BMJ Open

Satisfaction with life and associated factors among elderly people living in two cities in northwest Ethiopia: a community-based cross-sectional study

SCHOLARONE™
Manuscripts

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

Title: Satisfaction with life and associated factors among elderly people living in two cities in northwest Ethiopia: a community-based cross-sectional study

Authors: Mr. Habtamu Sewunet Mekonnen /HSM/[1]*, Professor Helena Lindgren /HL/ (Ph.D.)[2], Dr. Biftu Geda/BG/ (Ph.D.)[3], Dr. Telake Azale /TA/ (Ph.D.)[4], Dr. Kerstin Erlandsson /KE/(Ph.D.)[2,5]

Authors' affiliations:

[1]Department of Medical Nursing, School of Nursing, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia.

[2]Department of Women's and Children's Health, Karolinska Institutet, Solna, Sweden.

[3]Madda Walabu University, College of Health Science, Department of Nursing, Shashamene Campus, Shashamene, Ethiopia.

[4]Department of Health Education and Behavioral Sciences, Institute of Public Health, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia.

[5] School of Education, Health and Social Studies, Dalarna University, Falun, Sweden

Emails and postal addresses:

HSM: habtsew@ymail.com

Postal address: 196, Gondar, Ethiopia

HL: helena.lindgren@ki.se

Postal address: Karolinska Insitutet, 17177 Solna, Sweden

BG: biftug@gmail.com

Postal address: 247, Robe/Shashamene, Ethiopia

TA: atelake07@gmail.com

Postal address: 196, Gondar, Ethiopia

KE: ker@du.se; kerstin.erlandsson@ki.se

Postal address: Karolinska Insitutet, 17177 Solna, Sweden

*Corresponding author:

Email: habtsew@ymail.com

1

Abstract

Objective: This study aimed to determine the level of life satisfaction and associated factors among elderly people living in two cities in northwest Ethiopia.

Design: Community-based cross-sectional study

Setting: Two cities in northwest Ethiopia

Participants: 816 elderly people age 60 years and above. A systematic random sampling was used to select study participants.

Main outcome measure: Level of life satisfaction. Multivariable ordinal regression analysis was done to control the confounders. P-value ≤ 0.05 and AOR with a 95% CI were considered to determine the statistical significance and strength of the association.

Results: The mean age of the respondents was 68.2 years with standard deviation ± 7.2. The level of life satisfaction was: dissatisfied 17.2%, moderately satisfied 63.8%, and well satisfied 19.0%. Overall, 45.8% (95% CI: 42.2-49.2) of the participants had a score equal to or above the mean. Regarding associated factors; retired current occupation (AOR=2.23, 95% CI:1.09-4.55), good self-rated health status (AOR= 2.54, 95% CI:1.29-4.99), having no chronic disease (AOR=1.48, 95% CI: 1.03-2.11), somewhat-good (AOR= 2.15, 95% CI: 1.12-4.13) and good (AOR= 4.51, 95% CI: 2.40-8.45) self-perception on aging life, moderate functional impairment on daily living activities (AOR= 5.43, 95% CI: 1.81-16.24), high sense of coherence (AOR= 3.80, 95% CI: 2.04-7.08), source of finance (AOR= 2.60, 95% CI: 1.49-4.52), and high perceived social support (AOR= 2.13, 95% CI: 1.44-3.16) had statistically significant association with the life satisfaction.

Conclusion: The life satisfaction level in our study group was lower than in some more highly developed countries. To improve the level of life satisfaction in Ethiopia, a holistic program of

2

nursing care for the elderly people, particularly as concerns on their health and psychosocial conditions is crucial in both community and clinical settings.

Keywords: elderly people, life satisfaction, metropolitan cities, northwest Ethiopia

Strengths and Limitations of the study

- To the best of our knowledge this is the first study of life satisfaction and associated factors among the Ethiopian elderly.

- The study had a representative sample of elderly men and women, young-old to old-old, unable to read and write to well educated, very good to very bad perceived health status.

- The data were collected in the participants' residential homes that enabled us to have sufficient time to get the necessary data, and the high response rate also helped.

- The study was done among Amharic speaker Ethiopian elders that might not be representative of all Ethiopians other than Amharic speakers.

- The study was limited to households in two cities of northwest Ethiopia, which may not be representative of elderly living in streets, religious places, temporary settlements, and rural residents.

Introduction

Life satisfaction is a feeling of being satisfied with one's present life and even earlier life up to the present. An individual or an outside analyst may try to evaluate the degree of satisfaction. This is important because being content with one's current life may be seen as an indication of successful aging (1). Life Satisfaction is not a persistent objective quality; rather, it is susceptible to contextual changes and may be judged based on people's perceptions and interpretations (2). The level of satisfaction may be related not only to health but also the living standards for an individual. Thus,

3

improving elderly people's life satisfaction requires attention not only to their health but to the social and economic conditions in their environment. Besides, being satisfied with past and present life may be seen by many elderly people as a success story. As life expectancy increases, health and satisfaction with life become more important than they were when life expectancy was short (3). Thus, aging satisfactorily means remaining physically and psychologically well, and socially engaged in an individually defined meaningful life (4).

In Ethiopia, over the last ten years the life expectancy at birth increased from 61.63 years to 66.95 years in 2020 (5). A longer life provides an important opportunity for older people, their families, and at large for the societies (6). However, these changes also bring a socio-demographic shift and can create new challenges for health care services. When people live longer, they require more attention to their health and therefore are often hospitalized for chronic and degenerative diseases, functional and physical dependency, mental health problems, cognitive disorders, and other age-related diseases. As a result, this can greatly affect the economies, living arrangements, and personal and professional aspirations to maintain their services (7). So, in the late adult stage, satisfaction leads to integrity, while dissatisfaction creates a sense of despair (8, 9).

As studies have revealed, overall life satisfaction is higher among some people in high-income countries than in middle- and low-income countries. In Norway, Russia, Sweden, and Brazil the magnitude of life satisfaction was 90.9%, 68.0%, 66.0%, and 65.6% respectively (10-13), whereas in Zambia and Nepal it was only 37% and 7.9% respectively (14, 15). In the nursing home of Sivas municipality, Turkey, 6.4%, 71.8%, and 21.8% reported low, moderate, and high life satisfaction (16). The study in Brazil among community-dwelling elderly reported 6.1% dissatisfied, 28.2% moderately satisfied, and 65.6% were very satisfied with life (13). In the South Korea study, 34%,

4

38%, and 27% of the elderly reported adequate, average, and poor life satisfaction respectively (17).

As studies in various parts of the world showed sex (AOR=1.42, 95% CI:1.01-2.00), marital status (F=16.5, P < 0.001), educational status (AOR=3.84, 95% CI:2.38-6.18), occupation, living style, income (F= 9.5, P < 0.001), religion, working status, physical activities, perception of self-health, chronic disease (AOR=2.07, 95% CI:1.51-2.84), perceived loneliness ($\beta = -1.369$, P<0.001), daily living activities, sense of coherence, mental health, social support, living environment quality, and nutrition ($\beta = 0.48$, bias-corrected and accelerated (BCa 95% CI: 0.27, 0.69) were significantly associated with the life satisfaction (16, 18-21).

However, evidence is scarce about the level and associated factors of life satisfaction of Ethiopian elderly people, particularly in the study area. Therefore, the study aimed to determine the level of life satisfaction and associated factors among elderly people living in Metropolitan cities of northwest Ethiopia.

METHOD AND MATERIALS

Study design and setting

A community-based cross-sectional study was conducted from December 19,2020 to February 21,2021. The study was done in two cities in northwest Ethiopia namely Gondar and Bahir Dar.

Participants

Residents 60 years old and older – hereafter referred to as older people - in the two cities were the study population. The sample size was determined using the single population proportion formula with the assumption of a 95% level of confidence, 5% marginal error, proportion (p) 56.9% taken from the pilot study (22), design effect 2, and 10% non-response rate. The final sample size was

5

830. Each city was stratified into the sub-cities and in each sub-cities, kebeles (the lowest administrative level) were selected by the lottery method considering the number of kebeles. In Bahir Dar administrative city nine kebeles and one satellite town were selected and in Gondar administrative city 8 kebeles were selected. Participants were allocated proportionally depending on the number of elderly people and were selected by systematic random sampling using the registered lists in each selected kebele.

Data collection tools and procedures

The data were collected using a face-to-face interview approach using a culturally adapted and validated structured questionnaire that was adapted by using an intensive literature review. The questionnaire contains ten sections. The first section provides the socio-demographic characteristics of the study participants, the second section deals with life satisfaction and the third is concerned with health condition, nutritional status, and behavioral factors. The fourth section is concerned with psycho-social and environmental conditions and the fifth with activities that are part of daily living. Sections six to ten are concerned with participation in various activities, mental health, and sense of coherence, social support, and urban wealth index-related questions respectively.

The following tools were culturally adapted and validated for use with the target population: 1) Life Satisfaction Index for the Third Age – Short Form (LSITA- SF) (23), 2) Katz Index of Independence in Activities of Daily Living (Katz ADL) (24), 3) participation in activities scale (25), 4) Kessler Psychological Distress Scale (K10) (26), 5) Sense of Coherence scale (SOC) (27), 6) Duke-UNC Functional Social Support Questionnaire (FSSQ) (28). The LSITA-SF was found to have excellent face and content validity index, acceptable in concurrent and divergent validities. These tools also have substantial internal consistency, test-retest reliability, and inter-rater

6

reliability (22). The scales were found to be excellent in terms of feasibility, readability, consistency of styles, formatting, and clarity of the language. The Cronbach alpha values were 0.80, 0.87, 0.93, 0.79, and 0.90 for Katz ADL, Participation in activities, K10, SOC, and FSSQ scales respectively.

During the data collection, there was communication with the associations that support the elderly people and with key figures concerned with matters of interest for the elderly people, for example health extension workers. Then with the help of these people (work force people), the participants were traced and interviewed in the quiet areas of their homes after the interviewer briefly explained the purpose of the study and obtained consent from each participant. If the selected participants' houses were closed and no one was present, they were revisited for three subsequent days. If no contact was made at a home this was considered as a non-response location or individual. The data were collected and supervised by 18 trained BSc nurse data collectors and 9 MSc nurse trained supervisors.

Variables of the study

Dependent variable

o Level of life satisfaction

Independent variables

The independent variables include:

Socio-demographic variables: Age, sex**,** marital status**,** level of education**,** religion, religious practice, occupation, economic status, presence of children, household size, living condition.

Health condition/status related variables: Sense of coherence, self-rated health status, physical activity, functional ability, mental health, chronic disease, accidents, disability (impairment), wear eyeglasses or contact lenses, use a hearing aid, health checkup, health education.

7

Nutritional and Risky behaviors: frequency of meal, smoking, alcohol consumption, chat chewing, sedentary behavior.

Psycho-social: Self-perception, social relationship (family, friend, neighborhood), presence of caregiver.

Environmental conditions: Housing condition, residential Facilities/quality of the living environment, source of financial support, availability of social service, accessibility of health service, health insurance.

Measurements

Life Satisfaction: Life satisfaction was measured by using the LSITA-SF scale. The scale has 12 items with 6 Likert response categories from 1 to 6 points. The possible minimum and maximum points are 12 and 72 respectively. The mean value of responses was 45.5 and the standard deviation was 11. Considering the mean and standard deviations, categories or levels of life satisfaction were designated as follow: < 23.5 very dissatisfied, 23.5-34.4 dissatisfied, 34.5-56.5 (mean ± SD) moderately satisfied, 56.6-67.5 quite well satisfied, and > 67.5 very satisfied. First the mean ± SD for average satisfaction were calculated, then for the dissatisfied group the value of standard deviation was subtracted to get the lower cut point and for the satisfied group the SD was added from the next category to get the upper group (23, 29). In the current study the minimum and maximum points were 24 and 67 respectively and three levels of satisfaction appeared to suffice as the basis for analysis and discussion: 23.5-34.4 dissatisfied, 34.5-56.5 averagely satisfied, and 56.6-67.5 satisfied.

Elderly/older people/aged people: There are a variety of names used to refer to elderly people. According to the UN definition elderly persons are those people whose age is 60 years and over. This definition has gained acceptance in the Ethiopian context as it coincides with the country's

8

official retirement age (30, 31). Thus, in this study people referred to as elderly people are all age 60 or older. Terminology for sub groups is as follows: Young-old 60-69, middle-old 70-79, and old-old ≥ 80 years of age. (32).

Activities of Daily Living: It is the measurement of the daily living activities on an individual. Activities of daily living were measured by using the Katz ADL. The Index ranks adequacy of performance in six functions: bathing, dressing, toileting, transferring, continence, and feeding. A score of 6 indicates full or satisfactory function for all 6, 3-5 indicates moderate impairment, and 2 or less indicates severe functional impairment (24).

Participation in activities/physical activities: Measurement of participation in personal activities, physical activities, activities with formal and informal support networks is important. The mean scores of the respondents on their levels of participation in the various activities were interpreted using the following scale: 1.00-1.80=Very Low; 1.81-2.60=Low; 2.61-3.40=Moderate; 3.41-4.20=High; and, 4.21-5.00=Very High (25).

Mental Health: Mental health was assessed using the K10. A score under 20 is seen as indicating well-functioning mental health , 20-24 indicating possible mild mental disorder, score 25-29 indicating presence of moderate mental disorder, score 30, and over person likely to have a severe mental disorder (26).

Sense of coherence: It refers to a person's ability to use existing and potential resources to combat stress and promote health. Sense of coherence was assessed by using the sense of coherence scale. Overall, scores 13-57, score 58-74, and score 75-91 were leveled as low, medium, and high sense of coherence (27).

Social support: Social support is defined as the perceived availability of support, affection, and instrumental aid from significant social partners, primarily family members and close friends (33),

9

as well as neighbors and co-workers (34). The perceived social support was assessed by using FSSQ. A score less than average was classified as indicting low perceived social support and a score equal or greater than the average value was seen as indicating high perceived social support (28).

Mid Upper Arm Circumference (MUAC): A value of MUAC < 22.0 cm indicates severe malnutrition, 22.0-23.0 cm moderate malnutrition, and > 23.0 cm normal   nutritional level (35).

Data quality control techniques

Culturally adapted and validated tools were used. Two days of training were given in each city for data collectors and supervisors to aid them in using the data collection tools and following the data collection procedures. A pilot trial of the questionnaire was carried out in the study area one week before the actual data collection.

To ensure consistency of the collection technique and the acquisition of quality data, random checks were carried out by field supervisors and the principal investigator. Before the analysis, the collected data were checked for completeness and accuracy.

Data processing and analysis

The data were checked for completeness and consistency. Epi-data version 4.6 and Stata version 14 were used for data entry and analysis respectively. Before running the ordinal regression analysis, assumptions were checked. The outcome variable was ordinal type, and the independent variables were categorical and ordinal, but the ordinal independent variables were treated as categorical.

The cell adequacy was checked by carrying out cross-tabulation of each independent variable with the dependent variable. Variables with non -zero cells and ≥ 80 % greater than 5 cell counts were considered for further assumption check and analysis. Multicollinearity was checked by the

10

variance inflation factor (VIF). Variables with VIF >10 were removed from the analysis. The parallel line/proportional odds assumption was checked by computing the o-model, Brant test, and o-parallel. Overall model fitness was assessed by computing the likelihood ratio test.

Ordinal regression analysis was used to test the association between dependent and independent variables. Descriptive statistics were carried out to illustrate the frequencies, percentages, means, and standard deviations and were presented in texts and tables. Variables that fulfilled the assumptions were entered into the multivariable ordinal regression analysis to control the confounders and those with the p-value of ≤ 0.05 were considered statistically significant. An odds ratio with a 95% confidence interval was used to determine the presence, strength, and direction of association between the independent and dependent variables.

Patient and Public Involvement

Neither patients/participants nor the public were involved in the design, or conduct, or reporting or dissemination of our research.

Results

Socio-demographic characteristics of participants

A total of 816 participants were included with a 98.3 % response rate. The mean age of participants was 68.2 (SD ±7.2) years. More than half, 433 (53.1%) of participants, were males and 511 (62.6%) married. The majority, 764 (93.6 %) had children, of which 369 (48.2 %) owned 4-6 children and 690 (84.6%) were Orthodox Christian by religion. About 235 (28.8%) were unable to read and write, and 165 (20.2 %) were in the middle quantile in the wealth index status. (Table 1)

Table 1: Socio-demographic characteristics of elderly people in two cities of northwest Ethiopia, 2021 (n = 816)

11

Variables	n (%)	Variables	n (%)
Sex		Educational Status	
Male	433 (53.1)	Unable to read and write	235 (28.8)
Female	383 (46.9)	Able to read and write	226 (27.7)
		Grade 1-8	138 (16.9)
		Grade 9-12	74 (9.1)
		Certificate and above	143 (17.5)
Age		Religion	
Young - old	548 (67.2)	Orthodox	690 (84.6)
Middle - old	190 (23.3)	Muslim	95 (11.6)
Old-old	78 (9.5)	Protestant	31 (3.8)
Place of birth/grownup		Religious practice	
Urban	356 (43.6)	Always	466 (57.1)
Rural	460 (56.4)	Sometimes	188 (23.0)
		Occasionally	144 (17.7)
		Never	18 (2.2)
Marital status		Current occupation	
Married	511 (62.6)	Retired	253 (31.0)
Widowed	228 (27.9)	Employed	72 (8.8)
Divorced	77 (9.5)	Housewife	153 (18.7)
		Private work	193 (23.7)
		Non employed	145 (17.8)
Having children /life/		Living condition	
Yes	764 (93.6)	Live alone	65 (8.0)
No	52 (6.4)	Live only with partner	134 (16.4)
		Live with children/grandchildren	246 (30.1)
		Live with partner/children/relatives	371 (45.5)
Number of live children (n = 766)		Wealth index	
1-3	299 (39.0)	Lowest quantile	164 (20.1)
4-6	369 (48.2)	Second quantile	164 (20.1)
>6	98 (12. 8)	Middle quantile	165 (20.2)
Family size		Fourth quantile	160 (19.6)
1-3	208 (25.5)	Highest quantile	163 (20.0)
4-6	393 (48.2)		
>6	215 (26.3)		

Level of elderly people life satisfaction

In this study, the levels of satisfaction with life among the elderly people were as follows: dissatisfied 140 (17.2%), moderately satisfied 521 (63.8%), and satisfied 155 (19.0%). Overall, 45.8% (95% CI: 42.2-49.2) of the participants had a mean or above score.

Health condition of the study participants

In this study, 471 (57.7%) of the participants had good self-rated health status, and 320 (39.2%) had one or more chronic diseases of which the majority were hypertension (21.1%) and the least Dementia/Alzheimer's disease (1.5%). The majority, 738 (90.4%) of the participants had a full function in daily living activities status, and 328 (40.2%) had low-level participation in activity/physical activity. About 480 (58.8 %), 478 (58.6 %), and 477 (58.5 %) of the participants reported themselves to be well in mental health, have medium sense of coherence, and high perceived social support respectively. (Table 2)

Table 2: Health condition of the study participants in two cities of northwest Ethiopia, 2021 (n = 816)

Variables	n (%)	Variables	n (%)
Self-rated health status		Wear eyeglass	
Good	471(57.7)	Yes	140 (17.2)
Average	242(29.7)	No	676 (82.8)
Bad	103(12.6)		
Known chronic disease		Use hearing aid	
Yes	320(39.2)	Yes	10 (1.2)
No	496(60.8)	No	806 (98. 8)
Hypertension		Health checkup	
Yes	172(21.1)	Yes	383 (46.9)
No	644(78.9)	No	433 (53.1)
Kidney disease		Get health education	
Yes	20(2.5)	Yes	715 (87.6)
No	796(97.5)	No	101 (12.4)

13

Diabetic Mellitus		Daily living activities	
Yes	114(14.0)	Severe functional impairment	33 (4.1)
No	702(86.0)	Moderate functional impairment	45 (5.5)
		Full function	738 (90.4)
Dementia/Alzheimer's disease	12(1.5)	Participation in activities/physical activities	
Yes	804 (98.5)	Very low	165 (20.2)
No		Low	328 (40.2)
		Moderate	249 (30.5)
		High	55 (6.8)
		Very high	19 (2.3)
Heart disease		Mental health	
Yes	22(2.7)	likely to be well	480 (58.8)
No	794(97.3)	likely to have a mild mental disorder	156 (19.1)
		likely to have a moderate mental disorder	84 (10.3)
		likely to have a severe mental disorder	96 (11. 8)
Asthma		Sense of coherence	
Yes	53(6.5)	Low	159 (19.5)
No	763(93.5)	Medium	478 (58.6)
		High	179 (21.9)
Physical disability		Social support	
Yes	60(7.6)	Low perceived social support	339 (41.5)
No	756(92.6)	High perceived social support	477 (58.5)

Nutritional and behavioral characteristics of the study participants

About three-fourths 614 (75.2%) of the participants had MUAC >23 cm and 477 (58.4 %) had

three times per day meal frequency. The majority, 776 (95.1%) and 756 (92.6%) had never smoked

cigarettes or chewed khat respectively. About 495 (60.7%) had consumed alcohol. (Table 3)

Table 3: Nutritional and behavioral characteristics of the study participants in two cities of northwest Ethiopia, 2021 (n = 816)

Variables	Frequency	Percent
MUAC		
< 22 cm	109	13.4
22-23 cm	93	11.4
> 23 cm	614	75.2
Meal frequency		
Once per day	17	2.1
Two times per day	243	29.8

14

Three times per day	477	58.4
Four times per day	79	9.7
Living style		
Have sedentary behavior	57	7.0
Sometimes do exercises/activities	418	51.2
Always do exercises/activities	341	41.8
Ever smoked cigarettes?		
Yes	40	4.9
No	776	95.1
Currently, smoking cigarettes?		
Yes	15	1.8
No	801	98.2
Ever chewed khat?		
Yes	60	7.4
No	756	92.6
Currently, chewing khat?		
Yes	31	3.8
No	785	96.2
Ever consumed any alcohol?		
Yes	495	60.7
No	321	39.3
Alcohol consumption within the past 12 months?		
Yes	448	54.9
No	368	45.1

Psycho-social and environmental conditions of the study participants

Five hundred seventy-two (70.1 %) of the participants had good self-perception on aging life and 709 (86.9%) had a good relationship with family, friends, and neighborhood. About three-fourths 622 (76.2%) had a caregiver in their home and 501 (61.4%) had detached houses made of soil and wood. Three-fourths 619 (75.8%) had a good perception of their residential facility (living environment quality) and 234 (28.7%) had a pension (salary) as the main source of financing their lives. (Table 4)

Table 4: Psycho-social and environmental conditions of the study participants in two cities of northwest Ethiopia, 2021 (n = 816)

15

Variables	Frequency	Percent
Self-perception on aging life		
Good	572	70.1
Somewhat good	138	16.9
Bad	106	13.0
Relationship with family, friends, and neighborhood		
Good	709	86.9
Somewhat good	82	10.0
Bad	25	3.1
Do you have a caregiver?		
Yes	622	76.2
No	194	23.7
Housing condition		
Detached house made in soil and wood	501	61.4
Detached house made in cement/ ceramic	243	29.8
Built-in connection with another house	55	6.7
Communal apartment	10	1.2
Apartment	7	0.9
Perception on the quality of residential facilities/environment		
Good	619	75.8
Somewhat good	140	17.2
Bad	57	7.0
The main source of finance		
Private work	230	28.2
Pension/salary	234	28.7
From house rent	169	20.7
Help from others	183	22.4
Participation in social services		
Yes	702	86.0
No	114	14.0
Health insurance		
Yes	277	34.0
No	539	66.0

Factors associated with life satisfaction of elderly people

The factors indicating life satisfaction were: Retired current occupation (AOR= 2.23, 95% CI: 1.09-4.55), good self-rated health status (AOR= 2.54, 95% CI: 1.29-4.99), having no chronic

16

disease (AOR= 1.48, 95% CI: 1.03-2.11), somewhat good (AOR= 2.15, 95% CI: 1.12-4.13) and good (AOR= 4.51, 95% CI: 2.40-8.45) self-perception on aging life, house rent financial source (AOR= 2.60, 95% CI: 1.49-4.52), moderate functional impairment on daily living activities (AOR= 5.43, 95% CI: 1.81-16.24), high sense of coherence (AOR= 3.80, 95% CI: 2.04-7.08), and high perceived social support (AOR= 2.13, 95% CI: 1.44-3.16) had a significant association with the life satisfaction.

The odds of dissatisfaction vs. the combined moderately-satisfied and satisfied for the retired elderly people were 2.23 times higher compared to non-employed elderly when other variables were kept constant. The odds of dissatisfaction vs. the combined moderately -satisfied and satisfied for elderly people having good self-rated health status were 2.54 times higher compared to elderly people having good self-rated health status when other variables were kept constant.

The odds of dissatisfaction vs. the combined moderately-satisfied and satisfied for elderly people who have no chronic disease was 1.48 times higher compared to elderly having the chronic disease when other variables were kept constant. The odds of dissatisfied vs. the combined moderately-satisfied and satisfied for elderly people having somewhat and good self-perception on aging life were 2.15 and 4.51 times higher compared to elderly people having bad self-perception on aging life respectively when other variables were kept constant. The odds of dissatisfaction vs. the combined moderately-satisfied and satisfied for elderly people having house rent as the main financial source was 2.60 times higher compared to elderly people having a private business when other variables were kept constant.

The odds of dissatisfied vs. the combined moderately-satisfied and satisfied for elderly people having a moderate functional impairment in activities of daily living was 5.43 times higher

17

compared to elderly people having severe functional impairment when other variables were kept constant. The odds of dissatisfaction vs. the combined moderately-satisfied and satisfied for elderly people having a high sense of coherence was 3.80 times higher compared to older people having a low sense of coherence when other variables were kept constant. The odds of dissatisfaction vs. the combined moderately-satisfied and satisfied for elderly people having high perceived social support was 2.13 times higher compared to older people having low perceived social support when other variables were kept constant. (Table 5)

Table 5: Multivariable ordinal logistic regression analysis of factors associated with life satisfaction of elderly people in two cities of northwest Ethiopia, 2021 (n = 816)

Variables	Level of life satisfaction (n)			AOR (95 % CI)	p-value
	Dissatisfied	Moderately ly satisfied	Satisfied		
Sex					
Male	61	269	103	Ref.	
Female	79	252	52	1.14 (0.73-1.74)	0.54
Age					
Old-old	28	47	3	Ref.	
Middle-old	48	114	28	1.10 (0.57-2.13)	0.78
Young-old	64	360	124	1.86 (0.97-3.55)	0.06
Marital Status					
Married	48	342	121	Ref.	
Widowed	72	130	26	0.72 (0.39-1.34)	0.30
Divorced	20	49	8	0.73 (0.36-1.48)	0.38
Family size					
1-3	58	131	19	Ref.	
4-6	53	260	80	0.88 (0.57-1.37)	0.58
>6	29	130	56	1.20 (0.73-1.98)	0.47
Living condition					
Live alone	27	32	6	Ref.	
Live only with partner	15	95	24	2.04 (0.84-4.97)	0.12
Live with children/grandchildren	64	152	30	1.53 (0.74-3.15)	0.26
Live with partner/children/relatives	32	242	97	2.14 (0.92-5.02)	0.08

18

Current occupation					
Non employed	55	85	5	Ref.	
Employed	10	45	17	1.56 (0.75-3.7)	0.24
Housewife	22	108	23	1.08 (0.59-1.98)	0.78
Private work	29	130	34	1.20 (0.64-2.28)	0.57
Retired	24	153	76	2.23 (1.09-4.55)	**0.03***
Do you have a caregiver?					
No	57	113	24	Ref.	
Yes	83	408	131	1.37 (0.90-2.09)	0.14
Self-rated health status					
Bad	50	46	7	Ref.	
Average	47	165	30	1.52 (0.78-2.98)	0.22
Good	40	306	125	2.54 (1.29-4.99)	**0.007***
Known chronic disease					
Yes	63	214	43	Ref.	
No	77	307	112	1.48 (1.03-2.11)	**0.03***
Physical disability					
Yes	22	30	8	Ref.	
No	116	486	154	1.48 (0.74-2.95)	0.27
Mental health					
likely to be well	55	294	131	Ref.	
likely to have a mild mental disorder	25	119	12	0.80 (0.51-1.25)	0.33
likely to have a moderate mental disorder	21	58	5	0.76 (0.42-1.41)	0.39
likely to have a severe mental disorder	39	48	9	1.16 (0.62-2.16)	0.65
Daily living activities					
Severe functional impairment	18	10	5	Ref.	
Moderate functional impairment	9	30	6	5.43 (1.81-16.24)	**0.002***
Full function	110	477	151	1.64 (0.63-4.30)	0.31
Participation in activities/physical activities					
Very low	22	108	35	Ref.	
Low	60	21	56	0.75 (0.48-1.15)	0.19
Moderate	42	157	50	0.96 (0.62-1.52)	0.89
High	10	37	8	0.65 (0.31-1.36)	0.26
Very high	4	7	6	0.76 (0.24-2.39)	0.64
Sense of coherence					
Low	54	96	9	Ref.	
Medium	76	343	59	1.08 (0.66-1.78)	0.75
High	10	82	87	3.80 (2.04-7.08)	**< 0.001***
Meal frequency					
Once per day	9	5	3	Ref.	
Two times per day	61	146	36	2.65 (0.78-9.01)	0.12
Three times per day	60	318	99	3.04 (0.89-10.34)	0.08
Four times per day	8	52	19	2.98 (0.80-11.17)	0.12
Self-perception on aging life					
Bad	55	40	11	Ref.	
Somewhat good	37	94	7	2.15 (1.12-4.13)	**0.02***
Good	44	381	147	4.51 (2.40-8.45)	**< 0.001***

Perception on the quality of residential facilities/environment					
Bad	30	22	5	Ref.	
Somewhat good	43	87	10	1.53 (0.71-3.33)	0.28
Good	66	409	144	2.02 (0.96-4.27)	0.07
The main source of finance					
Private work	35	157	38	Ref.	
Pension/salary	29	146	59	1.07 (0.58-2.00)	0.82
From house rent	17	105	47	2.60 (1.49-4.52)	**0.001****
Help from others	59	113	11	1.23 (0.71-2.13)	0.46
Social support					
Low perceived social support	105	208	26	Ref.	1
High perceived social support	35	313	129	2.13 (1.44-3.16)	**< 0.001*****

AOR: Adjusted odds ratio, * statistically significant at p-value <0.05, ** p-value 0.001, *** p-value < 0.001

Discussion

This study reported on the level of life satisfaction and associated factors among elderly people in two cities in northwest Ethiopia. The study had 816 elderly people, both men and women, with a mean age and standard deviation of 68.2 (SD±7.2) years. The study included participants who were unable to read and/or write, had not reached first-degree educational status, and had good to bad perceived health status.

The percentage of subjects who were dissatisfied or had at most a moderate level of life satisfaction were much higher than those reported in the Brazil study and the percentage of satisfied level was much lower (6.1% dissatisfied, 28.2% moderately satisfied, and 65.6% were very satisfied in Brazil) (13). The lower satisfaction level in this study might be due to the difference in socioeconomic status of the populations. Economic status has an impact on life satisfaction (11, 14, 15), and Ethiopians have low economic status compared to Brazilians. The low economic status could have an impact on health maintenance and the health check-up of older people. In this study, less than half (46.94%) of the participants had had a health check-up of which the majority were visits at the health facilities when they had become sick and had symptoms of illness. Only 34.0 % of the participants have health insurance. This indicates that that the majority of the older people

20

must pay privately for health care services which is a great challenge for a population with a low economic status. It would be difficult to provide holistic nursing care for the older people in these cities since 66 % would have to pay. Thus, the ministry of health, health bureau, social affairs office, and other concerned bodies should work more for the coverage of health insurances and economical support for the elderly people.

The average life satisfaction in the current study was higher than that reported in the South Korean study. However, the satisfied and dissatisfied levels were lower (27%, 38%,and 34% reported poor, average, and adequate life satisfaction respectively) (17). This difference might be due to variation in the study population. In South Korea elderly age ≥ 55 years old were included, but in the current study were age 60 years old and above. With increasing age, there would be age-related health deterioration which is a major indicator of life satisfaction and differentiation in lifestyle and social relationships in line with the changes in sensory and mental activities (36) this could influence the life satisfaction. As there is a variability of the satisfaction with life within the age groups of the older people in our study, nurse professionals are expected to prepare the nursing care plan in-advance and provide the intended care while considering variations in patient groups. Social workers, hospital administrators, and other concerned bodies also should consider such variation.

The dissatisfied level of life satisfaction was higher than was reported in the study in the nursing home of Sivas municipality, Turkey (6.4%, 71.8%, and 21.8% were reported low, moderate, and high life satisfaction) (16) but moderate and high levels of satisfaction were slightly lower. Similarly the magnitude of dissatisfied and satisfied levels was lower but the average satisfaction was higher compared to the results from the study in Gorgan, Iran, and Zambia in which the dissatisfied, neutral and satisfied, levels of life satisfaction were 34%, 40%, and 26%, and 59%,

21

5%, and 37% respectively (14, 37). As our study showed, life satisfaction is very crucial in the utilization of health knowledge among the elderly (38). Having a lower life satisfaction could lead to having a deficit of the health knowledge among older people who may not have the possibility of getting a health check-up and getting appropriate health care services. Thus, the older people with lower life satisfaction need special consideration particularly focusing on how good their health knowledge is.

The satisfaction level was much lower than in the study in Norway, in which 78.7% of the hospital sample and 90.9 % of the population sample were satisfied with their life (10). The lower satisfaction level might be due to the difference in measurement tools and the socioeconomic status of the populations. In Norway, life satisfaction was measured by a single question. As the source of life satisfaction is a complex combination of individual behavior, simple sensory experiences, higher cognition, stable characteristics of the individual (39), measuring by using a single question might underestimate or overestimate the level of life satisfaction. As the economic status has an impact on life satisfaction, Ethiopian older people probably have a lower economic status than Norwegians of the same age. As the source of life satisfaction has a complex combination, Ethiopian older people faced health problems, lack of balanced diet, shelter, unsuitable residential areas, absence of family and community support, limited social security services, absence of education and training opportunities, limited employment, and income generating opportunities (40).These conditions greatly affect the level of life satisfaction and show the importance of holistic care, nurse, other professionals, and administrative support of older people targeting the complexity of the life satisfaction.

In this study life satisfaction was better than was found by the study in Chandigarh, Northern India, in which the life satisfaction was 50 % low and 50 % moderate and high (41). The better

22

life satisfaction is vital for the health of older people and is an indicator of the better living standards (3) and its implication inspires nurses to assess the relations of better satisfaction with the wellness nursing diagnosis in terms of human development, longer lives, healthy aging, and full adaptation/success to aging.

In this study, the retired older people were more likely to have a higher level of life satisfaction. A similar study in Turkey reported as income-generating work increased the life satisfaction (42). Income is one of the contributing factor for the life satisfaction (16, 18), and as the chi-square test in the current study revealed most of the retired older people were in the highest quantiles of wealth-index as compared to the non-employed. Thus, nurses should be the leader to identify the economic needs of older people and provide counsel, support, and work with ministry of health, regional health bureau, social affairs office, and other concerned bodies to take part for the financial support and any possible aids.

Elderly people who had good self-rated health status were more likely to have a higher level of life satisfaction. The finding was supported by the studies done in six European countries, Russia, South Korea, Nepal, Turkey, and Zambia (11, 14-16, 43, 44). Self-rated health provides information to aid health personnel and decision makers in the development and implementation of health promotion and disease prevention programs, as well as the adequacy and planning of different levels of care for this population (45). Even though the majority of health care facilities in Ethiopia lack separate geriatric care facilities, it is crucial to meet the needs of an aging population and improving the life satisfaction and health of elderly in the health care facilities as well the community settings.

23

Elderly people who had no chronic disease were more likely to have a higher level of life satisfaction. A similar finding was also reported in China, South Korea, and Southern Brazil (19, 44, 46). The elderly population's exposure to chronic diseases and other age-related problems are higher than the young/adult populations. Fast shifting to the older population and the transformation from acute and infectious disease to chronic, non-communicable disease, and age-related disease will have an impact on health care setups including nursing care (7). So, nurses should provide health education about the prevention of chronic disease also focus and incorporate on the nursing care plans and implementations considering the consequence of the chronic disease on the life satisfaction and the overall health of the elders. Besides, the concerned bodies should plan in advance to prevent the chronic disease.

Elderly people who had somewhat-good and good self-perception on aging life were more likely to have a higher level of life satisfaction. Similarly, a study across six European countries revealed the presence of a significant association between self-esteem and life satisfaction (43). As it is well known, with the advancement of age there will be physical changes, chronic diseases and other age-specific psycho-social problems encountered by the older people. So, the self-perception could be an important and a concern for the older people. As the psycho-social is one of the main issues in the nursing profession, nurses should build the positive self-images of the older people and should play a vital role in assessment of the self-perception, identification of the problems, planning, and implementation of the interventions for the build-up of the self-perception and improve the life satisfaction.

Elderly people who could rent property they owned and had income from renters as a main financial source were more likely to have a higher level of life satisfaction. Older people might get unremitting income from the house rent with less effort and burden. As well, when older people

24

rent their house, they could have an opportunity for a social relationship with others which might decrease loneliness. As studies showed a relationship with other people is an important part of life satisfaction (47, 48).

Elderly people who had only moderate functional impairment in activities of daily living were more likely to have a higher level of life satisfaction. The study in India also reported the significant relationship of low score of activities of daily living with the lower life satisfaction (49). Turkey also reported low life satisfaction with decreased ability to do household activities (16). This is also related to the self-care deficit of Orem's theory. This deficit includes self-care, which is the practice of activities that an individual initiates and performs on his or her own behalf to maintain life, health, and well-being; self-care agency, which is a human ability that is "the ability for engaging in self-care," conditioned by age, developmental state, life experience, socio-cultural orientation, health, and available resources (50). So, nurse professionals can use this theory to improve the daily activity performance as the enhancement of the life satisfaction of older people and should provide health education about the importance of activities for the general health. Ministry of health, regional health bureau, social affairs office, and other concerned bodies also should emphasize and support the older people with daily activity limitations.

Elderly people who had a high sense of coherence were more likely to have a higher level of life satisfaction. This was supported by the studies in Poland, Belgium, and Norway (21, 51, 52). The concept of sense of coherence explains why some people become ill under stress and others stay healthy. It's a mixture of optimism and control and has three components – comprehensibility, manageability, and meaningfulness (53) which is similar with Erikson's theory of personality that states in the late adult stage, "ego integrity versus despair", individuals search for the meaning of their lives and evaluate their accomplishments. So, nurses and other professionals should play a

25

vital role to support and counsel older people about the stress, their general health, and how to control or manage the stressors.

Elderly people who had a high perceived social support were more likely to have a higher level of life satisfaction. A similar finding was also reported in Iran, Russia, South Korea, India, Norway, Sweden, and Thailand (10-12, 44, 49, 54, 55).The result informs the importance collaboration of nurses with the social-workers and other related professionals. With such collaboration the gaps and possible supportive mechanisms could be identified. As the study finding suggested, the social support problems can be managed by the self-help intervention which included a single 50–70-minute session once a week for 12 weeks. This intervention greatly improves the self- support ability, health status, and the life satisfaction. The study also recommend that self-help intervention may be implemented by nurses for older people in the community to improve health and well-being (56).

As studies showed, age, sex, religious practice, marital status, educational status, economic status, living condition, participation in activities, disability, quality of the living environment, alcohol intake, smoking, and nutritional status were significantly associated factors with life satisfaction (14, 16, 44, 57-59), and these factors are very important concepts in the nursing profession in-relation to the life satisfaction but were not associated in the current study.

Strengths and Limitations

To the best of our knowledge this is the first study of life satisfaction and associated factors among the Ethiopian elderly. The study had a representative sample of elderly men and women, young-old to old-old, unable to read and write to well educated, very good to very bad perceived health

26

status. The data were collected in the participants' residential homes. This enabled us to have sufficient time to get the necessary data, and the high response rate also helped.

However, the study has some limitations. Firstly, the study was done among Amharic speaker Ethiopian elders. It might not be representative of all Ethiopians other than Amharic speakers. Secondly, the study was limited to households in two cities of northwest Ethiopia, which may not be representative of elderly living in streets, religious places, temporary settlements, and rural residents.

Conclusion

In this study about two-third (63.68 %) of the participants were averagely satisfied in their life. Current occupation, self-rated health status, chronic disease, self-perception on aging life, financial source, daily living activity, sense of coherence, and social support were statistically significant factors influencing life satisfaction. To improve the life satisfaction, it is paramount important giving special consideration for older people, working, and supporting them to be physically and psychologically well, economically and socially engaged in individually defined meaningful life. Besides, further research is crucial targeting the elderly people living in the street, temporal residents, and religious places.

Abbreviations

AOR: Adjusted odds ratio, CI: Confidence interval, FSSQ: Duke-UNC functional social support questionnaire, Katz ADL: Katz Index of Independence in Activities of Daily Living, K10: Kessler psychological distress scale, LSITA-SF: Life Satisfaction Index for the Third age Short Form, MUAC: Mid upper arm circumference, SD: Standard deviation, SOC: Sense of coherence, UN: United nation

Declarations

27

Ethics approval and consent to participate

Ethical clearance was obtained from the institutional review board of the University of Gondar with the reference number V/P/RCS/05/2263/2020. Permission and supportive letters were secured from the respected cities and selected kebeles' administrative offices. Each study participant was informed about the purpose, method, expected benefit, and risk of the study. They also informed about their full right not to participate or withdraw from the study at any time and deciding not to participate had no impact on their services. Written informed consent was taken from study participants. For participants who were not read and write, a thumbprint was used in place of the participant's signature.

Participants were guaranteed confidentiality and to ensure this, the information was identified using codes, and participants' names were not used. To prevent the transmission of COVID-19; personnel involved in the data collection process wore face-masks and used hand-sanitizers throughout the data collection process. Besides, the two-meter physical distance was upheld, and questionnaires and other similar exchanges were performed by taking into   account risks from COVID-19. Participants who had symptoms of mental and physical health, as well as acute health problems were advised and informed to attend the health facilities. The study has been performed following the ethical standards laid down in the 1964 Declaration of Helsinki. This was also approved by the Ethical Review Committee.

Consent to Publish: Not Applicable

Availability of Data and Materials: The summary data are available in the main document and the dataset analyzed can be available from the corresponding author on reasonable requests.

Competing Interest: The authors declare that they have no competing interests.

Funding: This study was funded by the University of Gondar. However, the funder had no role in data collection, preparation of the manuscript, and decision to publish. N/A for the award/grant number.

Author Contributions: **HSM** wrote the proposal, participated in data collection, analyzed the data and drafted the manuscript. **KE, HL**, and **BG, and TA** approved the proposal with revisions, participated in supervision, data analysis, and revised subsequent drafts of the manuscript. All authors read and approved the final manuscript.

Acknowledgment: The authors would like to express our gratitude to the University of Gondar for the fund and the approval of the ethical clearance. The authors would like to thank the

28

respective administration offices of the Bahir Dar and Gondar town for their permission letter and data collectors and supervisors for their commitment and the study participants for their valuable information. Besides we would like to acknowledge and thank Larry Lundgren for the language edition.

References

1.   Lazar KA. Current Life Engagement Factors as a Predictor of Elder Life Satisfaction: University of Wisconsin - Stout; 2000.

2.   Aishvarya, S., Maniam, T., Karuthan, C., Sidi, H., Jaafar, N. R. N., & Oei, T. P. S. (2014). Psychometric properties and validation of the satisfaction with life scale in psychiatric and medical outpatients in malaysia. Comprehensive Psychiatry, 55, S101-S106. http://dx.doi.org/10.1016/j.comppsych.2013.03.010

3.   Seligman, M. (2002), "Positive emotions undo negative ones". Authentic Happiness. New York, New York: Simon & Schuster.

4.   Flood, M. (2006). A mid-range Theory of successful aging. Journal of Theory Construction and Testing, 9(2), 35-39.

5.   https://www.statista.com/statistics/455141/life-expectancy-at-birth-in-ethiopia/.

6.   World Health Organization. Global Health and Aging, 2011. https://www.who.int/ageing/publications/global_health/en/.

7.   Dahlan, A., Nicol, M., & Maciver, D. (2010). Elements of life satisfaction amongst elderly people living in institutions in malaysia: A mixed methodology approach. Hong Kong Journal of Occupational Therapy, 20(2), 71-79. http://dx.doi.org/10.1016/S1569-1861(11)70006-7.

8.   Erikson, E. (1963). Childhood and Sociesty. New York, NY: W.W. Norton

9.   Erikson, E.H., Erikson, J.M., and Kivnick, H.Q. (1986). Vital involvment in old age: The experience of old age in our time. New York, NY: W.W. Norton.

10.   ANNE-SOFIE HELVIK KE, STEINAR KROKSTAD, GEIR SELBÆK. A comparison of life satisfaction in elderly medical inpatients and the elderly in a population-based study: Nord-Trøndelag Health Study 3. Scandinavian Journal of Public Health. 2011;39:337–44.

29

11.   Daniele Didino EAF, Ekaterina A. Taran, Kristina Gorodetski. Predictors of Life Satisfaction among Older Adults in Siberia The European Proceedings of Social and Behavioral Sciences(EpSBS). 2018:400-7.

12.   Katarina Wilhelmson EF, Kaisa Eklund, Synneve Dahlln-Ivanoff Life satisfaction and frailty among older adults Health Psychology Research 2013;1:e32:167-72.

13.   Juliana Martins Pinto ALN. Factors associated with low life life satisfaction in community-dwelling elderly: FIBRA Study. Cad Saúde Pública, Rio de Janeiro. 2013;29(12):2447-58.

14.   Mbozi MKS-NaEH. Contextual factors affecting the attainment of life satisfaction among elderly people in Zambia's North-Western province KNOWLEDGE FOR JUSTICS. 2016:189-205.

15.   Saruna Ghimire BKB, Isha Karmacharya, Karen Callahan, Shiva Raj Mishra. Life satisfaction among elderly patients in Nepal: associations with nutritional and mental well-being. Health and Quality of Life Outcomes 2018;16(118).

16.   Mollaoglu M, Tuncay FO, Fertelli TK. Mobility disability and life satisfaction in elderly people. Arch Gerontol Geriatr. 2010;51(3):e115-9.

17.   Kimm, H., Sull, J. W., Gombojav, B., Yi, S. W., & Ohrr, H. (2012). Life satisfaction and mortality in elderly people: The kangwha cohort study. BMC public health, 12(1), 54. http://dx.doi.org/10.1186/1471-2458- 12-54

18.   Zeinalhajlou AA; Alizadeh M; Sahebihagh MH; Mohammadpoorasl A; Matlabi H. Life satisfaction and its contributors among noninstitutionalized older people in Tabriz, Islamic Republic of Iran. East Mediterr Health J. 2019(xx);xxx. https://doi.org/10.26719/emhj.19.037.

19.   Sydney X.X. Hu WIL, Ka Kei Chao, Brian J.Hall, Siu Fung Chung. Common chronic health problems and life satisfaction among Macau elderly people. International Journal of Nursing Sceinces. 2016;3(2016):367-70.

20.   Puvill, T., Lindenberg, J., de Craen, A. J. M., Slaets, J. P. J., & Westendorp, R. G. J. (2016). Impact of physical and mental health on life satisfaction in old age: a population based observational study. BMC Geriatrics, 16, [194]. https://doi.org/10.1186/s12877-016-0365-4.

21.   KOCJAN JANUSZ. STRONG SENSE OF COHERENCE CONTRIBUTES TO SUCCESSFUL AGING AND HIGHER SATISFACTION WITH LIFE. Journal of Education, Health and Sport. 2017;7(7):537-544. eISSN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.836135 http://ojs.ukw.edu.pl/index.php/johs/article/view/4656.

30

22.   Mekonnen, H.S.; Lindgren, H.; Geda, B.; Azale, T.; Erlandsson, K. Translation, Cultural Adaptation, and Psychometric Properties of the Life Satisfaction Index for the Third Age—Short Form (LSITA-SF12) for Use among Ethiopian Elders. Nurs. Rep. 2021, 11, 981–996. https://doi.org/10.3390/nursrep11040089.

23.   Barrett II, Andrew & Murk, Peter. (2009). Life Satisfaction Index for the Third Age – Short Form (LSITA-SF): An Improved and Briefer Measure of Successful Aging. 10.13140/2.1.1937.4085.

24.   Katz, S., Down, T.D., Cash, H.R., & Grotz, R.C. (1970) Progress in the development of the index of ADL. The Gerontologist,10(1), 20-30.

25.   Blace NP. Functional Ability, Participation in Activities and Life Satisfaction of the Older People Asian Social Science. 2012;8(3):75-87.

26.   Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL, Walters EE, Zaslavsky A: Short screening scales to monitor population prevalence and trends in non-specific psychological distress. Psychol Med 2002, 32:959–76.

27.   Holmefur, M., Sundberg, K., Wettergren, L., & Langius-Eklöf, A. (2014). Measurement properties of the 13-item sense of coherence scale using Rasch analysis. Quality of Life Research, 24(6), 1455–1463. doi:10.1007/s11136-014-0866-6.

28.   Broadhead, W.E., Gehlbach, S.H., De Gruy, F.V., & Kaplan, B.H. (1988). The Duke-UNC Functional Social Support Questionnaire: Measurement of social support in family medicine patients. Medical Care, 26(7), 709 723.

29.   Barrett II, Andrew & Murk, Peter. (2006). Life Satisfaction Index for the Third Age (LSITA): A measurement of successful aging.

30.   Government of the Federal Democratic Republic of Ethiopia. National Plan of Action on older persons (1998 - 2007)E.C. Ministry of Labor and Social Affairs;2006. http://adapt.it/adapt-indice-a-z/wp-content/uploads/2015/01/ethiopia_oldies_2006.pdf.

31.   Organization WH. Information Needs for Research, Policy and Action on Ageing and Older Adults 2000.

32.   Forman, D. E., Berman, A. D., McCabe, C. H., Baim, D. S., & Wei, J. Y. (1992). PTCA in the Elderly: The "Young-Old" versus the "Old-Old." Journal of the American Geriatrics Society, 40(1), 19–22. doi:10.1111/j.1532-5415.1992.tb01823.

33.   Shumaker, S. A., & Hill, D. R. (1991). Gender differences in social support and physical health. Health Psychology, 10(2), 102–111. https://doi.org/10.1037/0278-6133.10.2.102.

34.   Snyder, M., & Cantor, N. (1979). Testing hypotheses about other people: The use of historical knowledge. Journal of Experimental Social Psychology, 15(4), 330-342. https://doi.org/10.1016/0022-1031(79)90042-8.

35.   Tang, Alice M.; Dong, Kimberly; Deitchler, Megan; Chung, Mei; Maalouf-Manasseh, Zeina; Alison Tumilowicz, Alison; Wanke, Christine. 2013. Use of Cutoffs for Mid-Upper Arm Circumference (MUAC) as an Indicator or Predictor of Nutritional and HealthRelated Outcomes in Adolescents and Adults: A Systematic Review. Washington, DC: FHI 360/FANTA.

36.   Akandere, M., 2007. Impact on the life satisfaction levels of physical activity in an elderly nursing home. Sosyal Bilimler Enstitusu Dergisi 18, 1–9

37.   Maryam Chehregosha AB, Fatemeh Vahidian, Azam Mohammadi, Aliakbar Aghaeinejad, Ensiyeh Jamshidi, Afsaneh Ghasemi. Life Satisfaction Index among Elderly People Residing in Gorgan and Its Correlation with Certain Demographic Factors in 2013. Global Journal of Health Science. 2016 8(8).

38.   Nedjat S, Sahaf R, Khankeh HR, Fadayevatan R, Majdzadeh R, Karimlou M. Life satisfaction as the main factor behind the elderly`s health knowledge utilization: A qualitative study in an Iranian context. Med J Islam Repub Iran. 2018 (20 Nov);32:115. https://doi.org/10.14196/mjiri.32.115.

39.   Saris, W.E., Veenhoven, R., Scherpenzeel, A.C. & Bunting B. (eds) 'A comparative study of satisfaction with life in Europe. Eötvös University Press, 1996, ISBN963 463 081 2, pp. 11-48

40.   Vulnerability of Older People in Ethiopia: The Case of Oromia, Amhara and SNNP Regional States. HelpAge International, 2013. https://www.helpage.org/silo/files/a-study-of-older-peoples-livelihoods-in-ethiopia.pdf.

41.   Jaison Joseph KRR, Inderjit Kaur, Sandhya Ghai, Netasha Sharma. Life satisfaction among inhabitants of selected old age homes at Chandigarh -A cross sectional study Delhi Pschosocial Journal 2014;17(2).

42.   Sevilay S. Celik YC, Neset Hikmet, Mahmud M. Khan. Factors Affecting Life Satisfaction of Older Adults in Turkey. The International Journal of Aging and Human Development. 2017;0(0):1-23.

43.   Cecilia Fagerström CB, Cristian Balducci , Vanessa Burholt , Clare G. Wenger, Dieter Ferring , Germain Weber, Göran Holst , Ingalill R. Hallberg. Life Satisfaction and Associated Factors Among People Aged 60 Years and Above in Six European Countries. Applied Research in Quality of Life 2007;2:33-50.

32

44.   Minsoo Jung CM, Mankyu Choi. Factors Related to Perceived Life Satisfaction Among the Elderly in South Korea. Journal of Preventive Medicine and Public Health 2010;43(4):292-300.

45.   Ocampo JM. Self-rated health: Importance of use in elderly adults %J Colombia Médica. 2010;41:275-89.

46.   Luciane Cristina JoiaI TR, Maria Rita DonalisioIII. Life satisfaction among elderly population in the city of Botucatu, Southern Brazil. Rev Saúde Pública 2007;41(1):131-8.

47.   Holmén, K., & Furukawa, H. (2002). Loneliness, health and social network among elderly people—a follow-up study. Archives of Gerontology and Geriatrics, 35(3), 261–274. doi:10.1016/s0167-4943(02)00049-3.

48.   Kane, R. A. (2001). Long-term care and a good quality-of-life: Bringing them closer together. The Gerontologist, 41(3), 293–304.

49.   Pallavi Banjare RD, Jalandhar Pradhan. Factors associated with the life satisfaction amongst the rural elderly in Odisha, India. Health and Quality of Life Outcomes 2015;13(201).

50.   All Answers Ltd. (November 2018). Dorothea Orem's theory of self-care deficit. Retrieved from https://nursinganswers.net/essays/dorothea-orems-theory-of-self-care-deficit-nursing-essay.php?vref=1.

51.   Jessie Dezutter , Ulrich Wiesmann , Silke Apers & Koen Luyckx (2013) Sense of coherence, depressive feelings and life satisfaction in older persons: a closer look at the role of integrity and despair, Aging & Mental Health, 17:7, 839-843, DOI: 10.1080/13607863.2013.792780.

52.   Eva Langeland, Astrid K. Wahl, Kjell Kristoffersen, Monica W. Nortvedt, Hanestad BR. Sense of coherence predicts change in life satisfaction among home-living residents in the community with mental health problems: a 1-year follow-up study. Qual Life Res 2007;16:939–46.

53.   Antonovsky, A. (1979). Health, stress and coping. San Francisco: Jossey-Bass.

54.   Marina Kolosnitsyna NK, Khongor Dorzhiev WHAT HAPPENS TO HAPPINESS WHEN PEOPLE GET OLDER? SOCIO-ECONOMIC DETERMINANTS OF LIFE SATISFACTION IN LATER LIFE National Research University Higher School of Economics. 2014.

55.   Boonphadung S. Factors Effecting Life Satisfaction of the Elderly in Bangkok. Journal of Communication and Computer. 2013;10:894-903.

33

56.   Sahar, J., Riasmini, N. M., Kusumawati, D. N., & Erawati, E. (2017). Improved Health Status and Life Satisfaction among Older People following Self-Help Group Intervention in Jakarta. Current Gerontology and Geriatrics Research, 2017, 1–7. doi:10.1155/2017/3879067

57.   Veenhoven, R. (n.d.). The Study of Life Satisfaction. http://www2.eur.nl/fsw/research/veenhoven/Pub1990s/96d-full.pdf

58.   Chengbo Li, Iris Chi, Xu Zhang, Zhaowen Cheng, Lei Zhang & Gong Chen (2014): Urban and rural factors associated with life satisfaction among older Chinese adults, Aging & Mental Health, DOI: 10.1080/13607863.2014.977767.

59.   Roger C. Gibson NKW, Wendel D. Abel, Denise Eldemire-Shearer, Kenneth James and Kathryn Mitchell-Fearon Alcohol use, depression, and life satisfaction among older persons in Jamaica. International Psychogeriatric Association 2016:1-9.

34

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	2, 5
Methods			
Study design	4	Present key elements of study design early in the paper	5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	5
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	8
Bias	9	Describe any efforts to address potential sources of bias	*10*
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	10
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	10
		(*b*) Describe any methods used to examine subgroups and interactions	10
		(*c*) Explain how missing data were addressed	
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	
		(*e*) Describe any sensitivity analyses	
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	11
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	11-15
		(b) Indicate number of participants with missing data for each variable of interest	
Outcome data	15*	Report numbers of outcome events or summary measures	12
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	16-19
		(*b*) Report category boundaries when continuous variables were categorized	
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	
Discussion			
Key results	18	Summarise key results with reference to study objectives	19-25
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	25
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	19-25
Generalisability	21	Discuss the generalisability (external validity) of the study results	26
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	27

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

Satisfaction with life and associated factors among elderly people living in two cities in northwest Ethiopia: a community-based cross-sectional study

SCHOLARONE™
Manuscripts

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

Title: Satisfaction with life and associated factors among elderly people living in two cities in northwest Ethiopia: a community-based cross-sectional study

Authors: Mr. Habtamu Sewunet Mekonnen /HSM/[1]*, Professor Helena Lindgren /HL/ (Ph.D.)[2], Dr. Biftu Geda/BG/ (Ph.D.)[3], Dr. Telake Azale /TA/ (Ph.D.)[4], Dr. Kerstin Erlandsson /KE/(Ph.D.)[2,5]

Authors' affiliations:

[1]Department of Medical Nursing, School of Nursing, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia.

[2]Department of Women's and Children's Health, Karolinska Institutet, Solna, Sweden.

[3]Madda Walabu University, College of Health Science, Department of Nursing, Shashamene Campus, Shashamene, Ethiopia.

[4]Department of Health Education and Behavioral Sciences, Institute of Public Health, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia.

[5] School of Education, Health and Social Studies, Dalarna University, Falun, Sweden

Emails and postal addresses:

HSM: habtsew@ymail.com

Postal address: 196, Gondar, Ethiopia

HL: helena.lindgren@ki.se

Postal address: Karolinska Insitutet, 17177 Solna, Sweden

BG: biftug@gmail.com

Postal address: 247, Robe/Shashamene, Ethiopia

TA: atelake07@gmail.com

Postal address: 196, Gondar, Ethiopia

KE: ker@du.se; kerstin.erlandsson@ki.se

Postal address: Karolinska Insitutet, 17177 Solna, Sweden

*Corresponding author:

Email: habtsew@ymail.com

1

Abstract

Objective: This study aimed to determine the level of life satisfaction and associated factors among elderly people living in two cities in northwest Ethiopia.

Design: Community-based cross-sectional study

Setting: Two cities in northwest Ethiopia (Gondar and Bahir Dar)

Participants: 816 elderly people age 60 years and above living in Gondar and Bahir Dar, northwest Ethiopia. Systematic random sampling was used to select study participants.

Main outcome measure: Level of life satisfaction. Considering the mean and standard deviations, three levels of satisfaction appeared to suffice as the basis for analysis and discussion: 23.5-34.4 dissatisfied, 34.5-56.5 averagely satisfied, and 56.6-67.5 satisfied. Multivariable ordinal regression analysis was done to control the confounders. Since the outcome variable has an ordinal category, ordinal regression analysis is appropriate. P-value ≤ 0.05 and AOR (adjusted odds ratio) with a 95% CI were considered to determine the statistically significant variables and strength of the association.

Results: The mean age of the respondents was 68.2 years with a standard deviation ± 7.2. The level of life satisfaction was: dissatisfied 17.2%, moderately satisfied 63.8%, and well satisfied 19.0%. Overall, 45.8% (95% CI: 42.2-49.2) of the participants had a score equal to or above the mean. Regarding associated factors; retired current occupation (AOR=2.23, 95% CI:1.09-4.55), good self-rated health status (AOR= 2.54, 95% CI:1.29-4.99), having no chronic disease (AOR=1.48, 95% CI: 1.03-2.11), somewhat-good (AOR= 2.15, 95% CI: 1.12-4.13) and good (AOR= 4.51, 95% CI: 2.40-8.45) self-perception on aging life, moderate functional impairment on daily living activities (AOR= 5.43, 95% CI: 1.81-16.24), high sense of coherence (AOR= 3.80, 95% CI: 2.04-7.08), source of finance (AOR= 2.60, 95% CI: 1.49-4.52), and high perceived social

2

support (AOR= 2.13, 95% CI: 1.44-3.16) had statistically significant association with the life satisfaction.

Conclusion: The life satisfaction level in our study group was lower than in some more highly developed countries. To improve the level of life satisfaction in Ethiopia, a holistic program of nursing care for elderly people, particularly as concerns about their health and psychosocial conditions is crucial in both community and clinical settings.

Keywords: elderly people, life satisfaction, metropolitan cities, northwest Ethiopia

Strengths and limitations of this study

- The study had a representative sample of elderly men and women, young-old to old-old, unable to read and write to well educated, with very good to very bad perceived health status.

- The data were collected in the participants' residential homes which enabled us to have sufficient time to get the necessary data, and the high response rate also helped.

- The study was done among Amharic speaker Ethiopian elders that might not be representative of all Ethiopians other than Amharic speakers.

- The study was limited to households in two cities of northwest Ethiopia, which may not be representative of elderly living in streets, religious places, temporary settlements, and rural residents.

Introduction

Life satisfaction is a feeling of being satisfied with one's present life and even earlier life up to the present. An individual or an outside analyst may try to evaluate the degree of satisfaction. This is important because being content with one's current life may be seen as an indication of successful aging (1). Life Satisfaction is not a persistent objective quality; rather, it is susceptible to contextual

3

changes and may be judged based on people's perceptions and interpretations (2). The level of satisfaction may be related not only to health but also to the living standards of an individual. Thus, improving elderly people's life satisfaction requires attention not only to their health but to the social and economic conditions in their environment. Besides, being satisfied with past and present life may be seen by many elderly people as a success story. As life expectancy increases, health and satisfaction with life become more important than they were when life expectancy was short (3). Thus, aging satisfactorily means remaining physically and psychologically well, and socially engaged in an individually defined meaningful life (4).

In Ethiopia, over the last ten years, the life expectancy at birth increased from 61.63 years to 66.95 years in 2020 (5). A longer life provides an important opportunity for older people, their families, and at large the societies (6). However, these changes also bring a socio-demographic shift and can create new challenges for health care services. When people live longer, they require more attention to their health and therefore are often hospitalized for chronic and degenerative diseases, functional and physical dependency, mental health problems, cognitive disorders, and other age-related diseases. As a result, this can greatly affect the economies, living arrangements, and personal and professional aspirations to maintain their services (7). So, in the late adult stage, satisfaction leads to integrity, while dissatisfaction creates a sense of despair (8, 9).

As studies have revealed, overall life satisfaction is higher among some people in high-income countries than in middle- and low-income countries. In Norway, Russia, Sweden, and Brazil the magnitude of life satisfaction was 90.9%, 68.0%, 66.0%, and 65.6% respectively (10-13), whereas in Zambia and Nepal it was only 37% and 7.9% respectively (14, 15). In the nursing home of Sivas municipality, Turkey, 6.4%, 71.8%, and 21.8% reported low, moderate, and high life satisfaction respectively (16). The study in Brazil among community-dwelling elderly reported 6.1%

4

dissatisfied, 28.2% moderately satisfied, and 65.6% were very satisfied with life (13). In the South Korea study, 34%, 38%, and 27% of the elderly reported adequate, average, and poor life satisfaction respectively (17).

Studies in various parts of the world showed sex (AOR=1.42, 95% CI:1.01-2.00), marital status (F=16.5, P < 0.001), educational status (AOR=3.84, 95% CI:2.38-6.18), occupation, living style, income (F= 9.5, P < 0.001), religion, working status, physical activities, perception of self-health, chronic disease (AOR=2.07, 95% CI:1.51-2.84), perceived loneliness (β = -1.369, P<0.001), daily living activities, sense of coherence, mental health, social support, living environment quality, and nutrition (β = 0.48, bias-corrected and accelerated (BCa 95% CI: 0.27, 0.69) were significantly associated with the life satisfaction (16, 18-21).

However, evidence is scarce about the level and associated factors of life satisfaction of Ethiopian elderly people, particularly in the study area. Therefore, the study aimed to determine the level of life satisfaction and associated factors among elderly people living in Metropolitan cities of northwest Ethiopia.

Determination of life satisfaction and identifying its associated factors would help health professionals to know more about the elderly people's situations and to consider these in their evidence-based practices. By knowing more about the level of life satisfaction and determinant factors, we can increase awareness and update services for elders and possibly begin to change some of the negative stereotypes pointed at elderly people.

The findings would be the baseline and an input for the national plan of action for Ethiopia on elderly populations. Also, it will help policymakers, non-governmental organizations, volunteer associations, and other stakeholders working with elderly people.

5

METHODS

Study design and setting

A community-based cross-sectional study was conducted from December 19/202 to February 21/2021. The study was done in two cities in northwest Ethiopia namely Gondar and Bahir Dar.

Participants

Residents 60 years old and older – hereafter referred to as elderly - in the two cities were the study population. In both cities, there are an estimated 23,348 elderly. Elderly aged ≥60 years and who have lived for six months and above during the study periods were the source population. Those elders who were present during the specified data collection periods were the study population. The elderly whose ages were ≥60 years and who were residents of the cities were included in the study, yet individuals who were living in streets, religious institutions, and temporary settlements were excluded.

The sample size was determined using the single population proportion formula with the assumption of a 95% level of confidence, 5% marginal error, proportion (p) 56.9% taken from the pilot study (22), design effect 2, and 10% non-response rate. The final sample size was 830 which represented 3.56% of the eligible people. Each city was stratified into the sub-cities and in each sub-cities, kebeles (the lowest administrative level) were selected by the lottery method considering the number of kebeles. In Bahir Dar administrative city nine kebeles and one satellite town were selected and in Gondar administrative city 8 kebeles were selected. Participants were allocated proportionally depending on the number of elderly people and were selected by systematic random sampling using the registered lists in each selected kebele.

6

Data collection tools and procedures

The data were collected using a face-to-face interview approach using a culturally adapted and validated structured questionnaire that was adapted by using an intensive literature review. The questionnaire contains ten sections. The first section provides the socio-demographic characteristics of the study participants, the second section deals with life satisfaction and the third is concerned with a health conditions, nutritional status, and behavioral factors. The fourth section is concerned with psycho-social and environmental conditions and the fifth with activities that are part of daily living. Sections six to ten are concerned with participation in various activities, mental health, sense of coherence, social support, and urban wealth index-related questions respectively. Supplementary file 1

The following tools were culturally adapted and validated for use with the target population: 1) Life Satisfaction Index for the Third Age – Short Form (LSITA- SF) (23), 2) Katz Index of Independence in Activities of Daily Living (Katz ADL) (24), 3) participation in activities scale (25), 4) Kessler Psychological Distress Scale (K10) (26), 5) Sense of Coherence scale (SOC) (27), 6) Duke-UNC Functional Social Support Questionnaire (FSSQ) (28). The LSITA-SF was found to have an excellent face and content validity index, acceptable in concurrent and divergent validities. These tools also have substantial internal consistency, test-retest reliability, and inter-rater reliability (22). The scales were found to be excellent in terms of feasibility, readability, consistency of styles, formatting, and clarity of the language. The Cronbach alpha values were

7

0.80, 0.87, 0.93, 0.79, and 0.90 for Katz ADL, Participation in activities, K10, SOC, and FSSQ scales respectively.

During the data collection, there was communication with the associations that support the elderly people and with key figures concerned with matters of interest for the elderly people, for example, health extension workers. Then with the help of these people (workforce people), the participants were traced and interviewed in the quiet areas of their homes after the interviewer briefly explained the purpose of the study and obtained consent from each participant. If the selected participants' houses were closed and no one was present, they were revisited for three subsequent days. If no contact was made at a home this was considered a non-response location or individual. The data were collected and supervised by 18 trained BSc nurse data collectors and 9 MSc nurse trained supervisors.

Variables of the study

Dependent variable

o   Level of life satisfaction

Independent variables

The independent variables include:

Socio-demographic variables: Age, sex**,** marital status**,** level of education**,** religion, religious practice, occupation, economic status, presence of children, household size, and living conditions.

Health condition/status related variables: Sense of coherence, self-rated health status, physical activity, functional ability, mental health, chronic disease, accidents, disability (impairment), wear of eyeglasses or contact lenses, use of a hearing aid, health checkup, health education.

Nutritional and Risky behaviors: frequency of meal, smoking, alcohol consumption, chat chewing, sedentary behavior.

8

Psycho-social: Self-perception, social relationship (family, friend, neighborhood), presence of a caregiver.

Environmental conditions: Housing condition, residential Facilities/quality of the living environment, source of financial support, availability of social service, accessibility of health service, and health insurance.

Measurements

Life Satisfaction: Life satisfaction was measured by using the LSITA-SF scale. The scale has 12 items with 6 Likert response categories from 1 to 6 points. The possible minimum and maximum points are 12 and 72 respectively. The mean value of responses was 45.5 and the standard deviation was 11. Considering the mean and standard deviations, categories or levels of life satisfaction were designated as follows: < 23.5 very dissatisfied, 23.5-34.4 dissatisfied, 34.5-56.5 (mean ± SD) moderately satisfied, 56.6-67.5 quite well satisfied, and > 67.5 very satisfied. First, the mean ± SD for average satisfaction was calculated, then for the dissatisfied group the value of standard deviation was subtracted to get the lower cut point and for the satisfied group, the SD was added from the next category to get the upper group (23, 29). In the current study, the minimum and maximum points were 24 and 67 respectively and three levels of satisfaction appeared to suffice as the basis for analysis and discussion: 23.5-34.4 dissatisfied, 34.5-56.5 averagely satisfied, and 56.6-67.5 satisfied.

Elderly/older people/aged people: There are a variety of names used to refer to elderly people. According to the UN definition, elderly persons are those people whose age is 60 years and over. This definition has gained acceptance in the Ethiopian context as it coincides with the country's official retirement age (30, 31). Thus, in this study people referred to as elderly people are all age

9

60 or older. Terminology for subgroups is as follows: Young-old 60-69, middle-old 70-79, and old-old ≥ 80 years of age. (32).

Activities of Daily Living: It is the measurement of the daily living activities of an individual. Activities of daily living were measured by using the Katz ADL. The Index ranks adequacy of performance in six functions: bathing, dressing, toileting, transferring, continence, and feeding. A score of 6 indicates a full or satisfactory function for all 6, 3-5 indicates moderate impairment, and 2 or less indicates severe functional impairment (24).

Participation in activities/physical activities: Measurement of participation in personal activities, physical activities, and activities with formal and informal support networks is important. The mean scores of the respondents on their levels of participation in the various activities were interpreted using the following scale: 1.00-1.80=Very Low; 1.81-2.60=Low; 2.61-3.40=Moderate; 3.41-4.20=High; and, 4.21-5.00=Very High (25).

Mental Health: Mental health was assessed using the K10. A score under 20 is seen as indicating well-functioning mental health, 20-24 indicates possible mild mental disorder, a score of 25-29 indicates the presence of moderate mental disorder, a score of 30, and over person likely to have a severe mental disorder (26).

Sense of coherence: It refers to a person's ability to use existing and potential resources to combat stress and promote health. Sense of coherence was assessed by using the sense of coherence scale. Overall, scores 13-57, scores 58-74, and scores 75-91 were leveled as low, medium, and high sense of coherence (27).

Social support: Social support is defined as the perceived availability of support, affection, and instrumental aid from significant social partners, primarily family members and close friends (33), as well as neighbors and co-workers (34). The perceived social support was assessed by using

10

FSSQ. A score less than average was classified as indicating low perceived social support and a score equal to or greater than the average value was seen as indicating high perceived social support (28).

Mid Upper Arm Circumference (MUAC): A value of MUAC < 22.0 cm indicates severe malnutrition, 22.0-23.0 cm moderate malnutrition, and > 23.0 cm normal nutritional level (35).

Data quality control techniques

Culturally adapted and validated tools were used. Two days of training were given in each city for data collectors and supervisors to aid them in using the data collection tools and following the data collection procedures. A pilot trial of the questionnaire was carried out in the study area one week before the actual data collection.

To ensure consistency of the collection technique and the acquisition of quality data, random checks were carried out by field supervisors and the principal investigator. Before the analysis, the collected data were checked for completeness and accuracy.

Data processing and analysis

The data were checked for completeness and consistency. Epi-data version 4.6 and Stata version 14 were used for data entry and analysis respectively. Before running the ordinal regression analysis, assumptions were checked. The outcome variable was an ordinal type, and the independent variables were categorical and ordinal, but the ordinal independent variables were treated as categorical.

The cell adequacy was checked by carrying out cross-tabulation of each independent variable with the dependent variable. Variables with non-zero cells and ≥ 80 % greater than 5 cell counts were considered for further assumption check and analysis. Multi-collinearity was checked by the variance inflation factor (VIF). Variables with VIF >10 were removed from the analysis. The

11

parallel line/proportional odds assumption was checked by computing the o-model, Brant test, and o-parallel. Overall model fitness was assessed by computing the likelihood ratio test.

Ordinal regression analysis was used to test the association between dependent and independent variables. Descriptive statistics were carried out to illustrate the frequencies, percentages, means, and standard deviations and were presented in texts and tables. Variables that fulfilled the assumptions were entered into the multivariable ordinal regression analysis to control the confounders and those with a p-value of ≤ 0.05 were considered statistically significant. An odds ratio with a 95% confidence interval was used to determine the presence, strength, and direction of association between the independent and dependent variables.

Patient and Public Involvement

Neither patients/participants nor the public were involved in the design, conduct, reporting or dissemination of our research.

Results

Socio-demographic characteristics of participants

A total of 816 participants were included with a 98.3 % response rate. The mean age of participants was 68.2 (SD ±7.2) years. More than half, 433 (53.1%) of participants, were males and 511 (62.6%) were married. The majority, 764 (93.6 %) had children, of which 369 (48.2 %) owned 4-6 children and 690 (84.6%) were Orthodox Christian by religion. About 235 (28.8%) were unable to read and write, and 165 (20.2 %) were in the middle quantile in the wealth index status. (Table 1)

Table 1: Socio-demographic characteristics of elderly people in two cities of northwest Ethiopia, 2021 (n = 816)

Variables	Frequency	Percent
Sex		

12

	Male	433	53.1
	Female	383	46.9
Age			
	Young - old	548	67.2
	Middle - old	190	23.3
	Old-old	78	9.5
Place of birth/grownup			
	Urban	356	43.6
	Rural	460	56.4
Marital status			
	Married	511	62.6
	Widowed	228	27.9
	Divorced	77	9.5
Having children /life/			
	Yes	764	93.6
	No	52	6.4
Number of live children (n = 766)			
	1-3		
	4-6	299	39.0
	>6	369	48.2
		98	12.8
Family size			
	1-3	208	25.5
	4-6	393	48.2
	>6	215	26.3
Educational Status			
	Unable to read and write	235	28.8
	Able to read and write	226	27.7
	Grade 1-8	138	16.9
	Grade 9-12	74	9.1
	Certificate and above	143	17.5
Religion			
	Orthodox	690	84.6
	Muslim	95	11.6
	Protestant	31	3.8
Religious practice			
	Always	466	57.1
	Sometimes	188	23.0
	Occasionally	144	17.7
	Never	18	2.2
Current occupation			
	Retired	253	31.0
	Employed	72	8.8
	Housewife	153	18.7
	Private work	193	23.7
	Non employed	145	17.8
Living condition			
	Live alone	65	8.0
	Live only with partner	134	16.4
		246	30.1

13

Live with children/grandchildren	371	45.5
Live with partner/children/relatives		
Wealth index		
Lowest quantile	164	20.1
Second quantile	164	20.1
Middle quantile	165	20.2
Fourth quantile	160	19.6
Highest quantile	163	20.0

Level of elderly people's life satisfaction

In this study, overall, 45.8% (95% CI: 42.2-49.2) of the participants had a mean or above score and the majority (63.8%) were moderately satisfied. Figure 1

Health condition of the study participants

In this study, 471 (57.7%) of the participants had good self-rated health status, and 320 (39.2%) had one or more chronic diseases of which the majority were hypertension (21.1%) and the least Dementia/Alzheimer's disease (1.5%). The majority, 738 (90.4%) of the participants had a full function in daily living activities status, and 328 (40.2%) had low-level participation in activity/physical activity. About 480 (58.8 %), 478 (58.6 %), and 477 (58.5 %) of the participants reported themselves to be well in mental health, have a medium sense of coherence, and high perceived social support respectively. (Table 2)

Table 2: Health condition of the study participants in two cities of northwest Ethiopia, 2021 (n = 816)

Variables	Frequency	Percent
Self-rated health status		
Good	471	57.7
Average	242	29.7
Bad	103	12.6

14

Known chronic disease
Yes	320	39.2
No	496	60.8

Hypertension
Yes	172	21.1
No	644	78.9

Kidney disease
Yes	20	2.5
No	796	97.5

Diabetic Mellitus
Yes	114	14.0
No	702	86.0

Dementia/Alzheimer's disease
Yes	12	1.5
No	804	98.5

Heart disease
Yes	22	2.7
No	794	97.3

Asthma
Yes	53	6.5
No	763	93.5

Physical disability
Yes	604	7.4
No	756	92.6

Wear eyeglass
Yes	140	17.2
No	676	82.8

Use hearing aid
Yes	10	1.2
No	806	98.8

Health checkup
Yes	383	46.9
No	433	53.1

Get health education
Yes	715	87.6
No	101	12.4

Daily living activities
Severe functional impairment	33	4.1

15

Moderate functional impairment	45	5.5
Full function	738	90.4
Participation in activities/physical activities		
Very low	165	20.2
Low	328	40.2
Moderate	249	30.5
High	55	6.8
Very high	19	2.3
Mental health		
Likely to be well	480	58.8
Likely to have a mild mental disorder	156	19.1
Likely to have a moderate mental disorder	84	10.3
Likely to have a severe mental disorder	96	11.8
Sense of coherence		
Low	159	19.5
Medium	478	58.6
High	179	21.9
Social support		
Low perceived social support	339	41.5
High perceived social support	477	58.5

Nutritional and behavioral characteristics of the study participants

About three-fourths 614 (75.2%) of the participants had MUAC >23 cm and 477 (58.4 %) had

three times per day meal frequency. The majority, 776 (95.1%) and 756 (92.6%) had never smoked

cigarettes or chewed khat respectively. About 495 (60.7%) had consumed alcohol. (Table 3)

Table 3: Nutritional and behavioral characteristics of the study participants in two cities of northwest Ethiopia, 2021 (n = 816)

Variables	Frequency	Percent
MUAC		
< 22 cm	109	13.4
22-23 cm	93	11.4
> 23 cm	614	75.2
Meal frequency		

16

Once per day	17	2.1
Two times per day	243	29.8
Three times per day	477	58.4
Four times per day	79	9.7
Living style		
Have sedentary behavior	57	7.0
Sometimes do exercises/activities	418	51.2
Always do exercises/activities	341	41.8
Ever smoked cigarettes?		
Yes	40	4.9
No	776	95.1
Currently, smoking cigarettes?		
Yes	15	1.8
No	801	98.2
Ever chewed khat?		
Yes	60	7.4
No	756	92.6
Currently, chewing khat?		
Yes	31	3.8
No	785	96.2
Ever consumed any alcohol?		
Yes	495	60.7
No	321	39.3
Alcohol consumption within the past 12 months?		
Yes	448	54.9
No	368	45.1

Psycho-social and environmental conditions of the study participants

Five hundred seventy-two (70.1 %) of the participants had good self-perception of aging life and 709 (86.9%) had a good relationship with family, friends, and neighborhood. About three-fourths 622 (76.2%) had a caregiver in their home and 501 (61.4%) had detached houses made of soil and wood. Three-fourths 619 (75.8%) had a good perception of their residential facility (living environment quality) and 234 (28.7%) had a pension (salary) as the main source of financing their lives. (Table 4)

Table 4: Psycho-social and environmental conditions of the study participants in two cities of northwest Ethiopia, 2021 (n = 816)

17

Variables	Frequency	Percent
Self-perception on aging life		
Good	572	70.1
Somewhat good	138	16.9
Bad	106	13.0
Relationship with family, friends, and neighborhood		
Good	709	86.9
Somewhat good	82	10.0
Bad	25	3.1
Do you have a caregiver?		
Yes	622	76.2
No	194	23.7
Housing condition		
Detached house made in soil and wood	501	61.4
Detached house made in cement/ ceramic	243	29.8
Built-in connection with another house	55	6.7
Communal apartment	10	1.2
Apartment	7	0.9
Perception ofthe quality of residential facilities/environment		
Good	619	75.8
Somewhat good	140	17.2
Bad	57	7.0
The main source of finance		
Private work	230	28.2
Pension/salary	234	28.7
From house rent	169	20.7
Help from others	183	22.4
Participation in social services		
Yes	702	86.0
No	114	14.0
Health insurance		
Yes	277	34.0
No	539	66.0

Factors associated with life satisfaction of elderly people

In this study, retired current occupation (AOR= 2.23, 95% CI: 1.09-4.55), good self-rated health

status (AOR= 2.54, 95% CI: 1.29-4.99), having no chronic disease (AOR= 1.48, 95% CI: 1.03-

18

2.11), somewhat good (AOR= 2.15, 95% CI: 1.12-4.13) and good (AOR= 4.51, 95% CI: 2.40-8.45) self-perception on aging life, house rent financial source (AOR= 2.60, 95% CI: 1.49-4.52), moderate functional impairment on daily living activities (AOR= 5.43, 95% CI: 1.81-16.24), high sense of coherence (AOR= 3.80, 95% CI: 2.04-7.08), and high perceived social support (AOR= 2.13, 95% CI: 1.44-3.16) had a significant association with the life satisfaction.

The odds of dissatisfaction vs. the combined moderately satisfied and satisfied for the retired elderly people were 2.23 times higher compared to non-employed elderly when other variables were kept constant. The odds of dissatisfaction vs. the combined moderately satisfied and satisfied for elderly people having good self-rated health status were 2.54 times higher compared to elderly people having bad self-rated health status when other variables were kept constant.

The odds of dissatisfaction vs. the combined moderately-satisfied and satisfied for elderly people who have no chronic disease was 1.48 times higher compared to elderly having a chronic disease when other variables were kept constant. The odds of dissatisfied vs. the combined moderately satisfied and satisfied for elderly people having somewhat and good self-perception on aging life were 2.15 and 4.51 times higher compared to elderly people having bad self-perception on aging life respectively when other variables were kept constant. The odds of dissatisfaction vs. the combined moderately satisfied and satisfied for elderly people having house rent as the main financial source was 2.60 times higher compared to elderly people having a private business when other variables were kept constant.

The odds of dissatisfied vs. the combined moderately satisfied and satisfied for elderly people having a moderate functional impairment in activities of daily living was 5.43 times higher compared to elderly people having severe functional impairment when other variables were kept

19

constant. The odds of dissatisfaction vs. the combined moderately satisfied and satisfied for elderly people having a high sense of coherence was 3.80 times higher compared to older people having a low sense of coherence when other variables were kept constant. The odds of dissatisfaction vs. the combined moderately satisfied and satisfied for elderly people having high perceived social support was 2.13 times higher compared to older people having low perceived social support when other variables were kept constant. (Table 5)

Table 5: Multivariable ordinal logistic regression analysis of factors associated with life satisfaction of elderly people in two cities of northwest Ethiopia, 2021 (n = 816)

Variables	Level of life satisfaction (n)			AOR (95 % CI)	p-value
	Dissatisfied	Moderately satisfied	Satisfied		
Sex					
Male	61	269	103	Ref.	
Female	79	252	52	1.14 (0.73-1.74)	0.54
Age					
Old-old	28	47	3	Ref.	
Middle-old	48	114	28	1.10 (0.57-2.13)	0.78
Young-old	64	360	124	1.86 (0.97-3.55)	0.06
Marital Status					
Married	48	342	121	Ref.	
Widowed	72	130	26	0.72 (0.39-1.34)	0.30
Divorced	20	49	8	0.73 (0.36-1.48)	0.38
Family size					
1-3	58	131	19	Ref.	
4-6	53	260	80	0.88 (0.57-1.37)	0.58
>6	29	130	56	1.20 (0.73-1.98)	0.47
Living condition					
Live alone	27	32	6	Ref.	
Live only with a partner	15	95	24	2.04 (0.84-4.97)	0.12
Live with children/grandchildren	64	152	30	1.53 (0.74-3.15)	0.26
Live with partner/children/relatives	32	242	97	2.14 (0.92-5.02)	0.08
Current occupation					
Non employed	55	85	5	Ref.	
Employed	10	45	17	1.56 (0.75-3.7)	0.24
Housewife	22	108	23	1.08 (0.59-1.98)	0.78
Private work	29	130	34	1.20 (0.64-2.28)	0.57
Retired	24	153	76	2.23 (1.09-4.55)	**0.03***

20

Do you have a caregiver?					
No	57	113	24	Ref.	
Yes	83	408	131	1.37 (0.90-2.09)	0.14
Self-rated health status					
Bad	50	46	7	Ref.	
Average	47	165	30	1.52 (0.78-2.98)	0.22
Good	40	306	125	2.54 (1.29-4.99)	**0.007***
Known chronic disease					
Yes	63	214	43	Ref.	
No	77	307	112	1.48 (1.03-2.11)	**0.03***
Physical disability					
Yes	22	30	8	Ref.	
No	116	486	154	1.48 (0.74-2.95)	0.27
Mental health					
likely to be well	55	294	131	Ref.	
likely to have a mild mental disorder	25	119	12	0.80 (0.51-1.25)	0.33
likely to have a moderate mental disorder	21	58	5	0.76 (0.42-1.41)	0.39
likely to have a severe mental disorder	39	48	9	1.16 (0.62-2.16)	0.65
Daily living activities					
Severe functional impairment	18	10	5	Ref.	
Moderate functional impairment	9	30	6	5.43 (1.81-16.24)	**0.002***
Full function	110	477	151	1.64 (0.63-4.30)	0.31
Participation in activities/physical activities					
Very low	22	108	35	Ref.	
Low	60	21	56	0.75 (0.48-1.15)	0.19
Moderate	42	157	50	0.96 (0.62-1.52)	0.89
High	10	37	8	0.65 (0.31-1.36)	0.26
Very high	4	7	6	0.76 (0.24-2.39)	0.64
Sense of coherence					
Low	54	96	9	Ref.	
Medium	76	343	59	1.08 (0.66-1.78)	0.75
High	10	82	87	3.80 (2.04-7.08)	**< 0.001***
Meal frequency					
Once per day	9	5	3	Ref.	
Two times per day	61	146	36	2.65 (0.78-9.01)	0.12
Three times per day	60	318	99	3.04 (0.89-10.34)	0.08
Four times per day	8	52	19	2.98 (0.80-11.17)	0.12
Self-perception on aging life					
Bad	55	40	11	Ref.	
Somewhat good	37	94	7	2.15 (1.12-4.13)	**0.02***
Good	44	381	147	4.51 (2.40-8.45)	**< 0.001***
Perception on the quality of residential facilities/environment					
Bad	30	22	5	Ref.	
Somewhat good	43	87	10	1.53 (0.71-3.33)	0.28
Good	66	409	144	2.02 (0.96-4.27)	0.07
The main source of finance					

21

Private work	35	157	38	Ref.	
Pension/salary	29	146	59	1.07 (0.58-2.00)	0.82
From house rent	17	105	47	2.60 (1.49-4.52)	**0.001****
Help from others	59	113	11	1.23 (0.71-2.13)	0.46
Social support					
Low perceived social support	105	208	26	Ref.	1
High perceived social support	35	313	129	2.13 (1.44-3.16)	**< 0.001*****

AOR: Adjusted odds ratio, * statistically significant at p-value <0.05, ** p-value 0.001, *** p-value < 0.001

Discussion

This study reported on the level of life satisfaction and associated factors among elderly people in two cities in northwest Ethiopia. The study had 816 elderly people, both men, and women, with a mean age and standard deviation of 68.2 (SD±7.2) years. The study included participants who were unable to read and/or write, had not reached a first-degree educational status and had good to bad perceived health status.

The percentage of subjects who were dissatisfied or had at most a moderate level of life satisfaction was much higher than those reported in the Brazil study and the percentage of the satisfied level was much lower (6.1% dissatisfied, 28.2% moderately satisfied, and 65.6% were very satisfied in Brazil) (13). The lower satisfaction level in this study might be due to the difference in the socioeconomic status of the populations. Economic status has an impact on life satisfaction (11, 14, 15), and Ethiopians have low economic status compared to Brazilians. The low economic status could have an impact on health maintenance and the health check-up of older people. In this study, less than half (46.94%) of the participants had a health check-up of which the majority were visited at the health facilities when they had become sick and had symptoms of illness. Only 34.0 % of the participants have health insurance. This indicates that that the majority of the older people must pay privately for health care services which is a great challenge for a population with a low economic status. It would be difficult to provide holistic nursing care for the older people in these

22

cities since 66 % would have to pay. Thus, the ministry of health, health bureau, social affairs office, and other concerned bodies should work more for the coverage of health insurance and economical support for elderly people.

The average life satisfaction in the current study was higher than that reported in the South Korean study. However, the satisfied and dissatisfied levels were lower (27%, 38%, and 34% reported poor, average, and adequate life satisfaction respectively) (17). This difference might be due to variation in the study population. In South Korea elderly aged ≥ 55 years old were included, but in the current study were aged 60 years old and above. With increasing age, there would be age-related health deterioration which is a major indicator of life satisfaction and differentiation in lifestyle and social relationships in line with the changes in sensory and mental activities (36) this could influence life satisfaction. As there is variability in the satisfaction with life within the age groups of the older people in our study, nurse professionals are expected to prepare the nursing care plan in advance and provide the intended care while considering variations in patient groups. Social workers, hospital administrators, and other concerned bodies also should consider such variation.

The dissatisfied level of life satisfaction was higher than was reported in the study in the nursing home of Sivas municipality, Turkey (6.4%, 71.8%, and 21.8% were reported low, moderate, and high life satisfaction) (16) but moderate and high levels of satisfaction were slightly lower. Similarly, the magnitude of dissatisfied and satisfied levels was lower but the average satisfaction was higher compared to the results from the study in Gorgan, Iran, and Zambia in which the dissatisfied, neutral and satisfied, levels of life satisfaction were 34%, 40%, and 26%, and 59%, 5%, and 37% respectively (14, 37). As our study showed, life satisfaction is very crucial in the utilization of health knowledge among the elderly (38). Having a lower life satisfaction could lead

23

to a deficit of health knowledge among older people who may not have the possibility of getting a health check-up and getting appropriate health care services. Thus, older people with lower life satisfaction need special consideration, particularly focusing on how good their health knowledge is.

The satisfaction level was much lower than in the study in Norway, in which 78.7% of the hospital sample and 90.9 % of the population sample were satisfied with their life (10). The lower satisfaction level might be due to the difference in measurement tools and the socioeconomic status of the populations. In Norway, life satisfaction was measured by a single question. As the source of life satisfaction is a complex combination of individual behavior, simple sensory experiences, higher cognition, and stable characteristics of the individual (39), measuring by using a single question might underestimate or overestimate the level of life satisfaction. As the economic status has an impact on life satisfaction, Ethiopian older people probably have a lower economic status than Norwegians of the same age. As the source of life satisfaction has a complex combination, Ethiopian older people faced health problems, lack of balanced diet, shelter, unsuitable residential areas, absence of family and community support, limited social security services, absence of education and training opportunities, limited employment, and income-generating opportunities (40). These conditions greatly affect the level of life satisfaction and show the importance of holistic care, nurse, other professionals, and administrative support for elderly people targeting the complexity of life satisfaction.

In this study life satisfaction was better than was found in the study in Chandigarh, Northern India, in which the life satisfaction was 50 % low and 50 % moderate and high (41). The better life satisfaction is vital for the health of older people and is an indicator of the better living standards (3) and its implication inspires nurses to assess the relations of better satisfaction with the wellness

24

nursing diagnosis in terms of human development, longer lives, healthy aging, and full adaptation/success to aging.

In this study, the retired elderly were more likely to have a higher level of life satisfaction. A similar study in Turkey reported as income-generating work increased life satisfaction (42). Income is one of the contributing factors to life satisfaction (16, 18), and as the chi-square test in the current study revealed most of the retired elderly were in the highest quantiles of wealth index as compared to the non-employed. Thus, nurses should be the leader to identify the economic needs of older people and provide counsel, support, and work with the ministry of health, regional health bureau, social affairs office, and other concerned bodies to take part for the financial support and any possible aids.

Elderly people who had good self-rated health status were more likely to have a higher level of life satisfaction. The finding was supported by the studies done in six European countries, Russia, South Korea, Nepal, Turkey, and Zambia (11, 14-16, 43, 44). Self-rated health provides information to aid health personnel and decision-makers in the development and implementation of health promotion and disease prevention programs, as well as the adequacy and planning of different levels of care for this population (45). Even though the majority of health care facilities in Ethiopia lack separate geriatric care facilities, it is crucial to meet the needs of an aging population and improve the life satisfaction and health of the elderly in the health care facilities as well the community settings.

Elderly people who had no chronic disease were more likely to have a higher level of life satisfaction. A similar finding was also reported in China, South Korea, and Southern Brazil (19, 44, 46). The elderly population's exposure to chronic diseases and other age-related problems is

25

higher than the young/adult populations. Fast shifting to the older population and the transformation from acute and infectious disease to chronic, non-communicable disease, and age-related disease will have an impact on health care setups including nursing care (7). So, nurses should provide health education about the prevention of chronic disease and also focus and incorporate on the nursing care plans and implementations considering the consequence of the chronic disease on the life satisfaction and the overall health of the elders. Besides, the concerned bodies should plan to prevent chronic disease.

Elderly people who had somewhat good and good self-perception of aging life were more likely to have a higher level of life satisfaction. Similarly, a study across six European countries revealed the presence of a significant association between self-esteem and life satisfaction (43). As it is well known, with the advancement of age there will be physical changes, chronic diseases, and other age-specific psycho-social problems encountered by older people. So, self-perception could be an important and concern for older people. As the psycho-social is one of the main issues in the nursing profession, nurses should build the positive self-images of the older people and should play a vital role in the assessment of the self-perception, identification of the problems, planning, and implementation of the interventions for the build-up of the self-perception and improve the life satisfaction.

Elderly people who could rent the property they owned and had income from renters as a main financial source were more likely to have a higher level of life satisfaction. Older people might get unremitting income from the house rent with less effort and burden. As well, when older people rent their house, they could have an opportunity for a social relationship with others which might decrease loneliness. As studies showed a relationship with other people is an important part of life satisfaction (47, 48).

26

Elderly people who had only moderate functional impairment in activities of daily living were more likely to have a higher level of life satisfaction. The study in India also reported a significant relationship between a low score of activities of daily living and lower life satisfaction (49). Turkey also reported low life satisfaction with decreased ability to do household activities (16). This is also related to the self-care deficit of Orem's theory. This deficit includes self-care, which is the practice of activities that an individual initiates and performs on his or her behalf to maintain life, health, and well-being; self-care agency, which is a human ability that is "the ability for engaging in self-care," conditioned by age, developmental state, life experience, socio-cultural orientation, health, and available resources (50). So, nurse professionals can use this theory to improve the daily activity performance and the enhancement of the life satisfaction of older people and should provide health education about the importance of activities for general health. Ministry of Health, regional health bureau, social affairs office, and other concerned bodies also should emphasize and support the older people with daily activity limitations.

Elderly people who had a high sense of coherence were more likely to have a higher level of life satisfaction. This was supported by the studies in Poland, Belgium, and Norway (21, 51, 52). The concept of a sense of coherence explains why some people become ill under stress and others stay healthy. It's a mixture of optimism and control and has three components – comprehensibility, manageability, and meaningfulness (53) which is similar to Erikson's theory of personality that states in the late adult stage, "ego integrity versus despair", individuals search for the meaning of their lives and evaluate their accomplishments. So, nurses and other professionals should play a vital role to support and counsel older people about the stress, their general health, and how to control or manage the stressors.

27

Elderly people who had a high perceived social support were more likely to have a higher level of life satisfaction. A similar finding was also reported in Iran, Russia, South Korea, India, Norway, Sweden, and Thailand (10-12, 44, 49, 54, 55). The result informs the importance of collaboration of nurses with the social workers and other related professionals. With such collaboration, the gaps and possible support mechanisms could be identified. As the study finding suggested, the social support problems can be managed by the self-help intervention which included a single 50–70-minute session once a week for 12 weeks. This intervention greatly improves self- supportability, health status, and life satisfaction. The study also recommends that self-help intervention may be implemented by nurses for older people in the community to improve health and well-being (56).

As studies showed, age, sex, religious practice, marital status, educational status, economic status, living condition, participation in activities, disability, quality of the living environment, alcohol intake, smoking, and nutritional status were significantly associated factors with life satisfaction (14, 16, 44, 57-59), and these factors are very important concepts in the nursing profession concerning the life satisfaction but were not associated in the current study.

The finding from this study may fill the evidence gaps in the approach and intervention the elderly people. In addition, it can be a baseline for other researchers and other bodies working on elderly people. The policymakers (Federal ministry of health, regional Health Bureau, Zonal health departments, and social affairs offices/ should identify the economic needs and sources of support of elderly people. In addition, they should develop and implement health promotion and disease prevention programs, as well as the adequacy and planning of different levels of care for the elderly population. Health care facilities should facilitate and equipped the health facilities targeting the need and conditions of elderly people. They also should emphasize and support the older people

28

who have chronic diseases, psychosocial health problems, and daily activity limitations. Further study is also needed using a follow-up study.

Strengths and Limitations

To the best of our knowledge, this is the first study of life satisfaction and associated factors among the Ethiopian elderly. The study had a representative sample of elderly men and women, young-old to old-old, unable to read and write to well educated, very good to very bad perceived health status. The data were collected in the participants' residential homes. This enabled us to have sufficient time to get the necessary data, and the high response rate also helped.

However, the study has some limitations. Firstly, the study was done among Amharic speaker Ethiopian elders. It might not be representative of all Ethiopians other than Amharic speakers. Secondly, the study was limited to households in two cities of northwest Ethiopia, which may not be representative of elderly living in streets, religious places, temporary settlements, and rural residents.

Conclusion

In this study, about two-thirds (63.68 %) of the participants were averagely satisfied in their life. Current occupation, self-rated health status, chronic disease, self-perception of aging life, financial source, daily living activity, sense of coherence, and social support were statistically significant factors influencing life satisfaction.

The finding is informed us of the importance of nurses to be the leader to plan and intervene in those significantly associated factors with life satisfaction and it is necessary to provide counsel, support, and work with the ministry of health, regional health bureau, social affairs office, and other concerned bodies to take part to improve the life satisfaction of elderly people.

29

To improve life satisfaction, it is paramount important to give special consideration to elderly people, working, and supporting them to be physically and psychologically well, economically and socially engaged in an individually defined meaningful life. Besides, further research is crucial to targeting the elderly people living in the street, temporal residents, and religious places.

Abbreviations

AOR: Adjusted odds ratio, CI: Confidence interval, FSSQ: Duke-UNC functional social support questionnaire, Katz ADL: Katz Index of Independence in Activities of Daily Living, K10: Kessler psychological distress scale, LSITA-SF: Life Satisfaction Index for the Third age Short Form, MUAC: Mid upper arm circumference, SD: Standard deviation, SOC: Sense of coherence, UN: United nation

Declarations

Ethics approval and consent to participate

Ethical clearance was obtained from the institutional review board of the University of Gondar with the reference number V/P/RCS/05/2263/2020. Permission and supportive letters were secured from the respected cities and selected kebeles' administrative offices. Each study participant was informed about the purpose, method, expected benefit, and risk of the study. They also informed about their full right not to participate or withdraw from the study at any time and deciding not to participate had no impact on their services. Written informed consent was taken from study participants. For participants who were not read and write, a thumbprint was used in place of the participant's signature.

Participants were guaranteed confidentiality and to ensure this, the information was identified using codes, and participants' names were not used. To prevent the transmission of COVID-19; personnel involved in the data collection process wore face masks and used hand sanitizers throughout the data collection process. Besides, the two-meter physical distance was upheld, and questionnaires and other similar exchanges were performed by taking into account risks from COVID-19. Participants who had symptoms of mental and physical health, as well as acute health problems were advised and informed to attend the health facilities. The study has been performed

30

following the ethical standards laid down in the 1964 Declaration of Helsinki. This was also approved by the Ethical Review Committee.

Consent to Publish: Not Applicable

Data availability statement: The data from the study are available from the corresponding author on reasonable request

Competing Interest: The authors declare that they have no competing interests.

Funding: This study was funded by the University of Gondar. However, the funder had no role in data collection, preparation of the manuscript, and decision to publish. N/A for the award/grant number.

Author Contributions: HSM wrote the proposal, participated in data collection, analyzed the data, and drafted the manuscript. **KE, HL**, **BG, and TA** approved the proposal with revisions, participated in supervision, data analysis, and revised subsequent drafts of the manuscript. All authors read and approved the final manuscript.

Acknowledgment: The authors would like to express our gratitude to the University of Gondar for the fund and the approval of the ethical clearance. The authors would like to thank the respective administration offices of the Bahir Dar and Gondar town for their permission letter and data collectors and supervisors for their commitment and the study participants for their valuable information. Besides we would like to acknowledge and thank Larry Lundgren for the language edition.

References

1.   Lazar KA. Current Life Engagement Factors as a Predictor of Elder Life Satisfaction: University of Wisconsin - Stout; 2000.

2.   Aishvarya, S., Maniam, T., Karuthan, C., Sidi, H., Jaafar, N. R. N., & Oei, T. P. S. (2014). Psychometric properties and validation of the satisfaction with life scale in psychiatric and medical outpatients in malaysia. Comprehensive Psychiatry, 55, S101-S106. http://dx.doi.org/10.1016/j.comppsych.2013.03.010

3.   Seligman, M. (2002), "Positive emotions undo negative ones". Authentic Happiness. New York, New York: Simon & Schuster.

4.   Flood, M. (2006). A mid-range Theory of successful aging. Journal of Theory Construction and Testing, 9(2), 35-39.

5.   https://www.statista.com/statistics/455141/life-expectancy-at-birth-in-ethiopia/.

31

6.	World Health Organization. Global Health and Aging, 2011. https://www.who.int/ageing/publications/global_health/en/.

7.	Dahlan, A., Nicol, M., & Maciver, D. (2010). Elements of life satisfaction amongst elderly people living in institutions in malaysia: A mixed methodology approach. Hong Kong Journal of Occupational Therapy, 20(2), 71-79. http://dx.doi.org/10.1016/S1569-1861(11)70006-7.

8.	Erikson, E. (1963). Childhood and Sociesty. New York, NY: W.W. Norton

9.	Erikson, E.H., Erikson, J.M., and Kivnick, H.Q. (1986). Vital involvment in old age: The experience of old age in our time. New York, NY: W.W. Norton.

10.	ANNE-SOFIE HELVIK KE, STEINAR KROKSTAD, GEIR SELBÆK. A comparison of life satisfaction in elderly medical inpatients and the elderly in a population-based study: Nord-Trøndelag Health Study 3. Scandinavian Journal of Public Health. 2011;39:337–44.

11.	Daniele Didino EAF, Ekaterina A. Taran, Kristina Gorodetski. Predictors of Life Satisfaction among Older Adults in Siberia The European Proceedings of Social and Behavioral Sciences(EpSBS). 2018:400-7.

12.	Katarina Wilhelmson EF, Kaisa Eklund, Synneve Dahlln-Ivanoff Life satisfaction and frailty among older adults Health Psychology Research 2013;1:e32:167-72.

13.	Juliana Martins Pinto ALN. Factors associated with low life life satisfaction in community-dwelling elderly: FIBRA Study. Cad Saúde Pública, Rio de Janeiro. 2013;29(12):2447-58.

14.	Mbozi MKS-NaEH. Contextual factors affecting the attainment of life satisfaction among elderly people in Zambia's North-Western province KNOWLEDGE FOR JUSTICS. 2016:189-205.

15.	Saruna Ghimire BKB, Isha Karmacharya, Karen Callahan, Shiva Raj Mishra. Life satisfaction among elderly patients in Nepal: associations with nutritional and mental well-being. Health and Quality of Life Outcomes 2018;16(118).

16.	Mollaoglu M, Tuncay FO, Fertelli TK. Mobility disability and life satisfaction in elderly people. Arch Gerontol Geriatr. 2010;51(3):e115-9.

17.	Kimm, H., Sull, J. W., Gombojav, B., Yi, S. W., & Ohrr, H. (2012). Life satisfaction and mortality in elderly people: The kangwha cohort study. BMC public health, 12(1), 54. http://dx.doi.org/10.1186/1471-2458- 12-54

18.   Zeinalhajlou AA; Alizadeh M; Sahebihagh MH; Mohammadpoorasl A; Matlabi H. Life satisfaction and its contributors among noninstitutionalized older people in Tabriz, Islamic Republic of Iran. East Mediterr Health J. 2019(xx);xxx. https://doi.org/10.26719/emhj.19.037.

19.   Sydney X.X. Hu WIL, Ka Kei Chao, Brian J.Hall, Siu Fung Chung. Common chronic health problems and life satisfaction among Macau elderly people. International Journal of Nursing Sceinces. 2016;3(2016):367-70.

20.   Puvill, T., Lindenberg, J., de Craen, A. J. M., Slaets, J. P. J., & Westendorp, R. G. J. (2016). Impact of physical and mental health on life satisfaction in old age: a population based observational study. BMC Geriatrics, 16, [194]. https://doi.org/10.1186/s12877-016-0365-4.

21.   KOCJAN JANUSZ. STRONG SENSE OF COHERENCE CONTRIBUTES TO SUCCESSFUL AGING AND HIGHER SATISFACTION WITH LIFE. Journal of Education, Health and Sport. 2017;7(7):537-544. eISSN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.836135 http://ojs.ukw.edu.pl/index.php/johs/article/view/4656.

22.   Mekonnen, H.S.; Lindgren, H.; Geda, B.; Azale, T.; Erlandsson, K. Translation, Cultural Adaptation, and Psychometric Properties of the Life Satisfaction Index for the Third Age—Short Form (LSITA-SF12) for Use among Ethiopian Elders. Nurs. Rep. 2021, 11, 981–996. https://doi.org/10.3390/nursrep11040089.

23.   Barrett II, Andrew & Murk, Peter. (2009). Life Satisfaction Index for the Third Age – Short Form (LSITA-SF): An Improved and Briefer Measure of Successful Aging. 10.13140/2.1.1937.4085.

24.   Katz, S., Down, T.D., Cash, H.R., & Grotz, R.C. (1970) Progress in the development of the index of ADL. The Gerontologist,10(1), 20-30.

25.   Blace NP. Functional Ability, Participation in Activities and Life Satisfaction of the Older People Asian Social Science. 2012;8(3):75-87.

26.   Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL, Walters EE, Zaslavsky A: Short screening scales to monitor population prevalence and trends in non-specific psychological distress. Psychol Med 2002, 32:959–76.

27.   Holmefur, M., Sundberg, K., Wettergren, L., & Langius-Eklöf, A. (2014). Measurement properties of the 13-item sense of coherence scale using Rasch analysis. Quality of Life Research, 24(6), 1455–1463. doi:10.1007/s11136-014-0866-6.

28.   Broadhead, W.E., Gehlbach, S.H., De Gruy, F.V., & Kaplan, B.H. (1988). The Duke-UNC Functional Social Support Questionnaire: Measurement of social support in family medicine patients. Medical Care, 26(7), 709 723.

33

29.   Barrett II, Andrew & Murk, Peter. (2006). Life Satisfaction Index for the Third Age (LSITA): A measurement of successful aging.

30.   Government of the Federal Democratic Republic of Ethiopia. National Plan of Action on older persons (1998 - 2007)E.C. Ministry of Labor and Social Affairs;2006. http://adapt.it/adapt-indice-a-z/wp-content/uploads/2015/01/ethiopia_oldies_2006.pdf.

31.   Organization WH. Information Needs for Research, Policy and Action on Ageing and Older Adults 2000.

32.   Forman, D. E., Berman, A. D., McCabe, C. H., Baim, D. S., & Wei, J. Y. (1992). PTCA in the Elderly: The "Young-Old" versus the "Old-Old." Journal of the American Geriatrics Society, 40(1), 19–22. doi:10.1111/j.1532-5415.1992.tb01823.

33.   Shumaker, S. A., & Hill, D. R. (1991). Gender differences in social support and physical health. Health Psychology, 10(2), 102–111. https://doi.org/10.1037/0278-6133.10.2.102.

34.   Snyder, M., & Cantor, N. (1979). Testing hypotheses about other people: The use of historical knowledge. Journal of Experimental Social Psychology, 15(4), 330-342. https://doi.org/10.1016/0022-1031(79)90042-8.

35.   Tang, Alice M.; Dong, Kimberly; Deitchler, Megan; Chung, Mei; Maalouf-Manasseh, Zeina; Alison Tumilowicz, Alison; Wanke, Christine. 2013. Use of Cutoffs for Mid-Upper Arm Circumference (MUAC) as an Indicator or Predictor of Nutritional and HealthRelated Outcomes in Adolescents and Adults: A Systematic Review. Washington, DC: FHI 360/FANTA.

36.   Akandere, M., 2007. Impact on the life satisfaction levels of physical activity in an elderly nursing home. Sosyal Bilimler Enstitusu Dergisi 18, 1–9

37.   Maryam Chehregosha AB, Fatemeh Vahidian, Azam Mohammadi, Aliakbar Aghaeinejad, Ensiyeh Jamshidi, Afsaneh Ghasemi. Life Satisfaction Index among Elderly People Residing in Gorgan and Its Correlation with Certain Demographic Factors in 2013. Global Journal of Health Science. 2016 8(8).

38.   Nedjat S, Sahaf R, Khankeh HR, Fadayevatan R, Majdzadeh R, Karimlou M. Life satisfaction as the main factor behind the elderly`s health knowledge utilization: A qualitative study in an Iranian context. Med J Islam Repub Iran. 2018 (20 Nov);32:115. https://doi.org/10.14196/mjiri.32.115.

39.   Saris, W.E., Veenhoven, R., Scherpenzeel, A.C. & Bunting B. (eds) 'A comparative study of satisfaction with life in Europe. Eötvös University Press, 1996, ISBN963 463 081 2, pp. 11-48

40.   Vulnerability of Older People in Ethiopia: The Case of Oromia, Amhara and SNNP Regional States. HelpAge International, 2013. https://www.helpage.org/silo/files/a-study-of-older-peoples-livelihoods-in-ethiopia.pdf.

41.   Jaison Joseph KRR, Inderjit Kaur, Sandhya Ghai, Netasha Sharma. Life satisfaction among inhabitants of selected old age homes at Chandigarh -A cross sectional study Delhi Pschosocial Journal 2014;17(2).

42.   Sevilay S. Celik YC, Neset Hikmet, Mahmud M. Khan. Factors Affecting Life Satisfaction of Older Adults in Turkey. The International Journal of Aging and Human Development. 2017;0(0):1-23.

43.   Cecilia Fagerström CB, Cristian Balducci , Vanessa Burholt , Clare G. Wenger, Dieter Ferring , Germain Weber, Göran Holst , Ingalill R. Hallberg. Life Satisfaction and Associated Factors Among People Aged 60 Years and Above in Six European Countries. Applied Research in Quality of Life 2007;2:33-50.

44.   Minsoo Jung CM, Mankyu Choi. Factors Related to Perceived Life Satisfaction Among the Elderly in South Korea. Journal of Preventive Medicine and Public Health 2010;43(4):292-300.

45.   Ocampo JM. Self-rated health: Importance of use in elderly adults %J Colombia Médica. 2010;41:275-89.

46.   Luciane Cristina JoiaI TR, Maria Rita DonalisioIII. Life satisfaction among elderly population in the city of Botucatu, Southern Brazil. Rev Saúde Pública 2007;41(1):131-8.

47.   Holmén, K., & Furukawa, H. (2002). Loneliness, health and social network among elderly people—a follow-up study. Archives of Gerontology and Geriatrics, 35(3), 261–274. doi:10.1016/s0167-4943(02)00049-3.

48.   Kane, R. A. (2001). Long-term care and a good quality-of-life: Bringing them closer together. The Gerontologist, 41(3), 293–304.
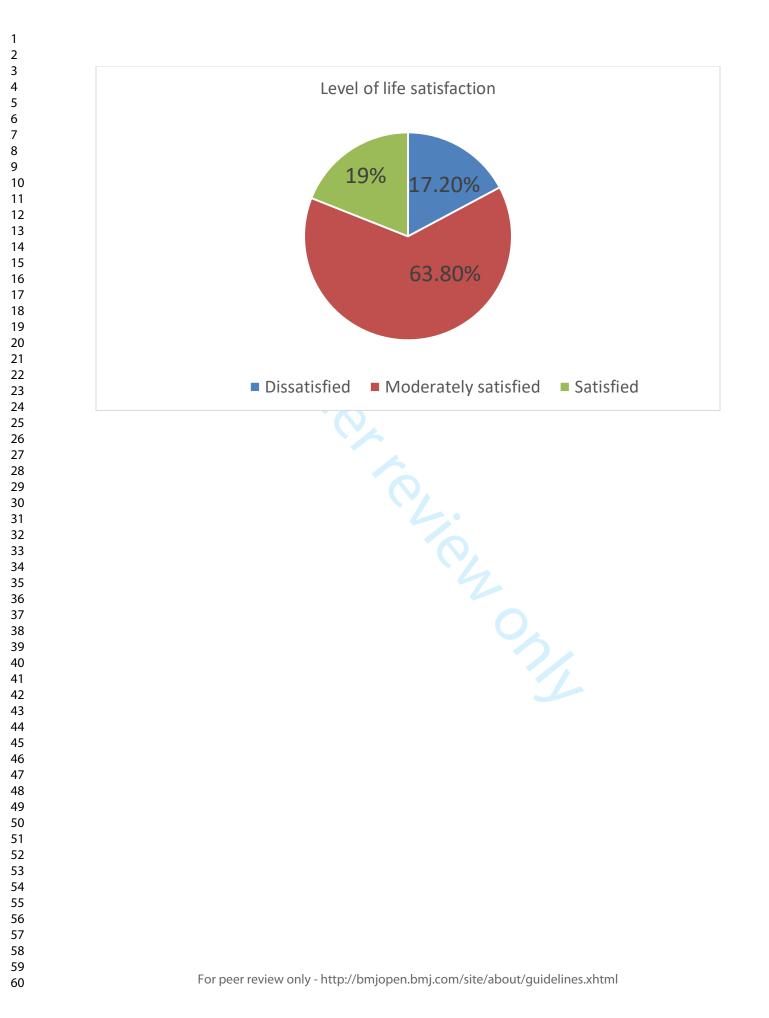
49.   Pallavi Banjare RD, Jalandhar Pradhan. Factors associated with the life satisfaction amongst the rural elderly in Odisha, India. Health and Quality of Life Outcomes 2015;13(201).

50.   All Answers Ltd. (November 2018). Dorothea Orem's theory of self-care deficit. Retrieved from https://nursinganswers.net/essays/dorothea-orems-theory-of-self-care-deficit-nursing-essay.php?vref=1.

51.   Jessie Dezutter , Ulrich Wiesmann , Silke Apers & Koen Luyckx (2013) Sense of coherence, depressive feelings and life satisfaction in older persons: a closer look at the role of

35

integrity and despair, Aging & Mental Health, 17:7, 839-843, DOI:

10.1080/13607863.2013.792780.

52.   Eva Langeland, Astrid K. Wahl, Kjell Kristoffersen, Monica W. Nortvedt, Hanestad BR.

Sense of coherence predicts change in life satisfaction among home-living residents in the

community with mental health problems: a 1-year follow-up study. Qual Life Res 2007;16:939–

46.

53.   Antonovsky, A. (1979). Health, stress and coping. San Francisco: Jossey-Bass.

54.   Marina Kolosnitsyna NK, Khongor Dorzhiev WHAT HAPPENS TO HAPPINESS WHEN

PEOPLE GET OLDER? SOCIO-ECONOMIC DETERMINANTS OF LIFE SATISFACTION IN

LATER LIFE National Research University Higher School of Economics. 2014.

55.   Boonphadung S. Factors Effecting Life Satisfaction of the Elderly in Bangkok. Journal of

Communication and Computer. 2013;10:894-903.

56.   Sahar, J., Riasmini, N. M., Kusumawati, D. N., & Erawati, E. (2017). Improved Health

Status and Life Satisfaction among Older People following Self-Help Group Intervention in

Jakarta. Current Gerontology and Geriatrics Research, 2017, 1–7. doi:10.1155/2017/3879067

57.   Veenhoven, R. (n.d.). The Study of Life Satisfaction.

http://www2.eur.nl/fsw/research/veenhoven/Pub1990s/96d-full.pdf

58.   Chengbo Li, Iris Chi, Xu Zhang, Zhaowen Cheng, Lei Zhang & Gong Chen (2014):

Urban and rural factors associated with life satisfaction among older Chinese adults, Aging &

Mental Health, DOI: 10.1080/13607863.2014.977767.

59.   Roger C. Gibson NKW, Wendel D. Abel, Denise Eldemire-Shearer, Kenneth James and

Kathryn Mitchell-Fearon Alcohol use, depression, and life satisfaction among older persons in

Jamaica. International Psychogeriatric Association 2016:1-9.

Figure 1: Level of elderly life satisfaction in two cities of northwest Ethiopia, 2021 (n = 816)

Supplementary file

Filename: Supplementary file 1

Description: Questionaire English Version

36

Level of life satisfaction

■ Dissatisfied ■ Moderately satisfied ■ Satisfied

University of Gondar, College of Medicine and health Sciences, School of Nursing

Life satisfaction and its associated factors among elderly people living in metropolitan cities of the northwest Ethiopia,

Investigators: Mr. Habtamu Sewunet, Professor Helena Lindgren, Dr. Biftu Geda, Dr. Telake Azale, Professor Kerstin Erlandsson

Information sheet: Read the statements to the respondent

Dear Participants,

Good Morning / Afternoon. My name is ——————. I represent the research team from University of Gondar. We are conducting the study in the Metropolitan cities of Northwest Ethiopia, namely Bahir Dar and Gondar Cities. This survey is part of a Ph.D. dissertation at the University of Gondar, College of Medicine and Health Sciences, School of Nursing. The study is aimed to determine the life satisfaction and its associated factors among elderly people living in metropolitan cities of the northwest, Ethiopia. You have been chosen to participate in this study.

Purpose of the research: The purpose of this questionnaire is to find out the information about life satisfaction and its associated factors.

Procedure: this study is a cross-sectional/validity quantitative study. To collect our data, we invite you to take part in our project. If you are willing, you need to understand and sign the consent form and then we will ask the questions.

Risk and /or discomfort: By participating in this research project you may feel some discomfort especially on sacrificing your time otherwise no risk in participating in this study.

Benefits: If you are participating in this research project, the output of the study will have both direct and indirect benefits to you, your family, as well as the elderly population and the community. By this research project the concerned bodies including the health professionals and other governmental and non-governmental and community leaders able to understand the level of life satisfaction among elderly people and its associated factors. Thus, it might be the baseline data for those concerned bodies working on elderly people like you. If any of the health problems identified during the study period you will get health education related to the health problems and you will be advised how to link the health facilities.

Incentives/payments for participating: You will not be provided any incentives or payment to take part in this project.

Confidentiality: The information collected from this research project will be kept confidential and information about you that will be collected by this study will be stored in a file, without your name, but a code number assigned to it. And it will not be revealed to anyone except the principal investigator and will be kept locked with a key.

Right to refuse or withdraw: You have the full right to refuse from participating in this research. Your refusal will not affect you from getting any kind of health-related service and any other facility from the administrative kebele of the city.

Time to complete the questionnaire: The estimated time to complete the questionnaire is 50-60 minutes.

Person to contact: If you want to know more information you can contact;

Mr. Habtamu Sewunet: by Tel: mobile 251-918026538

If you agree to participate in the study described above, please sign/put your fingerprint below. Please answer every question in the booklet. The data collector will tell you about the instructions for how to respond to the different questions.

1

I, the undersigned, have understood the objective of the project "to determine the life satisfaction and its associated factors among elderly people living in metropolitan cities of the northwest, Ethiopia", and agreed to be included in the study as explained by the researchers. For this, I also agree to respond to the questionnaire.

Consent Form

With due understanding of the above-mentioned information, are you willing to participate in the study?

Yes ☐

I have been requested to take part in the research and the foregoing information has been read to me. I have had the opportunity to ask questions about it and any questions have been answered. I consent voluntarily to participate in this study and understand that I have the right to withdraw from the interview and follow up at any time without in anyway affecting my right.

Signature/finger print of the participant

Signature/finger print _____ date _____

Subject Number: _____

(Proceed with the interview

No ☐ (Terminate the interview)

Signature of the interviewer

Name _____ Signature _____ date _____

Part 1: Socio-demographic characteristics

Instruction 1: Encircle the participant's answer from the given option or write it in the space provided accordingly

	Variables	Response
1.1.	City	1. Bahir Dar 2. Gondar
1.2.	Sub-city	
1.3.	Kebele	
1.4.	Ketena	
1.5.	House number	
1.6.	Sex	1. Male 2. Female
1.7.	What is your age?	_____ years
1.8	Where is your place of birth?	1. Urban 2. Rural
1.9.	What is your marital status?	1. Single 2. Married 3. Widowed 4. Divorced
1.10.	Do you have children?	1. Yes 2. No If "No" pass to question number 1.12.
1..11	If Yes for question numbe 1.10. how many lived children?	
1.12	How much is your family size?	
1.13.	What is your ethnicity	1. Amara 2. Tigrie 3. Oromo 4. Other /specify/------------
1.14.	What is your educational status	1. Unable to read and write 2.No formal education but able to read and write 3. Grade 1-8 4. Grade 9-12

2

		5. Certificate 6. Diploma 7. 1st degree and above 8. Other———————
1.15.	What is your religion?	1. Orthodox Christian 2. Muslim 3. Protestant 4. Catholic 5. Other (specify)———
1.16.	Do you have religious practice?	1. Yes, Always 2. Yes, Sometimes 3. Yes, Occasionally 4. Never
1.17.	What is your current occupation?	1. Retired 2. Governmental 3. Non-governmental 4. Housewife 5. Merchant 6. Private 7. Farmer 8. Other (specify) -----------
1.18.	What was your former occupation during retiring /just before age of 60 years/?	1. Governmental 2. Non-governmental 3. Housewife 4. Merchant 5. Private 6. Farmer 7. Nonemployee 8. Other (specify) -----------
1.19.	What is your current living condition	1. Life alone 2. Live with partner 3. Live with children/grand children 4. Live with partner and children/grandchildren 5. Live with relatives 6. Live with partner, children/grandchildren, and relatives 7. Other (specify)-------------

3

Part 2: Life Satisfaction Index for the Third Age (LSITA) Scale—Short Form

Instruction 2: Mark the participant's answer in the given alternative answer area (√)

S.N.	Questions	Alternative Answers					
		Strongly disagreed /1/	Disagreed /2/	Slightly/partly disagreed /3/	Slightly/partly agree /4/	Agree /5/	Strongly agree /6/
2.1.	Things are better and way different from what I expected them to be while I was a child.						
2.2.	I am now going through the worst time of my life.						
2.3.	I am happy as I was young/adult.						
2.4.	I would have been happier If my life had not been boring.						
2.5.	I could have been happier with my life than I am now.						
2.6.	The things I do now are uninteresting/boring.						
2.7.	I hope my next life would be better.						
2.8.	The things I do now are interesting as they were before.						
2.9.	I am happy with my life.						
2.10.	Everything is now interesting.						
2.11.	I am satisfied with my past life.						
2.12.	I am happy about everything I do.						

Part 3: Health condition, nutritional status, and behavioral factors

Instruction 3: Encircle the participant's answer from the given option or write it in the space provided accordingly

S.No	Variables	Response
3.1.	How would you estimate your health compared to your age mates?"	1. Very good 2. Good 3. Average 4. Bad 4. Very bad
3.2.	Do you have a known chronic disease/s?	1. Yes 2. No
3.3.	If yes for question number 3.2, what type? (you can select more than one option)	1. Hypertension 2. Diabetic mellitus 3. Heart disease 4. Kidney disease 5.Dementia/Alzheimer's disease 6. other (specify)———

4

3.4.	Do you have disability?	1. Yes 2. No	
3.5.	If yes for question number 3.4, what type of disability?	-----------------------------	
3.6.	Do you wear eye glass or contact lenses?	1. Yes 2. No	
3.7.	Do you use hearing aid?	1. Yes 2. No	
3.8.	Do you have Health checkup?	1. Yes 2. No	
3.9.	If yes for question number 3.8, what is the frequency?	1. Weekly 2. Monthly 3. Yearly 4. Any other ………	
3.10.	Have you getting health education?	1. Yes 2. No	
3.11.	If yes for question number 3.10, where from do you get? (you can select more than one option)	1. Health professionals 2. Mass media 3. Families 4. Friends 5. Other (specify)———	
3.12.	MUAC in centimeter /left arm/		
3.13.	What is your daily meal frequency?	1. Once per day 2. Two times per day 3. Three times per day 4. Four times per day 5. Other (specify)———	
3.14.	What is your living style?	1. I have sedentary behavior 2. Sometimes I do exercises/activities 3. Always I do exercises/activities	
Cigarettes use			
3.15	Have you ever smoked any cigarettes?	1.Yes 2.No ➔	*Skip to 3.18*
3.16	How old were you when you **first started** smoking?	_____Age (years)	
3.17	For how long did you smoke cigarettes?	_____years _____months	
3.18	Do you currently smoke cigarettes?	1.Yes 2.No ➔	Skip to 3.21
3.19	For how many days per week do you usually smoke cigarette?	_____days	
3.20	On average, how many sticks of cigarette do you smoke a day?	_____number	
3.21	Is there any family member who smokes cigarette in your home?	1.Yes 2.No	
Khat use			

5

3.22	Have you ever chewed Khat?	1.Yes 2.No	If no skip to Q 3.26
3.23	Do you currently chew Khat?	1.Yes 2.No	
3.24	During the past 12 months, how frequently did you chew Khat?	1. Daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week 5. 1-3 days per month 6. Less than once a month	
3.25	When you chewed, on average, **how many** grams of Khat did you use?	_____grams	

Alcohol consumption

3.26	Have you ever consumed any alcohol-containing drinks such as tella, tej, local areke, beer or others?	1.Yes 2.No →	Skip to Q 3.28
3.27	For how long did you drink alcohol?	_____year/s --------months	
3.28	Have you consumed any alcoholic drink within the **past** 12 months?	1. Yes 2. No	
3.29	During the **past** 12 months, on how many **days** did you have at least one alcoholic drink?	1.Daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week 5. 1-3 days per month 6. Less than one a month	

3.30	During the **past** 12 months when you drunk an alcohol, **on average**, how many **drinks** did you have during one drinking occasion?	**Type**	**Amount**
		Tella	_____Tasa(ml) _____Bircheko (ml) _____Birlie(ml) _____Wancha(ml)
		Tej	_____Birlie
		Local Areki	_____melekia
		Beer	_____Bottle
		Other	_____

3.31	During the past 12 months, when you consumed an alcoholic drink, how often was it with meals?	1.Usually 2.Sometimes 3.Rarely 4.Never

6

Part 4: Psycho-social and environmental conditions

Instruction 4: Encircle the participant's answer from the given option or write it in the space provided accordingly

S.No	Variables	Response
4.1.	What is your perception on your aging life?	1. Excellent 2. Very good 3. Good 4. Somewhat good 5. Bad 6. Very bad 7. Extremely bad
4.2.	What is your social relationship with family, friend, and neighborhood?	1. Excellent 2. Very good 3. Good 4. Somewhat good 5. Bad 6. Very bad 7. Extremely bad
4.3.	Do you have caregiver?	1. Yes 2. No
4.4.	What is your house condition?	1. Detached house made in soil and wood 2. Detached house made in cement/ ceramic 3. Built in connection with another house 4. Communal apartment 5. Apartment
4.5.	What is your perception on the quality of your residential facilities / living environment?	1. Excellent 2. Very good 3. Good 4. Somewhat good 5. Bad 6. Very bad 7. Extremely bad
4.6.	What is your financial source?	1. Private business 2. Pension/salary 3. From house rent 4. Help from others 5. Other /specify/----------------
4.7.	Do you participate in social services?	1. Yes 2. No
4.8.	If yes for question number 4.7, what type of service?	1. Edir 2. Ekub 3. Mahiber 4. Member of children and elderly association 5. Member of religious community 6. Other (specify)----------

7

| 4.9. | How long is the most nearby health facility from your residential home? | ————/Meter/Km,
 ————/Minute/hour |
| 4.10. | Do you have health insurance? | 1. Yes
 2. No |

Part 5: Katz Index of Independence in Activities of Daily Living

Instruction 5: The following questions are about the activities of the daily living. Encircle the answer to the questions (1 or 2). Describe the criteria in the alternative answer as needed for the answer.

S.No	Daily activities	Alternative answers	
5.1.	Can you take a bath/shower?	1. Yes - Bathes self completely or needs help in bathing only a single part of the body such as the back, genital area or disabled extremity.	2. No - Needs help with bathing more than one part of the body, getting in or out of the tub or shower. Requires total bathing.
5.2.	Can you take your clothes off and put them on?	1. Yes - Gets clothes from closets and drawers and puts on clothes and outer garments complete with fasteners. May have help tying shoes.	2. No - Needs help with dressing self or needs to be completely dressed
5.3.	Do you use feces or urine on your own?	1. Yes - Goes to toilet, gets on and off, arranges clothes, cleans genital area without help	2.No - Needs help transferring to the toilet, cleaning self or uses bedpan or commode.
5.4.	Can you get in and out of bed without support?	2. Yes - Moves in and out of bed or chair unassisted. Mechanical transferring aides are acceptable.	2. No - Needs help in moving from bed to chair or requires a complete transfer.
5.5.	Can you control your urine and feces?	1. Yes - Exercises complete self-control over urination and defecation	2. No - Is partially or totally incontinent of bowel or bladder.
5.6.	Can you feed without support?	1. Yes - Gets food from plate into mouth without help. Preparation of food may be done by another person	2. No - Needs partial or total help with feeding or requires parenteral feeding.

Part 6: Participation in activities/physical activities
Instruction 6: Mark the participant's answer in the given alternative answer area (√)

S.No	Question Item	Possible responses				
		Never	Rarely	Someti mes	Usually	Alw ays
		1	2	3	4	5
6.1.	**Personal activities**					
6.1.1	Do you watch television?					

8

6.1.2	Do you listen to the radio?					
6.1.3	Do you read?					
6.2	**Physical activities**					
6.2.1	Do you walk?					
6.2.2	Do you jog?					
6.2.3	Do you play?					
6.2.4	Do you work-out?					
6.3	**Activities with informal support networks**					
6.3.1	**Activities with families and relatives**					
6.3.1.1	Do you have conversation with family members, children, grandchildren and relatives?					
6.3.1.2	Do you visit children, grandchildren or sick family members and relatives?					
6.3.1.3	Do you Attend movies with family members and relatives?					
6.3.2	**Activities with friends and neighbors**					
6.3.2.1	Do you visit, informal conversation, eating and drinking, playing, taking snacks and coffee?					
6.3.2.2	Do you attend movies with friends and neighbors?					
6.4	**Activities with the formal support networks**					
6.4.1	**Church and religious activities**					
6.4.1.1	Do you attend in church worship, prayer meetings, fellowships?					
6.4.1.2	Do you meet and home visit with the church members?					
6.4.2	**Community and organizational activities**					
6.4.2.1	Do you participate in electoral activities?					
6.4.2.2	Do you attend in the regular and special meetings and activities of the organizations?					
6.4.2.3	Do you participate in the activities and meetings of the barangay, and community work or service?					

Part 7: Mental health: Kessler Psychological Distress Scale (K10)
Instruction 7: Mark the participant's answer in the given alternative answer area (√)

S. No	Question items	None of the time (score 1)	A little of the time (score 2)	Some of the time (score 3)	Most of the time (score 4)	All of the time (score 5)
7.1	In the past 30 days, about how often did you feel tired out for no good reason?					
7.2	In the past 30 days, about how often did you feel nervous?					
7.3	In the past 30 days, about how often did you feel so nervous that nothing could calm you down?					

9

7.4	In the past 30 days, about how often did you feel hopeless?					
7.5	In the past 30 days, about how often did you feel restless or fidgety?					
7.6	In the past 30 days, about how often did you feel so restless you could not sit still?					
7.7	In the past 30 days, about how often did you feel depressed?					
7.8	In the past 30 days, about how often did you feel that everything was an effort?					
7.9	In the past 30 days, about how often did you feel so sad that nothing could cheer you up?					
7.10	In the past 4 weeks, about how often did you feel worthless?					

Part 8. **Sense of coherence (SOC) Scale**
Part 8 **: Mark the participant's answer in the given alternative answer area (√)**

S.N.	Questions	Alternative Answers						
		Never 1	Rarely 2	Occasionally 3	Sometimes 4	Usually 5	Often 6	Always 7
8.1.	Do you not care about what is going on around you?							
8.2.	Have the people you know well ever acted strangely?							
8.3.	Have you ever felt upset with people you trust?							
8.4.	Did you have clearly set purpose and goal in life?							
8.5.	Do you feel being discriminated?							
8.6.	Have you ever felt strangely undecided about what to do?							
8.7.	Do you feel happy and satisfied with your everyday tasks?							
8.8.	Do you feel ambivalent?							
8.9.	Do you feel bad about yourself?							
8.10.	Most people, including the confident/strong-willed, consider themselves a failure/loser. How often have you felt the same?							
8.11.	Have you ever exaggerated or understated the importance of things?							

10

8.12.	How often do you feel that your everyday tasks are worthless?							
8.13.	How often do you feel you have lost control of your emotions?							

Part 9: Social support

Part 9 : Mark the participant's answer in the given alternative answer area (√)

S.No	Variables	Responses				
		5	4	3	2	1
		As much as I would like	Almost as much as I would like	Some, but would like more	Less than I would like	Much less than I would like
9.1.	I have people who care what happens to me					
9.2.	I get love and affection					
9.3.	I get chances to talk to someone about problems at work or with my housework					
9.4.	I get chances to talk to someone I trust about my personal or family problems.					
9.5.	I get chances to talk about money matters.					
9.6.	I get invitations to go out and do things with other people.					
9.7.	I get useful advice about important things in life					
9.8.	I get help when I am sick in bed.					

Part 10: Wealth Index for Urban

Instruction 10: Encircle the participant's answer from the given option or write it in the space provided accordingly

S.No	Questions	Answers
10.1	Who is the owner of the house?	1. Me 2. Rental 3. Family 4. Others......
10.2	Main material of the roof?	1. Corrugated sheet 3. Plastic sheets 2. Grass 4. Corrugated iron 5. Others----
10.3	Main material of the dwelling floor?	1. Soil/Sand 4. Cement 2. Wood 5. Stone 3. Ceramic tiles 6. Others........
10.4	Main material of the exterior walls?	1. Soil /Sand 4. Stone 2. Bricks 5. Wood 3. Cement blocks 6. Others.........

11

10.5	How many rooms are available in this house?	--------------			
10.6	How many rooms in this house are used for sleeping?	--------------			
10.7	What is the main source of drinking water for members of your household? (More than one answer is possible)	1. Piped 2. Open well 3. Rain water		4. Spring 5. River 6. Others..........	
10.8	What kind of toilet facility does most members of your household use?	1. Ventilated improved pit latrine 2. Traditional latrine		3. No toilet 4. Others............	
10.9	Do you have a separate kitchen?	1. Yes		2. No	
10.10	Does the household have electric power?	1. Yes		2. No	
10.11	What type of fuel does your household mainly use for cooking? (More than one answer is possible)	1. Electricity 2. Wood 3. Charkol		4. Biogas 5. Natural gas 6. Others...........	
10.12	Does your household have the following materials? (More than one answer is possible)	1. Fixed phone 2. Refrigerator 3. Radio		4. Television 5. Electric mitad 6. Modern bed 7. Others--	
10.13	Does any member of the household have the following resources? (More than one answer is possible)	1. Bicycle--- 2. Bajaj---- 3. Motor cycle ----		4. Car--- 5. Gari ---- 6. Others--	
10.14	Does any member of the household have a mobile phone?	1. Smart----		2. Not Smart ---- 3. No	
10.15	What is the main source of income for the household?	1. Agriculture 2. Monthly Salary 3. Trade		4.Family support 5.Daily laborer 6.Others	
10.16	Does any member of this household have a bank or microfinance saving account?	1. Yes☐ Number -------		2. No	

Thank you for your participation

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	2, 5
Methods			
Study design	4	Present key elements of study design early in the paper	6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	8
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	9
Bias	9	Describe any efforts to address potential sources of bias	*10*
Study size	10	Explain how the study size was arrived at	6
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	10
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	11
		(*b*) Describe any methods used to examine subgroups and interactions	11
		(*c*) Explain how missing data were addressed	
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	
		(*e*) Describe any sensitivity analyses	
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	12
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	12-18
		(b) Indicate number of participants with missing data for each variable of interest	
Outcome data	15*	Report numbers of outcome events or summary measures	13
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	16-19
		(*b*) Report category boundaries when continuous variables were categorized	
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	
Discussion			
Key results	18	Summarise key results with reference to study objectives	22-29
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	29
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	22-29
Generalisability	21	Discuss the generalisability (external validity) of the study results	29
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	31

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.