

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

**ASSESSMENT OF HIV/AIDS-RELATED MORTALITY AMONG PRIMARY
AND SECONDARY SCHOOL TEACHERS IN ADDIS ABABA (1998-2003)
USING VERBAL AUTOPSY**

BY

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Acronyms

AIDS- Acquired Immunodeficiency Syndromes

BRHP-Butajira Rural Health Project

CSA- Central Statistics Authority

DCH- Department of Community Health

EFA- Education For All

ESAR- Eastern, Central and Southern Africa Region

FHI- Family Health International

HIV- Human Immunodeficiency Virus

MOH- Ministry of Health

UNAIDS – United Nations Programme on HIV/AIDS

UNESCO – United Nations Educational, Scientific and Cultural Organization

USAID – United States Agency for International Development

VA- Verbal Autopsy

WHO- World Health Organization

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Abstract

Acquired Immunodeficiency Syndrome (AIDS) has become a number one killer disease in Africa. The problem is believed to be so grave among government employees in general and teachers in particular; however, there are little hard data that substantiate the severity of the problem in these population groups . This cross-sectional study was aimed at assessing HIV/AIDS related mortality among primary and secondary school teachers.

A total of 88 schools (66 primary and 22 secondary) were randomly selected for the survey and 193 deaths were identified. Complete data were obtained for 169 cases using verbal autopsy questionnaire. Verbal autopsies were reviewed by three physicians to determine the underlining cause of death. EPI-info version 6 and SPSS version 10 statistical packages were used to enter and analyze data. Proportions and rates were calculated to define the problem.

Results showed that HIV/AIDS related illnesses were the leading cause of death accounted for 47.9% of all deaths. Tuberculosis was the major opportunistic infection in persons with HIV/AIDS, contributed for 88.9% of HIV related deaths. Mean age of death was 43.6 with SD 6.7. Most HIV related deaths (53.7%) were occurred in the age group 20-49 years ($P= 0.015$). Peak age of death was 35-39 years among males and 30-34 years among females for the year 2003. This shows that females have been dying at an earlier age compared to males.

The likelihood of dying of HIV related illnesses was higher among widowed and divorced compared to the other groups (OR=4.74, 95% CI 1.14, 19.7).

Most HIV related deaths (74%) had taken place at home, whereas 76% non-HIV related deaths were taken place in health institutions ($P=0.009$).

In general HIV/AIDS was a cause for the majority of deaths and associated problems in both primary and secondary school teachers. Most teachers had died of the epidemic in their most productive age. Therefore it is advisable to make the teaching staff aware that they are being negatively affected by the epidemic. Further study with a more representative sample size is advisable since this study had limitation to get adequate sample size.

INTRODUCTION

Today Acquired Immunodeficiency Syndrome (AIDS) has become number one killer disease of men and women in many countries in Africa. The epidemic has been causing illnesses and deaths among adults in their most productive age (1). It is expected to significantly retard the growth of the labor force and create labor shortage in several social sectors including the education sector.

Education and training are believed to be critical for long-term development. Based on this fact different countries of the world assembled in Jometin, Thailand in 1990 and launched the goal "Education For All (EFA) by 2015", this goal was reaffirmed by the 2000 World Education Forum held in Dakar, Senegal. However, HIV/AIDS related attrition and absenteeism among teachers, managers and pupils seriously challenge these goals in Africa (1). Different studies done in some African countries showed that teachers are dying at an alarming rate than ever before. In Cot D'Ivoire 8 teachers die of AIDS every week (2), in Uganda about 2200 teachers suffered or died of AIDS between 1993 and 1996 (3). Similar study from Zambia suggested that there was a rise of teachers' death from less than 2 deaths per day in 1996 to more than 4 per day in 1998 (mortality rate of 39 per 10000) (4, 5). Another study from Kenya revealed that 20-30 teachers were dying of AIDS each month (1). If the trend continues as it is today, two hundred and sixty thousand African teachers (9.4 % of the total employed in 1999) could die of AIDS related illnesses over the next decade (6). Five countries (Kenya, Nigeria, South Africa, Uganda and Zimbabwe) will account for nearly two-third of these AIDS related deaths among teachers (6). Nine thousand and nine hundred primary and 2700 secondary Ethiopian teachers are expected to die of AIDS related illnesses over the next decade (6).

Although there is lack of disaggregated data, one of the severely affected groups of the adult Ethiopian population is a government employee including teachers. A study conducted on the impact of HIV/AIDS on Ethiopia's education sector stated that rural teachers are dying at an alarming rate (7). It also described that teachers constitute the majority compared to other adult government employees affected by the epidemic (7).

The impact of HIV/AIDS on the general Ethiopian population is an established fact, but little is known about its impact in the social sector of Ethiopia in general and education sector in particular.

This study tried to investigate the impact of the epidemic on primary and secondary school teachers and attempted to answer the following question:

What has been the contribution of HIV/AIDS to teachers' death?

The findings of this study will be of paramount importance to managers and policy makers to design cost-effective HIV/AIDS prevention and control program. The study would also help to identify potential research gaps.

2. LITRATURE REVIEW

No other infectious disease of the modern era has such a devastating impact on the world's population as HIV/AIDS. Since researchers first identified human immunodeficiency virus (HIV) in 1983, 65 million people are infected and 25 million people have died (8). An estimated 42 million people are living with HIV/AIDS today including 3.2 million children under age 15 (9) and majority of cases are found in sub-Saharan Africa (SSA) (9). At the end of 2002 there were 5 million new infections 3.1 million deaths, of which 4.2 million of the infections and 2.5 million of the deaths respectively were seen in adults (9). The epidemic is concentrated in the so-called "AIDS belt" stretching through East, Central and Southern Africa Regions (ESAR) where infection rates are now between 20 and 30 percent among the sexually active group (1). Countries in ESAR will almost certainly experience the most severe demographic effects of HIV/AIDS over the next 25-30 years after the epidemic has peaked (1). Decades of improvement in social welfare are likely to be undermined by the uninhibited progression of the epidemic. Life expectancy will drop to 30 years or less in sub-Saharan Africa countries by 2010(1). Botswana, Zambia and Zimbabwe would have had life expectancies of 60-70 years without AIDS, but will have life expectancy of only 30 years with HIV/AIDS (1). HIV/AIDS will continue to cause fundamental social and economic changes in the ESAR countries and will affect educational opportunities and the demand for labor.

It will significantly retard the growth of the labor force and create labor shortages in several sectors including the education sector.

2.1 HIV/AIDS IMPACT ON THE EDUCATION SECTOR

Good quality of education is believed to be a powerful weapon against HIV/AIDS. However, the HIV/AIDS epidemic threatens the infrastructure of the education sector, takes its valuable assets i.e. the lives of policy makers, teachers and administrators and causes untold suffering to their children and families. The epidemic affects three key areas of the education sector: demand, supply and quality and management of education.

DEMAND FOR EDUCATION

The pattern of demand for education may change due to the fact that there are fewer children to be educated. As a result of HIV/AIDS epidemic there are children who miss opportunity to be educated due to early death of one or both parents, or they themselves may be infected and die before reaching school-age. This affects school enrollment. In Zambia school enrollments stagnated between 1990 and 1996 partly due to HIV related causes and as a result the number of street children has increased from 35000 in 1991 to 75000 in 1996 (1). Study done in Tanzania suggested that HIV/AIDS may reduce the number of primary school children by 22% and secondary school children by 14% by the end of 2020 (1), as a result of increased infant/child mortality as well as lower attendance (1).

SUPPLY OF EDUCATION

HIV/AIDS is believed to decrease the supply of education. Currently there are little hard data about the impact of the epidemic on the decreasing supply of education. Even if facilities continue to be available there may be lack of teachers and other personnel to provide teaching services. It is evident that number of trained teachers is decreasing due to illness or death. One study done in Cot D'Ivoire showed that 8 teachers dying of AIDS every week, 5 at primary and 3 at secondary level (2). Similar study from Tanzania

estimated that 14,460 teachers would die by the year 2010 and 27,000 teachers by 2020 (3). In Uganda about 2200 teachers suffered or died of AIDS between 1993 and 1996 (3). Another study from Zambia suggested that out of 31,600 primary school teachers in 1996/97 some 6300(20%) were HIV positive, and reported deaths were 680 in 1996, 624 in 1997 and 1300 in 1998 (4). This indicates that there was a rise in teachers' death from less than 2 per day in 1996 to more than 4 per day in 1998. The 1998 teachers deaths represented a mortality rate of 39 per 1000, which is about 70% higher than the mortality rate of 23 per 1000 for the 15- 49 years old age group in the general population (5). The number is expected to rise to approximately 2000 (5-6 teachers dying per day) by the year 2005 (1).

In one of the Kenya's eight provinces 20-30 teachers die of AIDS each month (1).

In Namibia the incidence of HIV infection among teachers is currently between 20 and 25 percent (1), by 2010 at least 3500 serving teachers may have died, but the figure could be as high as 6500 (1).

MANAGEMENT AND QUALITY OF EDUCATION

Education system has begun to experience increased problem from teachers' absenteeism, and loss of inspectors, teachers, education officers and planning and management personnel. There will be less qualified teaching force, as trained experienced teachers are replaced by younger and less trained and less experienced teachers. It is quite apparent that as AIDS continues to take its toll, there will be schools with no teachers and/or inspectors. This certainly will have a negative impact on the education system i.e. ability to plan, manage and implement policies and programs.

2.2 ETHIOPIAN SITUATION

Ethiopia is one of the sub-Saharan African countries hard-hit by HIV/AIDS epidemic. The first HIV positive individuals were reported in 1986 **(10, 11)**. Since then the prevalence of the epidemic has been in an expansion stage. In 1988, the prevalence among commercial sex workers was 15 percent in Awassa and 24 percent in Bahir dar **(11)**. Rates among pregnant women aged 15 to 24 in Addis Ababa were 2 % in 1989 and 13 % in 1993 **(11)**. Studies conducted in 1994 and 1996 indicated that the HIV incidence remained high **(11)**. In 1996 the HIV prevalence in Addis Ababa four antenatal clinics were 26.5%, 21.4%, 15.7% and 5%; among commercial sex workers the prevalence was ranging from 40 to 60 percent **(11)**.

Recently the HIV/AIDS prevalence in Ethiopia is 6.6 %, with higher prevalence in urban areas than rural areas, which is 13.7% and 3.7% respectively **(10)**. The number of people living with HIV/AIDS is estimated to be 2.2 million, and 91% of the infection occurs among adults between 15 and 49 years of age **(10)**. These groups of population are known to be the most economically active and productive groups.

The prevalence of HIV/AIDS for Addis Ababa is estimated to be 15.6% **(10)**. A study done on HIV/AIDS related deaths among the adult population of Addis Ababa showed that most deaths (48%) occurred due to TB/HIV-AIDS related illnesses **(12)**.

Like other sub-Saharan African countries, HIV/AIDS have been affected the Ethiopian adult population, among which government employees including teachers constitute the majority. The epidemic is expected to ravage nearly 9900 primary and 2700 secondary school teachers over the next decades if the trend of the epidemic continues as it is today **(6)**. However, studies that substantiate this fact are scanty in the education sector of Ethiopia.

This paper tried to explore the impact of HIV/AIDS on primary and secondary school teachers in Addis Ababa using a standardized verbal autopsy questionnaire.

Verbal autopsy (VA) is a tool used to obtain information on causes of death when post mortem diagnoses are not available. Symptoms, signs and circumstances which lead to death are ascertained by interviewing a close relative or associates of the deceased and a diagnosis is derived either from a review of the questionnaire by one or more physicians or from a pre-set algorithms. In areas where morbidity and mortality data are very scarce due to either poor diagnostic facilities or poor recording system the VA method remains very helpful in identifying cause specific mortality of specific population.

Ethiopia is one of the African countries, which lack institution based morbidity and mortality data due to either poor diagnostic services or incomplete record keeping or a combination of these and other factors. Therefore, lay reporting and verbal autopsy technique remain useful to derive cause specific morbidity and mortality. Many studies have shown that VA remains the only method of estimating cause specific mortality in the absence of routine and reliable mortality data **(13-20)**.

This can successfully be used to distinguish between HIV and other causes of death without serological data and hence it enables to estimate HIV related mortality fraction in a population **(18, 21)**. Similar studies done in Tanzania and Ethiopia substantiate the significance of VA in identifying cause specific mortality data **(22,23)**. The verbal autopsy technique is based on the assumption that most causes of death have distinct signs and symptoms that are present in one particular terminal illness but are not present in the same combination in other illnesses. It is also believed that these signs and symptoms are easily recognizable, remembered and reportable by lay respondents **(12)**.

Validation study was done in Uganda to see effectiveness of the VA tool in identifying HIV related adult mortality and the result revealed overall specificity and positive predictive value of 92% (14). Another validity study done in Tanzania showed high level of sensitivity and specificity for diagnosing AIDS comparing to HIV status (24). Comparative study done to see the diagnostic accuracy of physician review and expert algorithm in adult VA revealed that physician review had high diagnostic accuracy for many causes of deaths compared to expert algorithm though data derived algorithm was indicated as alternative method where physician review is not feasible (17).

Similar studies from Tanzania and Ethiopia substantiated the robustness of VA methods reviewed by physician, in identifying cause specific mortality in field set-ups using lay interviewers (12, 25, 26).

3. OBJECTIVES OF THE STUDY

3.1 GENERAL OBJECTIVES

To assess HIV/AIDS related mortality among primary and secondary school teachers in Addis Ababa.

3.2 SPECIFIC OBJECTIVES

- Identify commonest causes of death among primary and secondary school teachers.
- Determine HIV/AIDS related deaths among primary and secondary school teachers.
- Describe HIV/AIDS related deaths in relation to socio-demographic characteristics of the deceased.

4. METHODOLOGY

4.1 STUDY AREA

The study was conducted in Addis Ababa, the Capital City of the Federal Democratic Republic of Ethiopia. It has a population of 2,646,000. Females outnumber males (51.9% and 48.1% respectively) (27). The city is one of the highly densely populated towns with population density of 4991.1 per square kilometer (27); its annual population growth is 2.9 percent (28). The city is currently restructured into ten sub-cities and 203 Kebeles. It constitutes 20 government and private hospitals, 24 health centers, 340 lower, medium and higher private clinics, 138 pharmacies and 39 drug shops (28). The government health institutions provide service with 1707 professionals of different category. The physician to population and nurse to population ratio are 1:10934 and 1:3388, respectively (28). Infant and child mortality rate of the city are 81 and 35.4 per 1000 live births respectively (28). The HIV prevalence is estimated to be 15.6% (10).

The city also holds about 308 primary and 50 secondary schools in which 11,634 teachers are currently teaching, among these 7501 are males and 4133 are females (29, 30).

Characteristically most teachers in the city have been transferred after serving for a minimum of three years in the rural parts of Ethiopia; this was the minimum requirement of service set by the Ministry of Education. Those who worked in the most remote areas were given priority.

4.2 STUDY DESIGN

This study employed a descriptive cross sectional study design. It was carried out in two phases. The first phase was identifying teachers who died within the last 6 years (December 1997 to December 2003) from those randomly selected 88. This period was preferred in order to get adequate sample size without much implication on recall bias. It is believed that adult deaths are remembered very well.

The second phase was gathering information (data) from close relatives or friends of the deceased using standardized verbal autopsy questionnaire.

4.3 SOURCE POPULATION

All primary and secondary school teachers who reside and teach in Addis Ababa city administration were the source population for the study.

4.4 STUDY POPULATION

All teachers who died during the last 6 years (December 1997-December 2003) in the randomly selected 88 schools were constituted study population.

4.5 SAMPLING TECHNIQUE AND SAMPLE SIZE

A random sampling technique was used to select 88 schools (66 primary and 22 secondary schools). The number of schools was determined based on the preliminary survey done on 10 schools (where an average of 2.5 deaths was identified) prior to the start of the study. The assumption was to get a minimum of 2 and maximum 3 deaths from each school, which gives a sample size ranging from 176 to 264.

This was believed to be adequate considering the HIV related death prevalence 48%, margin of error 7% and non-response rate 20%. Accordingly, the calculated sample size using one sample formula was 196 plus 20% non-response rate which added to 235.

$$n = \frac{Z_{\alpha/2}^2 P(1-P)}{\delta^2}$$

This study didn't take school size into consideration; it disproportionately favored small schools with smaller percentage of teaching force. The schools were selected using lottery method. All deaths (n=193) that occurred within the specified time period (December 1997-December 2003) were included in the study.

4.6 ELIGIBILITY CRITERIA

Inclusion criteria: Those teachers who died within the last 6 years (December 1997-December 2003) from the selected schools were eligible.

Exclusion criteria: those teachers who died out of the specified time period (December 1997-December 2003) and out of the selected schools were excluded.

4.7 METHODS OF DATA COLLECTION

IDENTIFICATION OF DEATH EVENTS

This was the first phase in which death events were gathered from the randomly selected 88 schools using a self-designed format (**annex 1**). This information was obtained from school heads, school records, unit leaders and other teaching staff. This phase was accomplished in 4 months period and was carried out by the principal investigator.

DATA COLLECTION PROCEDURE

Eight data collectors who completed grade 12 and two nurse supervisors were recruited and trained for two days. Data collection using VA questionnaire was started on 22 of March and ended on 22 of April 2004. The data collectors were assigned in pairs in order to support each other. They were provided with the list of addresses and personal identification of the deceased, name and location of schools and contact persons for those whose residential address was not available.

The supervisors were assigned in two groups; one supervisor was responsible for four data collectors. The two supervisors together with the principal investigator checked completeness of the questionnaires daily. They assisted in interviewing respondents in schools where the data collectors faced difficulty to get information.

DETERMINATION OF CAUSE OF DEATH

Two physicians were recruited and provided with 169 pre-coded verbal autopsy questionnaires and other formats on which they put their diagnoses after they were oriented on the objectives of the study. The cause of death was determined independently without the knowledge of each assessor's diagnoses. If the same diagnosis was determined by two physicians for the same responded questionnaire, it was considered as final diagnoses.

4.8 DATA QUALITY ASSURANCE

A standardized verbal autopsy questionnaire was used to obtain information from close relatives and friends of the deceased. This questionnaire was first designed and developed in England. Validation study was carried out in Uganda, Tanzania, Ethiopia and Ghana in 1999 (12).

This method was employed in the Butajira Rural Health Project (BRHP) and previously graduated public health students from the Department of Community Health in Ethiopia (12).

The questionnaire was translated into Amharic after some amendments on some of the questions to avoid ambiguity in the concept of the questions. Then after, the questionnaire was pre-tested in 5 schools that were not selected for this particular study. Fifteen respondents who were close friends of the deceased were involved during the pre-test. Some questions were amended and some other questions that were difficult to

understand were removed which enabled to collect reliable information. The questionnaire was back translated to English to ensure the intended meaning is conveyed. Data were entered into the computer by the investigator after checking for completeness and accuracy of data.

4.9 DATA PROCESSING AND ANALYSES

Crude data from the verbal autopsy questionnaire were entered into the computer using EPI-info version 6. Analysis was done using the SPSS version 10 statistical packages. Frequencies, proportions, rates and summary statistics (percentages, mean, median and standard deviation) were used to describe the study population in relation to relevant variables.

¹ 5. OPERATIONAL DEFINITION OF TERMS

Teachers - educators who provide teaching services either in primary or secondary schools.

Primary school -an institution, which provides teaching services from grade 1 to 8.

Secondary school -an institution, which provide teaching services from grade 9 to 12.

Verbal autopsy -an epidemiological tool that is used to ascribe causes of death from bereaved relatives or associates whenever medical confirmation of the cause of death is absent or incomplete.

HIV related deaths -deaths that occurred either due to HIV/AIDS alone or in combination with other opportunistic infections.

6. STUDY VARIABLES

INDEPENDENT VARIABLES

- Socio-demographic characteristics of the deceased: Age at death, Sex, Marital status and Educational status.

DEPENDENT VARIABLE

- HIV/AIDS related deaths

¹ **Note:** Primary and Secondary school teachers were defined according to the previous policy.

7. ETHICAL CONSIDERATION

Ethical clearance was obtained from Ethical Clearance Committee, Addis Ababa University, Medical Faculty. Permission letters were obtained from the Addis Ababa Education Bureau and respective sub-structures (each sub-city and each school hierarchically). Verbal consent was obtained from each respondent before the interview was conducted. Persons who were unwilling were exempted from the study.

8. RESULTS

Verbal autopsy interviews were conducted for 169 (87.6%). The non-response rate was 12.4 percent. The main reasons for non-response were: absence of persons who were knowledgeable about events before death 19(79.2%) and refusal 5(20.8%). The majority of respondents 160 (94.7%) were close friends of the deceased who were knowledgeable about events before death. The rest respondents 9(5.3%) were spouses. The reason why close friends were selected for the interview was the unavailability of complete address of the deceased's family.

The verbal autopsy questionnaires were assessed by three physicians. The two physicians agreed in determining the same cause of death for 128 questionnaires but they disagree for 41(24.3%) questionnaires. A third physician, who was blind to the previously assigned causes of death, assessed those questionnaires with discordant diagnosis. There was one (0.6%) questionnaire for which all the three physicians put different diagnosis. All of them discussed and reach into consensus to determine the cause of death as unknown. There was no questionnaire, which cause of death was undetermined.

8.1. SOCIODEMOGRAPHIC CHARACTERISTICS

High proportion of deaths was identified in the age group 50-54 years 24.3 %, followed by age group 40-44 years 23.1 %. The mean age of death was 43.6 (S.D 6.7) With regard to sex and marital status, majority of deaths occurred among males and married persons, which was 84% and 59.8 % respectively. Distribution according to level of education revealed that most teachers who died were certificate holders and accounted for 45.6% of all deaths (**Table 1**).

Table 1. Percentage distribution of deaths by socio-demographic characteristics

Addis Ababa 2003.

| Age of the deceased | Number | Percent (%) |
|----------------------------|---------------|--------------------|
| 25-29 | 3 | 1.8 |
| 30-34 | 10 | 5.9 |
| 35-39 | 33 | 19.5 |
| 40-44 | 39 | 23.1 |
| 45-49 | 37 | 21.9 |
| 50-54 | 41 | 24.3 |
| >=55 | 6 | 3.6 |
| Total | 169 | 100.0 |
| Sex of the deceased | Number | Percent (%) |
| Male | 142 | 84.0 |
| Female | 27 | 16.0 |
| Total | 169 | 100.0 |
| Marital status | Number | Percent (%) |
| Single | 50 | 29.6 |
| Married | 101 | 59.8 |
| Divorced | 12 | 7.1 |
| Widowed | 6 | 3.6 |
| Total | 169 | 100.0 |
| Educational status | Number | Percent (%) |
| Certificate | 77 | 45.6 |
| Diploma | 55 | 32.5 |
| Degree | 37 | 21.9 |
| Total | 169 | 100.0 |

8.2. VERBAL AUTOPSY DERIVED UNDERLYING CAUSES OF DEATH

Table 2 shows the underlying causes of death for 169 deaths. For 4 (2.4%) of the deaths no cause could be ascertained. Communicable diseases account for 56.8% of all deaths. HIV/AIDS related deaths were associated with 47.9% (HIV/AIDS and TB/HIV-AIDS combined) of all deaths and was the leading cause of death for both sexes: 47.2 percent of male and 51.8 percent of female deaths. Among the 81 deaths classified as HIV related deaths 9 were diagnosed as HIV/AIDS but no tuberculosis, where as 72 cases were diagnosed as HIV/AIDS and tuberculosis. Other communicable diseases contributed to 15 (8.9%) deaths. Tuberculosis was a cause for 85 (50.3%) deaths and 84.7 percent of these deaths were in persons with HIV/AIDS. Thirteen (7.7%) of all deaths were ascribed to tuberculosis without HIV infection.

Non-communicable diseases were responsible for 58 (34.3 %) deaths. The major cause of death was hypertension 16 (9.5 %) followed by chronic liver disease and severe asthma, which were 15 (8.9 %) and 8 (4.7 %) respectively.

Ten (6 %) deaths were associated with injuries. Unintentional injuries (motor vehicle and falling accidents) were cause for 6 (3.6 %) deaths, while intentional injuries (homicide and suicide) contributed to 4 (2.4 %) deaths (Table 2).

Table 2. Verbal autopsy derived causes of death according to ICD-10 classification of diseases by sex Addis Ababa 2003.

| Causes of death | Men | | Women | | All | |
|----------------------------------|------------|-------------|-----------|-------------|------------|-------------|
| | N | % | N | % | N | % |
| Communicable Diseases | 81 | 57 | 15 | 55.5 | 96 | 56.8 |
| Acute febrile illness | 2 | 1.4 | - | - | 2 | 1.2 |
| HIV/AIDS | 5 | 3.5 | 4 | 14.8 | 9 | 5.3 |
| TB/HIV-AIDS | 62 | 43.7 | 10 | 37.0 | 72 | 42.6 |
| Tuberculosis | 12 | 8.5 | 1 | 3.7 | 13 | 7.7 |
| Non-communicable Diseases | 49 | 34.5 | 9 | 33.3 | 58 | 34.3 |
| PUD | 2 | 1.4 | - | - | 2 | 1.2 |
| Post operative complications | 1 | 0.7 | 1 | 3.7 | 2 | 1.2 |
| Leukemia | 1 | 0.7 | - | - | 1 | 0.6 |
| Heart disease | 2 | 1.4 | - | - | 2 | 1.2 |
| Hypertension | 14 | 9.9 | 2 | 7.4 | 16 | 9.5 |
| Severe asthma | 6 | 4.2 | 2 | 7.4 | 8 | 4.7 |
| Liver disease | 14 | 9.9 | 1 | 3.7 | 15 | 8.9 |
| Acute abdomen | 3 | 2.1 | - | - | 3 | 1.8 |
| Diabetics | 2 | 1.4 | - | - | 2 | 1.2 |
| Breast cancer | - | | 1 | 3.7 | 1 | 0.6 |
| Cervical cancer | - | | 1 | 3.7 | 1 | 0.6 |
| GI-cancer | 2 | 1.4 | - | - | 2 | 1.2 |
| Renal disease | - | | 1 | 3.7 | 1 | 0.6 |
| CNS-disorder | 2 | 1.4 | - | - | 2 | 1.2 |
| Injuries | 9 | 6.3 | 1 | 3.7 | 10 | 5.9 |
| Unintentional | 5 | 3.5 | 1 | 3.7 | 6 | 3.5 |
| Intentional | 4 | 2.8 | - | - | 4 | 2.4 |
| Maternal cause | - | | 1 | 3.7 | 1 | 0.6 |
| Puerperal sepsis | - | | 1 | 3.7 | 1 | 0.6 |
| Unknown | 3 | 2.1 | 1 | 3.7 | 4 | 2.4 |
| Total | 142 | 100 | 27 | 100 | 169 | 100 |

8.3. MEAN AGE AT DEATH AND MEAN DURATION OF ILLNESS BY CAUSE OF DEATH

The overall mean age at death was 43.6 (S.D 6.7) years and the differences between the causes of death were small. Death due to HIV/AIDS occurred at an earlier age (41.9 years) than those due to other communicable and non-communicable diseases, which were 43.9 and 45.3 years respectively. The mean age of death due to HIV/AIDS was close to the overall and other communicable diseases mean age of death. The median duration of illness, as reported by the respondents were also analyzed. The median duration of illness for all deaths was 180.4 days. Persons who died of HIV/AIDS had been sick for 365 days followed by non-communicable diseases 60 days. However, the median duration of illness was 547.5 days, for a person whose cause of death was undetermined or unknown this was higher than the aforementioned median duration of illness (Table 3).

Sixty four percent of those who died of HIV related illnesses were sick for more than 60 days, whereas 82.8% of those who died of non-HIV related illnesses were sick for less than 60 days. This difference was statistically significant ($P < 0.0001$) (Table 4). This shows that teachers who died of HIV related illnesses were sick for longer period of time compared to those without.

Table 3. Mean age at death and median duration of illness by cause of death Addis Ababa 2003.

| Cause of death | Number | Mean Age at death (SD) | Median Duration of illness in days |
|-----------------------------|---------------|-----------------------------------|---|
| HIV/AIDS | 81 | 41.9 (6.3*) | 365.0 |
| Other communicable diseases | 15 | 43.9 (8.2*) | 90.0 |
| Non-communicable diseases | 59 | 45.3 (6.2*) | 60.0 |
| Injuries | 10 | 44.7 (8.7*) | 2.0 |
| Unknown | 4 | 48.8 (4.8*) | 547.5 |
| All | 169 | 43.6 (6.7*) | 180.0 |

Note*=Standard deviation

Table 4. Comparison between HIV and Non-HIV related deaths in relation to duration of illness Addis Ababa 2003.

| Duration of illness | HIV related deaths | | Non-HIV related deaths | | X² | P-value |
|--------------------------------|-------------------------------|----------------|-----------------------------------|----------------|----------------------|----------------|
| | Number | Percent | Number | Percent | | |
| Less than 60 days | 10 | 17.2 | 48 | 82.8 | 33.3 | <0.0001 |
| 60 days and above | 71 | 64.0 | 40 | 36.0 | | |

8.4. CRUDE DEATH RATE

The crude death rate was higher (10.2 per 1000 population) in the year 2003 than it was in year 2001 and 2002, which were 7.2 per 1000 in both years (Table 5). Although there was some decline in number of deaths in 1999, generally death rate was steadily increasing from year to year, there were 19 deaths in 1998 and peaked to 45 in 2003, which was more than two-fold than it was in 1998 (Figure 1).

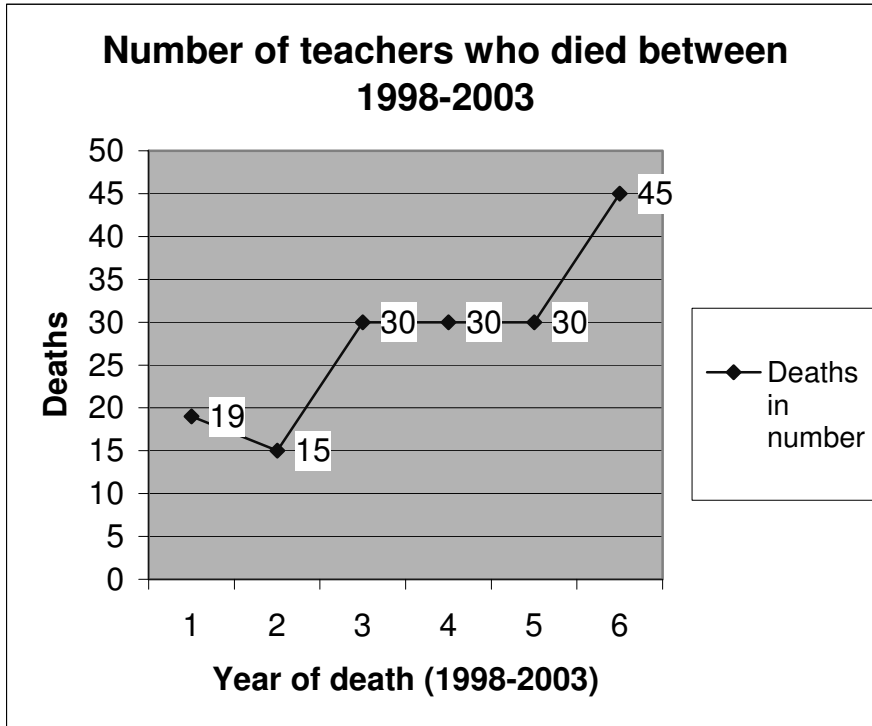
Table 5. Crude death rate per 1000 by year of death, Addis Ababa 2003.

| Year | Deaths | Population | Crude death rate |
|------|--------|------------|------------------|
| 1998 | 19 | * | * |
| 1999 | 15 | * | * |
| 2000 | 30 | * | * |
| 2001 | 30 | 4169 | 7.2 |
| 2002 | 30 | 4141 | 7.2 |
| 2003 | 45 | 4409 | 10.2 |

Note *= Not available

Figure 1. Number of teachers who died between 1998 -2003

Addis Ababa 2003



8.5 MORTALITY RATE IN RELATION TO SOCIO DEMOGRAPHIC

CHARACTERISTICS (Age at death, Sex, Marital status, Educational status)

8.5.1 Age

Higher proportion of HIV related deaths were identified among the age group 20-49 years than those in the age group 50 and above (53.7% and 32.6% respectively). In contrast non-HIV related deaths were higher among the age group 50 and above than those 20-49 years age group (67.4% and 46.3% respectively). This difference was statistically significant ($P=0.015$) (**Table 6**).

8.5.2 Sex

There was lesser proportion of HIV related deaths among males than among their female counterparts (47.2% and 52.9% respectively). The opposite was true for non-HIV related deaths i.e. 52.8% and 48.1% for males and females respectively. However, the difference was not statistically significant ($P= 0.66$) (**Table 6**).

8.5.3 Marital status

Teachers who were single were found to have died of HIV related illnesses in higher proportion than their married counterparts (54% and 38.6% respectively). In contrary teachers who were married died of non-HIV related illnesses in higher proportion than singles (61.4% and 46% respectively). The difference was statistically significant ($P= 0.001$) (**Table 6**).

8.5.4 Educational status

Higher proportion of teachers who were certificate holders died of HIV related illnesses than diploma and degree holders (51.9%, 43.6% and 45.9% respectively), whereas more diploma holders died due to non- HIV related illnesses than degree and certificate holders

(56.4%, 54.1% and 48.1% respectively). However, the difference among the three groups was not statistically significant (P= 0.62) (Table 6).

Table 6. Percentage distribution of death in relation to socio-demographic characteristics of the deceased, Addis Ababa 2003.

| Variables | HIV-related | | Non-HIV related | | X ² | P-value |
|---------------------------|---------------|----------------|-----------------|----------------|----------------|---------------|
| | deaths | | Deaths | | | |
| | Number | Percent | Number | Percent | | |
| Age | | | | | | |
| 20-49 | 66 | 53.7 | 57 | 46.3 | | |
| >=50 | 15 | 32.6 | 31 | 67.4 | 5.944 | 0.015* |
| Sex | Number | Percent | Number | Percent | | |
| Male | 67 | 47.2 | 75 | 52.8 | | |
| Female | 14 | 51.9 | 13 | 48.1 | 0.198 | 0.656 |
| Marital status | Number | Percent | Number | Percent | | |
| Single | 27 | 54.0 | 23 | 46.0 | | |
| Married | 39 | 38.6 | 62 | 61.4 | 13.3 | 0.001* |
| Others | 15 | 83.3 | 3 | 16.7 | | |
| Educational status | Number | Percent | Number | Percent | | |
| Certificate | 40 | 51.9 | 37 | 48.1 | | |
| Diploma | 24 | 43.6 | 31 | 56.4 | 0.963 | 0.618 |
| Degree | 17 | 45.9 | 20 | 54.1 | | |

Note: *= significance difference

Table 7. Percentage distribution of HIV related deaths in relation to socio-demographic characteristics using logistic regression Addis Ababa 2003.

| Characteristics | HIV related deaths | | Crude odds ratio | | Adjusted odds ratio | |
|-----------------------|--------------------|------|------------------|------|----------------------------|----------------------------|
| | Yes | No | OR (95% CI) | | | |
| Age | N | % | N | % | | |
| 20-49 | 66 | 53.7 | 57 | 46.3 | 1.00 | |
| >=50 | 15 | 32.6 | 31 | 67.4 | 0.42 (0.21, 0.85)** | 0.42 (0.20, 0.90)** |
| Sex | | | | | | |
| Male | 67 | 47.2 | 75 | 52.8 | 1.00 | |
| Female | 14 | 51.9 | 13 | 48.1 | 1.21 (0.53, 2.75) | 0.80 (0.30, 2.13) |
| Marital status | | | | | | |
| Single | 27 | 54.0 | 23 | 46.0 | 1.00 | |
| Married | 39 | 38.6 | 62 | 61.4 | 0.54 (0.27, 1.06) | 0.58 (0.29, 1.19) |
| Others | 15 | 83.3 | 3 | 16.7 | 4.26 (1.09, 16.6)** | 4.74 (1.14, 19.7)** |
| Educ. status | | | | | | |
| Certificate | 40 | 51.9 | 37 | 48.1 | 1.00 | |
| Diploma | 24 | 43.6 | 31 | 56.4 | 0.72 (0.36, 1.44) | 0.66 (0.31, 1.40) |
| Degree | 17 | 45.9 | 20 | 54.1 | 0.79 (0.36, 1.73) | 0.78 (0.33, 1.86) |

Note ** = significant association
1.00 = reference

LOGISTIC REGRATION ANALTSIS

This analysis was carried out to control for possible confounders and detect the relative effect of the selected variables on the dependent variable. Accordingly age and marital status were found to be statistically associated with the dependent variable.

The likelihood of dying of HIV/AIDS related illnesses was lesser among the age group 50 years and above than the age group 20-49 years (OR= 0.42, 95% CI 0.21, 0.85), the result resisted to change after adjusting for other independent variables (**Table 7**).

The likelihood of dying of HIV/AIDS related illnesses was higher among divorced and widowed compared to those who were single (OR= 4.26, 95% CI, 1.09, 16.6). Even after adjusting for age, sex and educational status, it markedly resisted to change (OR=4.74, 95% CI, 1.14, 19.7). However, there was no marked difference between married and those who were single (**Table 7**).

8.6 MORTALITY RATE BETWEEN PRIMARY AND SECONDARY

SCHOOL TEACHERS

Female primary school teachers died of HIV related deaths in more proportion than their male counterparts (56% and 47.6% respectively). However, the opposite was true for secondary school teachers, 46.8% and 25% for male and female teachers respectively. Non-HIV related deaths were higher among male primary school teachers than their female counterparts (52.4% and 44% respectively), whereas, non-HIV related deaths were higher among female than male secondary school teachers (75% and 53.2% respectively), however, the difference was not statistically significant ($P>0.05$) **Table 8**.

TREND OF DEATH

The overall death pattern between primary and secondary school teachers was analyzed to compare its impact on human resource in both schools. Accordingly, there was high death rate (11.9 per 1000) among primary school teachers in the year 2003, but death rate was high (8.0 per 1000) among secondary school teachers in the year 2001 (**Figure 2**).

The overall death pattern among primary school teachers showed an increase from 6.7 per 1000 in 2001 to 11.9 per 1000 in 2003. In contrast, the overall pattern among secondary school teachers showed a decline in death rate from 8.0 per 1000 in 2001 to 7.0 per 1000 in 2003 (**Figure 2**).

The pattern of HIV related death rate was also analyzed. HIV related death rate among primary school teachers was 3.4 per 1000 in 2001 and doubled (7.0 per 1000) in 2003. This shows an increase in death rate from time to time, however, the pattern among secondary school teachers shows a decline from 4.0 per 1000 in the year 2001 to 2.6 per 1000 in 2003 (**Figure 3**).

Table 8. Mortality rates by type of school and sex, Addis Ababa 2003.

| Sex | Primary school teachers | | | | Secondary school teachers | | | |
|--------------|-------------------------|-------------|------------------------|-------------|---------------------------|-------------|------------------------|-------------|
| | HIV related deaths | | Non-HIV related deaths | | HIV related deaths | | Non-HIV related deaths | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Males | 39 | 47.6 | 43 | 52.4 | 29 | 46.8 | 33 | 53.2 |
| Females | 14 | 56.0 | 11 | 44.0 | 1 | 25.0 | 3 | 75.0 |
| Total | 53 | 49.5 | 54 | 50.5 | 30 | 45.5 | 36 | 54.5 |
| | $X^2 = 0.55$ | | $P = 0.46$ | | Fishers exact test | | $P = 0.62$ | |

Table 9. Pattern of death due to all causes from the year 1998-2003 by type of school, Addis Ababa 2003.

| Year | Primary school teachers | | | Secondary school teachers | | |
|------|-------------------------|------------|------------|---------------------------|------------|------------|
| | Deaths | Population | Death rate | Deaths | Population | Death rate |
| 1998 | 10 | * | * | 9 | * | *_ |
| 1999 | 8 | * | * | 7 | * | *_ |
| 2000 | 17 | * | * | 13 | * | * |
| 2001 | 18 | 2675 | 6.7 | 12 | 1494 | 8.0 |
| 2002 | 20 | 2730 | 7.3 | 10 | 1411 | 7.1 |
| 2003 | 34 | 2846 | 11.9 | 11 | 1563 | 7.0 |

Note*= Not available

Figure 2. Pattern of all causes of death by type of school from the period 2001-2003, Addis Ababa, 2003.

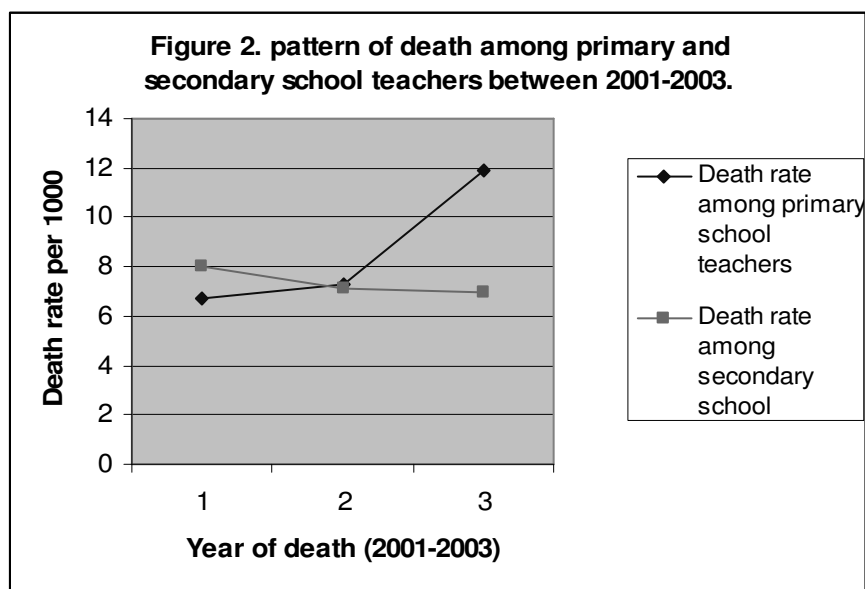
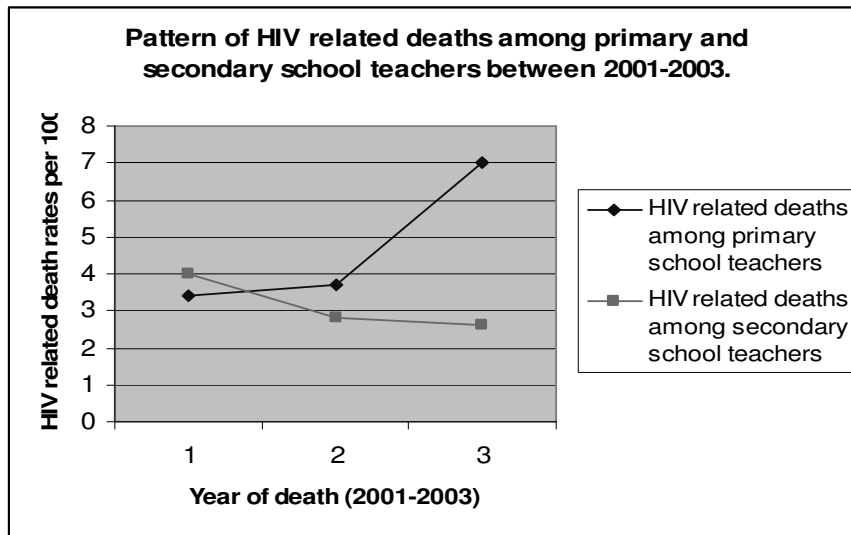


Table 10. Pattern of HIV related deaths per 1000 by type of school from the year 1998-2003 Addis Ababa 2003.

| Year | Primary school teachers | | | Secondary school teachers | | |
|------|-------------------------|------------|------------|---------------------------|------------|------------|
| | Deaths | Population | Death rate | Deaths | Population | Death rate |
| 1998 | 3 | * | * | 4 | * | * |
| 1999 | 5 | * | * | 3 | * | * |
| 2000 | 6 | * | * | 7 | * | * |
| 2001 | 9 | 2675 | 3.4 | 6 | 1494 | 4.0 |
| 2002 | 10 | 2730 | 3.7 | 4 | 1411 | 2.8 |
| 2003 | 20 | 2846 | 7.0 | 4 | 1563 | 2.6 |

Note *= Not available

Figure 3. Pattern of HIV related deaths by type of school from the year 2001-2003 Addis Ababa 2003.



8.7 DEATH RATE IN THE YEAR 2003

DEATH RATE BY SEX

The crude death rate for the year 2003 was 10.2 per 1000 (Table 5). There were 24 HIV related deaths accounting for mortality rate of 5.4 per 1000 population for both sexes. There were also 21 non-HIV related deaths, which correspond to mortality rate of 4.8 per 1000 population for both sexes. Male teachers died of HIV and Non-HIV related diseases at higher rates than females (6.5 Vs 3.4 and 5.8 Vs 2.7 per 1000 respectively) (Table 11).

Table 11. Death rate per 1000 by sex for the year 2003 Addis Ababa 2003.

| Sex | Population | HIV related deaths | Death rate | Non-HIV related deaths | Death rate |
|------------|-------------|--------------------|------------|------------------------|------------|
| Male | 2928 | 19 | 6.5 | 17 | 5.8 |
| Female | 1481 | 5 | 3.4 | 4 | 2.7 |
| All | 4409 | 24 | 5.4 | 21 | 4.8 |

DEATH RATE BY AGE AND SEX (2003)

Overall death rate among men and women aged 25-60 years in the year 2003 were 12.4 and 6.1 per 1000 population respectively. The finding indicated that death rate among men is two-time higher than among women. The peak age of death was seen in the age group 35- 39 years (21.8 per 1000 population) among men and in the age group 30-34 years (10.6 per 1000 population) among women respectively (**Table 12**).

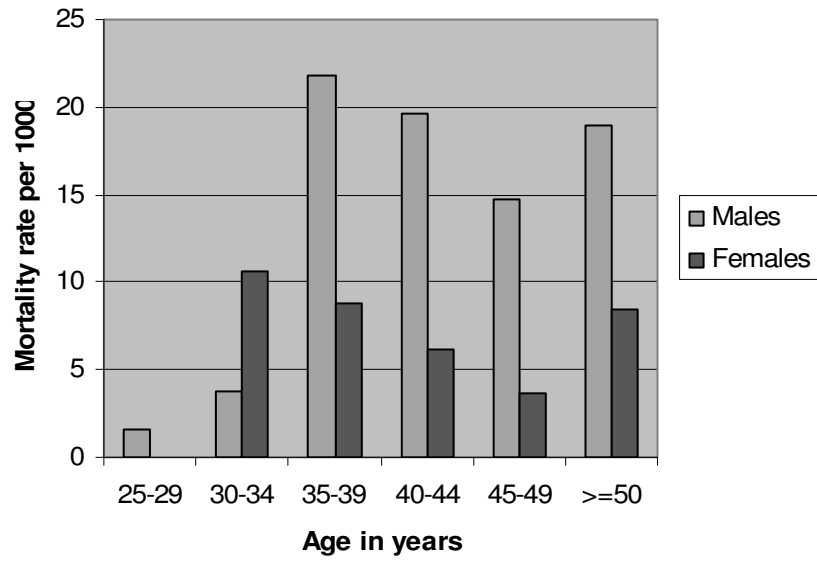
Table 12. Death (rate per 1000) in the year 2003 by age and sex 2003, Addis Ababa, 2003.

| Males | | | |
|------------|-----------|-------------|-------------|
| Age | Deaths | Population | Death rate |
| 25-29 | 1 | 614 | 1.6 |
| 30-34 | 2 | 521 | 3.8 |
| 35-39 | 8 | 367 | 21.8 |
| 40-44 | 7 | 358 | 19.6 |
| 45-49 | 6 | 409 | 14.7 |
| >=50 | 12 | 635 | 18.9 |
| All | 36 | 2904 | 12.4 |

| Females | | | |
|------------|----------|-------------|------------|
| Age | Deaths | Population | Death rate |
| 25-29 | - | 233 | - |
| 30-34 | 2 | 189 | 10.6 |
| 35-39 | 2 | 226 | 8.8 |
| 40-44 | 2 | 325 | 6.2 |
| 45-49 | 1 | 270 | 3.7 |
| >=50 | 2 | 238 | 8.4 |
| All | 9 | 1481 | 6.1 |

Note= 24 male teachers were under the age 25 years and were not added to the denominator for rate Calculation.

Figure 4. Mortality rate per 1000 for the year 2003 by age and sex, Addis Ababa 2003.



8.8. UTILIZATION OF HEALTH SERVICE

During the period of terminal illness 25 (14.8 percent) of the deceased were admitted to a health institution. Among those who died of HIV related illnesses this proportion was 24%, while those who died of non-HIV related illnesses was 76%, this difference was statistically significant (P=0.009). There were no significance differences in health service utilization between men and women who died of HIV related illnesses (25% and 20% respectively) or non-HIV related illnesses (75% and 80% respectively) (Table 13).

Table 13. Utilization of health services Addis Ababa 2003

| Males | | | | |
|---------------------------|---------------------------|----------------|-------------------------------|----------------|
| Place of death | HIV related deaths | | Non-HIV related deaths | |
| | Number | Percent | Number | Percent |
| Home | 62 | 50.8 | 60 | 49.2 |
| Health institution | 5 | 25.0 | 15 | 75.0 |
| Females | | | | |
| Place of death | HIV related deaths | | Non-HIV related deaths | |
| | Number | Percent | Number | Percent |
| Home | 13 | 59.1 | 9 | 40.9 |
| Health institution | 1 | 20.0 | 4 | 80.0 |
| Both sexes | | | | |
| Place of death | HIV related deaths | | Non HIV related deaths | |
| | Number | Percent | Number | Percent |
| Home | 75 | 52.1 | 69 | 78.4 |
| Health institution | 6 | 24.0 | 19 | 76.0 |
| X²=6.73 | | | P=0.009 | |

8.9. PERCEIVED CAUSE OF DEATH

During the verbal autopsy (VA) interview sizable number of respondents (33.7%) spontaneously mentioned that the cause of death was AIDS. Lung TB was the second mentioned perceived cause of death, which accounted for 10.1 percent of the perceived cause of death. Liver diseases (8.9 %), high blood pressure (5.3%) and asthma (4.1%) were the next three perceived cause of death (Table 14).

Table 14. Respondent's perception on the cause of death of the deceased, Addis Ababa, 2003.

| Perceived cause of death | Number | Percent |
|---------------------------------|---------------|----------------|
| AIDS | 57 | 33.7 |
| ASTHMA | 7 | 4.1 |
| BLOOD CANCER | 3 | 1.8 |
| BONE CANCER | 1 | .6 |
| BONE TB | 1 | .6 |
| BRAIN CANCER | 1 | .6 |
| BREAST CANCER | 1 | .6 |
| CAR ACCIDENT | 4 | 2.4 |
| DIABETICS | 3 | 1.8 |
| FALLING ACCIDENT | 2 | 1.2 |
| GASTRIC CANCER | 1 | .6 |
| GASTRIC FUNGUS | 1 | .6 |
| GASTRIC ULCER | 1 | .6 |
| GASTRITIS | 2 | 1.2 |
| HEART PROBLEM | 4 | 2.4 |
| HIGH BLOOD PRESSURE | 9 | 5.3 |
| HOMICIDE | 1 | .6 |
| INFECTION | 1 | .6 |
| INTESTINAL CANCER | 1 | .6 |
| INTESTINAL PROBLEM | 1 | .6 |
| KIDNEY PROBLEM | 3 | 1.8 |
| LIVER DISEASE | 15 | 8.9 |
| LUNG TB | 17 | 10.1 |
| MENTAL PROBLEM | 4 | 2.4 |
| NERVE PROBLEM | 4 | 2.4 |
| SANBA MICH | 5 | 3.0 |
| SUICIDE | 3 | 1.8 |
| TYPHOID | 2 | 1.2 |
| UNKNOWN | 11 | 6.5 |
| UTERINE CANCER | 1 | .6 |
| YANJET METATEF | 2 | 1.2 |
| Total | 169 | 100.0 |

9. DISCUSSION

All causes

Verbal autopsy forms were filled out for 169 cases. Most respondents were close friends of the deceased. Except in 5 cases, all respondents were cooperative. The verbal autopsy forms were made available in both English and Amharic versions. The Amharic version was used in training and data collection. Very few studies were carried out involving the general population and education sector using verbal autopsy (12, 31).

The cause of death was established for 165 deaths (97.6%). The remaining four cases (2.4% of the total deaths) were deaths due to unknown cause.

Mean age at death for both primary and secondary school teachers was 43.6 (SD 6.7); this is relatively higher than mean age of 36.6 years seen in some other studies in Africa (35). This difference could be due to the special characteristics of Addis Ababa teachers' population, most of them were transferred to Addis Ababa after serving 5-10 years in the rural part of Ethiopia.

The crude death rate for both primary and secondary school teachers in the year 2001 was 7.2 per 1000 population and steadily increased to 10.2 per 1000 population in the year 2003. The crude death rate for the year 2003 was higher than the crude death rate among the general population of Addis Ababa, and that of Jordan (7.8 and 5 per 1000 respectively) (12,28,31), however, it was lower than the national crude death rate 12.6 per 1000 (28). This may indicate that teachers are dying in a larger extent compared to the general population of Addis Ababa but this requires further study.

The established cause of death reflected a pattern similar to the study done among adult population in Addis Ababa (12) in which the three leading causes of death were:

TB/HIV-AIDS, hypertension and chronic liver diseases. However, it was different from the study done in Jordan in which the leading causes of death were diseases of circulatory system, malignancy and accidents respectively (31). This shows that the cause of death in our country is different compared to the relatively well-developed countries.

Level of death was considerably higher among primary school teachers than secondary school teachers (63.3% Vs 36.7%. This difference could be due to the difference in educational status and income between the two groups, which necessitates further study. Our finding was similar to studies done in Botswana (0.76% female primary Vs 0.21% female secondary, and 1.21% male primary Vs 0.36% male secondary) and Malawi (2.49% female primary Vs 0.93% female secondary and 1.96% male primary Vs 1.02% male secondary) (6), but different from Uganda where deaths were roughly the same among primary and secondary school teachers (6).

Female primary school teachers were dying in more proportion than their male counterparts, the opposite was true for secondary school teachers, this finding was in agreement with a study done in Malawi (2.49% Vs 1.96% among female and male primary school teachers respectively) (6), but different from that in Uganda (0.92% Vs 0.97%, which is almost the same among female and male primary school teachers respectively) (6).

Death rate of all causes of illnesses was increasing among primary school teachers (from 6.7 per 1000 in 2001 to 11.9 in 2003); but decreasing among secondary school teachers (from 8.0 per 1000 in 2001 to 7.0 per 1000 in 2003). This was in consistent with the study done in Malawi, where death rate increased from 0.43% to 2.49% and from 0.68% to 1.96% among female and male primary school teachers respectively, but it declined

from 2.3% in 1996 to less than 1% in 1998 among secondary school teachers (6), however, our finding was different from the study done in Uganda, where there was a peak at 1.3% for secondary school teachers in 1995 (6).

HIV related

Tuberculosis was the cause for 85 (50.3%) of all deaths and 72 (84.7%) of deaths were in persons with HIV/AIDS; this indicates that TB has strong association with HIV/AIDS and is the leading cause of death in persons with HIV infection (33).

The pattern for HIV related deaths was almost similar with the trend of death due to all causes; there was an increase among primary school teachers, from 3.4 per 1000 in 2001 to 7.0 per 1000 in 2003, whereas there was a decline from 4.0 per 1000 in 2001 to 2.6 per 1000 in 2003 among secondary school teachers, this finding may imply that HIV/AIDS was a cause for an increase in death rate among primary school teachers.

We have observed that HIV related death rate for the year 2003 was higher among males than among females (6.5 Vs 3.4 per 1000). This may reveal that males contracted the disease in more proportion than females; this in turn may imply males exercised unsafe sexual practices. Our finding agrees with the study done in Namibia and Tanzania in which mortality rate among male teachers were 2-3 times higher than female teachers (6).

The peak age of death was 35-39 years among males and 30-34 years among females (21.8 Vs 10.6 per 1000 respectively). This is in agreement with other studies in Kwazulu Natal (1.3% Vs 0.7%) (35). This shows that female teachers were dying at an earlier age compared to their male counterparts. It may also imply that the infection was acquired 5-10 years back while many of them were very young in their twenties.

The duration of illness was significantly longer in teachers who died of HIV/AIDS related illnesses. For 64% of HIV related deaths, the duration of illness lasted longer than 60 days compared to 34% of non-HIV related deaths ($P < 0.0001$). This was in agreement with the study done in Tanzania adult population where most people who died of AIDS and other illnesses were sick for 6 months and 10 days respectively (24). This implies that there was more absenteeism due to HIV/AIDS related illnesses, which in turn affected the quality of education.

Age was found to be significantly associated with the underlying cause of death ($P = 0.015$). Higher proportion (53.7%) of HIV related deaths were seen among the age group 20-49 years compared to non-HIV related deaths of the same age group. This was in agreement with the study done in Tanzania; half of the HIV/AIDS deaths were at ages 15-44 years (24). This suggests that most teachers like in the general population are dying in their most productive age. The implication is there will be huge loss of experienced teachers who will be replaced by less experienced ones, thus compromising the quality of education that will be reflected by failure of students' school performance and drop outs.

We have observed that marital status was significantly associated with cause of death ($P = 0.001$). Divorced and widowed had died of HIV related illnesses in more proportion compared to those who were married and those who were single which were 83.3, 38.6% and 54.0% respectively). This may imply widows and divorced are more prone to have unsafe sexual practices compared to married ones. This finding is different from the findings in other studies, which showed singles were found to be more prone to exercise unsafe sexual practices and contract HIV infection and die of it. This necessitates further study in another setting with similar characteristics.

Although there was no significant association ($P=0.656$), female teachers died of HIV related illnesses in higher proportion than their male counter parts. This was in agreement with the study done among primary school teachers in Malawi (2.49% Vs 1.96), but different from that in Uganda, Botswana and Tanzania primary school teachers, which were (0.92 Vs 0.97, 0.76 Vs 1.21, and 0.58 Vs 1.10 respectively) (6).

Educational status also did not have significant association with death rate; however, it was observed that certificate holders died of HIV related illnesses in more proportion than diploma and degree holders. This finding may imply educated people are less likely to be infected and die of HIV/AIDS related illnesses

Non-communicable diseases

Non-communicable diseases were responsible for 58 (34.3%) of all deaths. This indicates non-communicable diseases are eminent epidemics in the setting where the study was done. It also supports the statement that "both infectious and non-communicable diseases are becoming great challenges in the health of population in developing countries" (34).

Perceived causes of death

Seventy percent of HIV related deaths were identified as AIDS by the respondents. This finding is similar to the study done among adult population in Tanzania, where most respondents (75%) mentioned as AIDS for those HIV related deaths (32). Our finding was different from the study done among adult population in Addis Ababa, in which the predominant perceived cause of death was mentioned as lung diseases (32.3%) (12). This finding may indicate that awareness of HIV/AIDS among the Addis Ababa teachers population is higher like that of Tanzania's adult population, compared to the general population of Addis Ababa.

Health service utilization

There was a significant difference in health service utilization during terminal illness ($P=0.009$) between cases; teachers who died of HIV related illnesses utilized the service in a lesser proportion than those who died of other illnesses (24% Vs 76%). This finding was different from the study done in Tanzania adult population where HIV related and non-HIV related admissions were almost with similar proportion (50% and 44% respectively) (32). This finding could help to predict reasons for underutilization and seek remedial intervention for the future. There was underutilization in our setting compared to that of Tanzania, the reasons for underutilization might be fear of stigma and discrimination.

10. STRENGTHS AND LIMITATIONS OF THE STUDY

10.1 STRENGTHS

- This is the first study done in the education sector of Ethiopia that utilized VA technique to generate data on mortality of teachers.
- It employed school heads, unit leaders and other teaching staffs to collect death information, which would compensate lack of systematic registration of morbidity and mortality data.

10.2 LIMITATIONS

- Sample size was small, which might compromised generalization
- The study is based on retrospective retrieval of data. The sources of information were close friends of the deceased and thus there might be recall bias that could lead to over or under estimation of the findings.
- Unavailability of demographic data of the teachers population on yearly bases limit most of our calculations to proportions.
- There might also be misdiagnosis of cause of death by the assessors due to the fact that many diseases have overlapping signs and symptoms.
- There was probability of missing death events since there was no an established systematic registration of morbidity and mortality data in all schools.

11. CONCLUSIONS AND RECOMMENDATIONS

- HIV related illnesses were the leading cause of death as 47.9% of all deaths were attributed to them.
- Teachers who were in their most productive age (20- 49 years of age) died of HIV related illnesses.
- Teachers who were divorced and widowed died of HIV/AIDS related illnesses in higher proportion compared to those who were single and married.
- In general, HIV related deaths are steadily increasing, though there was a small decline seen among secondary school teachers.
- Health service utilization during terminal illness was significantly low among teachers who died due to HIV related illnesses.
- Deaths due to non-communicable diseases were significantly high, they attributed to 34.3% of all deaths.

Based on these conclusions the following recommendations are forwarded:

- All teaching staff should be made aware that they are negatively affected by the epidemic.
- Develop work place HIV/AIDS prevention policy that is specific to the working environment (schools).
- Education bureau and schools should take measures to counteract the effects of AIDS crisis into their long-term plan.
- Reasons for low health service utilization needs further study probably qualitative approach.

- Non-communicable diseases should also be given due emphasis when designing disease prevention program.
- Comprehensive information management system should be established to ensure reliable recording and monitoring of morbidity and mortality data.

12. REFERENES

1. Gachuhi D. The impact of HIV/AIDS on education systems in the Eastern and Southern African region and the response of education systems to HIV/AIDS: Life skills programs, UNICEF 1999.
2. Cohen D. The HIV epidemic and the education sector in sub-Saharan Africa. HIV and development programmes, Issue paper number 32, UNDP 1999.
3. Shaffer S. The impact of HIV/AIDS on education, a review of literature and experience. UNESCO section for preventive education; 1994: 1-41.
4. Kelly MJ. The impact of HIV/AIDS on Schooling in Zambia. <http://www.jctr.org.zm/impact%20of%20AIDS%20on%20educa.htm>, 2000.
5. Kelly M.J. The encounter between HIV/AIDS and Education UNESCO 2000.
6. Benel P, Hyde K and Winson N. The impact of the HIV/AIDS epidemic on the education sector in sub-Saharan Africa, a synthesis of findings and recommendations of three country studies; center for international education, University of Sussex, institute of education; 2002.
7. Worku S and Lemma E. Impact of HIV/AIDS on the education sector of Ethiopia, crisis requesting emergency type response to change the country's national education agenda; 2002.
8. UNESCO/WHO. HIV/AIDS and Education. a strategic approach; International institute for educational planning; 2003.
9. UNAIDS. AIDS epidemic update. December 2002.
10. MOH. AIDS in Ethiopia, 2002; 4th edition
11. FHI. AIDS control and prevention project final report. 1997; 2: 1-28.

12. Araya T. HIV/AIDS Related Mortality in Addis Ababa city Administration, Masters thesis submitted to the school of graduates, AAU. 2001
13. Quigley M.A, Armstrong J.R.M and Snow R.W. Algorithms for verbal autopsies. A validation study in Kenyan children. Bulletin of WHO 1996; 74:2: 147-154
14. Kamali A, Wagner H-U, Nakiying J, et al. Verbal autopsy as a tool for diagnosing HIV-related adult deaths in rural Uganda; International journal of epidemiology; 1996; 25:3:679-684.
15. Maria A.Q, Chndramohan D, Setel P, et al. Validity of data - derived algorithms for ascertaining causes of adult death in two African sites using verbal autopsy. Journal of Tropical medicine and international health. 2000; 5:1: 33-39.
16. Snow R.W, Armstrong J.R.M, Forster D, et al. Childhood deaths in Africa: uses and limitations of verbal autopsy. Lancet; 1992; 340: 351-355.
17. Maria A, Chandramohan D and Laura CR. Diagnostic accuracy of physician review, expert algorithms and data derived algorithm in adult verbal autopsies. International Journal of epidemiology; 1999: 28:1081-1087.
18. Barnaby C.R and Maria A.Q. A review of data derived methods for assigning causes of death from verbal autopsy data. International journal of epidemiology; 1997:26:5:1080-1089.
19. Anker M. The effect of miss-classification error on reported cause specific mortality fractions from verbal autopsy. International journal of epidemiology; 1997; 26:5:1090-96.

20. Gillan H.M and David A.R. The effect of different sensitivity, specificity and cause-specific mortality fractions on the estimation of differences in cause-specific mortality rates in children from studies using verbal autopsies. *International journal of epidemiology*; 1997;26:5:1097-1106.
21. Rosmans C, Vanneste A.M, Chakraborty J, and Ginneken J.V. A comparison of three verbal autopsy methods to ascertain levels and causes of maternal deaths in Matlab, Bangladesh. *International Journal of epidemiology*.1998; 27:4:660-666.
22. Center for Disease Control and Prevention. Cause specific adult mortality: evidence from community based surveillance-selected sites. Tanzania; 1992-1998. *MMWR morb mortal wkly Rep* 2000:49:416-419.
23. Abdulahi H. Burden of disease in Butajira Southern Ethiopia. Masters thesis submitted to the school of graduate studies, A.A.U; 1998.
24. Urassa M, Boerma JT, Isingo R, et al. The impact of HIV/AIDS on mortality and household mobility in rural Tanzania. *AIDS* 2001; 15: 1 - 7.
25. Mirza et al. verbal autopsy: A tool for determining cause of death in a community. *East African medical journal*. October 1999: 693 - 698.
26. Uressa E et al. Female mortality in reproductive ages in Dares Selam, Tanzania. *East African medical journal*; 1994: 71(4): 223-231.
27. CSA. Statistical abstract; Addis Ababa, 2003.
28. MOH. Health and health related indicators. 1994 E.C.
29. Addis Ababa education bureau. List and address of schools in Addis Ababa. Draft report. July 2003.

30. Addis Ababa Education Bureau, Department of Statistics.
31. Khoury SA, Massad D and Fardous T. Mortality and cause of death in Jordan 1995-96, assessment by verbal autopsy; international journal of public health 1999; 77: 8: 627-710.
32. Boerma JT, Ngalula J, Isingo R, et al. Levels and causes of adult mortality in rural Tanzania with special reference to HIV/AIDS, health transition review 1997; 7: 63-74.
33. Kebede D. et al. The HIV epidemic and the state of its surveillance in Ethiopia. Ethiop Med J 2000; 38: 283-302.
34. Berhane Y. Challenge in Advancing Public Health. Ethiop J Health Dev. 2004; 18: 01-66.
35. Badcock-Walter P, Desmond C, Wilson D and Heard W. Educator mortality in-service in Kwazulu Natal. a consolidated study of HIV/AIDS impact and trend, a paper presented at Demographic and Socio-economic conference, Durban, 28 March 2002.
36. Corr-Hill R, Katabaro KJ, Katahoire AR and Oulai D. The impact of HIV/AIDS on education and institutionalizing preventive education. Education in the context of HIV/AIDS; <http://www.unesco.org/iiep>. 2002.
37. Sunday Times. AIDS Obliterating Africa's teachers. A press release; www.sunday%20Times%20%20south%20Africa's%20best%20selling%20newspaper.ht. 2003.

Annex 2. Names and codes of the randomly selected primary and secondary schools

| <i>Serial number</i> | <i>Code number</i> | <i>Name of school</i> | <i>Foundation</i> |
|----------------------|--------------------|---|-------------------|
| 1 | 27 | <i>Kality primary school</i> | <i>1968 E.C</i> |
| 2 | 56 | <i>Akaki primary school</i> | |
| 3 | 83 | <i>Akaki Adventist secondary school</i> | <i>1935 E.C</i> |
| 4 | 03 | <i>Ayer tena secondary school</i> | <i>1974 E.C</i> |
| 5 | 49 | <i>Addis fana primary school</i> | <i>1993 E.C</i> |
| 6 | 04 | <i>Ginbot 20 secondary school</i> | <i>1986 E.C</i> |
| 7 | 19 | <i>Tsedal primary school</i> | <i>1992 E.C</i> |
| 8 | 67 | <i>Sibiste Negasi primary school</i> | <i>1946 E.C</i> |
| 9 | 73 | <i>Atse Naod primary school</i> | <i>1961 E.C</i> |
| 10 | 09 | <i>Kidanemihret secondary school</i> | <i>1950 E.C</i> |
| 11 | 41 | <i>Yetimhirt Bilchta primary school</i> | <i>1962 E.C</i> |
| 12 | 85 | <i>Misrak ber No 1 primary school</i> | <i>1956 E.C</i> |
| 13 | 02 | <i>Minilik 2nd secondary school</i> | <i>1897 E.C</i> |
| 14 | 14 | <i>Bole secondary school</i> | <i>1974 E.C</i> |
| 15 | 65 | <i>Kokebetsibah secondary school</i> | |
| 16 | 80 | <i>Wetatochgenet primary school</i> | <i>1965 E.C</i> |
| 17 | 60 | <i>Kokebetsibah primary school</i> | <i>1924 E.C</i> |
| 18 | 10 | <i>Yeka primary school</i> | <i>1961 E.C</i> |
| 19 | 55 | <i>Shimelis Habte secondary school</i> | <i>1940 E.C</i> |
| 20 | 84 | <i>Waliya Primary school</i> | <i>1965 E.C</i> |
| 21 | 15 | <i>Adey Abeba secondary school</i> | <i>1993 E.C</i> |
| 22 | 42 | <i>Belay Zeleke primary school</i> | <i>1977 E.C</i> |
| 23 | 69 | <i>Yekatit 12 secondary school</i> | <i>1921 E.C</i> |
| 24 | 45 | <i>Addis Ababa No2 primary school</i> | <i>1968 E.C</i> |
| 25 | 86 | <i>St. Mary secondary school</i> | <i>1920 E.C</i> |
| 26 | 48 | <i>Ediget Besira primary school</i> | <i>1948 E.C</i> |
| 27 | 43 | <i>Kefitegna 4 secondary school</i> | <i>1080 E.C</i> |
| 28 | 31 | <i>Jhon of Kenedy No2 primary school</i> | <i>1966 E.C</i> |
| 29 | 13 | <i>Awoliya secondary school</i> | <i>1952 E.C</i> |
| 30 | 39 | <i>Fit/ Habtegeorgis primary school</i> | |
| 31 | 78 | <i>Addis Ketema secondary school</i> | |
| 32 | 62 | <i>Bit/Woldegebriel Beshah primary school</i> | <i>1959 E.C</i> |
| 33 | 16 | <i>Dagmawiberhan primary school</i> | <i>1964 E.C</i> |
| 34 | 35 | <i>Kestedemena primary school</i> | <i>1948 E.C</i> |
| 35 | 68 | <i>Tsehay Gibat primary school</i> | <i>1993 E.C</i> |
| 36 | 05 | <i>Dilachin secondary school</i> | <i>1994 E.C</i> |
| 37 | 26 | <i>Sefereselam primary school</i> | <i>1967 E.C</i> |
| 38 | 46 | <i>Betelmekaneyesus secondary school</i> | <i>1916 E.C</i> |
| 39 | 81 | <i>Haleluya primary school</i> | <i>1958 E.C</i> |
| 40 | 53 | <i>Yekatit 23 primary school</i> | <i>1962 E.C</i> |
| 41 | 21 | <i>Misrakgoh primary school</i> | <i>1938 E.C</i> |
| 42 | 51 | <i>Atse Tewodros primary school</i> | <i>1956 E.C</i> |
| 43 | 58 | <i>Berhanih Zare primary school</i> | <i>1977 E.C</i> |
| 44 | 61 | <i>Edget Behibret primary school</i> | <i>1935 E.C</i> |
| 45 | 44 | <i>Medhanealem primary school</i> | |
| 46 | 06 | <i>Kelemamba primary school</i> | <i>1966 E.C</i> |

| | | | |
|----|----|--------------------------------------|----------|
| 47 | 47 | Addis Hiwot primary school | 1986 E.C |
| 48 | 28 | Addis Ababa No1 primary school | 1963 E.C |
| 49 | 18 | Abiot Ermija primary school | 1974 E.C |
| 50 | 01 | Gullele Fana primary school | |
| 51 | 08 | Tsehaychora primary school | 1950 E.C |
| 52 | 64 | Entoto Amba primary school | 1942 E.C |
| 53 | 70 | Dil Betigil secondary school | 1958 E.C |
| 54 | 71 | Kuskam Taytu Butul primary school | 1925 E.C |
| 55 | 36 | Agazian No3 primary school | 1968 E.C |
| 56 | 24 | Arbegnoch primary school | |
| 57 | 17 | Keykokeb primary school | 1964 E.C |
| 58 | 82 | Ethiopia Tikdem No1 secondary school | 1967 E.C |
| 59 | 50 | Atse Fasil primary school | 1961 E.C |
| 60 | 38 | Hamle 19/67 primary school | 1971 E.C |
| 61 | 88 | Dil Ber secondary school | 1994 E.C |
| 62 | 23 | Ethiopia Tikdem No2 primary school | |
| 63 | 79 | Atse Neakutoleab primary school | 1964 E.C |
| 64 | 33 | Addis Berhan primary school | 1993 E.C |
| 65 | 72 | Edget Fana primary school | 1962 E.C |
| 66 | 66 | Kelemework primary school | 1956 E.C |
| 67 | 74 | Netsanet Berhan primary school | 1958 E.C |
| 68 | 57 | Hamle 1 primary school | 1964 E.C |
| 69 | 30 | Asey primary school | 1958 E.C |
| 70 | 52 | Ayer Amba primary school | 1968 E.C |
| 71 | 22 | Kolfe secondary school | |
| 72 | 32 | Berhan Ber primary school | |
| 73 | 87 | Abdissa Aga primary school | |
| 74 | 11 | Selam Ber primary school | 1977 E.C |
| 75 | 54 | Berhan Hiwot primary school | 1957 E.C |
| 76 | 77 | Karamara primary school | |
| 77 | 40 | Ethiopia Ermija primary school | 1952 E.C |
| 78 | 76 | Kebena primary school | 1961 E.C |
| 79 | 75 | Dej./ Wondirad secondary school | 1974 E.C |
| 80 | 29 | Tesfakokeb primary school | |
| 81 | 59 | Raguel church secondary school | 1992 E.C |
| 82 | 25 | Dej. Oumer Semeter primary school | |
| 83 | 34 | Tinsae Berhan primary school | 1954 E.C |
| 84 | 63 | Edget primary school | 1958 E.C |
| 85 | 12 | Ethiopia Andinet primary school | 1954 E.C |
| 86 | 07 | Yekatit 6 primary school | 1943 E.C |
| 87 | 20 | Medhanealem secondary school | |
| 88 | 37 | Abadir primary school | |

Annex 3. Verbal Autopsy Questionnaire for Adult deaths (English Version)

"INDEPTH NETWORK"
Standard Verbal Autopsy
Questionnaire For Adult Death
(English Vers³ion)

Oct.2003

³ Adapted from the WHO standard verbal autopsy questionnaire for infants and children (WHO/CDS/CSR/ISR/99.4) and pre existing site-specific questionnaire

Questionnaire for Deceased Adults.

Instruction to the Interviewers: Before starting interviewing, introduce yourself and explain the purpose of the study to respondents in the following way:-

Dear _____

We have come from Department of community health, Addis Ababa University we are here to gather information on the health problems of teachers, especially those health problems associated with mortality. The information will be very useful for health planning process of the education sector as well as the country as a whole.

We are going to ask you some questions that are related to Ato/W/ro _____ who died _____ months/Years back. We assure you that the information gathered in this study is **strictly confidential.**

Are you willing to participate in the study?

Yes=1

NO= 0

If the answer is **Yes** proceed to interview the respondent, if **No**, respect the right of the individual, thank and stop.

Verbal Autopsy Questionnaire for Adolescents and Adult deaths

Section I.

Personal Identification of the deceased

- Q1. Code No. _____
- Q2. Full Name:- _____
- Q3. Age _____ Years
- Q4. Sex _____ Male =1
Female =2
- Q5. Address _____
5.1. Kifle Ketema _____
5.2. Kebele _____
5.3. House No. _____
- Q6. Marital status _____
Single =1
Married =2
Divorced =3
Widowed =4
- Q7. Educational Status _____
Certificate =1
Diploma =2
Degree =3
Masters and above =4
- Q8. Occupation _____

Section II :-

Death related information

- Q9. Duration of his/her illness before death? dd/mm/yy _____
- Q10. Date of death (dd/mm/yy) _____

Q11. Place of death _____ Home =1
 Health Institution =2
 Other =3

(If the answer is home or other go to question number 12)

- If the answer is in health institution, state the name and address of the health institution. _____
- Were you informed the cause of death by the medical personnel?
 No = 0 Yes = 1 Don't know = 99

Q12. Did you know the cause of death?
 No = 0 Yes = 1 Don't know = 99

If the answer is yes probe to specify the cause:-

Cause 1= _____
 Cause 2= _____

- Q13. Ask whether she/he had any of the following illness?
- | | | | |
|------------------|--------|---------|-----------------|
| a. Hypertension | No = 0 | Yes = 1 | Don't know = 99 |
| b. Diabetes | No = 0 | Yes = 1 | Don't know = 99 |
| c. Epilepsy | No = 0 | Yes = 1 | Don't know = 99 |
| d. Tuberculosis | No = 0 | Yes = 1 | Don't know = 99 |
| e. AIDS | No = 0 | Yes = 1 | Don't know = 99 |
| f. Liver disease | No = 0 | Yes = 1 | Don't know = 99 |

Q14. Relationship of the respondent to the deceased

| | | |
|--------------------|---------------|-----------------------------|
| Spouse = 1 | Aunt/Uncle =5 | Grandmother/Grandfather = 6 |
| Mother/Father = 2 | | Neighbor = 7 |
| Brother/Sister = 3 | | Friend = 8 |
| Daughter/son = 4 | | Others, specify 9 _____ |

Section III

Questions to probe for symptoms and signs of final illness of the deceased

Q15. Did the deceased have fever?

No= 0 Yes= 1 Don't know = 99

(If the answer is no or Don't know proceed to question No. 21)

Q16. For how long did the fever stay _____

Don't know = 99

Q17. Was the fever high?

No = 0 Yes = 1 Don't know = 99

Q18. Was the fever continuous or not?

Continuous = 1

Sometimes = 2

Don't know = 99

Q19. Did the deceased have rash

No = 0 Yes = 1 Don't know = 99

If the answer is no or Don't know proceed to question 26.

Q20. For how long did the rash stay?

Don't know = 99

Q21. What did the rash look like?

Measles rash = 1 Watery =2 Pusy = 3

Other, specify = 4 _____ Don't know = 99

Q22. Did the eyes look red?

No = 0 Yes = 1 Don't know = 99

Q23. Did the deceased have itching of the eye?

No = 0 Yes = 1 Don't know = 99

Q24. Did the deceased have weigh loss before death?

No = 0 Yes = 1 Don't know = 99

If the answer is No or Don't know proceed to question 28.

Q25. How was the degree of weight loss? If known write in kilogram_____.

Too much = 1 Medium = 2 Don't know = 99

Q26. Were the legs edematous?

No = 0 Yes = 1 Don't know = 99

If the answer is No or don't know proceed to question 30.

- Q27. For how long did the edema of leg stay? _____
 Don't know = 99
- Q28. Did the deceased have puffiness of face?
 No = 0 Yes = 1 Don't know = 99
- Q29. Did the deceased have pale face?
 No = 0 Yes = 1 Don't know = 99
- Q30. Did the deceased have yellowish eye (jaundice)?
 No = 0 Yes = 1 Don't know = 99
- Q31. Did the deceased have neck edema?
 No = 0 Yes = 1 Don't know = 99
- Q32. Did the deceased have axillary's edema?
 No = 0 Yes = 1 Don't know = 99
- Q33. Did the deceased have swollen lymph nodes?
 No = 0 Yes = 1 Don't know = 99
- Q34. Did the deceased have any swelling/wound of the body?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is yes probe for the site and duration)
- Q35. Did the deceased have cough
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know proceed to question 41.)
- Q36. For how long did the cough stay? _____
 Don't know = 99
- Q37. Was the cough productive?
 No = 0 Yes = 1 Don't know = 99
- Q38. Was the cough bloodstained?
 No = 0 Yes = 1 Don't know = 99
- Q39. Did the deceased have dyspnea (shortness of breath)?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know proceed to question 45)

- Q40. Was the dyspnea continuous?
 Continuous = 1 At interval = 2 Don't know = 99
- Q41. For how long did the dyspnea stay? _____
 Don't know = 99
- Q42. Did the deceased have wheezing breezing?
 No = 0 Yes = 1 Don't know = 99
- Q43. Did the deceased have chest pain?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know skip to question 49)
- Q44. Which side of the chest was with sharp pain?
 Middle chest = 1
 On the left side (on heart) = 2
 Other part = 3
 Don't know = 99
- Q45. Was the chest pain continuous or at interval?
 Continuous = 1 At interval = 2 Don't know = 99
- Q46. For how long did the chest pain stay? _____
 Don't know = 99
- Q47. Did the deceased have diarrhea?
 No = 0 Yes = 1 Don't know = 99
 If the answer is no or don't know skip to question 53
- Q48. For how long did the diarrhea stay? _____
 Don't know = 99
- Q49. Was the diarrhea continuous or at interval? _____
 Continuous =1 At interval = 2 Don't know = 99
- Q50. How many times was the diarrhea per day? _____
 Don't know = 99
- Q51. What was the type of diarrhea?
 Watery = 1 Soft = 2 Don't know = 99
- Q52. Was the diarrhea bloody?
 No = 0 Yes = 1 Don't know = 99

- Q53. Did the deceased have vomiting?
(If the answer is No or don't know skip to question 59.)
- Q54. For how long did the vomiting stay? _____
Don't know = 99
- Q55. Was the vomiting continuous or at interval?
Continuous = 1 At interval = 2 Don't know = 99
- Q56. How many times per day was the vomiting? _____
Don't know = 99
- Q57. What was the appearance of vomitus?
Watery = 1 Faecal = 5
Yellowish = 2 Other, specify=6 _____
Brownish = 3 Don't know = 99
Blood stained = 4
- Q58. Did the deceased have abdominal complaint?
No = 0 Yes = 1 Don't know = 99
(If the answer is No or don't know skip to question 64.)
- Q59. How was the abdominal pain (complaint)?
Cramp = 1 Burning = 3 5. Don't know = 99
Sharp = 2 Others = 4
- Q60. How long did the abdominal complaint stay? _____
Don't know = 99
- Q61. Which part of the abdomen was with pain?
Below the umbilicus = 1
Above umbilicus = 2
The whole abdomen = 3
Others, specify = 4 _____
Don't know = 99
- Q62. How severe was the abdominal pain.
Strong = 1 Medium = 2
Slight = 3 Don't know = 99

- Q63. Did the deceased have difficulty in passing stool?
 No = 0 Yes = 1 Don't know = 99
- Q64. Did the deceased have an abdominal distension?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know skip to question 68)
- Q65. For how long did the abdominal distension stay? _____
 Don't know = 99
- Q66. Was the abdominal distension sudden or progressed gradually?
 Suddenly = 1
 Gradually = 2
 Don't know = 99
- Q67. Did the deceased have difficulty in swallowing food or drink?
 (If the answer is No or don't know skip to question 70)
- Q68. For how long was the difficulty in swallowing stayed? _____
 Don't know = 99
- Q69. Did the deceased have any abdominal tumor?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know skip to question 73)
- Q70. In which side of the abdomen was the tumor?
 Right side = 1 Below the umbilicus = 3 Don't know = 99
 Left side = 2 Other, specify = 4 _____
- Q71. For how long did the abdominal tumor stay? _____
 Don't know = 99
- Q72. Did the deceased have headache?
 No = 0 Yes = 1 Don't know = 99
- Q73. Did the deceased have neck stiffness?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know skip to question 76)
- Q74. For how long did the neck stiffness stay? _____
 Don't know = 99
- Q75. Did the deceased have any loss of consciousness?

- No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know skip to question 80)
- Q76. What was the degree of unconsciousness?
 Stuperous = 1
 Unconsciousness = 2
 Others, specify = 3 _____
 Don't know = 99
- Q77. For how long did the unconsciousness stay? _____
 Don't know = 99
- Q78. How did the unconsciousness start?
 Suddenly = 1
 Within 1 day = 2
 Within 2 days = 3
 Don't know = 99
- Q79. Did the deceased have fit?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or Don't know skip to question 83)
- Q80. For how long did the fit stay? _____
 Don't know = 99
- Q81. Which part of the body had fits?
 The whole body = 1
 Arms/legs only = 2
 Don't know = 99
- Q82. How many times per day was the fit occurred? _____
 Don't know = 99
- Q83. Was the deceased conscious between fits?
 No = 0 Yes = 1 Don't know = 99
- Q84. Did the deceased have difficulty in opening the mouth?
 No = 0 Yes = 1 Don't know = 99
- Q85. Did the deceased have stiffness of the whole body?

- No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know skip to question 87)
- Q86. For how many days did the whole body stiffness stay? _____
 Don't know = 99
- Q87. Did the deceased have hemiplegia?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know skip to question 89)
- Q88. For how many days did the hemiplegia stay? _____
 Don't know = 99
- Q89. Had the deceased paraplegia?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know skip to question 92)
- Q90. For how many days did the paraplegia stay? _____
 Don't know = 99
- Q91. Did the deceased have change in the normal color of urine?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or don't know skip to question 95)
- Q92. What was the color of urine looked like?
 Yellow = 1 Brown = 2 Bloody = 3
 Don't know = 99
- Q93. For how many days did the urine color change stay? _____
 Don't know = 99
- Q94. Was the amount of daily urine changed ?
 No = 0 Yes = 1 Don't know = 99
 (If the answer is No or Don't know skip to question 97)
- Q95. The amount of daily urine was _____
 Don't know = 99
- Q96. For how many days was the amount of urine changed? _____
 Don't know = 99
- Q97. Did the deceased have difficulty in urination?
 No = 0 Yes = 1 Don't know = 99

(If the answer is No or Don't know skip to question 97)

Q98. How severe was the difficulty in urination?

Could not pass urine = 1

Incontinency = 2

Burning during urination = 3

Don't know = 99

Q99. Did the deceased have any operation recently?

No = 0 Yes = 1 Don't know = 99

(If the answer is No or Don't know skip to question 102)

Q100. How many days before death was the operation done? _____

Don't know = 99

Q101. On which part of the body was the operation done?

Abdomen = 1

Other part of the body = 2

Don't know = 99

The following __14__ questions are specific for deceased females who were less than 50 years of age at the time of death. If the deceased female is > 50 years old skip to question 114, and if the deceased is male skip to question 116.

Q102. Was the deceased pregnant at the time of death?

No = 0 Yes = 1 Don't know = 99

(If the answer is No or Don't know skip to question 102)

Q103. For how many months did the pregnancy stay? _____

Don't know = 99

Q104. Did the deceased give birth 45 days before her death?

No = 0 Yes = 1 Don't know = 99

(If the answer is No or don't know skip to question 108)

Q105. How many days before did she give birth? _____

Don't know = 99

Q106. Where did the deceased give birth?

Home = 1

Health Institution = 2

Don't know = 99

If the answer is Health institution, specify the name of the health Institution. _____.

Q107. How long was the duration of labour?

One day = 1

More than a day = 2

Don't know = 99

Q108. Did the deceased have too much bleeding during labour?

No = 0 Yes = 1 Don't know = 99

Q109. Was the bleeding before or after delivery?

Before delivery = 1

After delivery = 2

Don't know = 99

Q110. How was the delivery undertaken? _____

Spontaneous = 1 Instrumental = 2 Operation = 3

Don't know = 99

Q111. How was the status of the baby after delivery?

Was alive = 1

Born dead = 2

Died within 7 days = 3 Don't know = 99

If born dead, specify the duration of pregnancy _____

Q112. Did the deceased have difficulty in delivery?

No = 0 Yes = 1 Don't know = 99

Q113. Did the deceased have abortion few days/weeks before her death?

No = 0 Yes = 1 Don't know = 99

Q114. Did the deceased have abnormal vaginal bleeding few days before her death?

No = 0 Yes = 1 Don't know = 99

Q115. Did the deceased have swelling or ulcer on breast?

No = 0 Yes = 1 Don't know = 99

Q116. Did the deceased suffer any accidental injury?

No = 0 Yes = 1 Don't know = 99

(If the answer is No or Don't know skip to question 116)

Q117. What type of accident had occurred to the deceased?

Assault = 1
Car accident = 2
War wounded = 3
Animal bite = 4
Burning = 5
Poison = 6
Others, specify = 7 _____
Don't know = 99

Q118. How many days before the death did the accident occur? _____

Q119. Did the deceased commit suicide?

No = 0 Yes = 1 Don't know = 99

(If the answer is No or Don't know skip to the next question 118)

Q120. How did the deceased commit suicide?

Hanging = 1
Poisoning = 2
Burning = 3
Don't know = 9

Q121. Time taken for interview _____ Minutes.

<30 = 1 51 - 60 = 4
31 - 40 = 2 > 60 = 5
41 - 50 = 3

Thank respondent for his/her cooperation.

Interviewers' signature

ID. No.

Signature

Date

1. _____

2. _____

Date of Interview

Date/Month/Year _____

Annex 4

Verbal Autopsy Questionnaire for Adult deaths

(Amharic Version)

ከዚህ ዓለም በሞት ስተሰዩ አዋቂዎች የተዘጋጀ ቃስ መጠይቅ

የመረጃ ሰብሳቢው መመሪያ :-

ቃስ መጠይቅን ከመጀመርዎ በፊት ራስዎንና የመጡበትን ምክንያት ለመልስ ሰጪው በሚከተለው መልኩ ይገለጹ :-

ክቡር /ክብርት -----

እኛ የመጣነው ከአዲስ አበባ ዩኒቨርሲቲ የህብረተሰብ ጤና ትምህርት ክፍል ነው። በአሁኑ ሰዓት የአዲስ አበባ ከተማ መምህራን የጤና ችግር በተለይ ለሞት የሚዳርጉትን በማጥናት ላይ እንገኛለን። ይህ ጥናት ለመንግስትም ሆነ ለህብረተሰቡ በተለይም ለትምህርት ሴክተሩ ጠቃሚ እንደሚሆን ይታመናል። ስለሆነም እያንዳንዱ የህብረተሰብ ክፍል አስፈላጊ ድጋፍና ትብብር በማድረግ የጥናቱ ተካፋይ በመሆን ለጥናቱ መሣካት ትልቅ ድርሻና ኃላፊነት እንዳለበት እሙን ነው። ስለዚህ በተለይ እርስዎን የመጣንበት ጉዳይ ደግሞ የእርስዎ ቤተሰብ የሆኑትንና ባለፉት ጥቂት ----- ወራት/ዓመታት በሞት ስተሰዩዎት አ/ወ/ሮ/ወ/ት -----

የተባሉት ስሞት ያበቃቸውን የጤና ችግር መረጃ ለማሰባሰብ ነው። በጥናቱ ሂደት የሚገኙትን መረጃዎች ከጥናቱ ውጭ ጥቅም ላይ የማይውሉ መሆኑን እናረጋግጣለን።

በጥናቱ ላይ ለመሳተፍ ፈቃደኛ ነዎት ?

አዎ = 1

አይደለሁም = 2

መልሱ አዎ ከሆነ መጠይቅን ደቀጥሱ መልሱ አይደለም ከሆነ የግለሰቡን መብት አክብረውና አመስግነው ቃስመጠይቅን ያቀሙ።

ከዚህ ዓለም በሞት ስተሰዩ ስዋቂዎች የሞቱበትን ምክንያት ሰማወቅ የተዘጋጀ ቃስ መጠይቅ

I. የሚችሉ ማንነት ዝርዝር መረጃ

Q1. መስደ ቁጥር -----

Q2. የሚችሉ ሙሉ ስም -----

Q3 የሚችሉ ስድሜ -----

Q4 የሚችሉ ደታ ----- ወንድ = 1

ሴት = 2

Q5. የሚችሉ ስድራሻ -----

5.1 ክፍለ ከተማ -----

5.2 ቀበሌ -----

5.3 የቤት ቁጥር -----

Q6. የሚችሉ የጋብቻ ሁኔታ -----

ደህንነት/የ/ = 1

ደገብ/የ = 2

የፊት/የ = 3

ባህ የሞተባት/ሚስቱ የሞተችበት = 4

Q7. የሚችሉ የትምህርት ደረጃ -----

ሰርተፊኬት = 1

ዲግሪ-ማ = 2

ዲግሪ = 3

ማስተርስና ከዚያ በላይ = 4

Q8. ሚችሉ ያስተምሩት የነበረ የትምህርት ዓይነት -----

II. የአሚሚት ሁኔታቸውን የሚገልጹ መረጃ

Q9. ከመሞታቸው በፊት ስምን ያህል ቀናት / ወራት ታመው ነበር -----

Q10. የሞቱበት ቀንና ዓመት ምህረት -----

Q11. የሞቱበት ቦታ የት ነበር ? -----

ቤት = 1 ሴት = 3

ጤና ተቋም = 2

መሰሉ ቤት ወይም ሴት ከሆነ ወደ ጥያቄ 12 ይሰፍ

a/ የሞቱበት ጤና ተቋም ሥምና ስድራሻ-----

b/ የሞታቸው መንሥኤ ምን እንደሆነ ከጤና ተቋሙ ሰራተኞች ተነግሮዎት ነበር ?
 የሰም = 0 ስዎ = 1 እርግጠኛ ስደደሰሁም = 99

Q12. የሞቱበትን ምክንያት ያውቁት ?
 የሰም = 0 ስዎ = 1 እርግጠኛ ስደደሰሁም = 99
 መሰሉ ስዎ ከሆነ የሞቱበት ምክንያት ምንድን ነው ?
 ምክንያት 1/ -----
 ምክንያት 2/ -----

Q13. ሚና ከመሞታቸው በፊት በሚከተሉት በሽታዎች ታመሙ እንደ ነበር ጠደቅ ?

- a/ ደም ብዛት ----- የሰም = 0 ስዎ = 1 ስሳውቅም = 99
- b/ ስኳር በሽታ ----- የሰም = 0 ስዎ = 1 ስሳውቅም = 99
- c/ የሚጥሰ በሽታ ----- የሰም = 0 ስዎ = 1 ስሳውቅም = 99
- d/ ሣንባ ነቀርሣ ----- የሰም = 0 ስዎ = 1 ስሳውቅም = 99
- e/ ሌድስ /ዩጎድስ/ ----- የሰም = 0 ስዎ = 1 ስሳውቅም = 99
- f/ የጉበት በሽታ ----- የሰም = 0 ስዎ = 1 ስሳውቅም = 99

Q14. መሰሉ ስጢው ከሚኖሩ ጋር ያሳቸው ዝምድና -----

- ባሰቤት = 1
- ስናት/ስባት = 2
- እህት/ወንድም = 3
- ሲጅ = 4
- እክስት/እጉት = 5
- ስዎት = 6
- ጎረቤት = 7
- ጎደኛ = 8
- ሴሳ/ጥቀስ = 9

III. የበሽታውን ዓይነት ለማረጋገጥ የሚቀርቡ ጥያቄዎች

Q15. ትኩሣት ነበራቸው?

የሰም = 0 ስዎ = 1 ከሮግጠኛ ስደሰቱም = 99

መሰሉ የሰም ወይም ስደታወቅም ከሆነ ወደ ጥያቄ 19 ይሰፍ

Q16. ሰምን ያህል ቀናት ትኩሣት ነበረባቸው ? -----

Q17. የትኩሣት ክብደት

1 = ዝቅተኛ/ መካከለኛ 2 = ከፍተኛ 99 = ከሮግጠኛ ስደደሰቱም

Q18. የትኩሣት ደዘት-----

1 = የማያቋርጥ 2 = የሚሳደድ/ የሚመጣ = 99 ከሮግጠኛ ስደደሰቱም

Q19. በቅዳ ሳይ የወጣ ሽፍታ ነበራቸው ?

የሰም = 0 ስዎ = 1 ከሮግጠኛ ስደደሰቱም = 99

መሰሉ የሰም ወይም ስደታወቅም ከሆነ ወደ ጥያቄ 22 ይሰፍ

Q20. ሽፍታው ሰምን ያህል ቀናት ቅደ-----

Q21. ሽፍታው ምን ደመሰሰ ነበር ?

1 = የኩፍኝ በሽታ ሲደዝ የሚታየው ስደነት

2 = ውሃ የቋጠረ ሽፍታ

3 = መግሰ የያዘ ሽፍታ

4 = ሴሳ /ደገሰሰ /

99 = ስሳውቅም

Q22. ዓደናቸው ቀሰች ነበር ?

1 = ስዎ 0 = የሰም 99 = ስደታወቅም

Q23. ዓደናቸው ያሳክካቸው ነበር ?

1 = ስዎ 0 = የሰም 99 = ስደታወቅም

Q24. ከሞሞታቸው ጥቂት ቀናት በፊት ክብደታቸው ቀንሶ ነበር?

የሰም = 0 ስዎ = 1 ስደታወቅም = 99

መሰሉ የሰም ወይም ስደታወቅም ከሆነ ወደ ጥያቄ 26 ይሰፍ

Q25. የክብደት መቀነሱ መጠን በግምት ስንት ይሆናል

ከ1-9 ኪሎ ግራም = 1 10 እና ከ10 ኪሎግራም በላይ = 2 አድታወቅም = 99

Q26. በእግራቸው ቀርጭምጭሚት አካባቢ እብጠት ነበራቸው ?

አዎ = 1 የሰም = 0 99 = አድታወቅም

መሰሉ የሰም ወደም አድታወቅም ከሆነ ወደ ጥያቄ 28 ይሰፍ

Q27. እብጠቱ ስምን ያህል ቀናት ቆይቶባቸዋል/ ነበረባቸው /-----

99 = አድታወቅም

Q28. የፊት እብጠት ነበረባቸው ?

አዎ = 1 የሰም = 0 አድታወቅም = 99

Q29. ሚቶ ከሞሞታቸው በፊት ፊታቸው ገርጥቶ ነበር.

የሰም = 0 አዎ = 1 አድታወቅም = 99

Q30. ሚቶ አደናቸው ቢጫ ሆኖ ነበር?

የሰም = 0 አዎ = 1 አሳውቅም = 99

Q31. በአንገታቸው ሳይ እብጠት ነበረባቸው ?

አዎ = 1 የሰም = 0 አድታወቅም = 99

Q32. ብብታቸው ውስጥ እብጠት ነበረባቸው ?

አዎ = 1 የሰም = 0 አድታወቅም = 99

Q33. ብሽሽት አካባቢ እብጠት ነበረባቸው ?

አዎ = 1 የሰም = 0 አድታወቅም = 99

Q34. ሴሳ እብጠት/ቁስል በሰውነታቸው ሳይ ነበር?

አዎ = 1 የሰም = 0 አድታወቅም = 99

Q35. ሳል ነበረባቸው ?

አዎ = 1 የሰም = 0 አድታወቅም = 99

መሰሉ የሰም ወደም አሳውቅም ከሆነ ወደ ጥያቄ 39 ይሰፍ

Q36. ሳሉ ስምን ያህል ቀናት/ ወራት ቆዩ-----

Q37. ሳሉ አክታ ነበረው ?

አዎ = 1 የሰም = 0 አድታወቅም = 99

Q38. አክታው ደም ቅስቀስ ነበር ?

አዎ = 1 የሰም = 0 አድታወቅም = 99

Q39. የትንፋሽ ማጠፊ ነበረባቸው ?
 መሰሉ የሰም ወይም ስደታወቅም ከሆነ ወደ ጥያቄ 42 ይሰጡ
 ስዎ = 1 የሰም = 0 ስደታወቅም = 99

Q40. ትንፋሽ ማጠፊ ያስማቋረጥ ነበር?
 ያስማቋረጥ = 1
 ስሰፎ ስሰፎ = 2
 ስደታወቅም = 99

Q41. ትንፋሽ ማጠፊ ሰምን ያህል ቀናት ቆየባቸው -----
 ስደታወቅም = 99

Q42. ሲተነፍሱ ትንፋሻቸው ፍጡት ድምፅ ይወጣው ነበር?
 ስዎ = 1 የሰም = 0 ስደታወቅም = 99

Q43. የደረት ህመም/ ውጋት /ነበረባቸው ?
 ስዎ = 1 የሰም = 0 ስደታወቅም = 99
 መሰሉ የሰም ወይም ስደታወቅም ከሆነ ወደ ጥያቄ 47 ይሰጡ

Q44. የደረት ህመሙ የት ስካባዚ ነበር ?
 መሃከል ደረት ስካባዚ = 1 ሰባቸው ስካባዚ = 2
 የደረት ስጥንት ስካባዚ = 3 ሲሳ ደገሰፅ = 4
 ስደታወቅም = 99

Q45. የደረት ህመሙ -----
 1 = ማያቋረጥ 2 = የሚሂድና የሚመጣ 99 = ስደታወቅም

Q46. ህመሙ ምን ያህል ጊዜ ቆይቶባቸዋል ? -----
 ስደታወቅም

Q47. ተቅማጥ ነበረባቸው ?
 ስዎ = 1 የሰም = 0 ስደታወቅም = 99
 መሰሉ የሰም ወይም ስደታወቅም ከሆነ ወደ ጥያቄ 53 ይሰጡ

Q48. ተቅማጡ ሰምን ያህል ቀናት ነበረባቸው ? -----
 ስደታወቅም = 99

Q49. ተቅማጡ ያስማቋረጥ ነበር ወይስ ስሰፎ ስሰፎ ነው ?
 ያስማቋረጥ = 1 ስሰፎ ስሰፎ = 2 ስደታወቅም = 99

Q50. በቀን ስንት ጊዜ ያስቀምጣቸው ነበር? -----

አደታወቅም = 99

Q51. ተቅማጡ ምን ዓይነት ነበር ?

ቀጭን ስንደውሃ = 1 ቀጠን ያስ = 2 አደታወቅም = 99

Q52. ተቅማጡ ደም ቅስቀስ ነበር ?

አዎ = 1 የሰም = 0 አደታወቅም = 99

Q53. ትውክት /ማስመስስ / ነበረባቸው ?

አዎ = 1 የሰም = 0 አደታወቅም = 99

መስሎ የሰም ወደም አደታወቅም ከሆነ ወደ ጥያቄ 58 ደስፋ

Q54. ትውክት ስምን ያህል ቀናት ቆየባቸው ?

አደታወቅም = 99

Q55. ትውክት ባስማቋረጥ ነበር ወደስ አስፎ አስፎ ?

ያስማቋረጥ = 1 አስፎ አስፎ = 2 አሳውቅም = 99

Q56. በቀን ስንት ጊዜ ያስታውካቸው / ያስመሰሰላቸው ነበር ? -----

አደታወቅም = 99

Q57. ትውክቱ ምን ደመስሰ ነበር ?

ውሃ አይነት = 1 በጫ መሰሰ ፈሳሽ = 2

ቡና መሰክ = 3 ደም ቅስቀስ = 4

ሰገራ መሰክ = 5 ሴሳ /ደገሰሐ = 6

አደታወቅም = 99

Q58. የሆድ ህመም ነበረባቸው ?

አዎ = 1 የሰም = 0 አደታወቅም = 99

መስሎ የሰም ወደም አደታወቅም ከሆነ ወደ ጥያቄ 64 ደስፋ

Q59 ምን አይነት የሆድ ህመም ነበረባቸው ?

1 = ቁርጠት 2 = ውጋት

3 = የማቃጠል ስሜት 4 = ሴሳ /ደገሰሐ 99 = አደታወቅም

Q60. የሆድ ህመሙ ስምን ያህል ጊዜ ቆየባቸው ? -----

99 = አደታወቅም

Q61. የሆድ ህመሙ የት አካባቢ ነበር ?

1 = ከስምብርታቸው በታች 2 = ከስምብርታቸው በላይ

3 = ምንም አይደለም 4 = ሴሳ /ደገሰሐ / 99 = አደታወቅም

Q62. የህመሙ ክብደት

ከፍተኛ = 1 ዝቅተኛ = 2 ስደታወቅም = 99

Q63. ከመሞታቸው ጥቂት ቀናት ቀደም ብሎ ሰገራ መውጣት ከሰከሳቸው ነበር ?

አዎ = 1 የሰም = 0 ስደታወቅም = 99

Q64. የሆዳቸው ተነፍቶ ነበር ?

አዎ = 1 የሰም = 0 ስደታወቅም = 99

መሰሉ የሰም ወደም ስደታወቅም ከሆነ ወደ ጥያቄ 67 ይሰጩ

Q65. የሆዳ መነፍቱ ስምን ያህል ቀናት ቆየባቸው ? -----

ስደታወቅም = 99

Q66. የሆዳ መነፍቱ በሰኞር ቀናት የመጣ ነው ወይስ በረጅም ጊዜ ቀስ በቀስ የመጣ ነው ?

በፍጥነት በሰኞር ጊዜ = 1 በረጅም ጊዜ ቀስ በቀስ = 2 ስደታወቅም = 99

Q67. ምግብ ወደም ውሃ መጥጥ ከሰከሳቸው ነበር ?

አዎ = 1 የሰም = 0 ስደታወቅም = 99

መሰሉ የሰም ወደም ስደታወቅም ከሆነ ወደ ጥያቄ 69 ይሰጩ

Q68. የመጥጥ ችግር ስምን ያህል ቀናት ቆየባቸው ? -----

ስደታወቅም = 99

Q69. በሆዳቸው ውስጥ ያበጠ ነገር ነበር ?

አዎ = 1 የሰም = 0 ስደታወቅም = 99

መሰሉ የሰም ወደም ስደታወቅም ከሆነ ወደ ጥያቄ 72 ይሰጩ

Q70. ሰብጠቱ በየትኛው የሆዳቸው አካባቢ ነበር ?

ከሰምብርት በሳይ በቀኝ በኩል = 1

ከሰምብርት በሳይ በግራ በኩል = 2

ከሰምብርት በታች = 3

ሴሳ /ደገሰሳ = 4

ስደታወቅም = 99

Q71. ሰብጠቱ ስምን ያህል ቀናት ቆየባቸው? -----

99= ስደታወቅም

Q72. የራስ ምታት ነበረባቸው?

አዎ = 1 የሰም = 0 ስደታወቅም = 99

Q73. የአንገት መገተር /መገረር ወደም ያሰመንቀሳቀሰ ነበረባቸው?

አዎ = 1 የሰም = 0 አይታወቅም = 99

መሰሉ የሰም ወይም አይታወቅም ከሆነ ወደ ጥያቄ 75 ይሰጩ

Q74. የአንገት መገተረ ስምን ያህል ቀናት ቆይቶባቸዋል? -----

አይታወቅም = 99

Q75. ራስ የመሳት ሁኔታ ነበረባቸው ?

አዎ = 1 የሰም = 0 አይታወቅም = 99

መሰሉ የሰም ወይም አይታወቅም ከሆነ ወደ ጥያቄ 79 ይሰጩ

Q76. የአስምሯቸው ሁኔታ በምን ደረጃ ሳይ ነበር ?

1 = በቀዠት የመዘባረቅ ውስጥ 2 = ሙሉ በሙሉ እራሳቸውን ስተው ነበር

3 = ሲሳ /ደገስሳ / 99 = አይታወቅም

Q77. የራስ መሳቱ ስምን ያህል ጊዜ ቆይባቸው ?-----

አይታወቅም = 99

Q78. የራስ መሳቱ ችግር እንዴት ነበር የጸመራቸው ?

ድንገት በአንድ ቀንውስጥ = 1

ቀስ በቀስ በቀናት ውስጥ = 2

ሲሳ /ደገስሳ / = 3

አይታወቅም = 99

Q79. ሚቶ ታመው በነበረበት ወቅት ያንቀጠቀጣቸው ነበር ?

አዎ = 1 የሰም = 0 አይታወቅም = 99

መሰሉ የሰም ወይም አይታወቅም ከሆነ ወደ ጥያቄ 84 ይሰጩ

Q80. ማንቀጥቀጡ ስምን ያህል ጊዜ ቆየባቸው ? -----

አይታወቅም = 99

Q81. የትኛው የሰውነታቸው ክፍል ደንቀጥቀጥ ነበር ?

መሳ ሰውነታቸው = 1

እግራቸውን/እጃቸውን = 2

አይታወቅም = 99

Q82. በቀን ምን ያህል ጊዜ ያንቀጠቀጣቸው ነበር ? -----

አይታወቅም = 99

Q83. በሚያንቀጠቀጣቸው ጊዜ ራሳቸውን ያውቁ ነበር ?

አዎ = 1 የሰም = 0 አይታወቅም = 99

Q84. አፍቸውን መክፈት ይከስክሳቸው ነበር ?

$$\text{አዎ} = 1 \quad \text{የሰሞ} = 0 \quad \text{አደታወቅም} = 99$$

Q85. መሳ ሰውነታቸው 7ትር ደዘዎቸው ነበር ?

$$\text{አዎ} = 1 \quad \text{የሰሞ} = 0 \quad \text{አደታወቅም} = 99$$

መሰሉ የሰሞ ወደም አደታወቅም ከሆነ ወደ ጥያቄ 87 ደስፍ

Q86. የሰውነት መግረር/መገተር ሰሞን ያህል ጊዜ ቅየባቸው ? -----

$$99 = \text{አደታወቅም}$$

Q87. ግማሽ አካላቸው ሽባ ሆኖ ነበር ?

$$\text{አዎ} = 1 \quad \text{የሰሞ} = 0 \quad \text{አደታወቅም} = 99$$

መሰሉ የሰሞ ወደም አደታወቅም ከሆነ ወደ ጥያቄ 89 ደስፍ

Q88. የግማሽ አካል ሽባ ነት ችግር ሰሞን ያህል ጊዜ ቅየባቸው ? -----

$$\text{አደታወቅም} = 99$$

Q89. ከወገብ በታች ሽባ ሆነው ነበር ?

$$\text{አዎ} = 1 \quad \text{የሰሞ} = 0 \quad \text{አደታወቅም} = 99$$

መሰሉ የሰሞ ወደም አደታወቅም ከሆነ ወደ ጥያቄ 91 ደስፍ

Q90. ከወገብ በታች ሰሞን ያህል ቀናት ሽባ ሆነው ነበር? -----

$$\text{አደታወቅም} = 99$$

Q91. የሽንታቸው መሰክ ቀደር ነበር ?

$$\text{አዎ} = 1 \quad \text{የሰሞ} = 0 \quad \text{አደታወቅም} = 99$$

መሰሉ የሰሞ ወደም አደታወቅም ከሆነ ወደ ጥያቄ 94 ደስፍ

Q92. የሽንቱ መሰክ ምን ደመሰሰ ነበር ?

$$\text{በጫ} = 1 \quad \text{ደም ቅሰቅሰ} = 3$$

$$\text{ቡናማ} = 2 \quad \text{አደታወቅም} = 99$$

Q93. የሽንት መሰክ መቀየሩ ሰሞን ያህል ቀናት ቅየ ?

$$\text{አደታወቅም} = 99$$

Q94. በየቀኑ የሚሸኑት የሽንት መጠን ሰውጥ ነበረው ?

$$\text{አዎ} = 1 \quad \text{የሰሞ} = 0 \quad \text{አደታወቅም} = 99$$

መሰሉ የሰሞ ወደም አደታወቅም ከሆነ ወደ ጥያቄ 97 ደስፍ

Q95. በየቀኑ የሚሸኑት የሽንት መጠን ምን ያህል ነበር ? -----

$$\text{አደታወቅም} = 99$$

Q96. የሽንት መጠን ሰውጡ ሰሞን ያህል ቀናት ቅየ ? -----

አደታወቅም = 99

Q97. ሸንት መሸናት ደክሰክሳቸው ነበር ?

አዎ =1 የሰም = 0 አደታወቅም = 99

መሰሉ የሰም ወይም አደታወቅም ከሆነ ወደ ጥያቄ 99 ደሰፍ

Q98. የሸንት መሸናት ችግር ስንዴት ነበር ?

ሙሉ በሙሉ መሸናት አደቅሱም ነበር = 1

ደስማቋረጥ ደንጠባጠቅ ነበር = 2

ሲሸኑ ደቃጥሳቸው ነበር = 3

አደታወቅም = 99

Q99. ከመሞታቸው ጥቂት ጊዜያት በፊት ስንፊሲዮን ተደርገላቸው ነበር ?

አዎ = 1 የሰም = 0 አደታወቅም = 99

መሰሉ የሰም ወይም አደታወቅም ከሆነ ወደ ጥያቄ 102 ደሰፍ

Q100. ስንፊሲዮን የተደረገላቸው ከመሞታቸው ሰንት ቀን በፊት ነበር? ----- አደታወቅም

= 99

Q101. የትኛው የሰውነት ስካሳቸው ነበር ስንፊሲዮን የሆነው ?

ሆዳቸው = 1

ሴሳ የሰውነት ክፍሳቸው = 2

አደታወቅም = 99

የሚከተሉት ----- ጥያቄዎች እድሜያቸው ከ50 ዓመት በታች ስሆኑ ሚቶ ሴቶች በተሰደ የተዘጋጁ ናቸው። ሚቶ ሴት ሆነው እድሜያቸው ከ50 ዓመት በላይ ከሆነ ወይም ሚቶ ወንድ ከሆነ ወደ ጥያቄ 116 ደሰፍ

Q102. ሚቶ ህይወታቸው ሲደሰፍ ነፍስ ጡር ነበረ

አዎ =1 የሰም = 0 አደታወቅም = 99

መሰሉ የሰም ወይም አደታወቅም ከሆነ ወደ ጥያቄ 104 ደሰፍ

Q103. የሰንት ወር ነፍስ ጡር ነበረ ? -----

አደታወቅም = 99

Q104. ከመሞታቸው 45 ቀናት በፊት ወሰደው ነበር ?

አዎ =1 የሰም = 0 አደታወቅም = 99

መሰሉ የሰም ወይም አደታወቅም ከሆነ ወደ ጥያቄ 112 ደሰፍ

Q105. ከመሞታቸው ሰንት ቀናት በፊት ነበር የወሰዱት ? -----

Q106. የት በታ ነበር የወሰዱት ?

ቤት = 1 ጤና ተቋም = 2 አደታወቅም = 99

መሰሉ ጤና ተቋም ከሆነ የጤና ተቋሙ ስሙና አድራሻ ይገለጽ

Q107. ምጡ ሰምን ያህል ጊዜ ቅየ -----

አንድ ቀን = 1 ከአንድ ቀን በላይ = 2 አደታወቅም = 99

Q108. ሲወሰዱ ብዙ ደም ፈሷቸው ነበር ?

አዎ = 1 የሰም = 0 አደታወቅም = 99

Q109. ብዙ ደም የፈሰሳቸው ከመውሰዳቸው በፊት ነው ወይስ በኋላ ?

ከመውሰዳቸው በፊት = 1 ከወሰዱ በኋላ = 2 አደታወቅም = 99

Q110. ህፃኑ የተወሰደው ስንዴት ነው ?

በትክክለኛው አወሳሰድ / በብሰት በኩል /

ያስመሳይድ = 1

በመሳይድ / በብሰት በኩል / = 2

በሌላ ሌላው / በሆድ በኩል = 3

አደታወቅም = 99

Q111. ህፃኑ ሲወሰድ በምን ሁኔታ ሳደ ነበር ?

በህደወት ነበር = 1

ሞቶ ተወሰደ = 2

በተወሰደ በ 7 ቀን ሞተ = 3

በተወሰደ ከ7 ቀን በኋላ ሞተ = 4

አደታወቅም = 99

Q112. ከዚህ በፊት የወሰዱ ችግር ያጋጥማቸው ነበር ?

አዎ = 1 የሰም = 0 አደታወቅም = 99

Q113. ከመሞታቸው 45 ቀን በፊት ውርጃ ነበራቸው ?

የሰም = 0 አዎ = 1 አደታወቅም = 99

Q114 ከመሞታቸው ጥቂት ቀን በፊት በብሰታቸው ደም ደፈሰ ነበር ?

የሰም = 0 አዎ = 1 አደታወቅም = 99

Q115. በጡታቸው ሳደ ስብጠት/ቀሰሰ ነበረባቸው ?

የሰም = 0 ስዎ = 1 ስደታወቅም = 99

Q116. ሟቾ የሞቱት በስደጋ ነው ?

የሰም = 0 ስዎ = 1 ስደታወቅም = 99

መሰሉ የሰም ወይም ስደታወቅም ከ17 ነ ወደ ሞያቁ 119 ደስፍ

Q117. የሞት ስደጋው መንስኤ ምን ነበር ?

- ድብደባ = 1
- መኪና ስደጋ = 2
- ጦርነት = 3
- የአውሬ ንክሻ = 4
- ስላት ስደጋ = 5
- መርዝ = 6
- በሌላ ስደጋ /ደገስላ = 7 ስደታወቅም = 99

Q118. ከመሞታቸው ከስንት ቀን በፊት ነው ስደጋው የደረሰባቸው ?-----

ስደታወቅም = 99

Q119. ራሳቸውን በራሳቸው የገደሉ ደመስሰዎታህ ?

የሰም = 0 ስዎ = 1 ስደታወቅም = 99

Q120. ስንዴት ነው ራሳቸውን የገደሉት ?

- ራሳቸውን በመስቀሰ = 1
- በመርዝ = 2
- በስላት = 3
- በሌላ /ደገስላ / = 4
- ስደታወቅም = 99

Q121. ቃስ መጠደቅ የወሰደው ጊዜ /ደቂቃ -----

- < 30 = 1
- 31- 40 = 2
- 41-50 = 3
- 51- 60 = 4
- >60 = 5

የመጠዘቅ መጠራሻ

መጠዘቅ ሲዎስቅ ስመስከ ሰጠው ምክጋና ዎቅጠቱ:

የጠዎቂው ፊጠጣ -----

መስዎ ቅጥጠ

ፊጠጣ

ቅጋ

መታወቂዎ ቅጥጠ

1ኛ. -----

2ኛ. -----

መጠዘቅ የተካሄደበት ስሰት -----