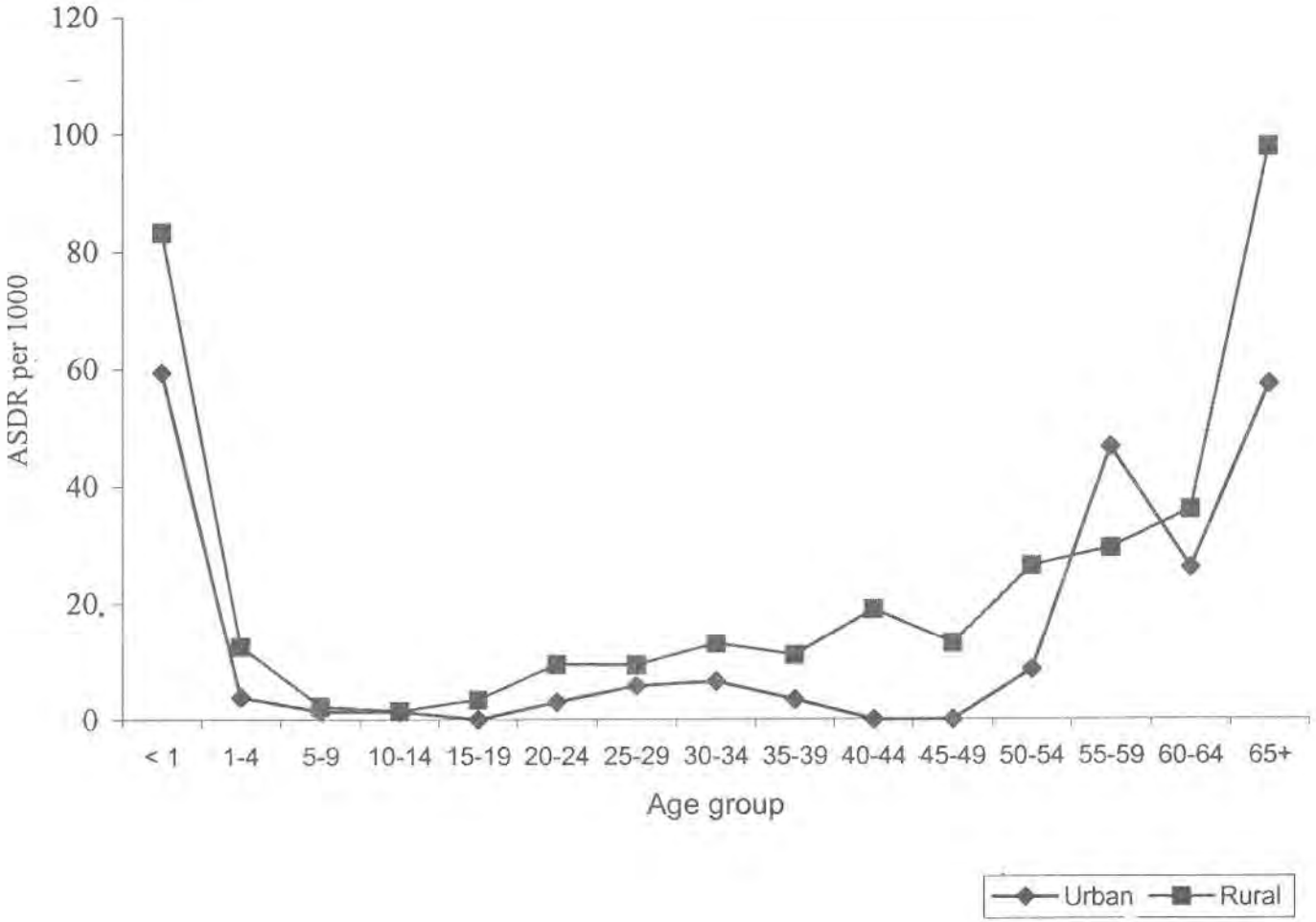

Fig 3.3.2. Age specific death rates by residence, Cheha Woreda, Gurage Zone, June 2000

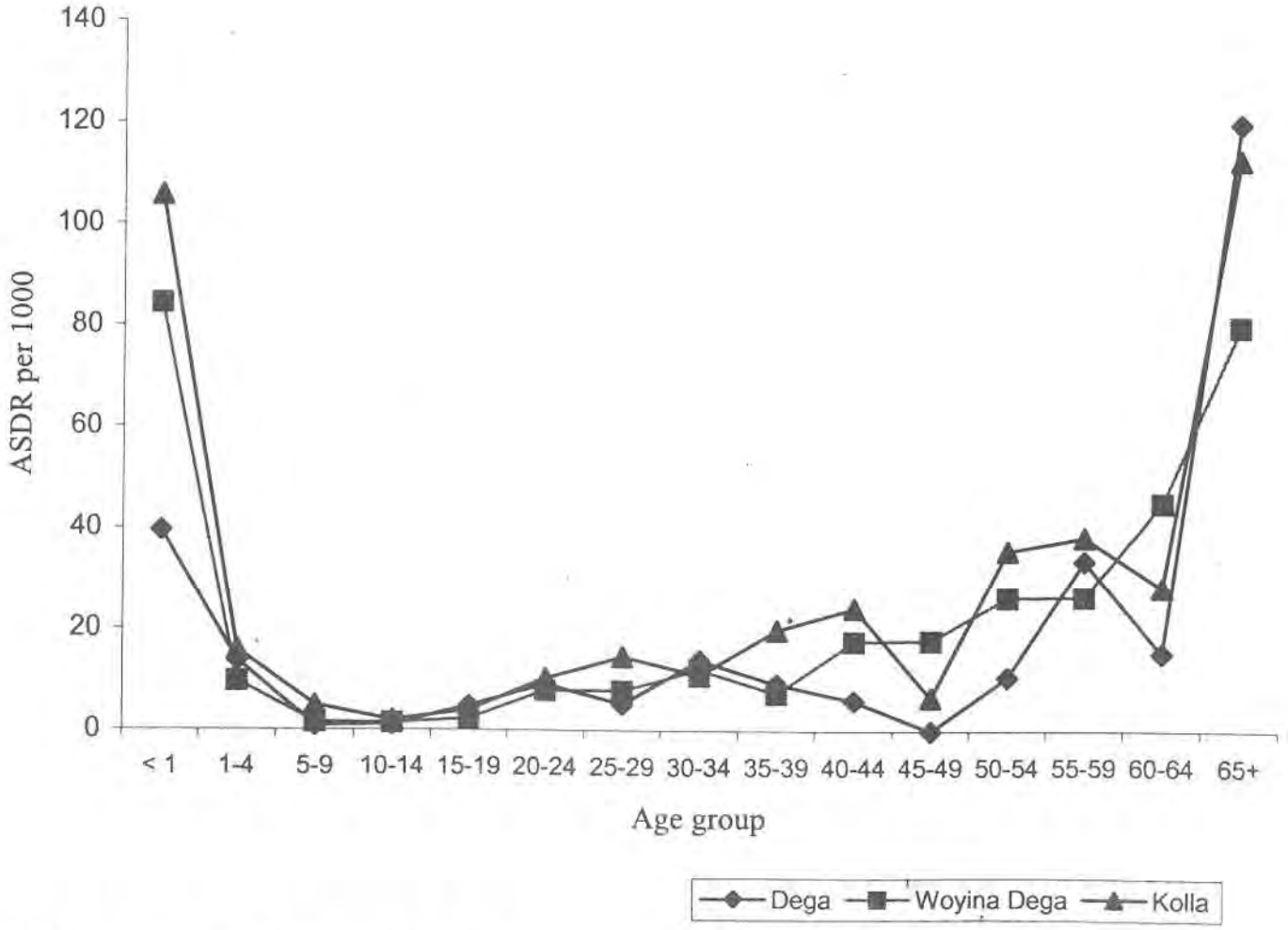

Fig 3.3.3. Age specific death rates by climatic zone, Cheha Woreda, Gurage Zone, June 2000

3.4. Morbidity

Morbidity rates were calculated based on a two weeks recall period. Accordingly, 2,105 (4.9%) individuals (997 (4.8%) males and 1,108 (5.0%) females) in 1,979 (18.1%) households were reported to be sick. Of the total sick persons 183 (4.0%) were urban and 1,922 (5.0%) were rural residents.

Morbidity patterns by climatic zones indicated that of the total households of Kolla' kebeles, 473 (22.9%). reported that there was at least one sick family member during the last two weeks, with a total of 623 (7.5%) sick individuals (table 3.4.1).

The morbidity rate by age, sex, residence and climatic zone are presented in figures 3.4.1, 3.4.2 and 3.4.3.

Concerning the type of perceived illnesses, malaria (281 (13.4%)), disease of the eye (254 (12.1%)), diarrhoea (207 (9.8%)) and headache (113 (5.4%)) were the most common illnesses reported. Of the total sick individuals 2,096 were asked whether they had any kind of help for their illness or not. Accordingly, 1,025 (48.9%) got help from health institutions and 752 (35.8%) did nothing for their illness. Concerning duration of illness or days lost from usual activity, 1,226 (58.7%) were in bed for about two weeks.

Table 3.4.1. Morbidity rates at household and population level by residence and climatic zones, Cheha Woreda, Gurage Zone, June 2000

	Households		Population	
	n	%	n	%
Residence				
Urban	166	16.6	183	4.0
Rural	1,631	18.2	1,922	5.0
Climatic zone				
Dega	161	10.3	183	2.6
Woyina Dega	1,163	18.4	1,299	4.8
Kolla	473	22.9	623	7.5
Total	1,797	18.1	2,105	4.9

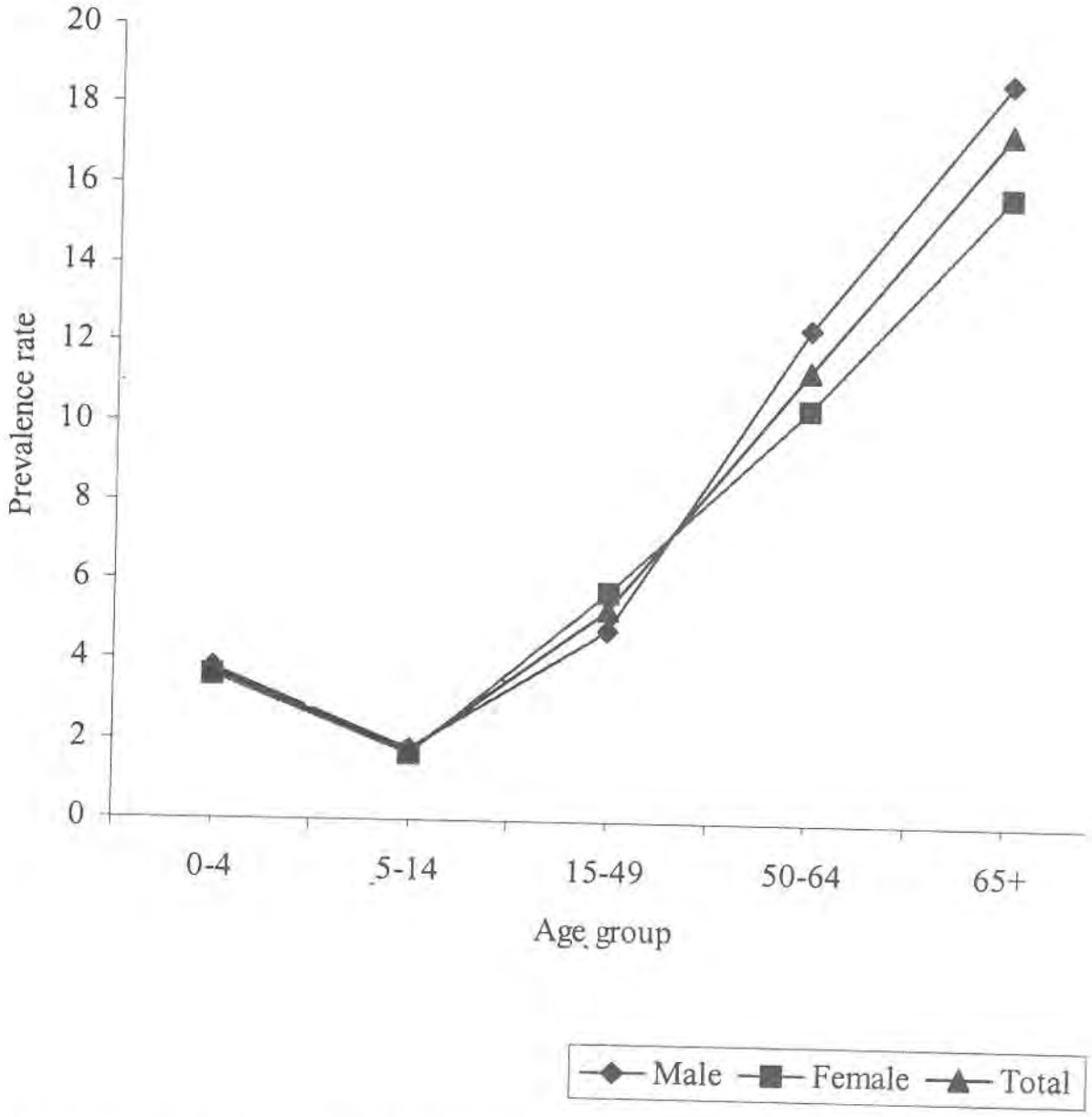

Fig 3.4.1. Two weeks recall period morbidity rates by age and sex, Cheha Woreda, Gurage Zone, June 2000

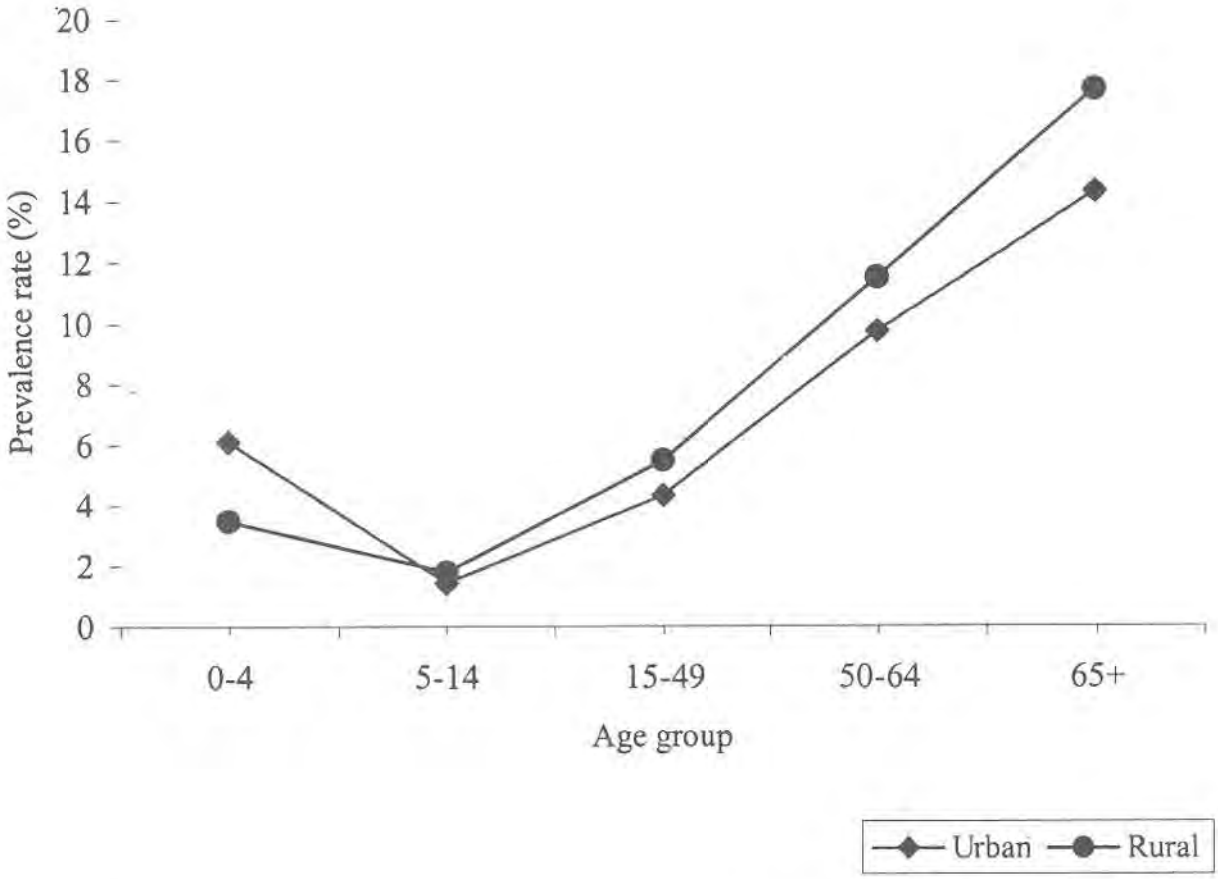

Fig 3.4.2 Two weeks recall period morbidity rates by age and residence, Cheha Woreda, Gurage Zone, June 2000

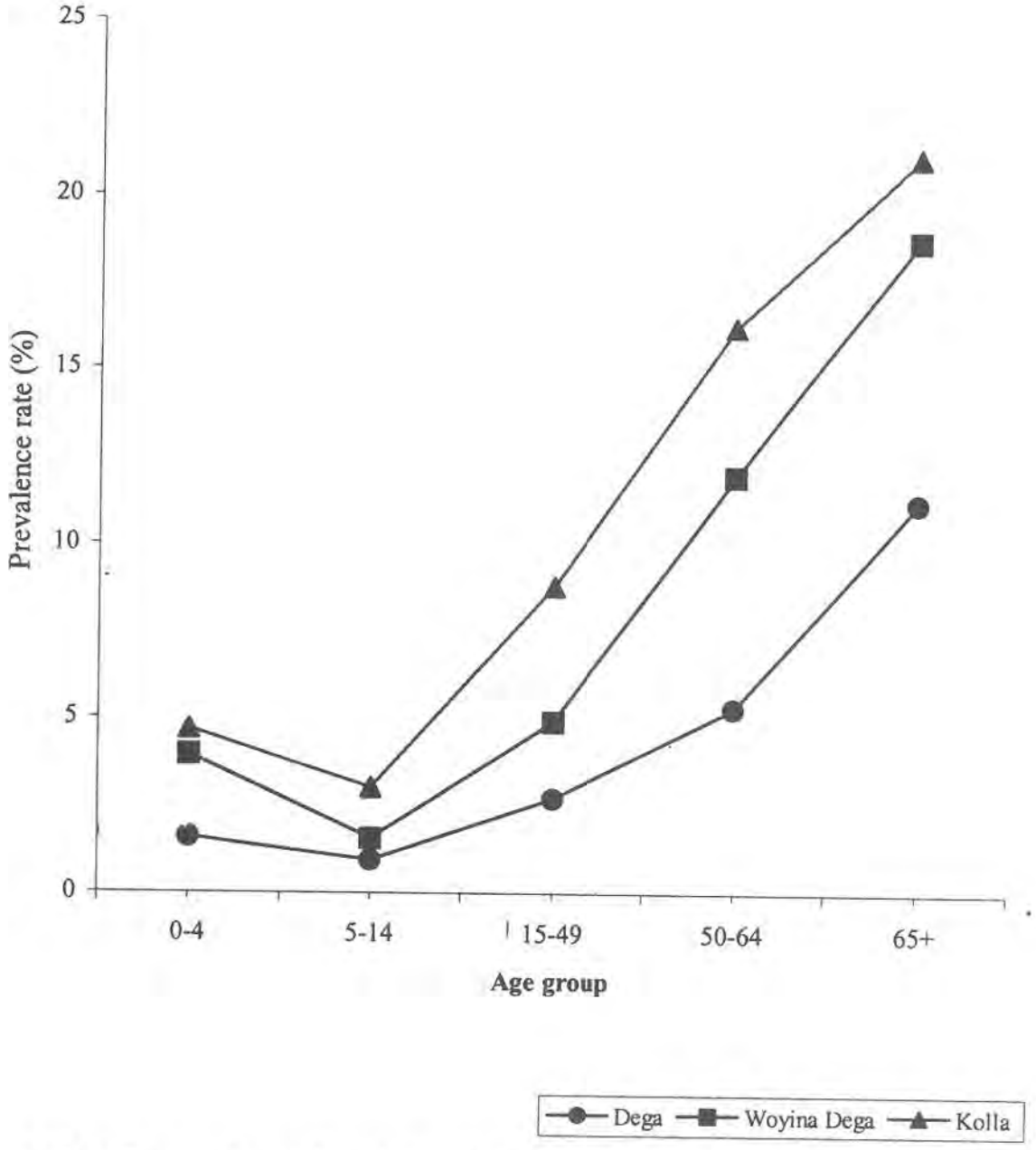

Fig 3.4.3. Two weeks recall period morbidity rates by age and climatic zone, Cheha Woreda, Gurage Zone, June 2000

3.4 Establishing a system for continuous recording of vital events

In the fourteen selected kebeles in the woreda there are CHWs like CHA, TTBA, CBD and CBMCA who are carrying out their respective health related tasks in the kebeles. The CHWs are remunerated by their respective kebeles or the woreda government structure. On the average there are two to three community health workers in each kebele. All kebeles were mapped and houses were numbered. Dwellers of each house were counted by de jure scheme and given unique identification number for follow-up and health care services. On average each community health worker is responsible for 302 houses per kebele. In the fourteen kebeles there are 122 villages and on the average in each kebele there are about 9 villages. The community health workers were trained on how to use the data they collected at their level and then pass the collected data to the next level. The census population is categorized by age group and sex. Hence, the community health workers in each kebele know their total population by sex and age breakdown. Now they are encouraged to use this data in their health care service to their level. Knowing the different population groups and numbered houses they are encouraged to plan and organize activities such as:

- EPI
- Maternal and child care services
- Environmental health care and the like

Similar data use is being encouraged at health center and WHO levels

In order to update their population count kebeles have to register vital events. For this activity they have a 'Vital Events Registration Book' consisting of some specific variables (annex 6). Events that are included in the registration are: birth, death and migration. These are the main components of change (dynamics) that are occurring in the population. For each event there is a specific format that comprises relevant information of the different events. The CHWs have an informal contact person in each village the 'Idir" (funeral association) management committee, who register death and population movement.

To register each event on time, CHWs make regular visits to each village and house each month. The vital events registration activities are being monitored by the WHO staffs through regular supervisory support. Similar support is being provided by the ZHD to WHO. Attempts are also being made to involve other development sectors to use the data being generated.

On the 24th of each month (Eth. C.) there is a regular general meeting of all CHWs from the 14 selected kebeles at WHO. During the meeting:

- each kebele will report its monthly activities
- this is followed by general discussion and experience sharing
- vital events registration book of each kebele will be checked by WHO for completeness and consistency
- replenish of supplies/formats will be made
- general remark and feedback will be made by WHO
- the general discussion minutes are recorded by a special format which incorporates activities reported, problems encountered and solutions suggested for each kebele.
- there are also four different monthly compilation formats at WHO level for the vital events (annex 7 – 10)

Currently data are being entered and stored at ZHD due to shortage of manpower and equipment at WHO. Electronic and hard copy data are also being stored there. The ZHD is working on the means to move the above responsibility and activity to the WHO.

Community Health Workers during their monthly meeting at Emdibir Health Center with Woreda Health Office Staff

Reporting system for continuous data generation

Housing unit: Respondents
Village: 'Idir' leaders and committee members
Kebele: Community health workers
Woreda: Woreda health office staffs
Zone: Zonal health office staffs

The Gurage zone health department organized a one-day workshop in June 2001 on this project to increase awareness and its use by inviting the zone and woreda councils, community representatives, different development sectors and all other stakeholders.

During phase II continuous vital events are being generated to monitor changes in population dynamics which could serve for planning and better management by all interested parties following the census.

4. Discussion

In the attempt to generate baseline data and characterize the population, this study was based on a population of 42,731 in 9,949 households from 14 kebeles. The study population was mostly from the Gurage ethnic group; almost equal proportion of Orthodox Christians and Muslims in religion, with high illiteracy and housewives, farmers and students by occupation.

Population structure: As different reports and studies indicate, the population of this study seemed in a state of change in its structure with low fertility and mortality that were reflected in the results. As indicated in the pyramid the fertility rate is in decline at least for the last five years. Though the factors for such a change need further in depth study, factors that might contribute for the decline in fertility apart from data errors that might occur, age recall bias and problems in the reference period, contraceptive use and decline in the reproductive age group population with high death rate due to HIV/AIDS could not justify for the decline. This is because for the district where this project is conducted any contraceptive use rate was low, 9.4%, (3) and women of reproductive age category remained almost similar to the national or regional proportion, 24.8% for this study versus 23.6% and 23.7% for national and regional values (1, 6).

The report of the 1994 population and housing census of Ethiopia indicated a similar indented population pyramid at the base for all regions except for Tigray that is consistent with our finding but the recent Demographic and Health Survey report has the usual broad base pyramid that contradicts the 1994 census report (4, 5).

Fertility: In the study population fertility indicated by CBR, GFR and TFR seems to be low compared to the corresponding national or regional values which were CBR (44.2), GFR (194.8), TFR (6.5) for national and CBR (48.6), GFR (212.1), TFR (6.9) for the SNNP region (6). What would explain this difference? Could this be due to poor data quality assessing procedures at the different levels? As mentioned in the method section the different possible quality control procedures were introduced from preparing training manuals to data analysis which are feasible for this type of survey.

Similar findings have been reported in Nigeria, Senegal and Sudan, experiencing fertility decline with almost no change in contraceptive uptake (7). There is a need for focused study on the local traditional practices towards fertility.

Mortality: Again important indicators like IMR and under five mortality were low compared either to the national (110 and 121 per 1,000) or regional (121 and 179 per 1,000) rates but higher than the Dabat report of 50.4 per 1,000 (6, 8). The overall mortality rate was 14.3 per 1,000 which approached the national (15.0 per 1000) and regional (16.0 per 1,000) rates (6). Examining the age specific death rate demonstrates in the extreme age groups are highest. It was very low in the age groups 5 – 19 then after increase progressively.

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Annex 1. Part I: Census Questionnaire

Family Id. Number: _____ Rural/Urban _____ Keftegna ____ Kebele _____ Village Name _____ House Number _____
Name of Head of Household _____ Sex: Male/Female _____ Enumerator's name _____ Date of interview _____

Pers. No.	Name of family members	Relation to head of HH	Sex	Age	Ethnicity	Religion	Educational level †	Marital Status ‡	Occupation ‡	Length of stay in the kebele	For how long did you stay with this family
.01											
.02											
.03											
.04											
.05											
.06											
.07											
.08											
.09											
.10											

Relation to HH : 1. Head 2. Spouse 3. Son/Daughter 4. Brother/Sister 5. Grand Child 6. Parent 7. House maid 8. Others (specify)
Sex : 1. Male 2. Female
Ethnicity : 1. Oromo 2. Amara 3. Keffa 4. Daworo 5. Gurage 6. Yem 7. Tigre 8. Others (specify)
Religion : 1. Orthodox 2. Muslim 3. Catholic 4. Protestant 5. Others (specify)
Marital Status : 1. Married 2. Single 3. Divorced 4. Widowed
Educational level 1. Illiterate 2. Read and write (1-3 grade) 3. 4-6 grade 4. 7-8 grade 5. 9-12 grade 6. Higher level
Occupation : 1. Civil servant 2. Teacher 3. Merchant 4. Driver 5. Farmer 6. Daily laborer 7. Housewife 8. Student
9. House maid 10. Other (specify) (‡) for individuals who are 10 years and above (†) for individuals who are 7 years and above

Annex 2. Birth Registration Form

Id. number of the household _____ Zone _____ Woreda _____ Urban/Rural _____
Kebele _____ Village name _____ House number _____
Name of Head of the household _____
Name of the mother _____ Mother's family number _____
Age of the mother _____

For the newborn:
Name _____ Family number given _____
Sex: Male ___1 Female _____ 2
Date of birth _____(Day/Month/Year)
Status of the birth at the time of delivery: Live birth ____1. Stillbirth ___ 2
Type of birth: Single ___ 1 Twin ___ 2 Triplet _____ 3. Other _____ 4
Where did you deliver the child?
Home __ 1 Hospital/health center ___ 2 Clinic __ 3 Health post ___4 Other___ 5
Who attended the delivery? TTBA ____ 1 Relative ____ 2 Non-relative/ Neighbors ____ 3
Untrained traditional birth attendant ____ 4 Health personnel _____ 5 CHA ____ 6
Mother herself ____ 7. Other ____ 8
Date of registration: _____
Name of interviewer: _____ Signature _____ Date _____
Name of supervisor: _____ Signature _____ Date_____

Annex 3: Acute and Chronic illness episodes recording format
Id. number of the household _____ Zone _____ Woreda _____ Urban/Rural _____
Kebele _____ Village name _____ House number _____
Name of head of Head of Household _____
1. Were any of the family members sick in the last two weeks? Yes ___ 1 No ____2
2. Were any of the family members sick with intermittent fever or chronic cough?
   Yes ___ 1 No ___ 2

3. If yes to questions 1 or 2, complete the following for each sick individual.

Family Id	Name of the patient	Age	Sex	Perceived (type of) illness	Days lost from usual activity	Did the patient seek any help?	Where did the patient go?[1]
						1. Yes 2. No	

(1) Place of help
1. Health Institution
2. Traditional Healer
3. Community health post
4. Religious
5. Home level treatment
6. Other (specify)

Name of interviewer: _____ Signature _____ Date _____
Name of supervisor: _____ Signature _____ Date _____

Annex 4. Death Registration form

Household identification number _____ Zone _____ Woreda _____ Urban/Rural _____
Kebele _____ Village name _____ House number _____
Name of Head of the household _____
Name of the mother _____

For the deceased:
Name _____ Deceased person family number _____
Sex: Male ____ 1 Female ____ 2
Age at death: _____
Place of death: Home ____ 1 Health Institution ___ 2 Other (specify) _____ 3
Date of birth: _____ (Day/Month/Year)
Date of death: _____ (Day/Month/Year)
Date of registration: _____ (Day/Month/Year)
Cause of death _____

1. Still birth 2. Premature births 3. Pneumonia 4. Meningitis 5. Tetanus 6. Measles 7. Diphtheria 8. Diarrhea/Vomiting 9. Malnutrition 10. Sudden death	11. Tuberculosis 12. Malaria 13. AIDS 14. Suicide 15. Hepatitis 16. Spontaneous abortion 17. Induced abortion 18. Complications of pregnancy/child birth/Puerperium 19. Accident (specify) _____ 20. Others (specify) _____

Name of Registrar: _____ Signature _____ Date _____
Name of supervisor: _____ Signature _____ Date _____

Annex 5. Migration recording form

Household identification number _____ Zone _____ Woreda _____ Urban/Rural _____
Kebele _____ Village name _____ House number _____
Name of Head of the household _____
Name of the Mother _____
For immigrant/emigrant
Name _____ Family number given _____
Sex: Male ____ 1 Female _____ 2
Age: _____
Ethnicity: _____
Religion: Orthodox __ 1 Protestant ___ 2 Catholic __ 3 Muslim ___4 Other (specify) __ 5
Marital status (For persons 10 years and above):
Married __1 Single __ 2 Divorced __3 Widowed ___4
Educational status (for person 7 years and above):
Illiterate ___ 1 Read and write (1-3 grade) ___ 2
4-6 grade ___ 3 7-8 grade ___ 4 9-12 grade ___ 5 Higher level _____ 6
Occupation status (for person 10 years and above):
Civil servant ___ 1 Teacher ___ 2 Merchant ___ 3
Driver ____ 4 Farmer ____ 5 Daily laborer ____ 6 Housewife ___7
Student ____ 8 House maid ___ 9 Other (specify) _____ 10
For Immigrants:
Where did you come from? Zone _____ Woreda _____ Urban/Rural ____
Kebele _____
When did you arrive in this kebele? _____ (Day/Month/Year)
Why do you come _____
For emigrants:
Where did he/she go? Zone _____ Woreda _____ Urban/rural _____ Kebele _____
When did he/she go? _____ (Day/Month/Year)
Why do you go _____

Name of registrar: _____ Signature: _____ Date _____

Annex 6: Variables Included in the Registration Book for Continuous Data Generation

Name of the kebele and information to be registered should be written on the cover page of the registration book.

Birth Registration Book

1. Family number
2. Name of head of household
3. Name of village
4. House number
5. Name of the mother
6. Age of the mother at the time of delivery

7. Date of delivery
8. Sex of the newborn
9. Status of the newborn during delivery (Live birth or still birth)

Death Registration Book

1. Family number
2. Name of head of household
3. Name of village
4. House number
5. Name of the deceased person
6. Age at death
7. Sex of the deceased
8. Date of death

Migration Registration Book

1. Family number
2. Name of head of household
3. Name of village
4. House number
5. Coming from for immigrants/Went to for emigrants
6. Given family number for immigrants
7. Date of arrival for immigrants and date of departure for emigrants
8. Family size by sex for immigrants

Annex 7. Woreda Level Birth Data Compilation Format on Monthly Basis

Name of Kebele	Sex		Birth Status		Type of birth		
	M	F	Live	Still birth	Single	Twin	Multiple
1. Abret							
2. Aftir							
3. Astepo							
4. Aturchena Adushe							
5. Dubisa							
6. Emdibir town							
7. Grar Dibir							
8. Gubre town							
9. Kechotina Dawoke							
10. Luke							
11. Wedito							
12. Werdenena Korkuat							
13. Yefekterek Endebera							
14. Yeferzeye							

Compiled by: _____ Signature _____ Date: _____

Annex 8. Woreda Level Death Data Compilation Format on Monthly Basis

	Age at death												Total	
	< 1		1 - 4		5 - 14		15 – 49		50 -64		65+			
Name of Kebele	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1. Abret														
2. Aftir														
3. Astepo														
4. Aturchena Adoshe														
5. Dubisa														
6. Emdibir town														
7. Girar Dibir														
8. Gubre town														
9. Kechotina Dawoke														
10. Luke														
11. Wedito														
12. Werdenena Korkuat														
13. Yefekterek Endebera														
14. Yeferzeye														
Total														

Causes of death (list the codes from the format): _____

Compile by: _____ Signature _____ Date _____

Annex 9. Woreda Level In Migration Data Compilation Format on Monthly Basis

Kebele	Total		Within Woreda		Within zone		Within region		Other region		Other country	
	M	F	M	F	M	F	M	F	M	F	M	F
1. Abret												
2. Aftir												
3. Astepo												
4. Aturchena Adushe												
5. Dubisa												
6. Emdibir town												
7. Grar Dibir												
8. Gubre town												
9. Kechotina Dawoke												
10. Luke												
11. Wedito												
12. Werdenena Korkuat												
13. Yefekterek Endebera												
14. Yeferzeye												

Compile by:_____ Signature _____ Date _____

Annex 10. Woreda Level Out Migration Data Compilation Format on Monthly Basis

Kebele	Total		Within Woreda		Within zone		Within region		Other region		Other country	
	M	F	M	F	M	F	M	F	M	F	M	F
1. Abret												
2. Aftir												
3. Astepo												
4. Aturchena Adushe												
5. Dubisa												
6. Emdibir town												
7. Grar Dibir												
8. Gubre town												
9. Kechotina Dawoke												
10. Luke												
11. Wedito												
12. Werdenena Korkuat												
13. Yefekterek Endebera												
14. Yeferzeye												

Compiled by: _____ Signature _____ Date _____

Annex 11. Woreda Level Minute Keeping Format during the Monthly Regular Meeting with CHWs

Do all the kebele CHWs attended the meeting? Yes ____ No ____
If no, how many of them are absent? _____

Name of Reporting Kebele: _____

A. Activity
   1. Number of births reported: _____
   2. Number of deaths reported: _____
   3. Number of migrants reported
      - In-migrants: _____
      - Out-migrants: _____

B. Problems encountered

_____
_____
_____

C. Suggested solutions

_____
_____
_____

Compiled by:_____ Signature:_____ Date: _____