

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCE
SCHOOL OF PUBLIC HEALTH



HEALTH RELATED QUALITY OF LIFE AND ITS ASSOCIATE FACTORS AMONG
BREAST CANCER SURVIVORS AT TIKUR ANBESSA SPECIALIZED REFERRAL
HOSPITAL, ADDIS ABABA, ETHIOPIA.

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A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES ADDIS
ABABA UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER IN PUBLIC HEALTH

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Background: Breast cancer is certainly the commonest forms of cancers among women in Ethiopia. For a long time the focus has been on clinical management of cancers but now Health Related Quality of Life (HRQOL) is emerging as an important health outcome which requires to be incorporated in the holistic management of patients. Evaluating the HRQOL, is used to identify cancer patients in need of clinical attention and to evaluate interventions for cancer patients and lead to better outcome. There were no studies conducted in Ethiopia that have investigated HRQOL issues among breast cancer survivors.

Objective: To assess the level of health related quality of life and to identify associate factors among women breast cancer survivors at Tikur Anbessa Specialized Refereal Hospital, Addis Ababa.

Methods: The study was hospital based cross-sectional research involving 360 breast cancer survivors from March 20 to June 30, 2015. The translated to Amharic version of European organization for research and treatment of cancer quality of life questionnaire QLQ-C30 (Quality of Life Questionnaire- Cancer 30) and QLQ-BR23 (Quality of Life Questionnaire- Breast Cancer 23) were used to measure the health related quality of life. The data entered, cleaned and analyzed by using SPSS 20 version software. Multiple binary logistic analysis was performed to examine the effect of independent variables on HRQOL further more analysis of variance (ANOVAs) and t-test was performed to examine the relationship between independent variables and functional and symptom scales.

Results: Overall, 360 respondents participated in this study making the response rate at 94.48% percent. The mean score for HRQOL was 60.53. For bivariate analysis age, marital status, educational status, average monthly income, medical services status, types of anti cancer treatment, co-morbidity and cancer stage were associated with HRQOL. Whereas age, lower average monthly income (≤ 600 ETB), time since diagnosis, co-morbidity and current cancer stage remained significant in multivariate analysis. In all functional and symptom scales of the QLQ C30 and QLQ 30 except sexual functioning, sexual enjoyment and upset by hair loss were significantly associated with HRQOL.

Conclusion: The study revealed that the mean health related quality of life among breast cancer patients were 60.5 and was comparable with the international findings. Significant determinant of health related quality of life include; age, low monthly income, high year of diagnosis, co-morbidity and being stage four and all functional and symptom scale variables except sexual functioning, sexual enjoyment and upset by hair loss. Based on the findings of the study it is important to prioritize such groups of breast cancer survivors for targeted programs to improve the health related quality of life and contribute for better out come.

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List of Acronyms

EORTC QLQ-C30	European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Cancer-30
EORTC QLQ - BR23	European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Breast Cancer-23
HRQOL	Health Related Quality Of Life
IARC	International Agency for Research on Cancer
NCD	Non-Communicable Diseases
QOL	Quality of Life
SPSS	Statistical Package for the Social Science
TASRH	Tikur Anbessa Specialize Referral Hospital
WHO	World Health Organization

1. Introduction

1.1. Background

Non-communicable diseases (NCDs) kill more than 38 million people each year globally. The leading causes of NCD deaths in 2012 were: cardiovascular diseases (17.5 million deaths or 46% of NCD deaths), cancers (8.2 million, or 22% of NCD deaths), and respiratory diseases, including asthma and chronic obstructive pulmonary disease, (4 million). Diabetes caused an additional 1.5 million deaths [1].

Cancer being top of the non-communicable disease worldwide poses a double burden. On top of the higher prevalence of pre-existing communicable diseases, maternal, prenatal and nutritional conditions exerting constraints on the health resources and hindering economic development of Ethiopia [2].

Breast cancer is certainly the commonest forms of cancers in women in Ethiopia [2]. The number of women, whom are diagnosed with, and surviving, breast cancer each year is increasing, making women with breast cancer one of the large groups of cancer survivors [3]. For a long time the focus has been on clinical management of cancers but now health related quality of life HRQOL is emerging as an important health outcome which requires to be incorporated in the holistic management of patients. Evaluating the health-related quality of life, are used to identify cancer patients in need of clinical attention and to evaluate interventions for cancer patients and lead to better outcome [4, 5].

HRQOL is a patient-reported outcome that is usually measured using carefully designed and validated instruments such as questionnaires and interview schedules and core components of the multidimensional HRQOL assessment include physical, functional, psychosocial or emotional and functional or occupational domain [6, 7].

1.2. Statement of the Problem

Due to advances in awareness detection and treatment, increasing numbers of women are diagnosed with, and surviving, breast cancer each year, making women with breast cancer one of the large groups of cancer survivors. Hospital records show that in Ethiopia there are more than 200,000 cancer cases per year where cervical & breast cancers are the top two cancer types having high maternal deaths in the country [3, 2].

In past years different literatures has stressed effective and reliable quality of life measures offer increasingly valuable information for cancer patients and their health care providers when they discuss options. In Ethiopia HRQOL among cancer patients is a neglected subject. Compared to western literature there is a single published studies which encompass HRQOL cancer patients in Ethiopia [8]. The study used a quality of life scale which was not specifically designed for breast cancer survivors but for measuring quality of life in general adult cancer patients. Even though breast cancer is the leading cause of morbidity and mortality among women's of cancer patients, no research have been conducted to measure HRQOL specific to breast cancer patients. Therefore, it can be said that this study is the first study performed to measure HRQOL among Ethiopian breast cancer survivors by using the QLQ-BR23 and QLQ-C30 instrument for the evaluation of HRQOL in a broader sense. Furthermore, a better understanding of these variables may improve the design and evaluation of interventions, and the construction and interpretation of needs assessment instruments used in clinical research and routine practice.

1.3. Justification of the Study

Research on the aetiology, treatment and cure of cancer has flourished for many decades, while research on other outcomes of cancer and treatment side-effects is only now gaining momentum. As recent as three decade ago, clinicians and researches acknowledged a human side to treating cancer beyond reducing the size of tumor and extending survival. Evaluating the QOL and HRQOL, are used to identify cancer patients in need of clinical attention and to evaluate interventions for cancer patients and lead to better outcome. Thus information obtained from QOL assessment can help to identify and prioritize the areas that need improvement in the health service delivery further more these advances knowledge would also help in the development of

recommendations for optimizing supportive services during rehabilitation. Besides this the study could be used as yardstick for other studies yet to be conducted in the country.

2. LITERATURE REVIEW

2.1. Burden of Cancer

The burden of cancer worldwide is significant and growing. Regardless of the site, cancer is a major disease burden. It is known to be causing increasing numbers of new cases and deaths each year [9]. Globally, the number of new cancer cases could grow to as many as 16 million, and the number of deaths could rise to as many as 10 million by the year 2020. Unfortunately, more than 70% of these deaths will occur in developing nations, like Ethiopia, which are least prepared to address their growing cancer burdens. In fact more people die from cancer than from AIDS, malaria and tuberculosis put together where 12.5% of all deaths each year in the world are due to cancer [10].

Today, breast cancer is the most common cancer in women worldwide [6]. It accounts for over one million of the estimated 10 million neoplasms diagnosed worldwide each year [1]. Incidence rates vary greatly worldwide from 19.3 per 100,000 women in Eastern Africa to 89.7 per 100,000 women in Western Europe highest rates occurring in the Belgium, Denmark followed by France (Metropolitan) [9, 11]. In most of the developing regions the incidence rates are below 40 per 100,000. Even though it is generally increasing, the lowest incidence rates are found in most African countries [6].

Incidence rates in some counties, including the United States, United Kingdom, France, and Australia, sharply decreased from the beginning of the millennium, partly due to lower use of combined postmenopausal hormone therapy [12, 13]. In contrast, breast cancer death rates have been decreasing in North America and several European countries over the past 25 years, largely as a result of early detection through mammography and improved treatment [14]. In many African and Asian countries however, including Uganda, South Korea, and India, incidence and mortality rates have been rising [15, 3] with changes in reproductive patterns, physical inactivity, and obesity being the main contributory factors. Increases in breast cancer awareness and screening activity may be partially responsible for the rising incidence in these populations [16, 17].

It is estimated that over 536, 521 women died in 2011 due to breast cancer worldwide. Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases and 58% of deaths occur in less developed countries. Breast cancer survival rates vary greatly worldwide, ranging from 80% or over in North America, Sweden and Japan to around 60% in middle-income countries and below 40% in low-income countries. The low survival rates in less developed countries can be explained mainly by the lack of early detection programme, resulting in a high proportion of women presenting with late-stage disease, as well as by the lack of adequate diagnosis and treatment facilities [6]. Hospital records show that in Ethiopia cervical & breast cancers are most common cancer cases among women where it is estimated there are more than 200,000 cancer cases per year [2]. Even though, the methods implemented for estimation may be partially responsible for the existing discrepancy between the countries, Ethiopia ranked the first of East African countries followed by Kenya and Tanzania according to the 2012 estimate of GLOBOCAN with Incidence rate of 41.8 per 100, 0000 women [10].

2.2. Breast Cancer and Quality of Life

The term QOL is used to evaluate the general well-being of individuals and societies. According to the WHO, QOL defined as individual perception of life, values, objectives, standards, and interests in the framework of culture. A number of illness-related factors exist that can affect QOL. The amount of symptoms distressed experienced by an individual has been related to QOL in a number of people with cancer. QOL is increasingly being used as a primary outcome measure in studies to evaluate the effectiveness of treatment [7]. Patients generally instead of measuring lipoprotein level, blood pressure, and the electrocardiogram, make decisions about their health care by means of QOL which estimates the effects on outcomes important to themselves [18].

To distinguish between the more general term QOL and the requirement of clinical medicine and clinical trials, the term HRQOL is used. HRQOL is described as the space between a person's expectations of health and the person's experience of it, which varies among individuals. HRQOL concerns the subjective impact of the disease, its impairments and their treatments [19]. HRQOL is a comprehensive concept that includes factors like physical, emotional, sexual, social

and cognitive functions as well as the symptoms of the disease and treatments. All of these factors are considered by and from the perspective of the patients [20].

Though early detection and treatment, along with rapid advancements in treatment are expected to result in better rates of survival [21] Still, Women who do survives breast cancer meet medical, physical and psychosocial challenges [22]. The issues that affect the quality of life of a person with a disease are mainly the disease itself and patient's reactions to that disease. In the case of cancer usually it is not just having cancer that elicits problems; it is also the implied connotations that may be attached to the disease such as pain, disfiguration, and hospitalization, loss of work ability, disability and fear of death [23]. The ensuing responses depend on how the individual deals with stressful situations and the nature of the stresses imposed by the manifestations and course of the cancer [24]. It is possible that patient reactions to cancer may vary remarkably in different parts of the world depending on age group, cultural, ethnic, social, economic and educational factors [25]. Furthermore problems related to the treatment can cause negative effects on health related quality of life. Today QOL of patients is considered an important issue in the treatment of women with breast cancer [26, 27].

A breast cancer diagnosis can lead to impairment in several areas of a woman's life, including social functioning; visible problems may lead to avoidance of social situations [28]. Physical, role and social functions decrease during breast cancer treatment such as chemotherapy [29]. Further, improved social function has been shown in mastectomy patients [30]. A diagnose of cancer is likely to influence on future perspectives. Breast cancer patients may experience concerns about survival, risk of recurrence, premature menopause (which can lead to loss of fertility) and concerns about work, carrier, body image and sexuality [15].

The field of HRQOL research has been evolving and, consequently so has the methods for measuring this concept. There are been a proliferation of HRQOL instruments that can be either generic, in that they been developed for use across a broad range of populations, or cancer-specific measures, which are more sensitive to disease-related concerns. Nevertheless, there is consensus that HRQOL is a subjective and multidimensional concept and therefore, information should be obtained via self-report on various domains [7].

2.3. Factors Affecting Health Related Quality Of Life

Following a diagnosis of breast cancer the majority of patients undergo treatment, including surgery (conservative or mastectomy), countries has set surgery as standard treatment for breast cancer Patients, after surgery followed with or without adjuvant(additional) therapy like chemotherapy, radiotherapy, hormonal therapy [31]. Those adjuvant treatments are shown to reduce the risk of recurrence and thereby improve survival in breast cancer patients, while a mastectomy is still appropriate for those women with extensive tumors breast conserving treatment is now considered “best practice” these advance in treatment have been achieved without compromising survival and may reduce the severity of certain physical and psychological consequences of therapy however, This type of surgery can be done if the mammography can locate clear margins around the tumor [29].

Those additional (adjuvant) treatments might result in different side effect for the patients. A woman on Chemotherapy might have hair loss and nausea, which expected to stop after the end of the treatment [29]. However, Studies have shown that decreased QOL as a result of chemotherapy side effects may predict early treatment discontinuation in patients [32]. Randomized clinical trials revealed that the use of chemotherapy, especially more aggressive chemotherapy, was associated with worse QOL than was seen with hormonal interventions or less aggressive chemotherapy [33, 34]. Furthermore, breast radiation could cause lymphoedema, impaired shoulder mobility and cardiac and lung damage and Hormone therapy may cause chemically induced menopause; side effects arise from the use of those additional treatments may affect the patient’s quality of life [35].

Treatment of breast cancer is associated with several side effects like fatigue, pain and those affecting quality of life [36]. The most frequently reported side effect is fatigue which is a nonspecific, multidimensional construct that involve tiredness, weakness and lack of energy, and can often last for years following the end of the treatment. Fatigue is known to influence many dimensions of life, including social function and sexual function [37, 38]. The choice of treatment and the type of diagnosis may affect a woman’s body image, sexuality and well-being [39]. The treatments may cause the patient to experience symptoms, even when the adjuvant treatments extend survival. These experienced symptoms can lead to a lower score on QOL [40].

Many studies have reported that educational level has an effect on quality of life. Some found no significant relationship among women with different educational levels in terms of global health status/QOL [47].

It has been reported that there was a relationship between the duration of breast cancer diagnosis and the general quality of life and all its dimensions. According to some study and HRQOL is more severely affected in patients newly diagnosed with breast cancer [42] However, another studies of showed that women, who had been diagnosed less than a year, had a higher overall quality of life than women for whom more than a year had passed since diagnosis [43].

Research found that lost income, lost unpaid work and health service expenditures were the greatest sources of economic burden among cancer patients [21]. The likelihood of returning to work appears reduced if women have limitations in upper- body strength are employed in jobs requiring physical activity or are in need of transportation. Costs of cancer to the family are often underestimated due to omitting the value of family labor. The strain on families to provide care and compensate for loss household production by the cancer sufferer may be a growing problem, given the age demographics of the cancer population and social trend towards later childbearing and smaller households [44].

HRQOL in breast cancer survivors has been shown to be dependent on age. Some found that older women (>50 years) tended to report better body image, social function, future perspective and overall QOL than younger women (≤ 50 years) reported [45, 46]. However, other studies found that younger women had better QOL and sexual function than older women had [47, 28]. Yet another group of researchers reported no significant difference in sexual dysfunction or body image in younger and older breast cancer survivors [48]. The results of HRQOL research among younger and older breast cancer survivors still diverge.

The presence of comorbidities in patients with cancer has been negatively associated with patients' health outcomes. Poorer survival from cancer has been found overall in cancer survivors with comorbidities compared to those without [49, 50]. Breast cancer survivors with comorbidities are more likely to experience specific adverse outcomes such as delay and non-completion of radiation therapy [51], more likely to receive only breast conserving surgery without radiation therapy [52], and less likely to receive chemotherapy [53]. Breast cancer

survivors with increased comorbidities have also been found more likely to experience negative in-hospital events, a conclusion reached after review of over 70,000 nationwide hospital discharges for patients undergoing breast cancer surgery. Breast cancer survivors with increased comorbidities had higher risks of non-routine disposition, prolonged hospitalization and in-patient death compared to breast cancer survivors with a low to non comorbidities [54].

The HRQOL data are intended to help guide clinical decision-making regarding selection of the optimal treatment, to provide information about the experience of patients receiving treatment and potentially to predict prognosis. However, currently it is not clear whether health related QOL measurements influence clinical decision-making or whether the contribution of QOL measurement to clinical decision-making varies according to the stage of the disease or the type of intervention [4].

3. OBJECTIVES

3.1. General Objective

To assess the level of health related quality of life and to identify associate factors among women breast cancer survivors at Tikur Anbessa Specialized Referral Hospital, Addis Ababa.

3.2. Specific Objectives

- To determine the level of HRQOL among women breast cancer survivors at Tikur Anbessa Specialized Referral Hospital.
- To identify factors associated with affected HRQOL among women breast cancer survivors at Tikur Anbessa Specialized Referral Hospital.
- To investigate the relationship between breast cancer survivors socio demographic and clinical characteristics with functional and symptom variables.

4. METHODS

4.1. Study Area and Period

This study was conducted from January to June 2015 in TASRH at oncology unit. TASRH is government owned large referral teaching hospital under the administration of Addis Ababa University, located in Addis Ababa, Ethiopia. The hospital has 627 beds and give diagnostic and treatment service for about 370,000 to 400,000 patients per year. The oncology unit of TASRH is the only oncology unit for the country giving service for over 60,000 patients annually and has both an outpatient and inpatient departments [2].

4.2. Study Design

A hospital based cross-sectional research design was used in this study. The HRQOL among breast cancer survivors were evaluated and the extent to which there is a correlation or relationship between socio demography, medical characteristics, Functional variables , symptom variables and HRQOL were determine.

4.3. Source and Study Population

All breast cancer survivors being evaluated and treated at the inpatient and outpatient oncology units were included as a source population for the current study. Those breast cancer survivors being evaluated and treated at the units from March 20 to June 30, 2015 who meet the eligibility criteria were included as a study population.

4.4. Inclusion and Exclusion Criteria

Patients with pathological diagnosis of breast cancer and aged 18 years and older and was considered eligible. The exclusion criteria were including patients who were too ill, and cognitively impaired (as deemed by oncology physicians).

4.5. Sampling

4.5.1. Sample Size Determination

A 90% proportion affected HRQOL was used from a latest study conducted in TASRH on the general cancer patients.

Fisher's formula [55], $n = \frac{(Z_{\alpha/2})^2 * p(1-p)}{d^2}$ was used to estimate sample size,

Where:-

n = sample size desired

Z_{α/2} = 1.96 (Z=score corresponds to 95% confidence level)

p = 90% prevalence (Affected HRQOL)

d² = 0.03 (Margin of error)

Hence

$$n = \frac{(1.962)^2 * 0.9 * 0.1}{(0.03)^2}$$

= **384 patient**

4.5.2. Sampling Technique

All breast cancer survivors being evaluated and treated at the inpatient and outpatient oncology units from March 20 to June 30, 2015 who meet the eligibility criteria were approached and from those willing to participate in the study data was collected.

4.6. Study Variables

4.6.1. Dependent variables

- ✓ Health related quality of life
- ✓ Functional and symptom variables

4.6.2. Independent variables

- ✓ Socio demographic characteristics such as age(years), marital status, time since diagnosis, educational status, and average monthly income(birr)
- ✓ Medical characteristics such as medical service status, presence of other disease, current cancer stage and current type of anticancer treatment,

4.7. Data Collection Process

A 53-item patient questionnaire of generic cancer instrument, the QLQ-C30 and QLQ BR-23 were adopted. Included in this study were 9 questions on socio demographic and medical characteristics of the sample. The questionnaire was first prepared in English and then translated

to Amharic by a translator 1 and back translated to English by translator 2 this back translated version was once again translated to Amharic by translator 3. Comparison of the translated questionnaires by translator 1 and 3 were made minor adjustment were done to made up for minor differences and the final translated version were adopted. The pilot test had followed a two-step procedure. Firstly, 10 breast cancer survivors at the oncology ward were asked to fill in the questionnaire under observation of a researcher and comment on content, layout, volume and intelligibility. Depending on the result of the pilot test, correction and modification were made on the questionnaire before actual data collection on the study population was started. Secondly, groups of 10 breast cancer survivors were asked to fill enabling the examination of discrimination and acceptability. Oncology nurses with the qualification of B.Sc and the

4.8. Data Quality Management

To maintain the quality of the data structured and validated English version of questionnaires were adopted and were translated to Amharic. The translated versions of the questioner were pilot tested. Oncology nurses with the qualification of B.Sc was recruited and one day training by the investigator was given focusing on; the contents of the questionnaire, the identification of patients based on the inclusion/exclusion criteria, how to approach and get consent from patients, and assessment of variables based on the questionnaires . All the collected data was checked for completeness, accuracy and consistency by the principal investigator.

4.9. Socio – Demographic and Medical Characteristics Questionnaire

The socio-demographic questionnaires included questions about age, marital status, time since diagnosis, educational status, and average monthly income beside the socio-demographic questions the data on medical characteristics (medical service status, current cancer stage, and current type of anticancer treatment and presence of other disease) were filled through chart review by data collectors.

4.10. Data on Health Related Quality of Life

Health related quality of life was assessed by generic cancer instrument, the EORTC QLQ-C30 and EORTC QLQ-BR23. The EORTC QLQ-C30 consists of 30 items, measuring 16 aspects of HRQOL in patients with 5 multi-item functional subscales (physical, emotional, role, cognitive and social functioning), three symptom scales (fatigue, nausea/vomiting and pain) and six single

symptom items (dyspnea, insomnia, appetite loss, constipation, diarrhea and financial difficulties). Each item were scored 1 to 4 according to the categories „not at all“ (1) to „very much“ (4), with the exception of the global health status and global quality of life which were scored 1 to 7 [56].

EORTC QLQ-BR23 is a 23-item breast cancer site-specific supplemental module for EORTC QLQ-C30 to enhance the sensitivity and specificity for breast cancer HRQOL measures. The original English version comprises breast cancer-specific questionnaire about the common side effects of therapy, body image, sexuality, and outlook for the future [57, 36]. The questionnaire comprises five multi item subscales and three single-item subscales, with higher scores for better functional or worse symptomatic QOL conditions

4.11. Scoring and Data Analysis

Responses were coded, entered and cleaned missing data for both EORTC QLQ C-30 and EORTC QLQ BR23 was regarded as missing at random. No imputations were made for missing values. The raw scores for both EORTC QLQ C-30 and EORTC QLQ BR23 were transformed to scores ranging from 0 to 100. The use of these transformed scores has several advantages [63]. Transformed scores may be difficult to interpret; however, there are a number of ways to ease the interpretation of EORTC QLQ-C30 results. It is possible to report the raw scores in addition to the transformed scores. For example, it may be clinically relevant to know the proportion of patients that are „Quite a bit“ or „Very much“ constipated, but this study presents transformed results. Linear transformation to 0-100 to obtain the score S, has been done by using the following formula [58].

Raw score- $RS = (I_1 + I_2 + \dots + I_n) / n$

Linear transformation	
Apply the linear transformation to 0-100 to obtain the score S,	
Functional scales:	$S = \left\{ 1 - \frac{(RS - 1)}{\text{range}} \right\} \cdot 100$
Symptom scales / items:	$S = \{(RS - 1) / \text{range}\} \cdot 100$
Global health status / QoL:	$S = \{(RS - 1) / \text{range}\} \cdot 100$

Range is the difference between the maximum possible value of RS and the minimum possible value. The EORTC QLQ-C30 has been designed so that all items in any scale take the same range of values. Therefore, the range of RS equals the range of the item values. Most items are scored 1 to 4, giving range = 3. The exceptions are the items contributing to the global health

status / QOL, which are 7-point questions with range = 6. High scores represent healthy functioning in the functioning scales and global health status, but a high level of problems for symptom scales and single symptom items [58].

Missing values were treated according to the scoring manual, which allows up to 50% missing observations per score. This means that the patient had to answer at least half of the items on the scale. In addition, the single-item measures were transformed into the same percentile scale. The transformation from raw score to percentile scale allowed the author to run more sophisticated analysis of the data [58].

There are no existing data for the EORTC QLQ-C30 and EORTC QLQ-BR23 scales to indicate the threshold scores that are likely to mean significant impairment. Therefore, in this study, after transformation of each domain was dichotomized into “Affected at any degree” and “Not affected at all” in which a score below 75 for functional and HRQOL scales are used as affected and scores above 25 have been used as affected for symptom scales [8].

The data was entered into the Statistical Package for Social Sciences (SPSS) version 20.0 for analysis of the survey results. Before, analyzing the surveys, responses was reverse coded as appropriate. Simple descriptive statistics such as frequencies, means, and standard deviations was done as appropriate. The internal consistency of the questionnaires was assessed by estimating the Cronbach’s alpha (α) values of the multi-item scales based on the recommendation of > 0.70 .

Mean scores and mean differences of EORTC- QLQ-C30 and EORTC- QLQ-BR23 were calculated. After HRQOL, symptom and functional scales has been dichotomized bivariate and multivariate logistic regression analyses were used to explore the association between age, marital status, time since diagnosis educational status, average monthly income medical service status, current cancer stage, type of anti cancer treatment and presence of other disease and HRQOL. And possible association between functional and symptom scales with HRQOL

4.12. Operational Definitions

Health related quality of life: The space between a person’s expectation of health and the person’s experience of it, which varies among individuals.

Affected health related quality of life: score below the cutoff point (75).

Functional scales: physical, emotional, role, cognitive, social, sexual functioning, future perspective, body image and sexual enjoyment.

Symptom scales: systemic therapy, breast symptoms, arm symptoms, upset by hair loss, fatigue, nausea/vomiting and pain, dyspnea, insomnia, appetite loss, constipation, diarrhea and financial difficulties

Affected functional and symptom scales: score below 75 for functional scales are used and scores above 25 have been used as for symptom scales.

Co morbidity: the Presence of cardiovascular disease, pulmonary disorders, diabetes, HIV, and/or kidney Problems.

4.13. Ethical Considerations

Ethical clearance was obtained from the Ethics Review Committee of the School of Public health; Collage of Health Sciences, Addis Ababa University and from Institutional Review Board of TASRH. Permission letters were received from EORTC research group to use questionnaire. Participants were informed about the objective of the study before data collection, asked for their consent before participating in the study and confidentiality was maintained by omitting their names and personal identifiers throughout the study.

4.14. Dissemination of Results

The result of this study will be submitted to Addis Ababa University, School of Public Health, College of Health Sciences and the copies will be given to TASRH oncology department. The findings will also be disseminated through publishing on national or international journal and presentations on scientific conferences.

5. RESULT

Socio-demographic Characteristics

Three hundred sixty Breast cancer survivors were included in this study with response rate of 94.48%. The participants mean age was 40.00 ± 11.19 years (Median $\pm$ SD). Most of the participants were married 208(57.8%) followed by single 82(22.8%) and widowed 40(11.1%); divorced 25(6.9%) had the smallest share. The majority of the respondents attended informal education 209 (58.1%) whereas 78 (21.7%) attended some kind of formal education, the rest of the respondents 69(19.2%) were illiterate. The largest portion of respondent (44.5%) earns a monthly income of less than 300 birr whereas only 5.3 % of the respondent earns more than 3200 birr.

Table 1. Socio-demographic characteristics of breast cancer survivors at TASRH, March - June 2015, Addis Ababa, Ethiopia.

Variables		Frequency	Percent (%)
Age	40.00		SD = 11.09
	≤ 34	100	27.8
	35- 49	192	53.3
	≥ 50	68	18.9
Marital Status	Single	83	23.1
	Married	212	58.9
	Divorced	25	6.9
	Widowed	40	11.1
Education Level	Illiterate	69	19.2
	Formal education	82	22.8
	Informal education	209	58.1
Monthly Income in birr	957.47 range (6400-0)		SD = 1296.02
	≤ 600	202	56.1
	> 600	158	43.9

Clinical characteristics

Majority of the respondents were outpatient 302 (83.9%), and the clinical stages of the respondents during therapy were at post operation stage 95(26.4%) followed by stage IV 87(24.2%). Out of the total respondents 192(53.3%) complain co-morbidities like cardiovascular disease, pulmonary disorders, diabetes, HIV, and kidney Problems. The median length of time

Table 2. Clinical characteristics of breast cancer survivors at TASRH, March- June 2015, Addis Ababa, Ethiopia.

Variables	Frequency	Percent (%)
Time Since Diagnosis n=358*	2.11 years Range (15 - 0.25)years	SD = 1.98
	1 Year or less	167 46.4
	1-4 Years	155 43.1
	5 Years or more	36 10.0
Medical Service Status n=360	Outpatient level	302 83.9
	Inpatient level	58 16.1
Current Cancer Stage n=360	I	30 8.3
	II	75 20.8
	III	69 19.2
	IV	87 24.2
	Post Operation	99 27.5
Type of Anticancer Treatment n=360	Surgery	42 11.7
	Chemotherapy	72 20.0
	Radiation therapy	9 2.5
	Surgery & Chemotherapy	163 45.3
	Surgery & Radiation therapy	3 0.8
	Chemotherapy & Radiation therapy	3 0.8
	Surgery, Chemotherapy & Radiation	68 18.9
Presence of Other Disease	Yes	192 53.3
	No	168 46.7

*There is missing data

since the diagnosis of cancer was 2.11 years (Mean $\pm$ SD = 2.11 $\pm$ 1.98 Years; range 0.25 - 15 Years). Majority of the participants received a multiple combinations of cancer treatment of which surgery with chemotherapy was the most common type combination treatment (45.3%).

Throughout both instruments all of the scales met the 0.70 internal consistency criterions. On the EORTC-QLQ-C30, participants scored fairly well on global health status/QOL scale (Mean = 60.53; SD = 27.76); scores on functioning scales ranged from 56.11 (SD = 33.18) for role functioning to 65.69 (SD = 29.90) for cognitive functioning. All Symptoms scales except fatigue, appetite loss and financial difficulties received scores below 50.00 implying a lack of these symptoms in this sample but may also be hinting about an underlying reduced discriminative ability. Among the scales/items of QLQ-BR23 all the functioning scale except future perspective had a high Mean score (>50%) and this may reflect fairly well on those scales, but may also point to an underlying discriminative ability. All Symptoms scales received mean scores below 50.00.

Table 3. Means, standard deviations (SD) and Cronbach Alpha values of the QLQ-C30 and QLQ-BR23 Scales Variables

		Mean $\pm$ SD	C. Alpha
QLQ-C30	Global health status /QOL	60.53 $\pm$ 27.76	0.87
	Functional scales		
	Physical functioning	57.09 $\pm$ 29.01	0.87
	Role functioning	56.11 $\pm$ 33.18	0.83
	Emotional functioning	58.04 $\pm$ 32.79	0.87
	Cognitive functioning	65.69 $\pm$ 29.90	0.70
	Social functioning	62.22 $\pm$ 36.95	0.89
	Symptom scales / items		
	Fatigue	56.45 $\pm$ 29.51	0.80
	Nausea and vomiting	48.14 $\pm$ 38.09	0.86
	Pain	49.81 $\pm$ 28.37	0.76
	Dyspnoea	22.97 $\pm$ 30.73	N/A
	Insomnia	48.09 $\pm$ 37.56	N/A
	Appetite loss	62.41 $\pm$ 35.89	N/A
	Constipation	35.30 $\pm$ 37.85	N/A
	Diarrhoea	20.83 $\pm$ 32.17	N/A
	Financial difficulties	53.31 $\pm$ 43.05	N/A
QLQ-BR23	Functional scales		
	Body image	67.29 $\pm$ 31.86	0.89
	Sexual functioning	83.01 $\pm$ 26.61	0.81
	Sexual enjoyment	58.11 $\pm$ 36.13	0.77
	Future perspective	29.13 $\pm$ 37.37	0.86
	Symptom scales / items		
	Systemic therapy side effects	44.09 $\pm$ 24.19	0.85
	Breast Symptoms	40.66 $\pm$ 33.25	N/A
	Arm Symptoms	40.98 $\pm$ 34.45	N/A
	Upset by Hair Loss	46.17 $\pm$ 45.49	N/A

Relationship between Socio-demographic variable and EORTC- QLQ-C30 function scales

Younger participants (< 50 years) scored better score in HRQOL, physical and role functioning but difference on emotional, cognitive and social functioning scales were no significant. There were no significant mean differences among marital status groups except in role functioning where participant whom were widowed had lower score. Participant who was illiterate had

Table 4. Relationship between Socio-demographic variable and EORTC- QLQ-C30 function scales

Characteristics	EORTC-QLQ C-30 function subscales					
	Global health status/QOL	Physical Functioning	Role functioning	Emotional functioning	Cognitive functioning	Social functioning
Age						
≤ 34	65.50 ± 29.01 ^a	61.93 ± 24.93 ^a	62.33 ± 31.66 ^a	57.94 ± 33.86	67.67 ± 30.23	66.17 ± 36.35
35 – 49	61.02 ± 26.37 ^a	59.49 ± 29.69 ^a	58.33 ± 32.54 ^a	60.59 ± 33.35	66.58 ± 30.39	63.37 ± 36.67
≥ 50	51.84 ± 28.10 ^b	43.21 ± 28.82 ^b	40.69 ± 33.01 ^b	50.98 ± 28.74	60.29 ± 27.77	53.19 ± 37.68
P	0.007	0.000	0.000	0.116	0.245	0.067
Marital status						
Single	62.95 ± 26.90	61.04 ± 25.89	62.25 ± 30.03 ^a	54.02 ± 33.72	69.88 ± 29.62	65.26 ± 34.26
Married	61.67 ± 28.51	58.00 ± 29.12	57.39 ± 33.18 ^a	60.98 ± 33.01	65.72 ± 30.39	63.92 ± 37.80
Divorced	50.33 ± 18.08	45.00 ± 26.53	47.33 ± 27.92 ^{ab}	52.67 ± 28.44	64.67 ± 22.73	56.67 ± 34.36
Widowed	55.83 ± 29.43	51.67 ± 33.98	42.08 ± 38.30 ^b	54.17 ± 31.58	57.50 ± 31.11	50.42 ± 38.02
P	0.138	0.057	0.007	0.243	0.199	0.129
Education status						
Illiterate	49.28 ± 31.04 ^a	44.76 ± 31.21 ^a	44.69 ± 35.41 ^a	59.46 ± 32.15	60.63 ± 31.31	52.17 ± 38.55 ^a
Formal education	64.32 ± 24.47 ^b	60.85 ± 28.87 ^b	61.32 ± 30.45 ^b	61.32 ± 32.20	69.23 ± 29.06	58.12 ± 35.20 ^b
Informal education	62.80 ± 27.10 ^b	59.39 ± 27.44 ^b	57.82 ± 32.77 ^b	55.98 ± 33.43	65.71 ± 29.72	66.59 ± 36.49 ^b
P	0.001	0.000	0.005	0.427	0.218	0.011
AMI						
≤ 600	54.95 ± 27.08 ^a	53.73 ± 30.12 ^a	52.39 ± 32.93 ^a	56.12 ± 33.04	65.35 ± 30.42	61.30 ± 36.84
> 600	67.67 ± 27.05 ^b	61.39 ± 27.00 ^b	60.86 ± 33.01 ^b	60.50 ± 32.41	66.14 ± 29.23	63.40 ± 37.17
	$t(358) = 4.424$	$t(358) = 2.505$	$t(358) = 2.420$	$t(358) = 1.258$	$t(358) = 0.249$	$t(358) = 0.533$
P	0.000	0.013	0.016	0.209	0.803	0.594

^{a,b} statistically significant differences (P<0.05) down a column, according to Tukey HSD Post hoc test..

scored lower score in quality of life, physical, role functioning and social functioning, there were no significant differences on emotional and cognitive functioning. Participant who earn less than

600 birr were having lower quality of life, Physical functioning and Role function while there were no significant different among participants by their average monthly income groups on the rest of functional scales.

Relationship between clinical variable and EORTC- QLQ-C30 Function scales

Participants whom were out patients had scored better score on HRQOL, Physical, role and social functioning, but there were no significant means score difference in emotional and cognitive functioning. Lower emotional functioning score were found for participants whom times of diagnosis were in between one and four years, whereas there were no significant differences on the rest of the functional scales. Participants who were treated with surgery and surgery with chemotherapy have scored better on all functional scales than those whom were only on chemotherapy treatment modality. Participants with other co-morbidity scored lower score in quality of life and social functioning, but the mean different for the rest of functional scales were not significant. On all functional scales participants who were at post operation and stage I scored better score.

Table 5. Relationship between demographic variable and EORTC- QLQ-C30 Function scales

Characteristics	EORTC-QLQ C-30 function subscales					
	Global health status/QOL	Physical Functioning	Role functioning	Emotional functioning	Cognitive functioning	Social functioning
Medical service status						
Outpatient level	62.11 ± 27.35 ^a	59.05 ± 28.65 ^a	58.8 ± 32.39 ^a	59.06 ± 33.34	66.78 ± 29.70	65.12 ± 36.29 ^a
Inpatient level	52.30 ± 28.64 ^b	46.90 ± 28.94 ^b	41.67 ± 33.80 ^b	52.73 ± 29.47	60.06 ± 30.58	47.13 ± 36.96 ^b
	<i>t</i> (358) = 2.484	<i>t</i> (358) = 2.954	<i>t</i> (358) = 3.682	<i>t</i> (358) = 1.348	<i>t</i> (358) = 1.571	<i>t</i> (358) = 3.448
P	0.013	0.030	0.000	0.178	0.117	0.001
Time since diagnosis						
1 year or less	61.88 ± 28.30	59.81 ± 28.18	59.08 ± 33.52	62.84 ± 32.28 ^a	68.66 ± 27.06	65.87 ± 35.61
1-4 years	61.45 ± 25.75	53.49 ± 29.31	53.55 ± 33.39	52.58 ± 32.95 ^b	64.19 ± 31.83	61.18 ± 36.04
5 years or more	51.39 ± 32.70	58.70 ± 30.97	52.78 ± 31.24	62.50 ± 29.24 ^{ab}	62.04 ± 30.50	53.24 ± 43.61
P	0.108	0.139	0.272	0.013	0.277	0.143
Types of anti cancer treatment						
Surgery	65.28 ± 22.61 ^a	62.83 ± 27.67 ^a	60.32 ± 30.79 ^a	67.86 ± 28.07 ^a	77.38 ± 22.64 ^a	76.59 ± 28.05 ^a
Chemotherapy	50.00 ± 28.04 ^{ab}	46.37 ± 29.03 ^b	43.98 ± 34.07 ^{ab}	47.34 ± 31.92 ^b	59.26 ± 30.88 ^b	50.93 ± 38.24 ^b
Surgery & Chemotherapy	62.47 ± 28.84 ^b	60.88 ± 30.38 ^a	61.35 ± 32.75 ^b	63.82 ± 33.07 ^a	67.59 ± 29.82 ^a	67.89 ± 36.55 ^a
Surgery, Chemotherapy & Radiation	66.05 ± 26.01 ^b	56.96 ± 24.30 ^{ab}	53.68 ± 32.43 ^{ab}	54.29 ± 32.15 ^{ab}	64.22 ± 30.10 ^{ab}	55.88 ± 35.71 ^{ab}
P	0.001	0.016	0.001	0.000	0.002	0.00
Presence of other Disease						
yes	57.72 ± 26.93 ^a	57.02 ± 26.08	54.86 ± 31.72	55.61 ± 31.71	65.26 ± 27.95	56.68 ± 35.45 ^a
No	63.74 ± 28.42 ^b	57.17 ± 32.10	57.54 ± 34.84	60.81 ± 33.97	65.77 ± 32.08	68.55 ± 37.71 ^b
	<i>t</i> (358) = -2.082	<i>t</i> (321) = -0.047	<i>t</i> (358) = -0.763	<i>t</i> (358) = -1.504	<i>t</i> (333) = -0.047	<i>t</i> (358) = -3.076
P	0.040	0.962	0.446	0.134	0.963	0.002
Current cancer stage						
I	66.11 ± 28.78 ^{ab}	65.67 ± 19.32 ^{ab}	69.44 ± 30.66 ^a	72.78 ± 29.27 ^a	78.33 ± 19.65 ^a	76.11 ± 31.16 ^a
II	57.42 ± 27.24 ^{ab}	54.61 ± 27.07 ^{ab}	50.68 ± 30.48 ^b	47.37 ± 30.23 ^b	58.45 ± 30.06 ^b	61.42 ± 33.89 ^{ab}
III	55.92 ± 29.91 ^b	48.70 ± 27.52 ^b	45.65 ± 35.89 ^b	50.48 ± 33.70 ^b	60.39 ± 31.84 ^b	48.31 ± 38.79 ^b
IV	54.69 ± 27.22 ^b	51.88 ± 33.48 ^b	52.11 ± 32.23 ^b	53.64 ± 34.66 ^b	56.90 ± 31.08 ^b	59.58 ± 38.43 ^{ab}
Post Operation	68.84 ± 24.58 ^a	66.29 ± 26.48 ^a	66.32 ± 31.34 ^a	69.82 ± 28.12 ^a	79.69 ± 23.47 ^a	69.62 ± 35.29 ^a
P	0.002	0.000	0.000	0.000	0.000	0.001

^{a,b} statistically significant differences (P<0.05) down a column; according to Tukey HSD Post hoc test and T-test

Relationship between Socio-demographic variable and EORTC- QLQ-C30 symptom scales

Older participants (≥ 50 years) scored higher score on fatigue, Insomnia, constipation and financial difficulties but the difference on the rest of symptom scale were not significant. Participants who were single and married scored significantly higher on fatigue, nausea and vomiting, pain, dyspnoea, Insomnia, and appetite loss but the difference for the rest of symptom scales were not significant. On scale of fatigue and pain illiterate scored higher score were us those participant whom attend some kind of formal education has higher score on appetite loss. No significant different in mean score of all symptom scales according the average monthly income of the Participant (Table 7).

Relationship between clinical variable and EORTC- QLQ-C30 Symptom

Participants whom were inpatients scored higher score on fatigue, appetite loss and financial difficulties, whereas there were no significant differences on the rest of the symptom scales. Participants who were diagnosed a year or less scored lower score on fatigue, pain, dyspnoea, insomnia, appetite loss, and financial difficulties whereas participant who was diagnosed before five or more years scored lower on diarrhea, constipation symptom scales but the difference on nausea and vomiting were not significant. Participants who were treated with only chemotherapy had scored higher on all symptom scales than participants treated with the rest of treatment modality. Participants with co-morbidity were found to have higher score on fatigue, nausea and vomiting, appetite loss, constipation, and financial difficulties but the mean score difference on pain, dyspnoea, and insomnia and diarrhea was not significant. On all Symptom scales participant at stage I and post operation scored lower score (Table 8).

Table 6. Relationship between demographic variable and EORTC- QLQ-C30 symptom scales										
Characteristics	EORTC-QLQ C-30 symptom subscales									
	Fatigue	Nausea and Vomiting	Pain	Dyspnoea	Insomnia	Appetite loss	Constipation	Diarrhea	Financial difficulties	
Age										
≤ 34	55.33 ± 28.82 ^a	43.33 ± 35.30	48.17 ± 27.00	20.88 ± 28.80	40.00 ± 36.08 ^a	61.33 ± 38.70	31.00 ± 35.22 ^a	17.67 ± 27.81	50.17 ± 42.69 ^a	
35- 49	53.59 ± 31.12 ^a	47.92 ± 39.06	48.35 ± 28.62	22.05 ± 29.83	46.91 ± 38.26 ^a	60.07 ± 36.14	33.68 ± 38.79 ^a	19.62 ± 33.46	50.18 ± 44.28 ^a	
≥ 50	66.18 ± 23.58 ^b	55.88 ± 38.61	56.37 ± 29.09	28.79 ± 35.51	63.24 ± 33.65 ^b	70.59 ± 29.66	46.46 ± 37.38 ^b	28.92 ± 33.53	66.67 ± 37.77 ^b	
P	0.009	0.110	0.106	0.224	0.000	0.109	0.025	0.062	0.017	
Marital status										
Single	53.41 ± 27.41 ^a	45.18 ± 37.77 ^a	48.39 ± 27.13 ^a	18.70 ± 24.06 ^a	47.79 ± 32.59 ^a	58.23 ± 35.63 ^a	39.76 ± 37.70	20.08 ± 30.77	54.88 ± 40.70	
Married	54.35 ± 30.34 ^a	44.97 ± 38.48 ^a	46.54 ± 27.51 ^{ab}	22.70 ± 32.08 ^{ab}	44.02 ± 39.73 ^a	60.53 ± 36.85 ^{ab}	32.53 ± 38.55	20.13 ± 32.02	50.48 ± 44.38	
Divorced	67.11 ± 22.56 ^b	66.67 ± 32.63 ^b	62.67 ± 27.76 ^b	18.67 ± 27.35 ^a	69.33 ± 21.34 ^b	78.67 ± 27.01 ^b	29.33 ± 32.38	33.33 ± 38.49	58.67 ± 38.83	
Widowed	67.22 ± 30.08 ^b	59.58 ± 35.58 ^{ab}	62.08 ± 31.12 ^b	35.83 ± 34.91 ^b	56.67 ± 38.64 ^{ab}	70.83 ± 33.07 ^{ab}	44.17 ± 36.51	18.33 ± 31.08	61.67 ± 43.07	
P	0.014	0.009	0.001	0.027	0.005	0.028	0.166	0.245	0.407	
Education status										
Illiterate	65.06 ± 34.04 ^a	46.86 ± 37.95	58.45 ± 30.87 ^a	23.38 ± 34.34	53.62 ± 38.86	62.80 ± 35.02 ^{ab}	41.55 ± 36.34	13.53 ± 23.09	60.78 ± 43.46	
Formal education	57.27 ± 27.80 ^b	55.34 ± 34.45	49.79 ± 28.11 ^b	26.50 ± 34.55	40.89 ± 40.11	71.79 ± 30.43 ^a	38.03 ± 37.50	20.51 ± 30.02	55.98 ± 40.38	
Informal education	54.17 ± 27.70 ^b	45.30 ± 39.02	47.61 ± 27.00 ^b	21.96 ± 28.07	48.64 ± 35.80	58.37 ± 37.49 ^b	32.53 ± 38.36	23.76 ± 35.26	49.44 ± 43.55	
P	0.027	0.133	0.021	0.541	0.115	0.018	0.184	0.072	0.133	
AMI										
≤ 600	53.73 ± 29.32	46.94 ± 37.94	43.57 ± 25.98	19.75 ± 26.94	44.51 ± 37.36	58.65 ± 39.18	31.60 ± 38.45	19.83 ± 31.49	49.15 ± 44.07	
> 600	58.58 ± 29.55	49.09 ± 38.28	54.70 ± 29.25	25.50 ± 33.25	50.92 ± 37.58	65.35 ± 32.89	38.12 ± 37.24	21.62 ± 32.75	56.55 ± 42.06	
	<i>t</i> (358)=-1.552	<i>t</i> (358)=-0.531	<i>t</i> (352)=-3.819	<i>t</i> (355)=-1.806	<i>t</i> (355)=-1.604	<i>t</i> (305)=-1.725	<i>t</i> (354)=-1.613	<i>t</i> (358)=-0.522	<i>t</i> (355)=-1.616	
P	0.122	0.596	0.051	0.072	0.11	0.086	0.108	0.602	0.107	

AMI: Average monthly income

^{a,b} statistically significant differences (P<0.05) down a column, according to Tukey HSD Post hoc test..

Table 7. Relationship between clinical variable and EORTC- QLQ-C30 symptom scales

Characteristics	EORTC-QLQ C-30 symptom subscales								
	Fatigue	Nausea and vomiting	pain	Dyspnoea	Insomnia	Appetite loss	Constipation	Diarrhea	Financial difficulties
Medical service status									
Outpatient level	54.23 ± 28.96 ^a	47.29 ± 39.76	48.78 ± 28.54	23.58 ± 1.05	47.49 ± 7.39	60.26 ± 37.59 ^a	34.11 ± 8.98	20.09 ± 32.28	49.89 ± 42.72 ^a
Inpatient level	68.01 ± 29.88 ^b	52.59 ± 7.71	55.17 ± 27.07	19.64 ± 28.97	51.14 ± 38.60	73.56 ± 22.30 ^b	41.67 ± 30.65	24.71 ± 31.57	71.34 ± 40.55 ^b
	<i>t</i> (358)=-3.301	<i>t</i> (107)=-1.23	<i>t</i> (358)=-1.574	<i>t</i> (355)=0.882	<i>t</i> (355)=-0.678	<i>t</i> (358)=-2.606	<i>t</i> (91)=-1.617	<i>t</i> (358)=-1.003	<i>t</i> (355)=-3.504
P	0.001	0.221	0.116	0.378	0.498	0.010	0.109	0.317	0.01
Time since diagnosis									
1 year or less	51.50 ± 27.71 ^a	44.81 ± 35.98	45.71 ± 27.07 ^a	16.97 ± 24.59 ^a	39.63 ± 35.53 ^a	54.89 ± 35.11 ^a	29.94 ± 35.78 ^a	15.77 ± 28.53 ^a	45.58 ± 42.84 ^a
1-4 years	60.22 ± 29.79 ^b	49.89 ± 40.00	52.26 ± 28.93 ^{ab}	28.35 ± 33.18 ^{ab}	55.70 ± 37.82 ^b	69.46 ± 34.81 ^b	42.37 ± 39.72 ^b	28.17 ± 35.46 ^b	57.52 ± 42.62 ^b
5 years or more	60.80 ± 32.80 ^{ab}	53.24 ± 38.18	55.56 ± 28.45 ^b	23.15 ± 36.36 ^b	56.48 ± 37.22 ^b	64.81 ± 38.17 ^{ab}	25.00 ± 30.53 ^a	13.89 ± 28.03 ^a	68.52 ± 39.80 ^b
P	0.018	0.327	0.045	0.003	0.000	0.001	0.003	0.001	0.003
Types of anti cancer treatment									
Surgery	47.88 ± 25.32 ^a	25.40 ± 29.96 ^a	42.86 ± 24.18 ^a	7.14 ± 15.68 ^a	39.17 ± 33.66	48.41 ± 35.46 ^a	17.46 ± 32.29	3.97 ± 16.79 ^a	44.44 ± 36.56 ^b
Chemotherapy	71.30 ± 26.42 ^b	55.79 ± 30.92 ^b	58.80 ± 27.12 ^b	27.54 ± 35.68 ^b	57.87 ± 36.68	73.61 ± 24.98 ^b	41.43 ± 35.18	30.56 ± 35.27 ^b	69.57 ± 42.29 ^a
Surgery & Chemotherapy	49.97 ± 29.60 ^a	47.03 ± 41.61 ^b	45.71 ± 27.94 ^b	21.47 ± 28.85 ^b	44.79 ± 38.74	59.71 ± 37.49 ^a	35.20 ± 37.87	19.22 ± 32.48 ^a	43.56 ± 43.09 ^b
Surgery, Chemotherapy & Radiation	58.50 ± 29.65 ^{ab}	48.53 ± 35.35	50.00 ± 28.21	26.96 ± 30.61 ^b	49.51 ± 36.65	59.80 ± 39.72 ^a	39.22 ± 40.70	21.57 ± 29.79 ^a	61.76 ± 42.42 ^b
P	0.000	0.000	0.000	0.000	0.073	0.001	0.005	0.000	0.000
Presence of Other Disease									
yes	60.35 ± 60.35 ^a	52.63 ± 35.41 ^a	50.70 ± 26.99	24.24 ± 30.24	48.84 ± 37.59	67.02 ± 33.07 ^a	40.60 ± 37.29 ^a	23.86 ± 33.48	60.43 ± 41.51 ^a
No	52.58 ± 31.92 ^b	42.46 ± 40.16 ^b	49.01 ± 30.01	21.83 ± 31.38	46.63 ± 37.40	56.75 ± 38.18 ^b	29.37 ± 37.70 ^b	17.66 ± 30.50	44.84 ± 43.31 ^b
	<i>t</i> (325.7)=-2.487	<i>t</i> (335.4)=2.527	<i>t</i> (338.4)=0.56	<i>t</i> (353)=0.739	<i>t</i> (353)=0.555	<i>t</i> (332.6)=2.704	<i>t</i> (354)=2.824	<i>t</i> (355.6)=1.834	<i>t</i> (353)=3.546
P	0.013	0.012	0.577	0.461	0.579	0.007	0.005	0.068	0.001
Current cancer stage									
I	45.19 ± 27.36 ^a	27.78 ± 33.43 ^a	34.44 ± 26.96 ^a	13.33 ± 24.13 ^a	48.89 ± 37.89 ^{ab}	50.00 ± 33.62 ^{ab}	25.56 ± 37.84 ^{ab}	5.56 ± 12.63 ^a	39.29 ± 41.63 ^a
II	59.06 ± 27.89 ^{ab}	51.83 ± 34.65 ^b	52.97 ± 27.41 ^b	33.79 ± 33.56 ^b	49.77 ± 30.49 ^{ab}	66.21 ± 32.63 ^{ab}	37.90 ± 36.98 ^{ab}	25.57 ± 34.48 ^b	55.71 ± 38.91 ^b
III	63.93 ± 26.36 ^b	67.39 ± 31.88 ^b	57.49 ± 30.46 ^b	21.72 ± 31.75 ^{ab}	61.35 ± 36.44 ^a	69.57 ± 34.65 ^a	47.69 ± 35.83 ^a	37.20 ± 39.83 ^b	66.18 ± 40.92 ^b
IV	61.81 ± 33.41 ^b	52.49 ± 40.79 ^b	54.21 ± 29.23 ^b	26.05 ± 31.92 ^{ab}	48.84 ± 9.84 ^{ab}	68.20 ± 35.18 ^a	38.31 ± 38.56 ^{ab}	21.07 ± 33.38 ^b	53.64 ± 43.24 ^b
Post Operation	48.15 ± 27.60 ^a	33.51 ± 35.50 ^a	43.40 ± 24.36 ^a	16.32 ± 26.04 ^a	37.94 ± 38.37 ^b	52.43 ± 37.70 ^b	26.39 ± 37.12 ^b	10.42 ± 19.53 ^a	47.22 ± 46.05 ^a
P	0.001	0.000	0.000	0.003	0.001	0.004	0.004	0.000	0.030

Relationship between Socio-demographic variable and EORTC- QLQ-BR23 function scales

Participant's age of 35-49 years scored higher score in body image, future perspective whereas regarding the sexual functioning they have scored lower than older participants (≥ 50 years). Regarding sexual enjoyment the older have scored higher score but the difference was not significant. Participants who were widowed scored significantly better on sexual enjoyment than single and married

Table 8. Relationship between Socio-demographic variable and EORTC- QLQ-BR23 function scales

Characteristics	EORTC-QLQ C-30 function subscales			
	Body image	Sexual Functioning	Sexual enjoyment	Future perspective
Age				
≤ 34	66.72 $\pm$ 31.95 ^{ab}	80.50 $\pm$ 26.81 ^a	56.86 $\pm$ 38.95	26.00 $\pm$ 34.03 ^a
35- 49	71.57 $\pm$ 31.09 ^a	80.45 $\pm$ 28.44 ^a	57.28 $\pm$ 35.72	34.39 $\pm$ 39.78 ^a
≥ 50	56.13 $\pm$ 31.53 ^b	93.87 $\pm$ 16.77 ^b	70.83 $\pm$ 27.82	19.12 $\pm$ 32.74 ^b
P	0.003	0.001	0.590	0.009
Marital status				
Single	65.93 $\pm$ 31.60	82.93 $\pm$ 26.80 ^a	55.56 $\pm$ 42.60	27.31 $\pm$ 35.36
Married	70.30 $\pm$ 32.17	79.07 $\pm$ 28.60 ^a	55.42 $\pm$ 33.45	29.35 $\pm$ 37.70
Divorced	59.89 $\pm$ 21.02	92.00 $\pm$ 16.04 ^{ab}	85.71 $\pm$ 37.80	28.94 $\pm$ 37.30
Widowed	58.89 $\pm$ 34.84	98.33 $\pm$ 7.36 ^b	100.00 $\pm$ -	26.67 $\pm$ 30.43
P	0.103	0.000	0.060	0.846
Average Monthly Income in Birr				
≤ 600	64.81 $\pm$ 33.35	87.23 $\pm$ 22.97 ^a	62.82 $\pm$ 34.71	25.87 $\pm$ 34.87
> 600	70.45 $\pm$ 29.65	77.64 $\pm$ 29.84 ^b	54.10 $\pm$ 37.10	33.33 $\pm$ 40.07
	$t(351) = -1.691$	$t(288) = 3.337$	$t(111) = 1.283$	$t(308) = -1.846$
P	0.092	0.001	0.202	0.066
Education status				
Illiterate (I)	61.31 $\pm$ 36.68	89.61 $\pm$ 19.20	75.93 $\pm$ 25.06 ^a	23.19 $\pm$ 37.18
Formal education (II)	67.70 $\pm$ 29.64	80.98 $\pm$ 25.16	60.42 $\pm$ 35.36 ^{ab}	26.92 $\pm$ 36.46
Informal education (III)	69.36 $\pm$ 30.88	81.34 $\pm$ 29.01	51.85 $\pm$ 37.76 ^b	31.08 $\pm$ 37.24
P	0.191	0.64	0.039	0.280

^{a,b} statistically significant differences ($P < 0.05$) down a column, according to Tukey HSD Post hoc test..

participants. However mean scores difference of body image, sexual functioning and future perspective were not significant according to marital status and no significant different were found in a mean score for all functional scales according the average monthly income of the Participant except sexual functioning where those participant with lower income had scored better. Participant whom where illiterate were found to scored better on the sexual enjoyment then participant whom attended informal education, there were no significant men difference for the rest of functional scale by education status.

Relationship between clinical variable and EORTC- QLQ-BR23 function scales

Participants whom were outpatients had scored better score on body image than inpatients, whereas there were no significant differences on sexual functioning, sexual enjoyment and future perspective scales among those groups. Participants diagnosed a year or less and five years or more had better score on body image then participant who were diagnosed before four year or lesser. Even though, in all participant diagnosed in any year scored low score (<50%) on future perspective; participant who were diagnosed a year or less have relatively higher score than whom were diagnosed more than a year. There were no significant mean difference regarding sexual functioning and sexual enjoyment with according with the time since diagnosis. Participants who were treated with only chemotherapy had scored better on body image than the rest of treatment modality. Sexual functioning, sexual enjoyment and future Perspective were found to have no significant mean score difference within the group. Participants with co-morbidity were found to have lower score on all functional scales but only the different on sexual enjoyment was not significant. On all functional scales there were no significant differences among patients of different cancer stage.

Table 9. Relationship between Clinical and EORTC- QLQ-BR23 function scales

Characteristics	EORTC-QLQ BR23 function subscales			
	Body image	Sexual Functioning	Sexual enjoyment	Future perspective
Medical service status				
Outpatient level	70.27 ± 30.26 ^a	82.67 ± 26.98	57.80 ± 36.64	30.43 ± 37.59
Inpatient level	52.78 ± 35.58 ^b	85.34 ± 24.60	59.65 ± 34.39	22.41 ± 36.08
	$t(73.77) = 3.505$	$t(356) = -0.702$	$t(111) = -0.202$	$t(354) = 1.494$
P	0.001	0.483	0.840	0.135
Time since diagnosis				
1 year or less	70.49 ± 31.79 ^a	83.23 ± 27.04	54.86 ± 34.03	36.73 ± 39.51 ^a
1-4 years	61.81 ± 32.70 ^b	82.47 ± 27.07	56.60 ± 37.32	20.18 ± 30.73 ^b
5 years or more	76.96 ± 25.95 ^a	82.35 ± 23.90	77.78 ± 35.77	29.41 ± 43.24 ^b
P	0.010	0.963	0.133	0.000
Types of anti cancer treatment				
Surgery	77.98 ± 30.57 ^b	83.73 ± 25.90	63.64 ± 27.71	28.57 ± 32.57
Chemotherapy	51.50 ± 35.36 ^a	85.65 ± 27.02	53.33 ± 38.08	25.24 ± 36.53
Surgery & Chemotherapy	71.04 ± 30.27 ^b	82.00 ± 27.11	61.82 ± 36.53	33.13 ± 40.10
Surgery, Chemotherapy & Radiation	72.43 ± 26.36 ^b	84.07 ± 22.57	60.61 ± 35.09	27.45 ± 35.94
P	0.000	0.078	0.089	0.424
Presence of other Disease				
yes	60.53 ± 31.85 ^a	79.12 ± 29.09 ^a	55.87 ± 35.98	23.76 ± 34.17 ^a
No	75.00 ± 30.36 ^b	87.23 ± 22.90 ^b	61.90 ± 36.49	34.33 ± 39.48 ^b
	$t(355) = -4.378$	$t(350.9) = -2.939$	$t(111) = -0.851$	$t(330.5) = -2.682$
P	0.000	0.004	0.393	0.008
Current cancer stage				
I	73.38 ± 33.83	87.36 ± 28.40	52.38 ± 42.41	32.10 ± 45.74
II	65.33 ± 29.16	75.78 ± 30.79	58.89 ± 42.60	26.22 ± 32.56
III	64.21 ± 30.37	86.23 ± 23.04	58.73 ± 40.70	26.57 ± 37.30
IV	63.70 ± 34.96	87.16 ± 23.80	65.28 ± 34.72	34.48 ± 40.81
Post Operation	72.31 ± 31.12	81.31 ± 26.54	52.69 ± 25.49	27.61 ± 35.33
P	0.236	0.052	0.772	0.577

^{a,b} statistically significant differences ($P < 0.05$) down a column; according to Tukey HSD Post hoc test and T-test

Relationship between Socio-demographic variable and EORTC- QLQ-BR23 symptom scales

Younger participants age of ≤ 34 years scored lower score in systematic therapy side effects and breast symptoms and higher score on upset by hair loss than older participants (≥ 50 Years). There were no significant differences among the age group on arm symptoms. Participants who were single scored significantly higher on upset by hair loss than married. However regarding all other symptom scales

Table 10. Relationship between Socio-Demographic variable and EORTC- QLQ-BR23 Symptom scales

Characteristics	EORTC-QLQ C-30 symptom subscales			
	Systemic therapy side effects	Breast symptoms	Arm symptoms	Upset by hair loss
Age				
≤ 34	40.64 $\pm$ 24.35 ^a	44.92 $\pm$ 33.98 ^b	37.56 $\pm$ 33.75	65.56 $\pm$ 45.08 ^b
35-49	43.35 $\pm$ 24.69 ^{ab}	35.11 $\pm$ 31.78 ^a	39.79 $\pm$ 34.07	43.97 $\pm$ 45.83 ^a
≥ 50	51.23 $\pm$ 21.27 ^b	50.00 $\pm$ 33.67 ^b	49.35 $\pm$ 35.68	30.95 $\pm$ 38.06 ^a
P	0.017	0.002	0.073	0.000
Marital status				
Single	43.72 $\pm$ 23.06	46.99 $\pm$ 31.20	42.57 $\pm$ 34.21	61.49 $\pm$ 45.37 ^a
Married	42.77 $\pm$ 25.45	36.60 $\pm$ 32.93	39.60 $\pm$ 34.41	43.33 $\pm$ 45.33 ^b
Divorced	52.95 $\pm$ 20.54	36.66 $\pm$ 33.06	42.67 $\pm$ 35.38	34.92 $\pm$ 42.79 ^{ab}
Widowed	46.31 $\pm$ 21.02	43.00 $\pm$ 32.07	43.89 $\pm$ 35.49	38.10 $\pm$ 43.24 ^{ab}
P	0.227	0.05	0.836	0.024
Education status				
Illiterate	42.91 $\pm$ 22.98	36.59 $\pm$ 36.30	40.10 $\pm$ 34.31	41.84 $\pm$ 44.22
Formal education	49.58 $\pm$ 19.76	45.12 $\pm$ 31.54	44.30 $\pm$ 34.08	46.38 $\pm$ 42.86
Informal education	42.36 $\pm$ 25.95	40.64 $\pm$ 32.88	40.35 $\pm$ 34.84	48.20 $\pm$ 47.34
p	0.073	0.299	0.663	0.711
Average Monthly Income in Birr				
≤ 600	45.30 $\pm$ 24.31	43.27 $\pm$ 33.24	41.90 $\pm$ 33.82	44.30 $\pm$ 44.76
> 600	42.56 $\pm$ 24.04	37.34 $\pm$ 33.08	39.80 $\pm$ 35.30	48.77 $\pm$ 46.57
	t (357) = 1.066	t (357) = 1.681	t (357) = 0.572	t (255) = -0.777
P	0.287	0.094	0.567	0.438

^{a,b} statistically significant differences ($P < 0.05$) down a column, according to Tukey HSD Post hoc test..

there were no significant differed according to marital status and no significant different in mean score of all symptom scales according the education status and average monthly income of the Participant were found.

Relationship between clinical variable and EORTC- QLQ-BR23 Symptom

Participants whom were out patients, diagnosis less than a year scored better score on all symptom scales. Participants who were treated with only chemotherapy had scored higher on all symptom scales than participants treated with the rest of treatment modality. Participants with other co-morbidity were

Table 11. Relationship between clinical variable and EORTC- QLQ-BR23 Symptom

Characteristics	EORTC-QLQ C-30 symptom subscales			
	Systemic therapy side effects	Breast symptoms	Arm symptoms	Upset by hair loss
Medical service status				
Outpatient level	43.12 ± 25.00 ^a	36.87 ± 33.03 ^a	35.99 ± 33.86 ^a	42.76 ± 46.18 ^a
Inpatient level	49.14 ± 18.89 ^b	60.34 ± 27.05 ^b	66.86 ± 24.56 ^b	59.62 ± 40.33 ^b
	$t(100) = -2.080$	$t(93.23) = -5.812$	$t(103.91) = -8.15$	$t(88.49) = -2.600$
P	0.040	0.000	0.000	0.011
Time since diagnosis				
1 year or less	39.97 ± 22.8 ^a	34.80 ± 29.32 ^a	34.86 ± 31.16 ^a	35.10 ± 44.51 ^a
1-4 years	47.90 ± 25.59 ^b	47.64 ± 35.26 ^b	47.26 ± 36.15 ^b	58.48 ± 44.25 ^b
5 years or more	43.56 ± 20.04 ^{ab}	36.27 ± 34.75 ^{ab}	46.73 ± 36.98 ^{ab}	39.74 ± 42.18 ^{ab}
P	0.012	0.001	0.004	0.000
Types of anti cancer treatment				
Surgery	29.13 ± 37.37 ^a	31.81 ± 27.66 ^a	26.72 ± 27.88 ^a	42.42 ± 49.65
Chemotherapy	27.78 ± 20.98 ^b	62.27 ± 26.90 ^b	65.12 ± 29.15 ^b	54.17 ± 44.25
Surgery & Chemotherapy	68.25 ± 15.43 ^{ab}	29.78 ± 32.58 ^a	30.93 ± 33.20 ^a	38.18 ± 46.45
Surgery, Chemotherapy & Radiation	50.79 ± 21.99 ^b	42.08 ± 30.26 ^a	44.28 ± 31.38 ^a	48.33 ± 43.58
P	0.000	0.000	0.000	0.082
Presence of Other Disease				
yes	48.76 ± 22.31 ^a	48.22 ± 32.29 ^a	47.37 ± 34.53 ^a	50.88 ± 45.06
No	38.63 ± 25.27 ^b	32.45 ± 32.43 ^b	34.07 ± 33.11 ^b	40.13 ± 45.58
	$t(355) = 4.022$	$t(355) = 4.593$	$t(355) = 3.703$	$t(253) = 1.860$
P	0.000	0.000	0.000	0.064
Current cancer stage				
I	32.65 ± 23.80 ^a	27.30 ± 33.40 ^a	36.78 ± 26.58 ^{ab}	20.00 ± 32.20 ^a
II	45.08 ± 22.52 ^b	49.33 ± 28.92 ^b	49.48 ± 30.95 ^a	63.74 ± 42.85 ^c
III	54.04 ± 23.64 ^b	54.39 ± 33.74 ^b	53.46 ± 35.66 ^a	50.79 ± 44.34 ^{bc}
IV	45.87 ± 26.41 ^b	40.90 ± 36.60 ^{ab}	39.59 ± 38.40 ^{ab}	50.85 ± 49.27 ^{bc}
Post Operation	38.20 ± 21.13 ^a	28.23 ± 26.90 ^a	28.28 ± 29.9 ^b	26.96 ± 39.17 ^{ab}
P	0.000	0.000	0.000	0.000

^{a,b} statistically significant differences ($P < 0.05$) down a column; according to Tukey HSD Post hoc test and T-test

found to have higher score on all Symptom scales were only of this difference upset by hair loss was

not significant. On all functional scales there were no significant differences among breast cancer survivors of different cancer stage. Participant at stage I and post operation have lower score on all the symptom scales.

Bivariate and Multivariate analysis

The multivariate analysis was done to assess the relative effect of explanatory factors and functional and symptom variables of EORTC- QLQ-C30 and EORTC- QLQ-BR23 on the outcome variable HRQOL. Multivariate analysis of this study revealed that older age, low monthly income, higher year of diagnosis, co-morbidity and being stage four and all functional and symptom scale variables of QLQ-C30 and QLQ-BR23 except sexual functioning, sexual enjoyment and upset by hair loss found statistically significant

Older Participants (≥ 50 years) were more likely to had affected HRQOL compared to age of below thirty four [OR= 3.37; 95%CI ;(1.39, 8.13)]. Participants who were diagnosed before five year and more were more likely to had affected HRQOL compared to a year or less [OR= 4.12; 95%CI ;(1.55, 10.93)]. Participant who earned monthly income less than 600 ETB [OR= 2.35; 95%CI; (1.34, 3.91)], where found to had affected HRQOL compared to monthly income > 600 ETB. Presence of other disease were statistically significant to had affected HRQOL in bivariate analysis. Every affected functional and symptom scale variables were statically significant to had affected HRQOL in bivariate analysis except sexual functioning, sexual enjoyment and upset by hair loss, (Table 13, 14, 15 16)

Table 12. Bivariate and multivariate analysis to observe association between socio-demographic variables and quality of life of Breast cancer survivors at TASRH, March - June 2015, Addis Ababa (n=360)

Variable	Health Related Quality of Life			
		Affected N (%)	Not Affected N (%)	OR(95%CI) AOR (95%CI)
Age				
	≤ 34	52(23.1)	48 (35.6)	1
	35 - 49	122(54.2)	70(51.9)	1.61(0.98 - 2.63)
	≥ 50	51(22.7)	17(12.6)	2.77(1.41 - 5.44)*
Marital status				
	Single	48(21.3)	35(25.9)	1
	Married	129(57.3)	83(61.5)	1.13(0.68 - 1.90)
	Divorced	22(9.8)	3(2.2)	5.35(1.48 - 19.28)*
	Widowed	26(11.6)	14(10.4)	1.35(0.62 - 2.96)
Education status				
	Illiterate	52 (23.1)	17 (12.6)	1
	Formal education	52 (23.1)	30(22.2)	0.57(0.28 - 1.15)
	Informal education	121(53.8)	88 (65.2)	0.45(0.24 - 0.83)*
Average Monthly Income in Birr				
	≤ 600	15 (6.7)	16 (11.9)	2.36(1.53 - 3.65)*
	>600	11 (4.9)	8(5.9)	1

Table 13. Bivariate and multivariate analysis to observe association between clinical variables and quality of life of Breast cancer survivors at TASRH, March- June 2015, Addis Ababa (n=360)

Variable	Health Related Quality of Life			
	Affected N (%)	Not Affected N (%)	OR (95%CI)	AOR (95%CI)
Medical service status				
Outpatient level	181(80.4)	120(88.9)	1	1
Inpatient level	43(19.1)	15(11.1)	1.90(1.01 - 3.57)*	(0.41 - 3.00)
Time since diagnosis				
1 year or less	96.00(43.0)	71(52.6)	1	1
1 - 4 years	100(45.3)	54 (40.0)	1.38(0.88 - 2.17)	0.78-2.34
5 years or more	26(11.7)	10(7.4)	1.92(0.87 - 4.24)	4.12(1.55-10.93)*
Types of anti cancer treatment				
Surgery	24(10.7)	18(13.3)	1	1
Chemotherapy	54(24.0)	18(13.3)	0.93(0.43 - 2.03)	0.76(0.24-2.34)
Radiation therapy	9(4.0)	0 -	2.10(1.02 - 4.31)*	
Surgery & Chemotherapy	95(42.2)	68(50.4)	(0.000)	0.62(0.27-1.42)
Surgery & Radiation therapy	1(0.4)	2(1.5)	0.98(0.55 -1.74)	0.78(0.05-12.12)
Chemotherapy & Radiation therapy	2(0.9)	1(0.7)	0.35(0.03 - 4.05)	0.48(0.03-7.75)
Surgery, Chemotherapy & Radiation	40(17.8)	28(20.7)	1.4(0.12 - 16.20)	1.01(0.38-2.64)
Presence of other Disease				
yes	137(60.9)	55(40.7)	2.26(1.47 - 3.5)*	3.95(2.17 – 7.20)*
No	88(39.1)	80(59.3)	1	1
Current cancer stage				
I	14(6.2)	16(11.9)	1	1
II	47(20.9)	28(20.7)	1.9(0.82 - 4.52)	2.44(0.88-6.71)
III	49(21.8)	20(14.8)	2.8(1.15 - 6.79)*	2.97(0.99-8.88)
IV	63(28.0)	24(17.8)	3.00(1.27 - 7.07)*	5.35(1.90-15.01)*
Post Operation	52(23.1)	47(34.8)	1.26(0.56 - 2.87)	1.38(0.52-3.67)

Table 14. Bivariate and multivariate analysis to observe association between QLQ-C30 functional and symptom variables and quality of life of Breast cancer survivors at TASRH, March- June 2015, Addis Ababa (n=360)

Variable		Health Related Quality of Life			
		Affected N (%)	Not Affected N (%)	OR(95%CI)	AOR (95%CI)
Physical Functioning	Affected	190(84.4)	60(44.4)	6.79(4.14 – 11.13)*	9.15(4.90 – 17.09)*
	Not Affected	35(15.6)	75(55.6)	1	1
Role functioning	Affected	198(88.0)	56 (41.5)	10.35(6.10-17.54)*	10.11(5.32 – 19.20)*
	Not Affected	27(12.0)	79 (58.5)	1	1
Emotional functioning	Affected	175(77.8)	50(37.0)	5.95(3.719 – 9.52)*	7.15(3.85 – 13.28)*
	Not Affected	50 (22.2)	85(63.0)	1	1
Cognitive functioning	Affected	161(71.6)	38(28.1)	6.42(3.99 – 10.31)*	10.17(5.36 – 19.28)*
	Not Affected	64(28.4)	97(71.9)	1	1
Social functioning	Affected	158(70.2)	38(28.1)	6.02(3.76-9.646)*	6.12(3.47 – 10.81)*
	Not Affected	67(29.8)	97(71.9)	1	1
Fatigue	Affected	207 (92.0)	86 (63.7)	6.55(3.61-11.89)*	6.72(3.31 – 13.67)*
	Not Affected	18 (8.0)	49 (36.3)	1	1
Nausea and vomiting	Affected	170 (75.6)	62 (45.9)	3.69(2.31-5.74)*	3.72(2.08 – 6.68)*
	Not Affected	55 (24.4)	73 (54.1)	1	1
Pain	Affected	203 (90.2)	84 (62.2)	5.60(3.20 - 9.82)*	6.13(3.16 – 11.89)*
	Not Affected	22(9.8)	51 (37.8)	1	1
Dyspnoea	Affected	120 (53.6)	34 (25.6)	3.36(2.10 - 5.38)*	4.11(2.30 – 7.35)*
	Not Affected	104 (46.4)	99(74.4)	1	1
Insomnia	Affected	187 (83.1)	64 (48.5)	5.23(3.21 - 8.52)*	6.18(3.30 – 11.62)*
	Not Affected	38 (16.9)	68 (51.5)	1	1
Appetite loss	Affected	212 (94.2)	92 (68.1)	7.62(3.91 – 14.85)*	7.98(3.57 – 17.83)*
	Not Affected	13 (5.8)	43 (31.9)	1	1
Constipation	Affected	147(66.5)	44 (32.6)	4.108(2.605 – 6.48)*	4.29(2.38 – 7.70)*
	Not Affected	74 (33.5)	91 (67.4)	1	1
Diarrhea	Affected	95(42.2)	32 (23.7)	2.35(1.46 – 3.79)*	1.93(1.08 – 3.45)*
	Not Affected	130(57.8)	103(76.3)	1	1
Financial difficulties	Affected	184(82.9)	55 (40.7)	7.043(4.32 – 11.49)*	6.71(3.65 – 12.34)*
	Not Affected	38(17.1)	80(59.3)	1	1

Table 15. Bivariate and multivariate analysis to observe association between QLQ-BR23 variables and quality of life of Breast cancer survivors at TASRH, March- June 2015, Addis Ababa (n=360)

Variable		Health Related Quality of Life			
		Affected N (%)	Not Affected N (%)	OR(95%CI)	AOR (95%CI)
Body image	Affected	135(60.0)	33(24.6)	4.59(2.86 - 7.38)*	3.97(2.23 - 7.08)*
	Not Affected	90(40.0)	101(75.4)	1	1
Sexual Functioning	Affected	62(27.6)	43(32.1)	0.81(0.51 - 1.283)	0.82(0.47 - 1.45)
	Not Affected	163(72.4)	91(67.9)	1	1
Sexual enjoyment	Affected	40(58.0)	35(79.5)	2.82(1.20 - 6.76)*	1.30(0.19 - 8.83)
	Not Affected	29(42.0)	9(20.5)	1	1
Future perspective	Affected	203 (91.0)	95(70.9)	4.17(2.31 - 7.53)*	4.09(2.03 – 8.25)*
	Not Affected	20(9.0)	39(29.1)	1	1
Systemic therapy side effects	Affected	201(89.3)	63(47.0)	9.44(5.49-16.24)*	12.93(6.34 – 26.38)*
	Not Affected	24(10.7)	71 (53.0)	1	1
Breast symptoms	Affected	166(73.8)	56(41.8)	3.92(2.49-6.17)*	7.91(2.61 – 9.22)*
	Not Affected	59(26.2)	78(58.2)	1	1
Arm symptoms	Affected	155(68.9)	55(41.0)	3.18(2.04-4.96)*	3.47(1.96 – 6.14)*
	Not Affected	70 (31.1)	79(59.0)	1	1
Upset by hair loss	Affected	104(58.1)	39(50.0)	1.39(0.81-2.37)*	1.29(0.60 – 2.80)
	Not Affected	75(41.9)	39(50.0)	1	1

6. DISCUSSION

In this study HRQOL was assessed among a group of breast cancer survivors who had been diagnosed, treated and followed up at TASRH. The mean scores for HRQOL were 60.53. Mean score of the breast cancer survivors in this study was compared to other international data. Most of the countries reported mean of HRQOL score above 50% [59, 60, 61, 41] which was consistent with the mean in this study. Mean scores for the functional scales varied between 56.11 and 65.69 in terms of QLQ-C30 scale. When the breast cancer specific QLQ-BR23 scale was taken into account, the mean scores for the functional scales were between 58.13 and 83.01 except future perspective. Most of the participant (52.8%) scored 0 points in terms of future perspective. This finding was inconsistent with the finding of the study in other country where our breast cancer survivors had low future perspective [41, 62]. This difference could be explained by the fact that those countries having psychosocial support integrated in their treatment modality unlike ours. Among the symptom scale scores the highest values were for fatigue, appetite loss and financial difficulties.

The present study found younger women (<50 years) reported better in HRQOL, physical functioning, role functioning, body image and future perspectives while more negatively affected sexual functioning than older women (≥ 50 years). The findings were similar to others studies reported that younger women had better HRQOL and Physical functioning than older women had [47, 28, 62, 15]. This findings was not supported by the results presented by, [47, 45, 46, 28, 63], that found older women (≥ 50 years) tended to report better body image, future perspective and HRQOL than younger women (<50 years). And with a studies reported that younger women had better sexual function than older women had [47, 28]. Whereas some studies reported no significant difference in sexual dysfunction and HRQOL between the younger and older breast cancer survivors [48, 41]. The present study found no significant differences in emotional, cognitive functioning, social functioning and sexual enjoyment between younger and older women of breast cancer survivors while; some research did find significant difference in terms of emotional and social functioning [15, 56]. Older women (≥ 50 years) had higher symptoms in fatigue, Insomnia, constipation, systematic therapy side effects, breast symptom and financial difficulties. Younger women (< 50 years) found to be more upset by hair loss than older women. Despite these findings ages were significantly negatively associated with HRQOL on Multivariate logistic analysis. This finding was consistent with studies that found negative association between age and HRQOL [47, 28]. Inconsistence with the study [45, 46] as they found positive association and with studies that didn't found any association [48]. The results of HRQOL researcher among age groups in breast cancer survivors still diverge.

There were no significant mean differences on all functional scales among marital status groups except in role functioning where participant whom were widowed had lower score. Participants who were single and married scored significantly higher on fatigue, nausea and vomiting, pain, dyspnoea, Insomnia, and appetite loss. Participants who were widowed scored significantly better on sexual enjoyment than single and

married participants. Single participants scored significantly higher on upset by hair loss than married ones.

Women who were illiterate had scored lower score in HRQOL, physical, role functioning and social functioning, this result was consistent with the previous studies that showed a significant relationship between the level of education and HRQOL [63, 20]. A further finding stated that education was found to be significantly helping a patient cope with breast cancer [64]. A study conducted in turkey didn't found significant difference in HRQOL, physical and social functioning by level of education. [43]. This study didn't found any significant difference in body image while study conducted in turkey found body image were better for those with primary education [41]. This positive relationship between educational level and HRQOL points out the need to support breast cancer survivors who have low educational level in the process of improving their HRQOL.

Studies have concluded that there is a negative relationship between income with physical and emotional well-being and HRQOL among breast cancer survivors [64, 40]. Our result, however, was in contrast with a study which reported that no effect of financial status was found on HRQOL and functional and symptom scales [65]. Despite the mean difference on the income groups; on multivariate analysis this study found that low monthly income is associated with affected HRQOL.

Outpatients had better HRQOL, Physical, role, social functioning and body image, and lower fatigue, appetite loss, financial difficulties, systemic therapy side effects, arm symptom, breast symptoms and upset by hair loss. This result was inconsistent with study conducted in Japan which found significant difference only on the physical functioning; where outpatient had better physical functioning than inpatient among breast cancer patients; however the same study didn't found significant difference in HRQOL, symptom and functional scales [66]. For this inconsistency as study conducted in other country hospitalization criteria of the hospital, back ground variables of the sample age, stage of cancer and co morbidity differences among the groups might be the reason.

Studies reported there is a relationship between the duration of breast cancer diagnosis and HRQOL and all its dimensions [67]. According to Kessler, HRQOL is more severely affected in patients newly diagnosed with breast cancer [42]. However, this study did not find significant differences for HRQOL among patients with different duration of diagnosis. Among the function scales only emotional functioning showed a consistency with the results of these studies where emotional functioning was better among those with longer duration. This study found symptoms such as fatigue, pain, appetite loss, dyspnoea, insomnia, breast symptoms, arm symptoms and systemic therapy effects were common among those with long duration. While the study done in Turk found all symptom scales being common among those with short duration of diagnosis [41]. Despite the mean difference among the group by time of diagnosis, on multivariate analysis this study found that longer duration of diagnosis is associated with affected HRQOL.

Breast cancer survivors of this study with advanced stage breast cancer had lower HRQOL, physical, role, emotional, and social functioning than those with early stage cancer and they also presented with more symptom scales. This result was consistent with the results found by, [63, 20, 43, 41] that in general patients with advanced cancer have more difficulty in adjusting and they experienced greater distress than those with early stage disease thus have lower HRQOL and other domains. The result of present study, however, was inconsistent with findings of some other studies that indicated that there was no relationship between the histological grade and the HRQOL [41]. However, in this study significant differences were not found in terms of body image, sexual functioning, sexual enjoyment and future perspective among patients at different stages of the disease. Despite the mean difference among women's groups by stage of cancer, on multivariate analysis this study found that being stage four is associated with affected HRQOL.

Breast cancer survivors whom were on only chemotherapy was found to have lower HRQOL, physical, role, emotional, cognitive and social functioning, higher symptom and better in body image than women's treated with surgery and combination treatment modality (surgery with chemotherapy). This study didn't found significant difference in sexual functioning, sexual enjoyment and future perspective among women on different treatment modality. The finding of this study was consistent with the finding of the study in Ghana that Patients who had undergone surgery and were receiving radiotherapy had the highest mean quality of life score followed by patients who were receiving chemotherapy after surgery [68].

Women with co-morbidity was found to have lower HRQOL, social functioning, body image, sexual functioning, sexual enjoyment and future perspective also they had higher symptoms, like fatigue, nausea and vomiting, appetite loss, constipation, arm symptoms, systemic therapy side effects, breast symptoms, arm symptoms, and financial difficulties. The findings of this study are largely consistent with previous research linking chronic disease to aspects of HRQOL among cancer survivors [15, 69, 29, 31, 70] were they found that comorbidities had negative correlations with the HRQOL, domain of physical functioning, pain, vitality and social functioning. This study didn't found significant difference in physical functioning, role functioning, emotional functioning and cognitive functioning. Which were consistent with the study that found no significant associations between individual comorbidities and the domains of role-physical, social functioning, and role-emotional, emotional health [71]. Despite the mean difference among women's groups by presence and absence of comorbidity, Multivariate analysis in this study found that comorbidity is associated with affected HRQOL.

Despite findings, that all functional and symptom scales of QLQ C30 and QLQ –BR23 had any significant mean difference or not between the groups of difference soci-demographical and clinical characteristics. All affected functional and symptom scale variables of QLQ-C30 and QLQ-BR23 except sexual functioning, sexual enjoyment and upset by hair loss found to be associated with affected HRQOL.

7. STRENGTH AND LIMITATIONS OF THE STUDY

7.1. Strength of the Study

- ✓ This study tried to assess the level of health related quality of life and to identify associate factors among women breast cancer survivors which were not studied previously in TASRH. Therefore, the result of this study will serve as a baseline data for further studies.

7.2. Limitations of the Study

- ✓ The data were collected on self-report of study participants and may be subjected to recall bias and social desirability bias.
- ✓ Due to lack of similar studies done on level of health related quality of life and to identify associate factors among women breast cancer survivors in African countries particularly in Ethiopia, make discussion of result difficult. Baseline data were not assessed for this study.

8. CONCLUSION AND RECOMMENDATIONS

8.1. Conclusion

- ✓ From this study finding, the mean health related quality of life among breast cancer survivors was better and comparable with the international findings.
- ✓ Significant determinant of health related quality of life; age, low monthly income, higher year of diagnosis, co-morbidity and being stage four and all functional and symptom scale variables except sexual functioning, sexual enjoyment and upset by hair loss
- ✓ Older breast cancer survivors (≥ 50 years) and breast cancer survivors with low average monthly income were more affected HRQOL.
- ✓ Breast cancer survivors with longer time since diagnosis (> 5 years) had more affected HRQOL compared to short time of diagnosis.
- ✓ Breast cancer survivors with comorbidity had more affected health quality of life compared to those without comorbidity.
- ✓ Breast cancer survivors who had affected functional and symptom scales were associated with affected HRQOL.

8.2. Recommendations

- ✓ It is important that HRQOL assessments should be included in patient treatment protocols in order to improve the health of breast cancer survivors.
- ✓ Healthcare providers need to focus on designing psychosocial interventions to improve future perspective and HRQOL concurrently with other therapeutic management
- ✓ Women with financial difficulties should be helped to overcome the challenge.
- ✓ Preparing both younger and older women for the age-related impact of breast cancer and helping them to deal with their problems may improve their HRQOL.
- ✓ It is recommended that further research to be undertaken and data from comparable groups of women without breast cancer might be interesting to explore in comparison.

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Annex – I, QUESTIONNAIRES

Addis Ababa University
College of health science
School of Public Health

Dear participant of the study

I am working on my thesis at school of Public Health College of health science Addis Ababa University. I would like to ask you a few questions regarding your health status and services provided to you. The interview would take a maximum of 10 minutes of your time. The purpose of this study is to get evaluate the quality of life. This will be helpful in improving the service delivery the choice of treatment and give priority to the unmet needs. Your participation is completely voluntary. You can refuse to answer any questions and/or withdraw from the study at any time without a problem to you or the services you get in the hospital. All your responses will remain strictly confidential: the hospital staff will not have access to your responses, your name will not appear on the interview guide (will not be recorded), and your responses will not be linked to your identity at any time.

Do I have your permission to continue?

Yes ☐

No ☐

If Yes, Continue to the Next Page

If No, Skip to the next Respondent

Part 1. Socio-demographic Characteristics of Respondents

101. How old are you? Age in years _____

102. Marital Status

☐ Single

☐ Married

☐ Divorced

☐ Widowed

103. How many year has it been since diagnoses with breast cancer

104. Education Level

☐ Illiterate

☐ Informal education

☐ Formal education(please write the extent).....

105. Monthly income in birr _____

Part 2 - Medical Characteristics (to be filled through chart review by data collectors)

201. Medical Service Status

☐ Outpatient level

☐ Inpatient level

202. Current Cancer Stage _____

203. Current Type of Anticancer Treatment

☐ Surgery ☐ Chemotherapy only ☐ Radiation only ☐ Combination modalities

204. Presence of other disease.....

Part 3.

Please circle or mark one number per line to indicate your response as it applies to the past 7 days.

		Not at All	A little	A Quite Bit	Much		
301.	Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?	1	2	3	4		
302.	Do you have any trouble taking a long walk?	1	2	3	4		
303.	Do you have any trouble taking a short walk outside of the house?	1	2	3	4		
304.	Do you need to stay in bed or a chair during the day?	1	2	3	4		
305.	Do you need help with eating, dressing, washing yourself or using the toilet?	1	2	3	4		
306.	Were you limited in doing either your work or other daily activities?	1	2	3	4		
307.	Were you limited in pursuing your hobbies or other leisure time activities?	1	2	3	4		
308.	Were you short of breath?	1	2	3	4		
309.	Have you had pain?	1	2	3	4		
310.	Did you need to rest?	1	2	3	4		
311.	Have you had trouble sleeping?	1	2	3	4		
312.	Have you felt weak?	1	2	3	4		
313.	Have you lacked appetite?	1	2	3	4		
314.	Have you felt nauseated?	1	2	3	4		
315.	Have you vomited?	1	2	3	4		
316.	Have you been constipated?	1	2	3	4		
317.	Have you had diarrhea?	1	2	3	4		
318.	Were you tired?	1	2	3	4		
319.	Did pain interfere with your daily activities?	1	2	3	4		
320.	Have you had difficulty in concentrating on things, like reading a newspaper or watching television?	1	2	3	4		
321.	Did you feel tense?	1	2	3	4		
322.	Did you worry	1	2	3	4		
323.	Did you feel irritable?	1	2	3	4		
324.	Did you feel depressed?	1	2	3	4		
325.	Have you had difficulty remembering things?	1	2	3	4		
326.	Has your physical condition or medical treatment interfered with your family life?	1	2	3	4		
327.	Has your physical condition or medical treatment interfered with your social activities?	1	2	3	4		
328.	Has your physical condition or medical treatment caused you financial difficulties?	1	2	3	4		
For the following questions please circle the number between 1 and 7 that best applies to you:							
329.	How would you rate your overall health during the past week?						
Very poor		Excellent					
1		2	3	4	5	6	7
330.	How would you rate your overall quality of life during the past week?						
Very poor		Excellent					
1		2	3	4	5	6	7

Part 4.

Please circle or mark one number per line to indicate your response as it applies to the past 7 days.

		Not at All	A little	A Quite Bit	Much
401.	Did you have a dry mouth?	1	2	3	4
402.	Did food and drink taste different than usual?	1	2	3	4
403.	Were your eyes painful, irritated or watery?	1	2	3	4
404.	Have you lost any hair?	1	2	3	4
405.	Answer this question only if you had any hair loss: Were you upset by the loss of your hair?	1	2	3	4
406.	Did you feel ill or unwell?	1	2	3	4
407.	Did you have hot flushes?	1	2	3	4
408.	Did you have headaches?	1	2	3	4
409.	Have you felt physically less attractive as a result of your disease or treatment?	1	2	3	4
410.	Have you been feeling less feminine as a result of your disease or treatment?	1	2	3	4
411.	Did you find it difficult to look at yourself naked?	1	2	3	4
412.	Have you been dissatisfied with your body?	1	2	3	4
413.	Were you worried about your health in the future?	1	2	3	4
414.	To what extent were you interested in sex?	1	2	3	4
415.	To what extent were you sexually active? (with or without intercourse)	1	2	3	4
416.	Answer this question only if you have been sexually active: To what extent was sex enjoyable for you?	1	2	3	4
417.	Did you have any pain in your arm or shoulder	1	2	3	4
418.	Did you have a swollen arm or hand?	1	2	3	4
419.	Was it difficult to raise your arm or to move it sideways?	1	2	3	4
420.	Have you had any pain in the area of your affected breast?	1	2	3	4
421.	Was the area of your affected breast swollen?	1	2	3	4
422.	Was the area of your affected breast oversensitive?	1	2	3	4
423.	Have you had skin problems on or in the area of your affected breast (e.g., itchy, dry, flaky)?	1	2	3	4

አዲስ አበባ የኒቨርሲቲ

የማህበረሰብ ጤና ትምህርት ቤት

የጤና ሳይንስ ትምህርት ቤት

ውድ የዚህ ጥናት ተሳታፊዎች

በቅድሚያ በዚህ ጥናት ለመሳተፍና ይህንን መጠይቅ ለመሙላት ፍቃደኛ በመሆንዎ ምስጋናዬ የላቀ ነው። የዚህ ጥናት አላማ ስለ እርስዎ ጤንነትና ስለሚደረግልዎት ህክምና ለማጥናት ነው። መጠይቁ ከጊዜዎ ቢበዛ 10 ደቂቃ የሚወስድ ሲሆን በዚህ ጥናት ውስጥ የእርስዎ ተሳታፊነት ሙሉ በሙሉ በእርስዎ ፈቃደኝነት ላይ የተመሰረተ ነው። በዚህ ጥናት ውስጥ ለመሳተፍዎ ሆነ ላለመሳተፍ መወሰንዎ በሆስፒታሉ ውስጥ በሚያገኙት አገልግሎት ላይ ምንም አይነት ተጽእኖ የማይኖረው ሲሆን ቃለ መጠይቁን በማንኛውም ሰዓት ማቋረጥ ወይም ጥያቄዎችን አለመመለስ ይችላሉ። በጥናቱ ውስጥ ለተነሱት ጥያቄዎች የሚሰጧቸው መልሶች ሙሉ በሙሉ በምስጢር የሚጠበቁ ሲሆን የእርስዎም ስም በማንኛውም መልኩ በጥናቱ ውስጥ አይገለጽም፤ እንዲሁም የሚሰጡት ምላሽ ከእርስዎ ማንነት ጋር በማንኛውም መልኩ አይያያዝም። በዚህ መጠይቅ ውስጥ ለቀረቡት ማንኛውም ጥያቄዎች ትክክለኛ ወይም የተሳሳቱ የሚባሉ ምላሾች የሉም። ዋናው የሚፈለገው በእነዚህ ጥያቄዎች ወይም አረፍተ ነገሮች ዙሪያ ያለዎት ምላሽ ነው።

በጥናቱ ለመሳተፍ ፍፈቃደኛነዎት?

አዎ ☐

አይደለሁም ☐

- ፈቃደኛ መሆናቸውን ካረጋገጡ ቃለመጠይቁን ይጀምሩ
- ፈቃደኛ ካልሆኑ ወደ ሚቀጥለው ተገልጋይ ይሸጋገሩ

ክፍል 1 - የግልመረጃ

101. እድሜዎት ምን ያህል ነው? _____ ዓመት

102. የጋብቻ ሁኔታ:

- | | |
|--------------------------------|---|
| ☐ ያላገባች | ☐ በህግ አግብተው የፈቱ |
| ☐ ባለትዳር | ☐ የትዳር ጓደኛን በሞት ያጡ |

103. በሽታው እንዳለበዎት ከተረጋገጠ ስንት ዓመት ሆነው _____.

104. የትምህርት ደረጃ ?

- ☐ ያልተማረች ☐ መደበኛ ያልሆነ ት/ት
- ☐ መደበኛ ት/ት (የደረሰብት ደረጃ ይገለጽ) _____

105. ወርሃ ገቢ በብር: _____.

ክፍል 2 - Medical Characteristics (to be filled through chart review by data collectors)

201. Medical Service Status

- ☐ Outpatient level ☐ Inpatient level

202. Current Cancer Stage _____

203. Current Type of Anticancer Treatment

- ☐ Surgery ☐ Chemotherapy only ☐ Radiation only ☐ Combination modalities

205. Presence of other disease.....

ክፍል 3-

ለሚከተሉት ጥያቄዎች ከሳምንት በፊት የነበሩበት ሁኔታ እና የተሰማዎትን ስሜት በማገናዘብ ከተሰጡት አራት አማራጮች ውስጥ አንዱን ይምረጡ፡፡

1. በፍፁም

2. በጣም በትንሹ

3. በመጠኑ

4. በአብዛኛው

	ባለፈው ሳምንት	በፍፁም	በጣም በትንሹ	በመጠኑ	በአብዛኛው				
301.	ከበድ ከበድ ያሉ ስራዎችን ለመስራት ተቸግረዋል(ለምሳሌ ከበድ ያሉ እቃዎች ለማንሳት)	1	2	3	4				
302.	ረዘም ያለ የእግርጉዞ ለመጓዝ (ለማድረግ) ተቸግረዋል	1	2	3	4				
303.	ከቤትዎ ደጃፍ ወይም በቤትዎ ውስጥ አጭር የእግር ጉዞ ለማድረግ ተቸግረዋል	1	2	3	4				
304.	በስራዎ ሰዓት በአልጋ ላይ ወይም በወንበር ላይ መቀመጥ (ማረፍ) ያስፈልጋታል	1	2	3	4				
305.	ለመመገብ፤ ለመልበስ፤ ለመታጠብ ወይም መፀዳጃ ቤት ለመጠቀም እርዳታ ይፈልጋሉ	1	2	3	4				
306.	የተለያዩ የዕለት ተዕለት ተግባሮዎችን (እንቅስቃሴዎችን) ለማከናወን ተቸግረው (ተወስነው) ነበር	1	2	3	4				
307.	ከዚህቀደም በትርፍ ጊዜዎት ያደርጉት የነበረውን ለማከናወን ተቸግረው (ተወስነው) ነበር	1	2	3	4				
308.	የመተንፈስ እክል አጋጥሞዎት ነበር	1	2	3	4				
309.	የእራስ ህመም አጋጥሞዎት ነበር	1	2	3	4				
310.	ከህመሞዎት ጋር ተያይዞ እረፍት ማድረግ አስፍልጎት ነበር	1	2	3	4				
311.	የእንቅልፍ ማጣት ችግር ገጥሞዎት ነበር	1	2	3	4				
312.	የድካም ወይም የመዛል ስሜት ተሰምትዎት ነበር	1	2	3	4				
313.	የምግብ ፍላጎትዎት ቀንሶ ነበር	1	2	3	4				
314.	የማቅለሽለሽ ስሜት ተሰምትዎት ነበር	1	2	3	4				
315.	አስመልስዎት ነበር	1	2	3	4				
316.	የሆድ ድርቀት አጋጥሞዎትነበር	1	2	3	4				
317.	ተቅማጥ አስቀምጦ ነበር	1	2	3	4				
318.	ድካም ስሜት ተሰምትዎት ነበር	1	2	3	4				
319.	ሕመሞዎት የዕለት ተዕለትተግባሮት (ስራዎት) ላይ ጫና አሳድሯል	1	2	3	4				
320.	ለነገሮች ትኩረት ለማድረግ (ለምሳሌ ለማንበብ፤ ቴሌቪዝን ለመመልከት) ተቸግረው ነበር	1	2	3	4				
321.	የመወጣጠር ስሜት ተሰምትዎት ነበር	1	2	3	4				
322.	ጭንቀት ነበረቦዎት	1	2	3	4				
323.	የብስጭት ስሜት ተሰምትዎት ነበር	1	2	3	4				
324.	የድብርት ስሜት ተሰምትዎት ነበር	1	2	3	4				
325.	የተወሰኑ ነገሮችን የማስታወስ ችግር ነበረቦዎት	1	2	3	4				
326.	ለእርሶ የሚደረግልዎት ህክምና ወይም የሚገኙበት አካላሚ ሁኔታ በቤተሰብ ላይ ተጽዕኖ ፈጥሯል	1	2	3	4				
327.	ለእርሶ የሚደረግልዎት ህክምና ወይም የሚገኙበት አካላሚ ሁኔታ በማኅበራዊ ኑሮዎት ላይ ተጽዕኖ አምጥቷል	1	2	3	4				
328.	ለእርሶ የሚደረግልዎት ህክምናወይም የሚገኙበት አካላሚ ሁኔታ በገቢዎት እና ወጪዎት ላይ ችግር ፈጥሮበታል	1	2	3	4				
ለሚከተሉት ጥያቄዎች ከ1 እስከ 7 ለእርሶ የሚስማማዎት ያክብቡ									
329.	ባለፈው ሳምንት የነበሩበትን የጤና ሁኔታ አንዴት ያዩታ (ይገልጹታል)፡፡								
1		2		3	4	5	6	7	
እጅግ በጣም ደካማ								እጅግ በጣም ጥሩ	
330.	ባለፈው ሳምንት የነበሩበትን አጠቃላይ የህይወትዎን ሁኔታ እንዴት ያዩታል (ይገልጹታል)፡፡								
1		2		3	4	5	6	7	
እጅግ በጣም ደካማ								እጅግ በጣም ጥሩ	

ክፍል 4

ለሚከተሉት ጥያቄዎች ከሳምንት በፊት የነበሩበት ሁኔታ እና የተሰማዎትን ስሜት በማገናዘብ ከተሰጡት አራት አማራጮች ውስጥ አንዱን ይምረጡ፡፡

1. በፍፁም

2. በጣም በትንሹ

3. በመጠኑ

4. በአብዛኛው

	ባለፈው ሳምንት	በፍፁም	በጣም በትንሹ	በመጠኑ	በአብዛኛው
401.	አፎት አከባቢ (ከነፈሮት፣ በአፎት ወስጣዊ ክፍሎች) ድርቀት አጋጥሞዎት ነበር	1	2	3	4
402.	የተመገቡት ምግብ ወይም የጠጡት መጠጥ(ውሃ፣ለስላሳ...) ከተለመደው የተለየ ጣዕም ነበራቸው	1	2	3	4
403.	ዓይኖችን የህመም፣ የመቆርቆር ወይም የማልቀስ ስሜት ገጥሞዎት ነበር	1	2	3	4
404.	የፀጉር መነቃቀል ገጥሞዎት ነበር	1	2	3	4
405.	የፀጉር መነቃቀል ገጥሞዎት ከነበረ በሁኔታው ተናደው (ተበሳጭተው) ነበር	1	2	3	4
406.	ህመም ተሰምትዎት ነበር	1	2	3	4
407.	በፊቶች ላይ ወይም በጠቅላላ ሰውነትዎች ላይ የሙቀት ስሜት፣ ፈጣን የልብ ምት አጋጥሞዎት ነበር	1	2	3	4
408.	የእራስ ህመም አጋጥሞዎት ነበር	1	2	3	4
409.	ለእርሶ በሚደረግሎት ህክምና ወይም በህመሞዎት የተነሳ ያሉበት አካለዊ ሁኔታ ከዚህ ቀደም ከነበሩበት የሚሰብ አየደለም ብለው ያምናሉ	1	2	3	4
410.	በህመሞ ምክንያት ሙሉ ሴት አይደለውም ብለው ያምናሉ	1	2	3	4
411.	በህመሞ የተነሳ እራስዎትን ያለልብስ (እራቁትዎን) ለመመልከት ይከብድዎታል	1	2	3	4
412.	በሰውነትዎት ደስተኛ አይደሉም	1	2	3	4
413.	ስለ ወደፊቱ ጤናዎት ያሳስበዎታል	1	2	3	4
414.	ለግብረ ስጋ (ለፍቅር) ግንኙነት ፍላጎት ነበርዎት	1	2	3	4
415.	የግብረ ስጋ (የፍቅር) ግንኙነት ፈጽመው ነበር	1	2	3	4
416.	በግብረስጋ (በፍቅር) ግንኙነት ወቅት ደስተኛ ነበሩ	1	2	3	4
417.	በትከሻዎት ወይም በእጅዎት ላይ ህመም ተሰምትዎት ነበር	1	2	3	4
418.	በክድኖ ወይም በእጅዎት ላይ እብጠት ነበረዎት	1	2	3	4
419.	እጅዎትን ለማንሳት ወይም ወደ ጎን ለማንቀሳቀስ ተቸግረው ነበር	1	2	3	4
420.	በታመመው የጡት አከባቢ የህመም ስሜት ይሰማዎት ነበር	1	2	3	4
421.	በታመመው የጡት አከባቢ እብጠጥ ነበረዎት	1	2	3	4
422.	በታመመው የጡት አከባቢ በጣም ትንሽ የሆነ ንክኪ ህመም ይፈጥቦታል(ይሰማዎታል)	1	2	3	4
423.	በታመመው የጡት አከባቢ የቃዳ ችግር (የማሳከክ፣ የመድረቅ) ነበረዎት	1	2	3	4

Annex- II, Declaration:

I, the under signed, declared that this is my original work and has not presented in this or any other University and all sources of materials used for this thesis have been duly acknowledged.

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This thesis work has been submitted for examination with my approval as university advisor

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