

Perceived quality of life in a cohort of Egyptian breast cancer survivors in Alexandria as measured by EQ-5D-3L: a cross-sectional study

Eman El Sayed^a, Azza Mehanna^c, Moustafa Ramadan^b, Nabil Dowidar^a

^aHealth Governance Unit, ^bDepartment of Clinical and Experimental Surgery, Medical Research Institute, ^cDepartment of Health Administration and Behavioral Sciences, High Institute of Public Health, Alexandria University, Alexandria, Alexandria Governorate, Egypt

Correspondence to Moustafa Ramadan, Assistant Professor of General Surgery, Medical Research Institute, Alexandria University; Department of Clinical and Experimental Surgery, Medical Research Institute, Alexandria University, Alexandria, Alexandria Governorate, Postal Code: 21561, Egypt. Tel: +2034208598; Mob: 01005858211; fax: +2034280529; e-mail: darsh7620012001@yahoo.com

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Background

Patient preferences and experiences are essential elements of breast cancer programs and are often the outcomes of greatest importance to patients. Unfortunately, not much is known about breast cancer survivors' (BCSs) perceptions and their quality of life (QoL) in Egypt. The authors aimed at assessing BCSs perception of their QoL to better understand their health problems and care needs.

Participants and methods

A sample of 125 BCSs were interviewed during their follow-up visits at two outpatient oncology clinics in Alexandria, Egypt, to assess their perception of their own QoL at this stage using the EuroQol five-dimensions-three-level questionnaire. Data related to patient age, social standard, and cancer stage were collected to assess its influence on QoL.

Results

The study results showed that the quality of life among BCSs was dramatically affected in the form of persistent pain (92.8%), anxiety (84%), limitation in activity (81.6%), limitation in mobility (70.4%), and limitation in self-care (56.8%). Age, social standard, and cancer stage had variable effects on the dimensions of QoL.

Conclusion

The QoL among the study sample members was dramatically and negatively affected to an extent that warrants consideration by policy makers and health care providers. Breast cancer care models should be readjusted to address this important issue.

Keywords:

breast cancer survivors, EQ-5D, patient-reported health outcome, quality of life

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Introduction

The increase in the number of breast cancer survivors (BCSs) due to effective breast cancer treatment modalities has created a need for change in health and social services to ensure the physical, mental, and social well-being of survivors. BCSs need to return to their families and communities as active members capable of performing their regular daily life activities. Accordingly, it is important to understand how the disease, related treatment, and other influencing factors affect their quality of life (QoL). Research evidence shows that changes in QoL are associated with changes in clinical variables such as symptoms, treatment response, and survival [1].

Getting to know patients' perceptions of their health through their own reported health outcomes is a key strategy for defining their specific needs to ensure desired health outcomes. This strategy also promotes an integrated approach to cancer management that reflects patient's needs beyond cancer treatment [2–5]. It helps in determining how the disease and

the required interventions affect patient's life, thus ensuring the provision of high standard care, better patient experience, and higher patient satisfaction with the provided services [3,4,6]. It is a promising strategy that adds value to cancer care in an explicit and transparent manner [7].

Knowledge about Egyptian BCSs QoL is scarce and is highly required to guide the development of cost-effective health services, which will lead to better patient outcomes. This study used the EuroQol five-dimension three-level questionnaire (EQ-5D-3L) which is a standardized, simple and generic preference-based measure of health status widely used around the world in clinical trials, population studies, and clinical settings.

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The aim of this study was to assess BCS perception about QoL and explore the effect of age, social standard, and cancer stage on their perception.

Participants and methods

Recruitment and participation

The study included patients with breast cancer who presented for follow-up at the Medical Research Institute Hospital and Ayady El Mostakbal Hospital outpatient clinics. Patients were eligible to enter the study if they had pathologically diagnosed breast cancer, aged 18 years or more, completed their treatment plan (surgery, chemotherapy, hormonal, and/or radiotherapy), agreed to be included, and their condition allowed their participation in the study. Patients were approached during their follow-up visits during which all the needed details related to the nature of the study and the criteria of inclusion were explained thoroughly to the candidates. Oral informed consent was obtained before enrollment in the study.

Study design

A cross-sectional descriptive quantitative design was used to assess the QoL of patients with breast cancer

after treatment. A quasirandom sample of 125 female BCSs was selected based on data from a monthly population of 1000 patients attending the study settings with a 90% expected incidence of affected QoL among BCSs [8].

Data collection

Patients were interviewed in person by a female researcher using a structured questionnaire. Their medical records were also reviewed. This was done in the outpatient clinics in coordination with the outpatient clinic's head nurse. Both clinical and nonclinical data were collected during the interview. Clinical data included cancer stage and duration of care. Nonclinical data included socioeconomic characteristics such as age, marital status, education level, working conditions, education, working conditions of husband, and income per month. Crowding index was used to classify patients into three categories, that is, low, moderate, and high, as shown in Table 1 [9]. The TNM classification, as stated in medical record, was used to divide patients into two groups: early cancer group formed of stage I and II patients and late cancer group formed of stage III and IV patients.

Table 1 Socioeconomic standard classification

Variable number	Variable name	Response categories	Standard score		
1	Education and working condition	Illiterate or read and write not working	1		
		Illiterate or read and write working	2		
		Primary education not working	3		
		Primary education working	4		
		Preparatory education not working	5		
		Preparatory education working	6		
		Secondary education not working	7		
		Secondary education working	8		
		University graduate not working	9		
		University graduate working	10		
		2	Husband work	Read and write or illiterate	2
				Primary education	4
Preparatory education	6				
3	Income	Secondary education	8		
		University or higher	10		
		Yes	4		
4	Crowding index	No	0		
		Not enough	4		
		Enough	6		
Total	Low	Enough and save	8		
		>4	2		
		2-4	4		
Total	Moderate	<2	6		
		Low	<25		
		High	>31		

Instrument

Patients were asked to describe their QoL using the EQ-5D-3L questionnaire [10] which consists of two parts. Part 1 was the EQ-5D descriptive system of health state. The descriptive system includes five dimensions: mobility, self-care, usual activities, pain/discomfort (will be referred to as pain), and anxiety/depression (will be referred to as anxiety). Each dimension is divided into three levels of perceived problems: level 1 indicating no problem, level 2 indicating some problems, and level 3 indicating extreme problems. Each patient was asked to indicate her health state by choosing the most appropriate statement in each of the five dimensions. Part 2 was the EQ visual analog scale (EQ-VAS). The scale is a self-rated health affection measured on a quantitative VAS based on the patients' judgment ranging from 0 to 100, where 0 indicates 'least imaginable affected health state' and 100 indicates 'highest imaginable affected health state.' The questionnaire was translated into Arabic and piloted on 15 patients to ensure its clarity to patients. The final form was back-translated to ensure its conformity with the original questionnaire.

Data analysis

Data were collected, revised, coded, and entered into the statistical software IBM-SPSS software version 21 (SPSS Inc., Chicago, IL, USA). Descriptive statistical analysis was used to describe the sociodemographic characteristics, cancer stage, and EQ-5D-3L health profile of patients. Continuous variables were presented as mean and SD, whereas categorical variables were presented as frequencies and percentages. Pearson's χ^2 test was used to assess the significant difference in QoL of the different patient groups. Fisher's exact test was employed when more than 20% of table cells had an expected count of less than five. Mann-Whitney *U*-test was used to examine the difference in health status among the different patient groups. Box plots were used to show the distribution of EQ-VAS scores by age group, social standard, and cancer stage. Differences at a *P* value less than 0.05 were considered to be statistically significant.

Ethical approval

The study was approved by the Ethical Review Committee, High Institute of Public Health, Alexandria University.

Consent to participate

Informed consent was taken from the patients. The ethical review committee decided that written consent was not needed and that verbal consent was

appropriate as the study was a non-interventional one and that it did not include obtaining any biological samples.

Results

Patient characteristics are shown in Table 2. The mean age of the patients in years was 50.45 (SD±9.6). Patients were in their follow-up period for a mean duration of 3.72 years (SD±0.972). Most patients were married (75.2%) and functioned as housewives (95.2%). Approximately a third of the patients (30.4%) could only read and write or were illiterate, whereas the rest of the patients received some sort of formal education. Most patients (86.4%) expressed that their income was not enough. More than half of the patients (56.0%) were classified as of low social standard. The proportion of patients experiencing cancer stages I, II, III, and IV were 6.4, 44.8, 28, and 16.8%, respectively.

The EQ-5D-3L and medical records revealed that the majority (98.4%) of patients experienced problems in their health. A total of 44 patients (44%) reported having problems in all five dimensions. The most frequently reported problem was pain (92.8%), followed by anxiety (84%), problems with usual activity (81.6%), problems with mobility (70.4%), and problems with self-care (56.8%), as shown in Fig. 1.

Table 2 Patient characteristics

Item		
Mean age in years (±SD)	50.45	(9.6)
Mean follow-up in years (±SD)	3.72	(0.972)
Marital status [<i>n</i> (%)]		
Single	1	(0.8)
Divorced	12	(9.6)
Widowed	18	(14.4)
Married	94	(75.2)
Working conditions [<i>n</i> (%)]		
Employed	6	(4.8)
Housewife	119	(95.2)
Education [<i>n</i> (%)]		
Read and write or illiterate	38	(30.4)
Primary education	17	(13.6)
Preparatory education	13	(10.4)
Secondary education	43	(34.4)
University or higher	14	(11.2)
Income [<i>n</i> (%)]		
Not enough	108	(86.4)
Enough	17	(13.6)
Social standard [<i>n</i> (%)]		
Low	70	(56.0)
Moderate	54	(43.2)
High	1	(0.8)

Considering other factors such as age, social standards, and stage of the disease progression, the study showed that young patients (≤ 50 years) experienced anxiety significantly more than older patients (> 50 years), as shown in Table 3. No statistical differences were found between low and moderate to high social standards in the five health dimensions as shown in Table 3. The patients in the late cancer group experienced significantly more problems related to mobility, self-care, and anxiety than the patients in the early cancer group, as shown in Table 3.

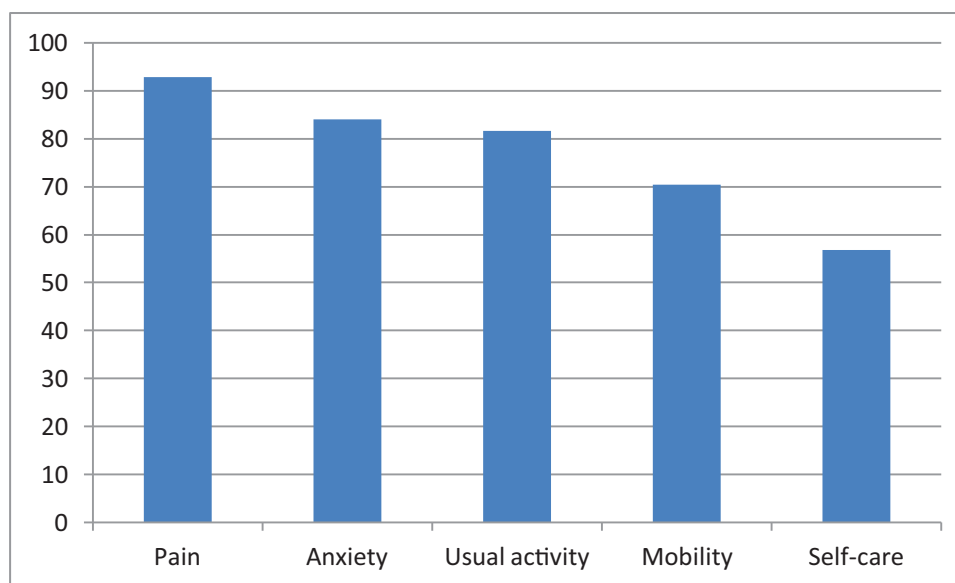
Regarding the general health description as scored through the EQ-VAS, patients with moderate to high social standard scored significantly higher than patients with low social standard, patients with early cancer scored significantly higher than patients with late cancer, whereas patients in both age groups scored the same, as shown in Fig. 2.

Discussion

This study described QoL in a cohort of Egyptian BCSs from Alexandria, as measured by the EQ-5D-3L instrument, and the effect of age, social standard, and cancer stage. The study clearly demonstrates the negative effects the disease and related treatment have on the five dimensions of QoL. Health care systems and providers should take these patient-related outcomes (problems) into consideration when designing cancer management programs. The findings further emphasize the importance of adopting an integrated approach to breast cancer that incorporates the required disciplines whether available within the health care or the social care system to ensure a better QoL for BCSs.

It is evident that BCSs struggle with physical and mental health problems. Pain and anxiety were the

Figure 1



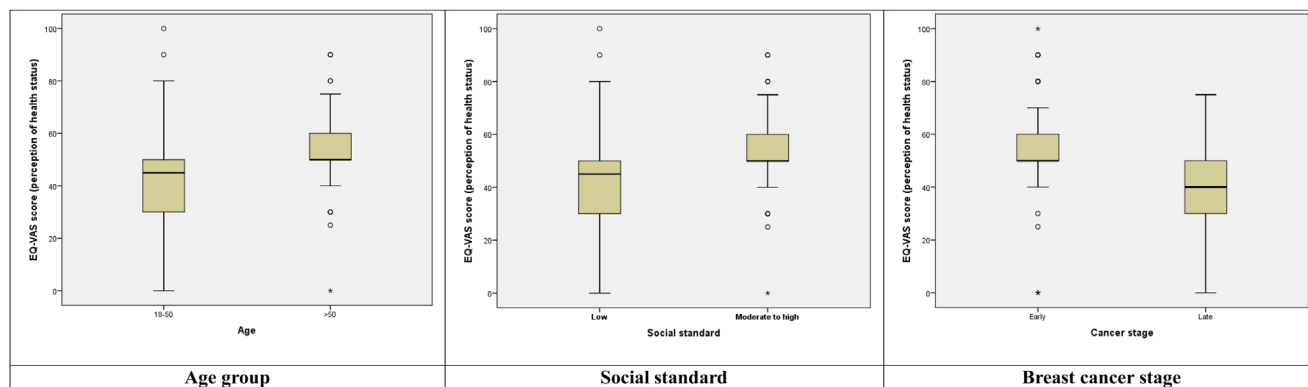
Frequency of reported problems in the five health status dimensions.

Table 3 Relation between health problems and studied characteristics of breast cancer survivors

Item	Age group			Social standards			Cancer stage		
	Younger (N=63) (≤ 50) [n (%)]	Older (N=62) (> 50) [n (%)]	P value	Low (N=70) [n (%)]	Moderate to high (N=55) [n (%)]	P value	Early (N=64) [n (%)]	Late (N=56) [n (%)]	P value
Mobility	42 (67)	46 (74)	0.357	54 (77)	34 (62)	0.062	38 (59)	46 (82)	0.007
Self-care	33 (52)	38 (61)	0.315	44 (63)	27 (49)	0.123	27 (42)	41 (73)	0.001
Usual Activities	51 (81)	51 (82)	0.851	56 (80)	46 (84)	0.602	49 (77)	48 (86)	0.204
Pain	60 (95)	56 (90)	0.288	64 (91)	52 (95)	0.730	58 (91)	53 (95)	0.500
Anxiety	57 (90)	48 (77)	0.046	57 (81)	48 (87)	0.376	48 (75)	53 (95)	0.003

$P < 0.05$ denotes significant difference.

Figure 2



Box plot distribution of EuroQol visual analog scale by age group, social standard, and cancer stage.

most frequently reported patient problems among our cancer survivors and lasted for years after treatment. The experience of BCSs from other countries are consistent with our findings [10–12].

These health problems require careful mitigating strategies that should start early on through a team approach where its members have a common understanding and agreement on the optimum outcomes that the patient would appreciate and value. For example, careful surgical techniques and treatment plans should be adopted by surgeons and oncologists to prevent or mitigate pain. Techniques to manage and cope with pain in daily lives should be promoted for its significant effect on QoL among BCSs [10,13]. Breast cancer care models should include early identification of psychological needs and coordination of psychosocial care delivery by care managers, ranging from counseling to individual psychotherapy, and appropriate specialist supervision [14].

Age, social standard, and disease stage have variable effects on the QoL of BCSs. We found that young survivors significantly experienced anxiety than older survivors, a finding that could be explained by the distress younger patients experience relevant to their family position, care of their children, career prospects, and potential earning capacity [15]. In contrast, younger age was associated with a better QoL in a study conducted in different Egyptian governorates [16], which could be explained by the different measuring tools used and patient cohort.

The VAS (EQ-VAS) showed that health was significantly lower among survivors of low social standard. Many studies among women with BC demonstrated that low socioeconomic status was associated with poorer QoL and health status

[10,11,17]. The need for enhancing social support for women soon after their breast cancer diagnosis has been recommended to improve disease outcomes [18], as social well-being is a significant prognostic factor for breast cancer recurrence and mortality [19]. The association between social status and the five dimensions of the EQ-5D could not be verified in our study. A possible explanation could be that a higher percentage of the respondents tended to mark the middle options and avoided the extreme ends of the QoL categories (extreme aversion). Furthermore, VASs are claimed to be more responsive in the detection of small clinical changes [20]. Late-stage BCSs have a worse health state. Their reported problems of mobility, self-care, and anxiety were all significantly higher than early-stage patients. QoL deterioration with the progression of cancer stage emphasizes the importance of health promotion programs including regular screening for the early detection of breast cancer.

We believe that this piece of work will add a lot to the scientific and medical community, considering its topic and area of study, owing to the limited numbers of research studies conducted in the same field using a similar approach.

A large percentage of the study patients were housewives, which could be a limitation in generalizing its findings as it may be reflecting certain characteristics of the lifestyle of the study cohort. However, public data related to Egyptian workforce showed that women represent a small percentage of the total workforce. Further work is needed for better coverage of this important topic and comparison with the QoL of the normal population. It brings up the need for a larger study to establish the QoL of the Egyptian normal population, which will enable many researchers to assess the effect of their interventions on QoL.

Conclusion

Our study findings show that sadly a minority of BCSs are not free from health-related problems. These patient-reported problems should guide both policy makers and health care providers in offering patients with breast cancer a balanced cancer management program that ensures the best of cancer control and QoL.

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E.S. carried out the study, performed the data analysis, interpreted and discussed the results, and worked on the manuscript writing. A.M. was involved in work supervision, modification, and direction. M.R. helped in the writing of the manuscript. N.D. was in charge of overall direction, planning, and interpretation and contributed to the final version of the manuscript.

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Conflicts of interest

There are no conflicts of interest.

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