



Anxiety and Depression in Patients with Breast Cancer: A Cross-sectional Study

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Abstract

BACKGROUND: The early management for distress, depression, and anxiety in breast cancer patients can help improve quality of life that adherence patients to cancer treatment.

AIM: This study aimed to describe the prevalence and risk factors of anxiety and depression symptomatology of breast cancer patients in the inpatients and outpatient settings.

METHODS: This study used a research and development study design. The study was conducted in at the University Clinical Center of Kosovo the Medical Oncology Clinic in Pristina from August to October 2021. The total sample in this study consisted of 50 female breast cancer patients diagnosed at least 6 months before the date of assessment, aged 18 and above, able to communicate in Albanian, signed an informed consent form, negative history of other malignancies, and absence of any temporary acute illness affecting psychological well-being while filling the questionnaire. Questionnaire used in our study is Hospital Anxiety and Depression Scale for assessing anxiety and depression in breast cancer patients.

RESULTS: For anxiety score, some of them were caseness level with 82%, while 26% of study participants were in borderline, 6% in caseness, and some of them were in normal level from 68% on the depression score. The patients feel tense or wound up with 44% Mean/SD (14.67 ± 6.02), about feeling afraid that something terrible will happen and patients may have this feel Mean/SD (13 ± 1.66). Over half of them had the feeling of fear as if something awful is about to happen Mean/SD (11.33 ± 4.03) and that the feeling of fear as if they had “butterflies” in the stomach of 62% had the feeling sometimes, beautiful often, and very often Mean/SD (10.33 ± 4.92).

CONCLUSION: The results indicate that it is very important to measure the level of anxiety and depression in women with breast cancer, which are two common mental disorders in breast cancer.

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Introduction

Breast cancer is the most commonly diagnosed cancer globally and continues to be second only to lung cancer as causes of cancer death [1]. The American Cancer Society estimates that 284,000 Americans will be diagnosed with breast cancer and 44,130 will die of the disease in the United States in 2021 [2].

Breast cancer has exceeded lung cancer as the most commonly diagnosed cancer and the fifth cause of cancer deaths in the world, with an estimated 2.3 million cases and 685,000 deaths in 2020 [1], and the cases are expected to reach 4.4 million in 2070 [3].

Among women, breast cancer accounted for approximately 24.5% of all cancer cases and 15.5% of cancer deaths, ranking first for incidence and mortality in the majority of the world countries in 2020 [1].

Distress is a risk factor for no adherence to cancer treatment [4], [5]. In addition to decreased adherence to treatment, failure to recognize and treat

distress may lead to several problems: Patients may have trouble making decisions about treatment and may make extra visits to the physician's office and emergency room, which takes more time and causes greater stress to the oncology team [6], [7].

An analysis of 1036 patients with advanced cancer showed that distress is associated with longer hospital stays ($p = 0.04$) [8]. Distress in patients with cancer also leads to poorer quality of life and may even negatively affect survival [9], [10], [11], [12]. Furthermore, survivors with untreated distress have poorer compliance with surveillance screenings and are less likely to exercise and quality smoking [13].

Fortunately, factors such as early diagnosis, successful treatment, and correction of risk factors have increased the life expectancy of patients with breast cancer in recent years. On the other hand, the treatment of breast cancer and its side effects after the first treatment may be followed by negative effects on quality of life in these patients [14]. Side effects of the treatment in women under treatment for breast cancer can directly affect the quality life at home and workplace [15].

Patients with breast cancer need complete and comprehensive physical, mental, and social care so that they can enjoy life with proper quality [16].

Breast cancer and its subsequent treatment are a great source of anxiety and depression in patients [17]. One can expect a patient to experience a decline in his/her perceived quality of life during cancer therapy. Surgery, radiation, chemotherapy, and other kinds of interventions carry an array of side effects. Some of these adverse events are well tolerated by patients but many can be debilitating. This makes the goal discussed earlier difficult to maintain during active treatment [18].

Many studies have highlighted the importance of providing early management for depression and anxiety in breast cancer patients. This can help improve rates and quality of life, as well as reduce health-care costs [19], [20], and [21]. The primary aim of this study is to describe the prevalence and risk factors of anxious and depression symptomatology of breast cancer patients in the inpatient and outpatient settings based on the Hospital Anxiety and Depression Scale (HADS) questionnaire. Psychological, emotional, and medical support can be directed to breast cancer patients to control their psychological problems and improve their clinical outcome in living with breast cancer. Early identification is critical in the management of anxious and depressive symptoms and plays an important role in improving their adherence to therapy, chemotherapy, and the overall control of the disease.

Materials and Methods

Study design

This is an across-sectional study conducted among female breast cancer patients treatment between August 2021 and October 2021 at the University Clinical Center of Kosovo (UCCK), a tertiary care academic center in Pristina. Interviews were conducted at the Medical Oncology Clinic of UCCK.

Eligibility criteria

Patients were included in the study if they fulfilled the following inclusion criteria: Female breast cancer patients diagnosed at least 6 months before the date of assessment, aged 18 and above, able to communicate in Albanian or English, signed an informed consent form, negative history of other malignancies, and absence of any temporary acute illness affecting psychological well-being while filling the questionnaire.

Patients were excluded if they were unable to attend or complete the interview due to time constraints, refused to participate in the study or chose

later to withdraw from it, and had a history of psychiatric disorder before breast cancer diagnosis.

Sample size

The selection of patients included in the study was randomized by analyzing inclusive and exclusion criteria.

Study instrument

Participants were interviewed that once the aim of the study was explained and written informed consent was obtained.

Questionnaire used in our study: HADS for assessing anxiety and depression in breast cancer patients. This questionnaire translated into Albanian was distributed to patients.

The HADS contains 14 items and consists of two subscales: Anxiety and depression. Each item is rated on a 4-point scale, giving maximum scores of 21 for anxiety and depression. Scores of 11 or more on either subscale are considered to be a significant "case" of psychological morbidity, while scores of 8–10 represent "borderline" and 0–7 "normal" [22].

Statistical analysis

Values are expressed as Mean \pm SD for continuous variables and percentage for dichotomous data. Quantitative data were analyzed through the SPSS statistical program.

Results

Out of 76 patients invited to participate, 50 women fulfilled the study inclusion criteria and completed the interview. The mentioned reasons for not participating were time constraints ($n = 6$), feeling tired ($n = 8$), or unwillingness to share their experience ($n = 12$).

Characteristics of the study sample

Table 1 summarizes the sociodemographic and clinical characteristics of our study sample. The most patients at the time of interview were aged 49–49 years old (64%), married (76%), and had completed a secondary or university level of education (80%); 66% of them lived in the city and 58% of them had 1–2 children. Regarding clinical characteristics, the percentage of patients diagnosed with Stage 0–I, II, III, and IV cancer was 18%, 68%, 8%, and 6%, respectively. Furthermore, most patients had oncoectomy (62%), chemotherapy

Table 1: Demographic and clinical characteristics of the study population n = 50

Demographic and Clinical Characteristics	No	%
Age (years)		
24–29	1	2
30–39	3	6
40–49	32	64
50–59	13	26
60–69	1	2
Educational status		
Illiterate	2	4
Primary	8	16
Secondary	15	30
College/university	25	50
Place of residence		
Urban	33	66
Rural	17	34
Marital status		
Married	38	76
Single	1	2
Divorced	11	22
Number of children		
0	1	2
1–2	29	58
≥3	20	40
Surgical therapy		
Mastectomy	19	38
Ongectomy	31	62
Adjuvant therapy		
Chemotherapy and Radiotherapy	4	8
Chemotherapy	38	76
Radiotherapy	8	16
Using tamoxifen		
Yes	36	72
No	14	28
Stage of breast cancer		
I	9	18
II	34	68
III	4	8
IV	3	6
The time of diagnosis		
01–12 months	5	10
13–24 months	41	82
> 3 years	4	8
Disease stage		
Local	11	22
Loco-regional	32	64
Metastatic	7	14
Anxiety score		
Normal (0–7)	3	6
Borderline (8–10)	6	12
Caseness (11–21)	41	82
Depression score		
Normal (0–7)	34	68
Borderline (8–10)	13	26
Caseness (11–21)	3	6

(76%), and the most of them using Tamoxifen (72%) (Table 2).

Living with breast cancer that from time to time patients feel tense or wound up with 44% Mean/SD (14.67 ± 6.02), while in terms of feeling afraid that something terrible will happen, patients may have this feeling but did not feel very bad (29%) with Mean/SD (13 ± 1.66). Whether they have disturbing thoughts that cross your mind here show that (32%) of them have these thoughts a large part of the time. Living with breast cancer increases the risk of decreased concentration in daily life but this fortunately did not results in our work where (54%) of them stated that they usually feel relaxed Mean/SD (14 ± 8.73), and 40% of them do not feel restless when they are moving Mean/SD (12 ± 5.41), regarding the feeling of panic 32% do not have Mean/SD (14 ± 2.96) (Table 3).

Even after being diagnosed with breast cancer during treatment with chemotherapy and radiotherapy, most patients stated that they still enjoy the things as

Table 2: Lists the means and standard deviations for each of the HADS – A (Hospital Anxiety and Depression Scale – ANXIETY

HADS-A			N	%	Mean (SD)
1	3	I feel tense or	6	12	14.67 (6.02)
	2	'wound up':	9	18	
	1	From time to time, occasionally	22	44	
	0	Not at all	13	26	
	Total		50	100	
3	3	I get a sort of	11	23	13 (1.66)
	2	frightened feeling as	15	29	
	1	if something awful is	11	22	
	0	about to happen:	13	26	
	Total		50	100	
5	3	Worrying thoughts	16	32	11.33 (4.03)
	2	go through my mind:	9	18	
	1	From time to time, but not too often	17	34	
	0	Only occasionally	8	16	
	Total		50	100	
7	0	I can sit at ease and	8	16	14 (8.73)
	1	feel relaxed:	27	54	
	2	Usually	11	22	
	3	Not Often	4	8	
	Total		50	100	
9	0	I get a sort of	19	38	10.33 (4.92)
	1	frightened feeling	15	30	
	2	like 'butterflies' in the	10	20	
	3	stomach:	6	12	
	Total		50	100	
11	3	I feel restless as I	14	28	12 (5.41)
	2	have to be on the	5	10	
	1	move:	20	40	
	0	Not at all	11	22	
	Total		50	100	
13	3	I get sudden feelings	8	16	14 (2.96)
	2	of panic:	14	28	
	1	Quite often	16	32	
	0	Not very often	12	24	
	Total		50	100	

before by (52%) Mean/SD (8 ± 9.07), also they laugh and see the funny side of things of (52%) Mean/SD (9 ± 6.42), while when asked if they feel cheerful here, we have a decrease in the feeling of joy of (48%) sometimes stated Mean/SD (7.76 ± 14.33) also of (40%) think that they feel like they have slowed

Table 3: Lists the means and standard deviations for each of the HADS – D (Hospital Anxiety and Depression Scale – Depression)

HADS-D			n	%	Mean (SD)
2	0	I still enjoy the	26	52	8 (9.07)
	1	things I used to	15	30	
	2	enjoy:	7	14	
	3	Hardly at al	2	4	
	Total		50	100	
4	0	I can laugh and	23	46	9 (6.42)
	1	see the funny	12	24	
	2	side of things:	9	18	
	3	Definitely not so much now	6	12	
	Total		50	100	
6	3	I feel cheerful:	7	14	14.33 (7.76)
	2	Not often	4	8	
	1	Sometimes	24	48	
	0	Most of the time	15	30	
	Total		50	100	
8	3	I feel as if I am	12	24	12.67 (4.56)
	2	slowed down:	10	20	
	1	Very often	20	40	
	0	Sometimes	8	16	
	Total		50	100	
10	3	I have lost	3	6	15.67 (11.49)
	2	interest in my	7	14	
	1	I don't take as much care as I should	8	16	
	0	appearance:	32	64	
	Total		50	100	
12	0	I look forward	19	38	10.33 (5.02)
	1	with enjoyment	12	24	
	2	to things:	14	28	
	3	Definitely less than I used to	5	10	
	Total		50	100	
14	0	I can enjoy a	18	36	10.67 (3.35)
	1	good book or	8	16	
	2	radio or TV	11	22	
	3	program:	12	24	
	Total		49	100	

down in their Mean/SD (12.67 ± 4.56), fortunately the interest regarding their appearance has not lost (64%) Mean/SD (16.67 ± 11.41), (38%) of them things expect with the same pleasure as always Mean/SD (10.33 ± 5.02) and when asked if you enjoy reading a book or TV program stated more often, sometimes, not often, and very seldom (36%), (18%), (22%), and (24%) Mean/SD (10.67 ± 3.35).

Discussion

In terms of anxiety and depression are common and significant morbidities in the studied breast cancer population. The total HADS score as well as the percentages of patients suffering from anxiety and depression is comparable to regional and international Figure 1.

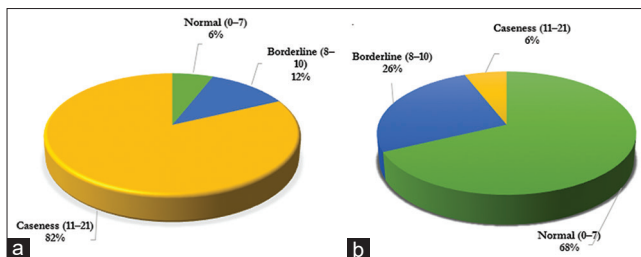


Figure 1: Percentage of participants classified as normal, mild, moderate, and severe according to their (a) anxiety score and (b) depression score

Anxiety and depression coexisting during cancer diagnosis and treatment are a source of major distress in breast cancer patients and have a negative impact on the prognosis, treatment adherence, survival rate, and quality of life [23].

Numerous studies have demonstrated that approximately one-quarter to one-third of breast cancer patients suffer from distress, anxiety, and depression following diagnosis and treatment of breast cancer [24]. A sectional study conducted on female breast cancer patients that undergoing intravenous chemotherapy at the oncology outpatient unit of Hotel-Dieu de France hospital when total of 112 women was included in the study. The prevalence of depression was 43.4% and 56.2% of the patients reported anxiety (based on the HADS classification) [25].

A study conducted on female breast cancer patients in Jordan and noted a mean total HADS score of 18.0 ± 9.0 with 53% of participants scoring abnormal on the anxiety subscale and 45% on the depression scale. Around 14% of patients suffered severe anxiety and 8% had severe depression [26], [27], [28].

A possible explanation for why these figures are higher than those reported in our study is that the majority of patients were second stage of breast cancer (68%) in our study.

This is consistent with findings from Burgess *et al.* (2005) that showed anxiety and depression first stage of breast cancer were more likely to occur early on in the disease course. It is, therefore, expected that levels of anxiety and depression improve with time since diagnosis [18].

The results found in our paper regarding the time period of diagnosis; most of them 82% were diagnosed in the time period of 12–24 months. The findings showed that the emotional functioning domain had the lowest mean score and time of disease diagnosis for the majority of patients that were in the 1st year [29], [30]. The findings of the mentioned study are consistent with the present study. This showed that in both studies not much time had passed the diagnosis of the disease and chemotherapy, surgery, and combinations treatments in these patients and still some patients suffer from destructive mental and emotional effects due to the diagnosis and treatment of their disease.

Quality of life is considered as an effective structure in the lives of patients with breast cancer and early diagnosis of breast cancer has significant positive effects on the quality of life and may increase the survival rate of these patients [27].

The results obtained by Holzner *et al.* in Australia regarding the relationship between time of disease diagnosis and quality of life showed that the duration of disease decreased the quality of life in patients with cancer [28], which is consistent with our findings because 64% of them were in the Loco-regional stage and 14% in the metastatic. Over half of them had the feeling of fear as if something awful is about to happen Mean/SD (11.33 ± 4.03) and that the feeling of fear as if they had “butterflies” in the stomach of 62% had the feeling sometimes, beautiful often, and very often Mean/SD (10.33 ± 4.92).

This can be due to mental and psychological problems during disease diagnosis period and the shock induced by being informed of the disease [29], [30], [31], [32], [33].

One finding was that there were differences between illiterate and literate people in their responses to the HADS. The percentage of illiterate patients (4%) in this study was not comparable to that reported in other Ethiopian examinations: 43.9% [34], 68.6% [33], 69% [32], and 80% [31], which is not in line with our findings. The literacy rates are increasing and illiteracy do not remains a major problem in psycho-oncological research in Kosovo.

In the discussion of the measurement invariance between Ethiopia and Germany, we mentioned that Item D14 (reading books/watching TV) strongly contributed to the differences [35], [36], [37]. Our results suggested that in Item D14 was found statistical significance Mean/SD (10.67 ± 3.30) that reading books and watching TV are a very important role in overcoming the emotional state after being diagnosed with breast cancer.

Conclusion

Emotional distress, frightened feeling, anxiety, and depression are important outcomes, and when severe it has been associated with reduced treatment compliance and elevated risk of disease progression and decrease to quality of life.

This study determined the most frequent health problems in women with breast cancer. The nurse's role in oncology institute is very important in relationship between patient's emotion regulation and adaptation to breast cancer. Further research on emotion regulation may help women with breast cancer better manage the emotional and frightened feeling challenges associated with diagnosis and treatment.

The need to reinforce self-care, increasing self-confidence, support, and information in dimensions such as emotional function, sexual enjoyment, and body image is very important.

References

- Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, *et al.* Global cancer statistics 2020: GLOBO-CAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2021;71(3):209-49. <https://doi.org/10.3322/caac.21660>
PMid:33538338
- Siegel RL, Miller KD, Fuchs HE, Jemal A. Cancer statistics, 2021. *CA Cancer J Clin.* 2021;71(1):7-33. <https://doi.org/10.3322/caac.21590>
PMid:31912902
- Soerjomataram I, Bray F. Planning for tomorrow: global cancer incidence and the role of prevention 2020-2070. *Nat Rev Clin Oncol.* 2021;18(10):663-72. <https://doi.org/10.1038/s41571-021-00514-z>
PMid:34079102
- Mausbach BT, Schwab RB, Irwin SA. Depression as a predictor of adherence to adjuvant endocrine therapy (AET) in women with breast cancer: A systematic review and meta-analysis. *Breast Cancer Res Treat* 2015;152(2):239-46. <https://doi.org/10.1007/s10549-015-3471-7>
PMid:26077640
- Lin C, Clark R, Tu P, Bosworth HB, Zullig LL. Breast cancer oral anti-cancer medication adherence: A systematic review of psychosocial motivators and barriers. *Breast Cancer Res Treat.* 2017;165(2):247-60. <https://doi.org/10.1007/s10549-017-4317-2>
PMid:28573448
- Bultz BD, Holland JC. Emotional distress in patients with cancer: The sixth vital sign. *Community Oncol.* 2006;3(5):311-4.
- Carlson LE, Bultz BD. Efficacy and medical cost offset of psychosocial interventions in cancer care: making the case for economic analyses. *Psychooncology.* 2004;13(12):837-49., discussion 850-6. <https://doi.org/10.1002/pon.832>
PMid:15578622
- Nipp RD, El-Jawahri A, Moran SM, D'Arpino SM, Johnson PC, Lage DE, *et al.* The relationship between physical and psychological symptoms and health care utilization in hospitalized patients with advanced cancer. *Cancer.* 2017;123(23):4720-7. <https://doi.org/10.1002/cncr.30912>
PMid:29057450
- Massie MJ. Prevalence of depression in patients with cancer. *J Natl Cancer Inst Monogr.* 2004;32:57-71. <https://doi.org/10.1093/jncimonographs/lgh014>
PMid:15263042
- Kissane D. Beyond the psychotherapy and survival debate: The challenge of social disparity, depression and treatment adherence in psychosocial cancer care. *Psychooncology.* 2009;18(1):1-5. <https://doi.org/10.1002/pon.1493>
PMid:19097139
- Pirl WF, Greer JA, Traeger L, Jackson V, Lennes IT, Gallagher ER, *et al.* Depression and survival in metastatic non-small-cell lung cancer: Effects of early palliative care. *J Clin Oncol.* 2012;30(12):1310-5. <https://doi.org/10.1200/JCO.2011.38.3166>
PMid:22430269
- Batty GD, Russ TC, Stamatakis E, Kivimäki M. Psychological distress in relation to site specific cancer mortality: Pooling of unpublished data from 16 prospective cohort studies. *BMJ.* 2017;356:j108. <https://doi.org/10.1136/bmj.j108>
- Carmack CL, Basen-Engquist K, Gritz ER. Survivors at higher risk for adverse late outcomes due to psychosocial and behavioral risk factors. *Cancer Epidemiol Biomarkers Prev.* 2011;20(10):2068-77. <https://doi.org/10.1158/1055-9965.EPI-11-0627>
PMid:21980014
- Murtezani A, Ibraimi Z, Bakalli A, Krasniqi S, Disha ED, Kurtishi I, *et al.* The effect of aerobic exercise on quality of life among breast cancer survivors: A randomized controlled trial. *J Cancer Res Ther.* 2014;10(3):658-64. <https://doi.org/10.4103/0973-1482.137985>
PMid:25313756
- Tachi T, Teramachi H, Tanaka K, Asano S, Osawa T, Kawashima A, *et al.* The impact of outpatient chemotherapy-related adverse events on the quality of life of breast cancer patients. *PLoS One.* 2015;10(4):e0124169. <https://doi.org/10.1371/journal.pone.0124169>
PMid:25915539
- van der Steeg AF, De Vries J, Roukema JA. The value of quality of life and health status measurements in the evaluation of the well-being of breast cancer survivors. *Eur J Surg Oncol.* 2008;34(11):1225-30. <https://doi.org/10.1016/j.ejso.2007.10.009>
PMid:18060733
- Jones SM, LaCroix AZ, Li W, Zaslavsky O, Wassertheil-Smoller S, Weitlauf J, *et al.* Depression and quality of life before and after breast cancer diagnosis in older women from the Women's Health Initiative. *J Cancer Surviv.* 2015;9(4):620-9. <https://doi.org/10.1007/s11764-015-0438-y>
PMid:25708515
- Burgess C, Cornelius V, Love S, *et al.* Depression and anxiety in women with early breast cancer: Five year observational cohort study. *BMJ.* 2005;330(7493):702. <https://doi.org/10.1136/bmj.38343.670868.D3>
PMid:15695497
- Kroenke CH, Kubzansky LD, Schernhammer ES, Holmes MD, Kawachi I. Social networks, social support, and survival after breast cancer diagnosis. *J Clin Oncol.* 2006;24(7):1105-11. <https://doi.org/10.1200/JCO.2005.04.2846>
PMid:16505430
- Frick E, Tyroller M, Panzer M. Anxiety, depression and quality of life of cancer patients undergoing radiation therapy:

- A cross-sectional study in a community hospital outpatient centre. *Eur J Cancer Care (Engl)*. 2007;16(2):130-6. <https://doi.org/10.1111/j.1365-2354.2006.00720.x>
PMid:17371421
21. Matsuda A, Yamaoka K, Tango T, Matsuda T, Nishimoto H. Effectiveness of psychoeducational support on quality of life in early-stage breast cancer patients: A systematic review and meta-analysis of randomized controlled trials. *Qual Life Res*. 2014;23(1):21-30. <https://doi.org/10.1007/s11136-013-0460-3>
PMid:23881515
 22. Zigmond AS, Snaith PR. The hospital anxiety and depression scale. *Acta Psychiatr Scand* 1983;67(6):361-70. <https://doi.org/10.1111/j.1600-0447.1983.tb09716.x>
PMid:6880820
 23. Wang X, Wang N, Zhong L, Wang S, Zheng Y, Yang B, et al. Prognostic value of depression and anxiety on breast cancer recurrence and mortality: A systematic review and meta-analysis of 282,203 patients. *Mol Psychiatry*. 2020;25(12):3186-97. <https://doi.org/10.1038/s41380-020-00865-6>
PMid:32820237
 24. Burgess C, Cornelius V, Love S, Graham J, Richards M, Ramirez A. Depression and anxiety in women with early breast cancer: Five year observational cohort study. *BMJ*. 2005;330(7493):702. <https://doi.org/10.1136/bmj.38343.670868.D3>
PMid:15695497
 25. Hajj A, Hachem R, Khoury R, Hallit S, El Jebbawi B, Nasr F, et al. Clinical and genetic factors associated with anxiety and depression in breast cancer patients: A cross-sectional study. *BMC Cancer*. 2021;21(1):872. <https://doi.org/10.1186/s12885-021-08615-9>
PMid:34330229
 26. Abu-Helalah M, Al-Hanaqta M, Alshraideh H, Abdulbaqi N, Hijazeen J. Quality of life and psychological well-being of breast cancer survivors in Jordan. *Asian Pac J Cancer Prev*. 2014;15(14):5927-36. <https://doi.org/10.7314/apjcp.2014.15.14.5927>
PMid:25081724
 27. Ribi K, Coates A, Blacher L, Regan MM, Gelber RD, Bernhard J, et al. Assessing health-related quality of life in patients with breast cancer: A reply to Maratia et al. *Qual Life Res*. 2018;27(1):149-52. <https://doi.org/10.1007/s11136-017-1695-1>
PMid:28875248
 28. Holzner B, Kemmler G, Kopp M, Moschen R, Schweigkofler H, Dünser M, et al. Quality of life in breast cancer patients-not enough attention for long-term survivors? *Psychosomatics*. 2001;42(2):117-23. <https://doi.org/10.1176/appi.psy.42.2.117>
PMid:11239124
 29. Vogl DT, Delforge M, Song K, Guo S, Gibson CJ, Ervin-Haynes A, et al. Long-term health-related quality of life in transplant-ineligible patients with newly diagnosed multiple myeloma receiving lenalidomide and dexamethasone. *Leuk Lymphoma*. 2018;59(2):398-405. <https://doi.org/10.1080/10428194.2017.1334125>
PMid:28641472
 30. Monfared A, Pakseresht S, Ghanbari A, Roshan ZA. Health-related quality of life and its related factors among women with breast cancer. *Nurs Midwifery*. 2013;23:52-62.
 31. Araya LT, Gebretekle GB, Gebremariam GT, Fenta TG. Reliability and validity of the Amharic version of European organization for research and treatment of cervical cancer module for the assessment of health related quality of life in women with cervical cancer in Addis Ababa, Ethiopia. *Health Qual Life Outcomes*. 2019;17(1):13. <https://doi.org/10.1186/s12955-019-1089-x>
PMid:30642359
 32. Tadele N. Evaluation of quality of life of adult cancer patients attending Tikur Anbessa specialized referral hospital, Addis Ababa Ethiopia. *Ethiop J Health Sci*. 2015;25(1):53. <https://doi.org/10.4314/ejhs.v25i1.8>
PMid:25733785
 33. Ayana BA, Negash S, Yusuf L, Tigeneh W, Haile D. Reliability and validity of Amharic version of EORTC QLQ-C30 questionnaire among gynecological cancer patients in Ethiopia. *PLoS One*. 2016;11(6):e0157359. <https://doi.org/10.1371/journal.pone.0157359>
PMid:27304066
 34. Abegaz TM, Ayele AA, Gebresillassie BM. Health related quality of life of cancer patients in Ethiopia. *J Oncol*. 2018;2018:1467595. <https://doi.org/10.1155/2018/1467595>
PMid:29849628
 35. Wondie Y, Abawa M. Westernization versus indigenization in the context of global mental health: Training and services in Ethiopia-University of Gondar in focus. *Int J Ment Health*. 2020;48:257-71. <https://doi.org/10.1080/00207411.2019.1644139>
 36. Zeleke WA, Nichols LM, Wondie Y. Mental health in Ethiopia: An exploratory study of counseling alignment with culture. *Int J Adv Counsel*. 2019;41(2):214-29.
 37. Maters GA, Sanderman R, Kim AY, Coyne JC. Problems in cross-cultural use of the hospital anxiety and depression scale: "No butterflies in the desert". *PLoS One*. 2013;8(8):e70975. <https://doi.org/10.1371/journal.pone.0070975>
PMid:23976969