Health and Health Related Problems of the Elderly, in Dalle Woreda, Southern Ethiopia.

By

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LIST OF ABBREVIATIONS

ADL- Activities of Daily living.

DCH- Department of Community Health.

FA- Farmers Associations.

GNP- Gross National Product.

IADL- Instrumental Activities of Daily Living.

MCH- Maternal and Child Health.

SRQ- Self Reporting Questionnaire.

WHO- World Health Organization.

Abstract

There are no studies dealing with the health problems of the elderly in Ethiopia. A cross sectional survey was conducted in Dalle Woreda, Sidama Zone, Southern Ethiopia from September to December 1994 to determine the health and related problems in the elderly. One thousand and fifty three elders whose age 60 years and above were selected using multistage sampling procedure and included in the study. The male to female ratio of the study subjects was 1:1.17 with a mean age of 70.4 and standard deviation of $\pm$ 9.6 years. Eighty seven percent of the study subjects claimed that they were members of social and/or religious groups and only 1.6% of them live alone. Thirty seven percent of the study subjects were taking some forms of modern medication at the time of the interview and 9% of them had a hospital visit in the past one year. Headache, heart burn, problem of mastication and joint pain were found to be the most frequent reported ill health problems. Significant association was observed between certain disease complaints with that of female sex and increasing age. Significant number of elders who were divorced (OR=5.04, CI, 1.30, 19.55) and widowed (OR=12.35, CI,2.38, 64.11) are found to be psychotic. Thirty five percent and 16% of the elders were found to be impaired in Instrumental Activities of Daily Living (IADL) and Activities of Daily Living (ADL) respectively. This impairment is found to be significantly associated with increasing age, in males for IADL (OR=1.95, CI, 1.40, 2.72) and in widowed elders (OR= 1.96, CI, 1.34, 2.87) for IADL and (OR=1.77, CI, 1.10, 2.85) for ADL. Though the reported prevalence of symptoms of ill health and disability is high, the elders ability to work and support themselves and their families, their living in the extended family and their participation in certain social and/or religious organization was found to be encouraging. Further studies are recommended for identification of specific disease entities causing the largest prevalence of ill health.

Introduction

Most developing countries at present are experiencing a more general phenomenon known as the demographic transition: the shift from a stable population with high birth and death rate to a new equilibrium reached after a decline first to death rates then in birth rate, with an intermediate period of rapid population growth (1). This phenomenon is resulting in a rapid expansion of the world's elderly population.

In 1980, there were 370.8 million people world wide who were 60 years of age or above, and who accounted for 8.5% of the world's population. Projections for the year 2025 indicates that this population will be as high as 1.1 billion accounting for 12.5% of the worlds population and 72% of these elderly people will be living in developing regions. Ethiopia is one of the fifty countries in the world projected to have elderly population greater than 2 million by then (2,3).

In developed countries like the United States of America, the demographic transition was well under-way before the turn of this century, and was accompanied by real growth in per capita GNP and tremendous advances in medical sciences. Presently, these developed countries are spending large amounts of money for the health care of their people as compared to less developed countries. The 1986 world development report (4) showed that the per capita health care expenditure for the United States is 25.6 - 512.5 times higher than the per capita health expenditure of approximately half of the

world population living in developing countries. The larger portion of this health care expenditure will go to the care of their elders that is in 1988, 36% of the United States government and private expenditure for health went to 12.5% of the elders and in the same year in Japan the short-term and long-term care for the aged (65 years and over), representing 11.2% of the population, claimed 40% of the national medical expenditure (5,6,7).

But, those developing countries who are experiencing the progressive boom of the elders are stuck with a declining or static resources to satisfy the basic health needs of the older section of their population. This results in a much larger, older and sicker population with less money per capita (8)

Ethiopia is one of the least developed nations of the world with an estimated 4.3% of it's population aged 60 years and above (9), and the per capita GNP for the country is 120 dollars (10). Like most African countries the country is with few resources to devote for health care and even the progress in PHC has concentrated on MCH and communicable diseases (11). Most probably, the health needs and health problems of the elders is not given due emphasis due to the misconception that elders are smaller in number and their health needs are minimal. But, the truth is they are at least equally needy for proper health care with the youngest section of the population.

In order to address their health problem and attract the attention of policy makers to this needy but neglected section of the population the importance of performing community based research on their heath problems is of paramount importance.

Literature Review.

Socio-Demographic Characteristics

The proportion of elders in the general population is variable in different societies and this variation is marked particularly between developed and developing countries. In 1985 in Sweden, U.K., and West Germany the proportion of elders (aged 65 and above) accounted for 17.9%, 15.1% and 14.7% of the total population respectively (12). But in the same year, the U.N. estimate for elders (whose age was 60 years and above) was 4.5% for Sudan and 4.3% for Ethiopia (9), As shown by Godfry and Kalachy (13) the proportion of elders to that of the general population will drop even to a smaller number when they are exposed to natural calamities like war, migration and hunger.

Studies have shown that there are some similarities in demographic characteristics of the elders who are living in different countries. A study done in Barbados (14) showed that male to female ratio for those aged 65 years and above was 39.9:60 of whom 44% were married, 27.3% single, 26.3% widowed. Eighty eight percent of those elders had primary and 11.6% post primary education. And, in Malaysia (15) the male to female ratio for the those elders whose age 60 years and above was 49:51, of whom 65% were married, 34% widowed and the rest were single or divorced. The majority of them were residents of the rural areas, most had low educational level and a significant number were illiterate.

Contrary to the wider belief that the care for the elderly is declining, in developing countries most elders are living with and cared by their family members (16,17). In Fact, the family remains the only source of support and long-term care for the elderly in most developing countries (18). A study done in Sri Lanka (19) showed that 80.5% of the study subjects were living with their children and 10.1% were living with their spouses and only 5.4% were living alone. For 73.5% of the male respondents, the wife was the primary care giver and a large proportion of the female respondents (64.2%) depended on their children as primary care giver.

Older persons living in a community, alone or with families, are sustained by interlocking networks of "Informal Support System". This consists of relatives, neighbours, and friends, who provide the social contact, and sometimes the assistance, necessary for health or at least independence. To these may be added group activities in which the elderly may play a part, such as communal prayers, clubs, meetings and outings (20). Thus, in at least two studies greater social activity was found to promote longer life (21). However, some studies showed that a large proportion of elders are not members of such organizations, groups or gatherings. According to Chen, P.C.Y and colleagues (15) only about a quarter of the elders were members of social organization and a very small proportion belonged to senior citizen groups. Similarly, 79% of the survey subjects in Barbados (14) were found to have no organizational membership.

Adequate housing is vital to the welfare of the elderly and is one of the principal factor in reducing the need for institutional places. Surveys have confirmed that the elderly tend to live in housing of poor quality, in rich and poor countries alike (41). Particularly in developing countries many live with their families as head of the family or spouse, and latter as dependants, but have never owned the house. The poorest elderly may not always have even primitive housing and often lack potable water and sanitation (20). According to the Study in Malaysia (15) for 7% of the elders there was no access to basic amenities such as clean water, proper toilet, cooking and bathing facilities. In rural areas the majority of the elderly people owned the house they lived in ; but this was not the case in urban areas. According to Farley S. Brathwaite (14) 18.1% elderly Barbadians didn't own the house they are living in, 8.1% were without piped water supply and 18.5% claimed as they are dissatisfied with housing condition.

Work, or at least occupation, is conducive to good health and maintaining the quality of life (22). An additional effect of continued participation of the elderly in economic life is that it promotes autonomy and reduce the need for family and community support(20). According to Chen. P.C.Y (15) only 20% of the elders earn their living from work. 62% depend on their families for economic support, 12% from pension and superannulation scheme and 2% depend on social welfare. While in Barbados (14) 65.6% of

the elders were retired, 24% were without pension and 65.6% of the elders had no earned income.

Health and Related Problems

Perceived state of health and different health-related complaints are variable in different age groups, between sexes, according to the difference in marital status and between urban and rural residents. A survey done in Somolu, Legos (23) found deterioration in health with age, but 64% of those above 70 reported that they were still in good health and 86% said that they were fully mobile. In the other study (17), it was shown that elders who are living in the rural areas had more health problems than town dwellers, and weakness, poor vision, problem with bending and legs and arthritis caused the most trouble. In both of the above studies, women reported more health problems than men. Similarly, in another different study (15), the majority of the elders felt that they were healthy ; however, the commonly mentioned problems were problem of vision, mastication and hearing.

Contrary to the above mentioned studies, the result of another study (14) shows that 62% of the study subjects label themselves as not being in a good state of health. Just under half (47%) reported as suffering from arthritis, 41% from hypertension, and 15.7% from diabetes. In addition, 17.4% said they had bad eye sight, 7.9% complained of poor appetite and 4.7% said that they had poor memory.

As old age is related to different disease conditions, the availability of modern health care facility and provision of adequate health care by trained health workers will have large contribution for healthy and productive ageing for the elderly. A WHO study conducted in four developing countries of the Western Pacific region showed that the pressing problem for the elderly persons were mainly lack of economic resources and limited access to health services (24). Another two studies (14,15) have shown that the proportion of elders who are receiving health care from doctors is variable and many used traditional and over the counter drugs and some use self prescribed drugs when they are in need of health care and cure from their ailments.

Despite the need felt by the elders for more health aids and more medical care their none-health seeking behaviour even to the more pressing health problems like hearing and vision defects and their none compliance with medication is found to be a problem (14,15, 19).

Physical and Instrumental Activities of Daily Living.

To understand the current and developing health problems and to indicate the extent of help required by the elderly in maintaining themselves and engaging in family and community life while living with their families at home, assessment of Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) have been claimed to be more valuable than physical examination (25) and using this instruments many studies have been

done both in developing and developed countries.

According to D.B. Nuggoda and colleague (19), 30 (20.1%) of the study subjects in urban Sri Lanka had IADL impairment and 15 of them were also ADL impaired. Of the latter group the commonest activities that were impaired were bathing and feeding, where 8.7% of the respondents required assistance for both. 7.4% needed assistance in going to the toilet while 5.45% could not dress by themselves. The prevalence of ADL impairment was significantly higher in females.

Transportation was the commonest impairment of IADL followed by shopping. The primary care giver in this group was a child. Godfry and Kalachy (13), in their study in a Sudan refugee camp, showed that only a small proportion, 1-7% reported disability which required assistance. When an association with age and gender was found; it was the elderly and women who experienced disability most frequently. According to Neugarten (26), people over 75 increasingly need help with daily activities and are less likely to be able to live alone, and more than half of the oldest old require some help with daily activities and depend increasingly on the network of social support.

Identification of the common disease which cause much problems and limits the activities of the elderly have greatest importance for those who have both the concern and responsibility for the healthy and productive life lived by the elders.

Objectives

General Objective

To determine the magnitude and determinants of selected health problems of the elderly in Dalle Woreda.

Specific Objectives

1. To determine the prevalence of selected health problems of the elderly.
2. To determine the physical capacity of the elders in managing the basic and daily activities of living.
3. To identify determinants of health problems among the elderly.
4. To identify the social support mechanisms available to the elderly.

Methods

Study Design: A cross-sectional survey to determine the magnitude and determinants of selected health problems of the elderly was conducted in Dalle Woreda, Sidama Zone, Southern Ethiopia over a period of five months from September to December 1994.

Study area: Dalle Woreda is one of the nine woredas of the Sidama zone (Southern Ethiopia) situated 315 km. South of Addis Ababa and 45 km. from Awassa town (the capital of southern Ethiopia Peoples Democratic Union). The Woreda has a total area of 141139 hectares of land and the landscape is predominantly plain. There are 8 all season and 6 wet season rivers. The altitude of the woreda ranges from 1180 meters to 2300 meters above sea level with the average annual rain fall and temperature ranging from 15-20 degree centigrade and 1000 - 1400 mm, respectively.

There are 76 farmer's associations and 9 urban dwellers associations in the woreda, with a population of 321,369. The over- all sex ratio is 102 males to 100 females.

In the woreda, there is one hospital, one health centre and seven health stations. The health centre and the health stations are giving both curative and preventive health services and the activity of the hospital is mainly focused on in providing curative health care (27).

Population: The source population for the study were those people whose age are of 60 years and above and who are residing in the 76 farmer's associations and nine urban dwellers associations in Dalle woreda.

The study population were those elderly who are living in randomly selected 4 kebeles from Yergalem town and 35 farmers association in the rural areas of Dalle woreda which were selected using population proportionate to size sampling technique.

Sampling procedure: A multistage sampling procedure, i.e, population proportionate to size technique followed by cluster sampling was used to identify the study subjects who were included in the study. The 1980 censuses estimate for the elders who are residing in the area
(4.3% of the general population) was taken and thirty five rural and four urban clusters were selected from the 9 urban (kebeles) and 76 rural (farmers associations) using population proportionate to sample size technique. After the random selection of the first house, all elders who claimed to have an age of 60 years and above were included in the sample till 27 elders were obtained from each cluster.

Having no previous similar study in the country and with the intention to have adequate sample size for getting the necessary information from the study subjects an applicable sample size determination method is used (Appendix). The assumption presented in the appendix were considered and a total of 1053 were sought for the study.

Operational Definitions

Activities of Daily Living (ADL): The term ADL refers to the basic tasks of every day life, such as eating, bathing, dressing, toileting, and transferring (29).

Dependence: Non performance or need for the assistance of another person to perform activities of daily living (ADL and IADL)(29).

Dressing: Put on and off clothes and button shirts.

Eating: Rolling "injera" or cutting and eating of bread.

Elderly: Those people whose age is 60 years and above are taken to be in the elderly segment of the population (30).

Gaya: Traditionally used device for smoking tobacco.

Independence: The performance of activities of daily living (ADL) without assistance from another person (29).

Instrumental Activities of Daily Living (IADL): Encompasses the performance of the range of life activities more complex than those included within most ADL scales, including gross mobility, meal preparation, shopping, doing house work, travelling, handling ones finance, and taking medications (31).

Transferring: Transfer from bed to chair.

Toileting: Going to toilets and properly excreting waste

Walking: Walk 10 meters.

Young old: $\leq$ 75 years old, *

The old old: 76-85 years old,*

The oldest old: $>$85 years old *(32). ***Impairment***:- Is defined as any loss, or

abnormality of, psychological, physiological, or anatomical structure or function.**

Disability: Is a any restriction or lack (resulting from impairment) or ability to perform an activity in manner, or in the range, considered normal.**

Handicap: Is a disadvantage for a given individual, resulting from an impairment or a disability that limits or prevents the fulfilment of the role that is normal (having regard to age, sex and social and cultural factors) for that individual.** (33)

***Social support mechanism*:** Certain formal or informal social and or religious organizations like "Edir", "Senbete", "Eqube" which are giving any form of support to the elders or any other part of the society.

Ethical Consideration: For performing the data collection process written permission was obtained from the zonal and woreda health bureaus. Verbal consent was received from the elderly and for those elders who couldn't give verbal consent, their closest relatives were asked and consent was established before extracting any information from them.

Measurement.

The questionnaire that is used for collecting the information contained. Socio economic section, a modified version of WHO's " The well being of the elderly" Approach to multidimensional assessment format is used for the assessment of physical health and that of activity of daily living (21), for assessment of mental health a Self-Reporting Questionnaire (SRQ) developed by WHO's team of experts headed by Harding (22) which includes a 24 item symptom checklist, 20 items to asses neurotic disorders and 4 items to asses psychotic disorder were used.

The questionnaire that used to collect the infirmations are translated to Amharic and Sidamigna and back translated to English and appropriate modification were done.

The Amharic version of the original (English) questionnaires was used during the survey in the urban areas and that of
"Sidamigna" was used for the rural areas.

Age, sex, marital status, family size, educational status, organizational membership, use of tobacco, cigarette, and alcohol consumption were taken as the major exposures (Independent variables) in the study (Appendix).

Disease symptoms like headache, lose of memory, night mare, insomnia, tremor of hands, loss of appetite, dyspepsia, abdominal discomfort, diarrhoea, constipation, joint pain, back pain, problems of mastication, vision, and hearing and dependency on the the thirteen IADL and ADL items were

taken as dependant variable (Appendix).

The twenty neurosis and four psychosis items of Self Reporting Questionnaire (22) were used to asses the mental health of the elderly, and accordingly, those elders who score eleven and above out of twenty and three and above out of four are labelled as suspected neurotic and psychotic respectively (Appendix) .

Data Collection And Management.

The data collection was done by 14 data collectors (enumerators), and supervised by two field coordinators. The data collectors were high school graduates who could speak the local language and Amharic fluently. The field coordinators were nurses with the same language ability. A four-day training was conducted about the aim of the research, contents of the questionnaire and interviewing techniques (including how to approach elderly people). Group discussion and role play sessions were conducted during the training. Pretesting was made and actual data filling was practised in two farmers associations and two urban dwellers' associations which were selected for the purpose. Appropriate modifications were made on the questionnaire after the pretesting.

During the data collection process the data collectors were given a paper of identification with the full description of the reason why the data collection process was being undertaken. Reference to local events is used to

help the elders in telling their age accurately.

The collected data was submitted every day to the principal investigator for quality check and coding.

Data Analysis. The codded data was entered and cleaned, and frequency distribution, rates, ratios, Chi-Square, 95% confidence interval was calculated using EPI-INFO statistical programme. additionally SAS statistical programme was also used for multivariate analysis.

Result

A total of 1053 study subjects are included in the study and out of which 487(46%) are male and 568(54%) are female giving a male to female ratio of 1:1.17. The age of the study subjects ranged from 60 to 115 years with the mean age of 70.45 years and standard deviation of $\pm$ 9.62 years.

Table 1 summarizes some selected Socio-demographic characteristics of the elder. Nine hundred seventy four (92.5%) of the elders owned the house in which they live in and 18% and 13.2% of them have separate kitchen and functional latrine respectively. Eight hundred eighty nine (84.4%) of the study subjects claimed as they get their water from a water source with less than 30 minutes of walking distance. Large proportion of the elders i.e. 97% live with their children, wife or their wife and children and only 17 (1.6%) of them live alone and 14 (1.3%) live with other relative. Four hundred and fifty two (42.9%) live in a house with a family size

of greater than four people. Nine hundred twelve (86.6%) of them claim as they are members of the social and/or religious groups like "Edir", "Eqube" and "Senbete" etc. in their surrounding.

Table 1. Socio demographic characteristics of the elderly in Dalle Woreda, Southern Ethiopia 1994/1995.

Characteristics	Number(%)
Age in years	
60 - 65	319 (30.3)
65 - 74	422 (40.0)
75 - 85	218 (20.7)
> 8	94 (8.9)
Marital status	
Single	34 (3.2)
Married	738 (70.1)
Divorced	40 (3.8)
Widowed	241 (22.9)
Ethnicity	
Sidama	880 (83.6)
Amhara	78 (7.4)
Oromo	43 (4.1)
Others	52 (4.9)
Religion	
Protestant	454 (43.1)
Orthodox	193 (18.3)
Muslim	60 (5.7)
Other	346 (32.9)*
Educational status	
Illiterate	912 (86.6)
Literate	118 (11.2)
Follow formal education	23 (2.2)
Source of income	
Work	794 (75.4)
Children/ relative help	179 (17.0)
Pension	37 (3.5)
Other	43 (4.1)
Total	**1053 (100%)**

*- Includes those elders with no religion.

The use of alcohol, tobacco, cigarette and or "Gaya"

Two hundred twenty six (46.6%) of males and 171(30.1%) of females consume some forms of alcoholic drinks; of them 321(80.8%) are occasional drinkers and 19(4.8%) drink alcohol in daily bases. Forty eight(9.9%) males and 28(4.9%) females have the history of cigarette and/or Gaya smoking and 20(4.1%) males and 9(1.6%) female are found to be presently smoking Cigarette and/or Gaya. Fifteen (19.7%) of the elders smoked cigarette and or Gaya for duration of eleven to twenty years and above a quarter of the elders (26.5%) who chew tobacco were practising it longer than 50 years.

The sex difference for the past and current status of cigarette and tobacco using and alcohol consumption is statistically significant at ($P < 0.05$) and there is a varying degree of association between the male sex and the use of the above mentioned substances (table 2).

Health and Other Related Factors

Larger percentage of the study subjects 771 (73.2%) can walk to the near by health institutions when they are in need of any form of health care and 385 (36.6%) were taking some forms of modern medication at the time of the interview. Ninety five (9%) had a history of hospital visit within one year prior to the study. The cost of the last modern health care visit was covered by 74% of the elders, 21.2% of their family and in 4.4% of them by the government.

According to symptoms of ill health reported by the study subjects within 15 days of recall period 220(45.4%) males and 331(58.3%) of females present headache as the most common complaint and 213(43.9%) males and 278(48.9%) females present problems in mastication and joint pain as the second most common compliant respectively (table 3). Tremor of hands is found to be the least common compliant in both sexes as it is reported by 57(11.8%) of males and 82(14.4%) of females. Significantly higher number of females ($P < 0.05$) are found to complain disease symptoms like headache, memory problem, loose of appetite, heart burn, joint and back pain than males. Problems of mastication, vision, hearing, heart burn and night mare (table 4) are found to be significantly associated with increasing age of the elders.

When the cut of point greater than ten scores out of twenty for neuroses and greater than two points out of four for psychoses is used; 5.98% of the elders were labelled as neurotic and 1.6% as psychotic cases. Sex, consumption of alcohol, using tobacco or cigarette, family size, education status, being member of social and/or religious organization are not significantly associated with neuroses. The odds of being in the older age group and living alone is greater among neurotic than Non neurotic and significantly higher number of divorced elders are found to be neurotic and remain so when logistic regression was applied to account for confounders (table 5).

It is observed that living alone being the age group of 75 years and above and taking alcoholic drinks is positively associated with psychosis. Additionally being a widowed and divorced found to be significantly associated with psychosis (table 6).

Table 2. Status of Alcohol consumption, Cigarette smoking, Tobacco sniffing and chewing in the elderly of Dalle Woreda, Southern Ethiopia 1994/1995.

Characteristics.	Male Number(%)	Female Number(%)	Odds Ratio & 95% C.I
Drink alcohol			
Yes	226 (46.59)	171 (30.10)	2.03 (1.56, 2.63)
No	259 (53.40)	397 (69.89)	
History of			
Cigarette/ Gaya smoking	48 (9.89)	28 (4.92)	2.12 (1.27, 3.53)
Tobacco sniffing	112 (23.09)	48 (8.45)	3.25 (2.23, 4.76)
Tobacco chewing	120 (24.74)	12 (2.11)	15.23 (8.06,29.44)
Current status of			
Smoking Cigarette/Gaya	20 (4.12)	9 (1.58)	2.67 (1.14, 6.39)
Sniffing tobacco	92 (18.96)	40 (7.07)	3.09 (1.90, 3.83)
Chewing tobacco	81 (16.70)	5 (0.88)	22.58 (8.71,63.75)

Table 3. Symptoms of ill health of the elderly within two weeks of recall period in Dalle Woreda, Southern Ethiopia 1994/1995.

Disease symptom	Male (#485) %	Female (#568) %	Odds Ratio & 95% CI
Headache	220(45.36)	331(58.27)	1.68(1.31,2.16)
Memory problem	125(25.77)	191(33.62)	1.46(1.11,1.92)
Night mare	104(21.44)	129(22.71)	1.08(0.80,1.46)
Insomnia	137(28.24)	183(32.21)	1.21(0.92,1.59)
Tremor of hands	57(11.75)	82(14.43)	1.27(0.87,1.85)
Lose of appetite	90(18.55)	150(26.40)	1.57(1.16,2.14)
Heart burn	195(40.20)	281(49.47)	1.46(1.13,1.87)
Abdominal discomfort	141(29.07)	152(26.76)	0.89(0.67,1.18)
Diahorrea	86(17.66)	98(17.25)	0.97(0.69,1.35)
Constipation	124(25.56)	161(28.34)	1.15(0.87,1.53)
Joint pain	195(40.20)	278(48.94)	1.43(1.11,1.84)
Back pain	161(33.19)	225(39.61)	1.32(1.02,1.71)
Problem in mastication	213(43.91)	238(41.90)	0.92(0.72,1.19)
Problem of vision	155(31.95)	165(29.04)	0.87(0.66,1.14)
Problem of hearing	90(18.55)	98(17.25)	0.92(0.66,1.27)

Table 4. Analysis of symptoms of ill health with age of the elderly within two weeks of recall period in Dalle Woreda, southern Ethiopia 1994/1995.

Symptoms	Age group 60-64	65-74	75-84	85+	MH-Chi square
Headache	171(53.60)	220(52.13)	114(52.29)	46(52.32)	0.49
Lose of memory	89(27.89)	127(30.09)	72(33.02)	28(29.78)	0.87
Night mare	46(14.42)	97(22.98)	60(27.52)	30(31.91)	19.18*
Insomnia	85(26.64)	124(29.38)	70(32.11)	31(32.97)	0.70
Tremor of hands	37(11.59)	56(13.27)	32(14.67)	14(14.89)	1.27
Loose of appetite	70(21.94)	95(22.51)	50(22.93)	21(22.34)	0.04
Heart burn	140(43.88)	178(42.18)	101(46.33)	57(60.63)	5.66■
Abdominal discomfort	95(29.78)	108(25.59)	55(25.22)	35(37.27)	0.18
Diarrhoea	50(15.67)	70(16.58)	42(19.26)	22(23.40)	3.30
Constip _ation	91(28.52)	115(27.25)	51(23.39)	28(29.78)	0.32
Joint pain	130(40.75)	190(45.02)	110(50.45)	43(45.72)	3.23
Back pain	115(36.05)	155(36.72)	81(37.15)	37(39.36)	0.30
Problem of _mastic.	108(33.85)	180(42.65)	113(51.83)	50(53.19)	20.66*
Problem of vision	68(21.31)	125(29.62)	82(37.36)	45(47.87)	31.65*
Problem of hearing	46(14.42)	72(17.06)	48(22.01)	22(23.40)	6.98*
Total	319	422	218	94	

x^2 = Mantel Henzeles Chi square .

■ ($p < 0.05$)

*($p < 0.01$)

Table 5. Distribution of elders with neurosis according to socio-demographic and behavioral characteristics in Dalle woreda, Southern Ethiopia 1994/1995.

variables	Total popul.	Suspected neurotic Number (%)	Odds Ratio & 95% CI Adjusted
Age			
60-64	319	9(2.82)	1.00*
65-74	422	19(4.50)	1.55(0.68, 3.55)
75-84	218	21(9.63)	3.59(1.51, 8.50)
>=85	94	14(14.89)	6.09(2.35,15.81)
Sex			
Male	485	24(4.95)	1.00*
Female	568	39(6.87)	1.25(0.62, 2.53)
Marital status			
Married	738	26(3.52)	1.00*
Single	34	20(5.88)	1.74(0.36,8.33)
Widowed	40	4(10.00)	2.19(0.56,8.48)
Divorced	241	31(12.86)	3.07(1.50,6.27)
Family size			
1	17	6(35.29)	1.00*
2-4	584	37(6.34)	0.17(0.05, 0.62)
>4	452	20(4.42)	0.21(0.05, 0.82)
Education			
Illiterate	912	60(6.58)	1.00*
Literate	118	20(1.69)	0.35(0.08, 1.49)
Have formal education	23	1(4.35)	0.91(0.11, 7.19)
Drink alcohol			
Yes	397	19(4.79)	1.00*
No	656	45(6.71)	1.43(0.79, 2.58)
Smoke cigarette/ Use tobacco			
Yes	76	9(11.84)	1.00*
No	977	54(5.53)	0.39(0.17, 0.89)
Member of social and/or religious organization.			
Yes	912	56(6.14)	1.00*
No	141	70(4.96)	0.58(0.24, 1.39)

* Referent category

Impairment in Instrumental Activities of Daily Living (IADL).

A total of 368 elders, 215(44.3%) male and 153(26.9%) females were impaired in one or more of IADL items. Preparing food 20.6%, house keeping 18.2%, and transportation 14.9% are the three IADL in which elders depend on others most. Significantly higher number of males ($P < 0.01$) depend on others on the first two IADL activities (table 7).

The prevalence of IADL impairment increase with increasing age of the elders, is higher in male than females, in widowed than the other marital groups and Additionally those elders with formal education and who use tobacco and smoked cigarette showed such impairment (table 8). Those observed associations are significant at $P < 0.05$ and remained so when logistic regression is applied.

Table 6. Distribution of elders with psychosis according to Socio-demographic and behavioral characteristics in Dalle Woreda, southern Ethiopia 1994/1995.

		Suspected psychotic	
			Odds Ratio & 95% CI
Variables	Total Popul.	Number(%)	Adjusted
Age			
60-64	319	4(1.25)	1.00*
65-74	422	5(1.18)	0.72(0.18, 2.84)
75-84	218	12(5.29)	1.51(0.37, 6.19)
> =85	94	3(3.19)	2.14(0.43,10.56)
Sex			
Male	485	8(1.65)	1.00*
Female	568	9(1.58)	0.60 (0.18 ,1.98)
Marital status			
Married	738	6(0.81)	1.00*
Single	34	1(2.94)	5.67(0.57,55.14)
Widowed	40	3(7.50)	12.35(2.38,64.11)
Divorced	241	9(2.90)	5.04(1.30,19.55)
Family size			
1	17	1(5.88)	1.00*
2-4	584	11(1.88)	1.06(0.11,10.51)
>4	452	5(1.11)	1.02(0.08,12.37)
Drink alcohol			
Yes	397	8(2.02)	1.00*
No	656	9(1.30)	0.63(0.23, 1.73)
Member of social and/or religious organization			
Yes	912	14(1.54)	1.00*
No	141	3(2.13)	1.17(0.31, 4.39)

* Referent category

Table 7. Distribution of elders by types of Instrumental Activities of Daily living (IADL) impairment in Dalle Woreda, southern Ethiopia 1994/1995.

Types of IADL	SEX			
	Male # %	Female # %	OR	95% CI
Transportation	63(12.98)	94(16.54)	0.75	(0.53, 1.08)
Marketing	75(15.46)	81(14.26)	1.10	(0.77, 1.57)
Preparation of food	160(32.98)	57(10.03)	4.41	(3.12, 6.24)*
House keeping	109(22.47)	83(14.61)	1.69	(1.22, 2.35)
Taking medicine	53(10.97)	64(11.26)	0.97	(0.65, 1.45)
Handling money	29(5.97)	53(9.33)	0.62	(0.38, 1.01)

*($p < 0.01$)

Table 8. Socio demographic and behavioral characteristics of elders with (IADL) Instrumental Activities of Daily Living impairment in Dalle Woreda, southern Ethiopia 1994/95.

Variables	Total popula.	Impaired in IADL Number (%)	Odds Ratio 95% CI Adjusted
Age			
60-64	319	59(18.49)	1.00*
65-74	422	144(34.12)	1.94(1.35, 2.78)
75-84	218	106(48.62)	3.34(2.20, 5.04)
>=85	94	59(62.77)	6.00(3.52,10.24)
Sex			
Female	568	153(26.94)	1.00*
Male	485	215(44.33)	1.95(1.40, 2.72)
Family size			
1	17	10(58.82)	1.00*
2-4	584	202(34.59)	2.20 (0.72, 1.69)
>4	452	156(34.51)	1.93 (0.62, 6.00)
Marital status			
Single	34	6(17.65)	1.00*
Married	738	248(33.60)	1.44 (0.56, 3.70)
Divorced	40	15(37.50)	1.39 (0.65, 2.97)
Widowed	241	99(41.08)	1.96 (1.34, 2.87)
Educational status			
Illiterate	912	12(34.21)	1.00*
Literate	118	42(35.59)	1.10 (0.72, 1.69)
Have formal education	23	14(60.87)	2.82 (1.15, 6.93)
Drink alcohol			
No	656	220(33.54)	1.00*
Yes	397	148(37.28)	1.08 (0.81, 1.44)
Smoke Cigarette/ Use tobacco			
No	977	326(33.37)	1.00*
Yes	76	42(55.26)	2.26 (1.36, 3.74)
Member of social and/or religious organizations			
No	141	45(31.91)	1.00*
Yes	912	323(35.42)	1.07 (0.71, 0.05)

* Referent category.

Impairment in Activities of Daily living (ADL).

Impairment on at least one item of activity of daily living (ADL) is seen on 39(8.0%) males and 35(6.2%) of females. Walking is the commonest ADL impairment, and accordingly 12.4% males and 10.9% females are affected. For 8(1.6%) males and 12(2.0%) females feeding and toileting are found to be the least common impairment of ADL respectively (table 9). Unlike that of IADL no statistically significant difference is observed between two sexes in performing specific activities of daily living.

When adjusted for other confounders the impairment in ADL increase above the age of 75 years and, similar to that of IADL significantly higher number of widowed elders are found to be impaired in ADL. Non of the other variables are found to be associated with the activities of daily living (table 10).

Table 9. Distribution of elders by types of Activities of Daily living (ADL) dependence in Dalle Woreda, Southern Ethiopia 1994/1995.

Types of ADL	Male #	Male %	Female #	Female %	OR	95% CI
Feeding	8	1.64	14	2.46	0.66	(0.25, 1.70)
Dressing	9	1.85	14	2.46	0.75	(0.30, 1.86)
Grooming	42	8.56	47	8.27	1.05	(0.67, 1.66)
Walking	60	12.37	62	10.91	1.15	(0.78, 1.71)
Transferring	17	3.50	19	3.34	1.05	(0.51, 2.14)
Bathing	39	8.04	49	8.62	0.93	(0.58, 1.47)
Toileting	12	2.47	12	2.11	1.18	(0.49, 2.82)

Table 10. Socio demographic and behavioral characteristics of elders with impairment of Activities of Daily Living (ADL) in Dalle Woreda, southern Ethiopia 1994/1995.

	Impaired in ADL		
			Odds Ratio & 95% CI
variables	Total populi.	Number(%)	Adjusted
Age			
60-64	319	20(6.27)	1.00*
65-74	422	45(10.66)	1.65(0.95, 2.90)
75-84	218	60(27.52)	5.28(2.98, 9.36)
>=85	94	47(50.00)	15.39(8.03,29.49)
Sex			
Male	485	84(17.31)	1.04(0.67,1.64)
Female	568	88(15.49)	1.00*
Family size			
1	17	5(29.41)	1.73(0.49, 6.20)
2-4	584	116(19.86)	1.18(0.35, 4.05)
>4	452	51(11.28)	1.00*
Marital status			
Single	34	3(8.82)	1.00*
Married	738	102(13.82)	1.54(0.41, 5.79)
Divorced	40	6(15.00)	1.10(0.40, 3.08)
Widowed	241	61(25.31)	1.77(1.10, 2.85)
Educational status			
Illiterate	912	145(15.90)	1.65(0.96, 2.85)
Literate	118	23(19.49)	1.85(0.58, 5.90)
Have formal education	23	3(13.40)	1.00*
Drink alcohol			
Yes	64	10(16.12)	1.21(0.83, 1.77)
No	108	18(16.46)	1.00*
Smoke cigarette/ take tobacco			
Yes	76	17(22.37)	1.53(0.87, 2.69)
No	977	155(15.86)	1.00*
Member of social and/or religious Organization			
Yes	912	154(16.86)	1.46(0.94,2.28)
No	141	30(21.28)	1.00*

* Referent category

Discussion

The result of this study showed that headache (52.3%), heart burn (45.2%) and joint pain (45%) are the most frequently reported symptoms of ill health. Additionally, 6% of the elders are found to be neurotic and 35% and 16% of them are with impairment of IADL and ADL respectively.

The random selection of the study clusters, the use of historical landmarks for accurately telling the age of the elders, the training given to the data collectors and the pretesting and administration of the questionnaire using local language are among the measures taken to avoid the possible biases and increase the validity of the study.

Larger proportion of the elders own the house they are living in, but the house of only less than a fifth of them have separate kitchen, about one in seven of them have functional latrine and 15.6% of them should walk more than 30 minutes to get water for domestic use. According to Chen, P.C.Y. and colleagues (15) only 7% of the Malaysia elders had no access to basic amneties such as clean water, proper toilet, cooking and bathing facilities. And only 8.3% of the Barbados elders (14) were with out piped water supply. The reason for such a lower availableity of basic facilities for the elders in our study is a direct reflection of the lower Socio economic status of the community.

Seventeen (1.6%) of the elders live alone, this has similarity to the

outcome of other study (19). But, it is in contrasts with what is seen in developed countries where about 30% live alone (14,36). The remaining elders live with families and/or relatives and about nine in ten of them claim membership of social and/or religious organization. This shows as the elders are socially active and are living in the extended family network where they are able to get assistance which is necessary for health or at least independence.

For three fourth of the elderly source of income is work and less than a fifth of them get economic support from children or other family member and only a very small number of them do get regular pension. In another two studies (14,19) more than 50% of the elders had either no earned income or received no financial support from the state. This shows that the majority of elders in our study are still working, earn some form of income, do support themselves and families and lead economically active life.

Significantly higher proportion of the elders consume alcoholic drinks. Gaya and/or cigarette smoking , tobacco chewing and sniffing is also practised by a considerable number of them. Though the use of the above mentioned substances is significantly higher in males, female who are practising it are not small in number. The duration of the practice is also longer than ten years in the larger proportion of them. In the Malaysia (15) significant proportion of the elderly especially males smoked cigarette and alcohol was consumed by a tenth of them. The use of these substances by relatively larger proportion of

the elderly in our study could be the reflection of the inavailablity of restriction by the society for the use of these substances.

Larger proportion of elders are able to walk to the near by health institutions when they are in need of health care and they were able to cover the cost of the last health care visit. This could be the contribution of the availablity of good road communication and well seated health institutions in the woreda and the elders being actively working and earn some form of income paying for the health care may not be a problem.

Symptoms of ill health like headache, heart burn, joint pain, back pain, problems of mastication and vision are most frequent reported by the elders. Significantly higher number of females complained headache, memory problem, loose of appetite, heart burn, joint and back pain. This can be attributed to the fact that women live longer (37,38) and work longer hours and harder than men, particularly in the rural areas leading them to be prone for different diseases and disease complients.

When the association between age and disease compliant is seen; as the the elders getting older there tendency to present with night mare, heart burn, problem of mastication, vision and hearing is higher. Problems in mastication, vision, hearing, deterioration of health with age and the association of female sex with more health problems is also found by studies which are done in different areas (15,17,23).

The prevalence of neurosis and psychosis is found to be 6.0% and

1.6% respectively. This figure is small when compared to the study done in the rural Ethiopia adult population where the prevalence of neurosis was 11.2% and that of psychoses 6.0% respectively (39). Though, the cut of point that is used to label the study subjects as neurotic and psychotic is the same in both studies the occupance of this wide variation in prevalence could be attributed to the difference in age between the two study population.

Those elders who live alone, who are found in the older age group, who are widowed and divorced, and who smoke cigarette and/ or "Gaya" are found to be neurotic than those who live in larger family size, married and single, younger elders and none smokers. Loneliness is considered to be a key factor in compounding health problems and is frequently combined with physical and mental inactivity, particularly among the widowed. Additionally married life may well induce regularity in habits, diet and life style and promote health (20). In our case the elders living in social isolation, bereaved, with changes in life style could lead them to live in a stressful living condition predispose them to the disease.

Being widowed and divorced is found to be strongly associated with having the psychotic component than those married and single ones. The disruption of the strong psychological bond which existed between the couples during there married life could be the cause for the occupance of such a problem in the former group.

About one third of the elders show impairment in one or more of the

instrumental activities of daily living and very small proportion are found to be totally dependant on others. The two main activities in which elders show much dependency on others are preparing food and house keeping. This dependency increase with increasing age and significantly higher in males.

In the study done in the urban Sir Lanka (19) about a fifth of the elders showed impairment in IADL, and transportation was the commonest IADL impairment followed by shopping. Both the proportion and types of IADL in which elders show impairment are different in the two studies. That could be due to the fact that the IADL items used to measure disability in our case are larger in number, and the omitted items in the other study are the ones in which the elders show much dependence in our case.

The association of age with increased number of impairment is supported by Neugarten (26); Additionally the higher proportion of dependence in activities like preparing food and house keeping in our study could be the result of that significantly larger number males claim as they can't perform the mentioned activities and this could be a reflection of the culturally accepted norm that males are not supposed to participate in such activities.

Impairment in ADL is seen in about a sixth of the elders and similar to that of IADL impairment strong association is seen between increasing age and increased proportion of impaired elders. This finding is consistent with that of other studies (19,26,40) where about a tenth of the elders are ADL impaired and a fifth of those aged 65-74 years and a third of those aged 75 and more

have some degree of physical impairment. As old age is associated with multiple chronic diseases conditions which alters the ability of the body to function normally and the ability of the the elders to perform both ADL and IADL with increasing age have sound biological bases.

About half of elders who are living alone and a quarter of them are found to be impaired in IADL and ADL items respectively. This shows that those elders who have much impairment are those with problems in getting support from other person.

***Limitation of the study*:** The instrument that is used to determine impairment in the elders (ADL and IADL) is not validated and age misreporting could be another factor which can be sited as the limitation of the study. Additionally the unavailability of studies done in the elders of Ethiopia and the deficiency of other comparable studies done in the developing countries makes the comparison of the outcome to be limited.

Conclusion and Recommendation

1. Headache, heart burn, problem in mastication and joint pain are found to be the most frequent reported ill health problems and significant association is observed between certain disease complaints with that of female sex and increasing age of the elders.

2. About a third and a sixth of the elders are found to be impaired in IADL and ADL activities respectively. This impairment is found to be significantly associated with increasing age, in those living alone and divorced elders .

3. Larger proportion of elders are members of social and/or religious organizations and their relation with a network of people can be taken as a way in which they get both social and economic support.

4. Considerable proportion of elders are found to be actively working and earn some form of income and do support themselves and their families.

5. Though identification of specific disease in the elders is beyond the objective of this study, certain complaints which are considered to affect the quality of life of the elders to a greater extent, like problems of mastication,

vision, and hearing are found to be associated with increased age of the elders. So further studies are recommended to identify the specific diseases entities which makes these complaints.

6. Relatively larger proportion of the elders are found to use tobacco and it's products for longer period of time. The effect of tobacco sniffing and chewing on the health of the elders need further studies.

7. Due to the representativeness of the study subjects both for the rural and urban population this study can be used as a base for the future studies.

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Appendix 1.

Questionnaire

A. Socio Demographic Variables.

1. Date.....

2. Name of the farmers association..... Kebele number.....

3. House number.....

4. Age of the elderly in years.....

5. Sex 1. Male 2.Female

6. Marital status 1. Single.....
   2. Married.....
   3. Divorced.....
   4. Widowed.....

7. If the answer for question 6 is number 4.
   how long was since your partner died ?
   1. Less than one year.....
   2. More than one year.....

8. Ethnicity
   1. Sidama.....
   2. Oromo.....
   3. Amhara.....
   4. Gurage.....
   5. Tigre.....
   6. Others specify.....

9. Religion
   1. orthodox.....
   2. Catholic.....
   3. Protestant....
   4. Muslim.....
   5. Other specify.....

10. Educational status
    1. Can't read and write.....
    2. Can read and write.....
    3. If the elder follow

formal education
specify grade completed.....

11. Occupation 1. Farmer.....
2. Trader.....
3. Government employee.....
4. Private organization employee.....
5. Other, specify.....

12. Major source of income
1. Work.....
2. Pension.....
3. Family support.....
4. Others, specify.....

13. Who owned the house in which the elderly lives ?
1. Owned by the elderly.....
2. Rented by the elderly.....
3. House of the children.....
4. House of the relative.....
5. Other, specify.....

14. With whom did the elderly lives ?
1. Spouse.....
2. Children....
3. Spouse and children.....
4. Relative....
5. Others, specify.....

15. Number of people living with the elderly.
.....

16. How many minute will it take to fetch the water that you need for domestic use ?
1. More than 30 minutes.....
2. Less than 30 minutes.....

17. Is there any functional toilet facility in the compound you are leaving ?
1. Yes..... 2. No

18. Do you have separate kitchen (cooking facility) inside the compound you are living ?
1. Yes..... 2. No

19. Are you the member of the locally available social group like "Edir", "Equeb", "Senbete" and/or religious gatherings?

1. Yes..... 2. No.....

20. Can you walk to health institutions when you are in need of any health service ?

1. Yes..... 2. No....

21. Are you on modern medication by now ?

1. Yes..... 2. No.....

22. Do you have a history of hospital visit in the past one year ?

1. Yes.... 2. No.....

23. Who paid for your medication the last time you had treatment in the health institutions

1. Self....
2. Family members....
3. Relative.....
4. Friends.....
5. Other, specify.....

24. Do you take acholic drinks like "Tej", "Tella", "Areke" etc.?

1. Yes 2. No

25. If the answer for question No. 24 is Yes how frequent do you take acholic drinks ?

1. Every day
2. Weekly
3. Occasionally
4. Other Specify

26. Have you ever smoked cigarette or Gaya, chewed or sniffed tobacco ?

1. I have a history of cigarette and or Gaya smoking.
2. I have a history of tobacco sniffing.
3. I have a history of tobacco chewing.

27. Are you at present smoking cigarette and or Gaya, Chew or sniff tobacco ?

1. I am Smoking cigarette and or Gaya.
2. I am sniffing tobacco.

3. I am chewing tobacco.

28. If you used the above mentioned substances specify the duration of use in years.....

B. **WHO Health Care For The Elderly**

In the last two weeks have you suffered from.
(Ask this question before each sub section)

29. Headache ? 1. No 2. Yes

30. Worsening of memory ? 1. No 2. Yes

31. Lack of appetite ? 1. No 2. Yes

32. Heartburn ? 1. No 2. Yes

33. Stomach pains? 1. No 2. Yes

34. Diarrhoea ? 1. No 2. Yes

35. Nightmare ? 1. No 2. Yes

36. Difficulties in falling asleep ? 1. No 2. Yes

37. Tremor of the hands ? 1. No 2.Yes

38. Unwillingness to do things or lack of energy ? 1. No 2. Yes

39. Tiredness or feeling of faintness ? 1. No 2. Yes

40. Constipation ? 1. No 2. Yes

41. Aching or pain in joints ? 1. No 2. Yes

42. Back trouble ? 1. No 2. Yes

43. Sight problem ? 1. No 2. Yes

44. Problem in hearing? 1. No 2. Yes

45. problem in chewing? 1. No 2. Yes

C Self- Reporting Questionnaire

46. Do you often have headache ? 1. No 2. Yes

47. Is your appetite poor ? 1. No 2. Yes

48. Do you sleep badly ? 1. No 2. Yes

49. Are you easily frightened ? 1. No 2. Yes

50. Do your hands shake ? 1. No 2. Yes

51. Do you feel nervous ? 1. No 2. Yes

52. Is your digestion poor ? 1. No 2. Yes

53. Do you have trouble thinking clearly ? 1. No 2. Yes

54. Do you feel unhappy ? 1. No 2. Yes

55. Do you cry more than usual ? 1. No 2. Yes

56. Do you find it difficult to enjoy your daily activities ?
1. No 2. Yes

57. Do you find it difficult to make decisions ? 1. No 2. Yes

58. Is your daily work suffering ? 1. No 2. Yes

59. Are you unable to play a useful part in life ? 1. No 2.Yes

60. Have you lost interest in things ? 1. No 2. Yes

61. Do you feel you are a worthless person ? 1. No 2. Yes

62. Has the thought of ending your life been in your mind ?
1. No 2. Yes

63. Do you feel tired all the time ? 1. No 2. Yes

64. Do you have uncomfortable feeling in your stomach ?
1. No 2. Yes

65. Are you easily tired ? 1. No 2. Yes

66. Do you feel that some body has been trying t harm you in some way ?

1. No 2. Yes

67. Are you much more important person than most people think ?

1. No 2. Yes

68. Have you noticed any interference or anything unusual with your thinking ?

1. No 2. Yes

69. Do you ever hear voices without knowing where they come from, or which other persons can not hear ?

1. No 2. Yes

Additional Items

70. Do you feel angry at others ? 1. No 2. Yes

71. Do you have temper outburst ? 1. No 2. Yes

72. Do you feel critical of others ? 1. No 2. Yes

73. Do you have pain in your chest or back ? 1. No 2. Yes

74. Do you have burning pain in your stomach ? 1. No 2. Yes

75. Is there mental illness in your family ? 1. No 2. Yes

D. Instrumental Activities of Daily Living scales.

Now I would like to ask about some of the activities of daily leaving, things we all need to do as a part of our daily lives. I would like to know if you can do these activities without any help at all or if you need some help to do them, or if you cannot do them at all.

76. Can you get to places out of walking distance ?

2 Without help, (can travel alone on carts*, buses, taxies or drive your own car).

1 with some help (need some one to help your go with you when travelling)

0 Or are you unable to travel unless emergency arrangements are made for specialized vehicle, like an ambulance ?

- Not answered.

77. Can you go shopping for groceries or cloths ?

(Assuming the subject has transportation)

2 Without help (taking care of all shopping needs yourself).

1 With some help (need some one to go with you on all shopping trips)

0 Or are you completely unable to do any shopping?

- Not answered.

78. Can you prepare your own meals ?

2 Without help (plan and cook full meals yourself)

1 With some help (can prepare some things but unable to cook full meals yourself)

0 Or are you completely unable to prepare any meals?

- Not answered.

79. Can you do your house work ?

2 Without help (can sweep floors, etc.)

1 With some help (can do light housework but need help with heavy work)

0 Or are you completely unable to do any house work?

- Not answered

80. Can you take your own medicine ?

2 Without help (In the right doses at the right time)

1 With some help (able to take medicine if someone prepares it for you and/ or reminds you take it)

0 Or are you completely unable to take your medicines?

- Not answered.

81. Can you handle your own money ?

2 Without help (count* and pay bills, etc.)

1 With some help(manage day-to-day buying but need help with managing and paying bills)

0 Or are you completely unable to handle money?

- Not answered

E. Activities of Daily Living (ADL) items (Physical activity of daily living).

82. Can you eat ?

2 Without help(able to feed yourself completely)

1 With some help(need help with cutting, etc.)

0 Or are you completely unable to feed yourself.

- Not answered.

83. Can you dress and undress yourself ?

2 With out help(able to pick out cloths, dress and undress your self, button your shirts etc.)

1 With some help

0 Or are you completely unable to dress and undress yourself?

- Not answered.

84. Can you take care of your own appearance , e.g., combing your hair, cutting your nail and (for men) shaving ?

2 Without help.

1 With some help.

0 Or are you completely unable to maintain your appearance yourself?

- Not answered.

85. Can you walk ?

2 Without help (except with cane)
1 With some help from a person or with the use of a walker or crutches, etc.
0 Or are you completely unable to walk?
- Not answered

86. Can you get in and out of bed ?

2 Without any help or aids
1 With some help (either from a person or with the aid of some device)
0 Or are you totally dependant on someone else to lift you?
- Not answered

87. Can you take a bath or shower (Wash your body) ?

2 Without help
1 With some help
0 Or are you completely unable to bath yourself?
- Not answered.

88. Do you ever have trouble getting to the toilet on time ?

2 No
1 Yes
- Not answered.

[IF "YES", ASK(Question 89)]

89. (a) How often do you wet or soil yourself (either day or night) ?

1 Once or twice a week
0 Three times a week or more
- Not answered

4.6 Sample Size Calculations

The sample size calculation was based on obtaining the estimated maximum sample population.

The maximum acceptable discrepancy (100p-100II) between the sample and population percentage was taken ± 3.3% precision with 95% certainty. The (95% confidence limit in 2 tails normal distribution namely Z = ±1.96 the standard error of estimated percentage is then calculated.

$$100 \, x \, \sqrt{\Pi(1 - \Pi) / n}$$

The allowable discrepancy alpha ±3.3 percentage between the sample and population percentage

$$100 \, p - 100 \, \Pi = \pm 3.3$$

$$\sqrt{n} = \frac{z \, x \, 100 \, x \, \sqrt{\Pi(1 - \Pi)}}{3.3}$$

$$\sqrt{n} = \frac{1.96 \, x \, 100 \, x \, \sqrt{\Pi(1 - \Pi)}}{3.3}$$

$$\sqrt{n} = \frac{(196)}{3.3} \sqrt{\Pi(1 - \Pi)^2}$$

$$n = (196 / 3.3)^2 X \Pi(1 - \Pi)$$

$$n = 3528.36 \text{ x } .25$$
$$= \underline{\underline{882}}$$

However to increase precision 20% of the repaired sample size was taken additionally increased the sample size to 1058. (42)

Declaration

I, the undersigned, declare that this thesis is my original work and has not been presented for a degree in this or any other university and that all sources of materials used for this thesis have been duly acknowledged.

Name----------

Signature----------

Place----------

Date of submission ----------

Dedication

To my mother W/o Asnacketch Lemma and my father Ato Dejene Bejiga.