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Study of quality of life and characteristic factors in women with breast cancer undergoing different types of therapy

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ABSTRACT

Breast cancer is the most common cancer among women and an increasingly important issue is to evaluate quality of life (QoL) among these patients. The objective of this study was to appreciate the QoL and associated factors among breast cancer womenundergoing different types of therapy. A cross-sectional study was carried out among 166 breast cancer women from two specialized centres in Baghdad, Iraq, from February 2014 to December 2014. The questionnaire used in this study was “The Functional Assessment of Cancer Therapy-Breast (FACT-B)”. The majority were employee (60.3%), with high school education (63.2%), with no family history of cancer (79.5%). Majority were diagnosed with grade II (56.6%) and tumor size less than 2 cm in diameter (95.8%). The majority of women underwent mastectomy (98.2%), received chemotherapy, radiotherapy, and Tamoxifen therapy (89.8%, 29.5%, and 36.1%; respectively).The study found a significant difference between the quality of life among cancer patients and job, stage of cancer, size of tumor, and radiotherapy. Job, stage of cancer, size of tumor, and radiotherapy significantly influenced the women QoL. Therefore, more attention on these variables is highly recommended when dealing with breast cancer patients undergoing different types of therapy.

INTRODUCTION

According to World Cancer Report 2014, cancers among the leading causes of morbidity and mortality worldwide (World Cancer Report, 2014). Approximately 14 million new cases and 8.2 million cancer related deaths in 2012 (World Cancer Report, 2014).Middle and low-income nations recorded 70 % of all cancer death. If there are no prevention measures urgently implemented worldwide, the death from cancer will be rise to more than 13.1 million in 2030 (Global Health Observatory, 2012). For breast cancer 1.7 million new cases of breast cancer were diagnosed worldwide in 2012, accounting for 25% of all new cancer cases in women (International Agency for Research on Cancer, Globocan, 2012). Breast cancer is one of the most common types of cancers among women in the Arabic world (Salim *et al.*, 2009; Najla *et al.*, 2010). The Arabic world has an overall population of around 380 million and extends over a large geographical area in northern Africa and Middle East. The incidence of breast cancer in the Arabic world is less than the western countries (Najla *et al.*, 2010; Ozmen *et al.*, 2009). Breast cancer rates are increasing among developing countries of Arabic world including Egypt, Lebanon, Syria, Jordan, Saudi Arabia, and Iraq (Ibrahim *et al.*, 2013; Ozmen *et al.*, 2009). In Iraq, breast cancer is the leading cancer among Iraqi women (Iraqi National Cancer Research Center, 2013). About 23,792 breast cancer cases were registered among females in Iraq aged 15 years old and above.

This number represented 33.8% of the total cancer cases among females from 2000-2009 registered in Iraq (Al-Hashimi and Wang, 2014). According to Globocan (2008), the Age Standardized Incidence Rates (ASR) in Iraq was (31.1/100,000), similar as compared to neighbour Arabs countries such as Kuwait (47.7), Saudi Arabia (22.4), Jordan (47.0), and Syria (23.0).

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Advances in breast cancer prevention, screening, diagnostic and treatment additionally brought about expanded survival (National Cancer Institute, 2012). Therefore, coping with this disease is common experience. Furthermore, as other Arab ladies, Iraqi ladies have social taboos with regard to breast cancer (Abu-Naser, 2007). Breast cancer diagnosis would become a fear to mothers who would think that their daughters would not get married when people know that they have breast cancer (Abu-Naser, 2007).

Breast cancer survivors comprise the largest number of all survivors which is approximately about 2.5 million (Centers for Disease Control and Prevention & Lance Armstrong Foundation, 2004). However, 33% of survivors experience ongoing many problems such as physical, psychological and financial cost regarding their treatment and diagnosis (McCabe *et al*., 2013). Appropriate subsequent consideration is regularly not conveyed and the psychosocial needs of malignancy patients are frequently not tended to. Additionally, numerous patients finish their essential treatment uninformed of their future risk and wellbeing chances and not well prepared to manage their future health care needs (McCabe *et al*., 2013). Thus, the oncology group and numerous national associations have started to concentrate on survivorship as a focal part of oncology consideration (McCabe *et al*., 2013, Rauscher *et al*.,2011). Cancer survivorship is a moderately new, including Iraqis breast cancer survivors who may have extra needs contrasted with survivors from other western nations.

In the Arab world, especially among breast cancer women only few studies about QoL were conducted. However, no such study was conducted so far in Iraq. Hence, this study aimed at exploring the QoL among women with breast cancer underlying different types of therapy, so as to help improve health care in such area and topic.

MATERIALS AND METHODS

The present study is a cross-sectional one where data collected out of 166 breast cancer patients from two specialized centres in Baghdad, Iraq from February 2014 to December 2014. Only native Arabic language females who are older than eighteen years were chosen for the study. Also, they had at least one year history of cancer diagnosis. Other women were excluded, especially those who had other malignancies, had metastasis, or other acute physical, cognitive or psychiatric health problems. The methodological tool was a questionnaire that was handed over to patients during their clinical visit. The study was conducted in accordance with the Helsinki Declaration and informed consent was obtained from the study participants. The study was approved by the ethics committees of the two specialized centres.

Instrument

More specifically, the questionnaire provided to patients was "Functional Assessment of Cancer Therapy-Breast (FACT-B)" questionnaire, version 4. Authors have got permission officially to use this questionnaire from its source. It is included measures of physical, social/family, emotional, and functional wellbeing. In the emotional element, two items were provided, namely "worried about risk of breast cancer in the family members" and "worried about effects of stress on the illness". Body image-related element included three items, namely "feeling sexually attractive", "feeling self-conscious about the way one dressed", and "feeling like a woman". Reliability, validity and responsiveness to clinical change of FACT instruments were demonstrated extensively.

Statistical analysis

To evaluate the final model for univariate and multiple linear regression, ANOVA, t-test and backward analysis were carried out.

RESULTS

In this study, there were 166 patient participants, aged between 30 and 67 (Mean = 49.6 ± 8.2). Majority of them were 40 years of age or older (71.7%), employees (60.3%), with high school education (63.2%), with no family history of cancer (79.5%) and were diagnosed with Grade II of tumor (56.6%) with tumor size of less than 2 cm in diameter (95.8%). Regarding the treatment, the majority of participants underwent mastectomy (98.2%), received chemotherapy, radiotherapy, and Tamoxifen therapy (89.8%, 29.5%, and 36.1%; respectively) (Table 1).

Table 1: Socio-demographic characteristics of breast cancer patients (n=166).

	Category	Frequency	%
Age (Year)	< 40	48	28.9
	≥ 40	118	71.7
Employment status	Employee	100	60.3
	Non-employee	66	39.7
Educational status	Literacy	13	7.8
	School	105	63.2
	University	48	29
Family History of cancer	Yes	34	20.5
	No	132	79.5
Size of tumour (cm)	< 2	159	95.8
	≥ 2	4	2.4
Type of surgery	Yes	163	98.2
	No	3	1.8
Radiotherapy	Yes	49	29.5
	No	117	70.5
Chemotherapy	Yes	149	89.8
	No	17	10.2
Tamoxifen	Yes	60	36.1
	No	106	63.9

Age group showed no significant difference in QoL with socio-demographic characteristics and employment status. Moreover, there was a significant association between educational status and Functional Well-Being (p = 0.006), additional (p=0.011), Physical Well-Being (p= 0.025) and Total QoL (p = 0.035).

Concerning clinical features, a significant association existed between family history of cancer and Physical Well-Being (p= 0.012) and additional items (p=0.001). For stage of cancer, a significant association showed up between stage of cancer and EWB (p=0.032). However, no significant difference occurred in QoL based on tumour size. Radiotherapy and Physical Well-Being (p= 0.001) showed a significant relation. Association also significantly existed between chemotherapy and EWB (p=0.002), additional items (p=0.001). Also, Tamoxifen and PWB (p=0.001), Overall QOL (p=0.002) showed a significant relation (Table 2).

There was a significant difference between the quality of life among cancer patients and Job, (F= 1.752, p= 0.019). Quality of life among breast cancer patients and educational status, (F= 1.384, p= 0.114) had no significant relationship. There was no significant difference between life quality and cancer family history (F= 0.777, p= 0.779). Cancer stage showed no significant relationship with life quality among breast cancer patients (F = 0. 2.812, p= 0.000). Furthermore, a significant difference existed between the life quality and tumour size (F= 1.616, p= 0.038). There is no significant difference between the quality of life among cancer patients and radiotherapy (F = 1.180, p= 0.262). There was no significant difference between the quality of life among cancer patients and type of surgery, (F= 1.292, p = 0.169). There was no significant difference between the quality of cancer patient and chemotherapy, (F= 0.884, p=0.636). However, there was a significant difference between the quality of cancer patients and radiotherapy (F= 1.180, p= 0.006) (Table 3).

Table 2: Socio-demographic and clinical characteristics and Quality of life among cancer patients (n=166).

Variables		**SWB**	**FWB**	**EWB**	**PWB**	**Additional**	**Total scores**
		Mean (SD)	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**
Age (Year):							
<40	48	18.916 2.323	15.895 2.523	16.833 3.628	9.755 4.314	16.458 5.974	77.854 7.216
≥40	118	17.915 2.523	15.483 2.366	16.703 3.859	11.49 4.347	16.305 4.946	77.898 8.507
		P= 0.243	P= 0.150	P= 0.537	P= 0.076	P= 0.313	P= 0.195
Job:							
Job	100	18.130 2.537	15.870 2.06	16.62 3.73	10.790 4.39	16.520 5.15	67.140 7.000
Non job	64	18.328 2.501	15.265 2.52	16.765 3.82	11.109 4.37	16.343 5.29	66.703 8.103
		P= 0.771	P= 0.076	P= 0.557	P= 0.804	P= 0.697	P= 0.167
Education status:							
Literacy	13	17.615 2.66	15.076 2.361	17.846 2.79	10.076 4.82	15.538 4.15	66.076 5.23
School	105	18.066 2.61	16.846 2.279	16.838 3.70	12.114 4.62	17.123 5.05	68.190 7.39
University	48	18.666 2.51	14.520 1.798	16.229 4.14	10.958 3.78	14.870 5.64	64.291 7.34
		P= 0.104	P= 0.006	P= 0.161	P= 0.025	P= 0.011	P= 0.035
Family history of cancer:							
Yes	34	19.235 2.06	15.235 1.84	17.529 3.87	9.000 3.67	14.558 6.56	75.558 6.11
No	132	17.939 2.54	15.697 2.36	16.537 3.74	11.500 4.43	16.816 4.77	78.484 8.49
		P= 0.058	P= 0.059	P= 0.694	P= 0.012	P= 0.000	P= 0.075
Stage of cancer:							
I	26	18.230 2.06	15.692 2.47	18.230 2.88	11.807 4.46	16.230 5.55	80.461 7.15
II	94	18.202 2.58	25.872 2.23	16.861 2.84	10.478 4.37	16.372 5.17	77.78 7.92
		P= 0.105	P= 0.663	P= 0.032	P= 0.463	P= 0.522	P= 0.819
Size of tumor:							
< 2	159	18.201 2.50	15.622 2.29	16.855 3.78	11.081 4.44	16.528 5.149	78.289 8.009
≥2	4	19.250 3.20	16.500 1.00	15.700 2.62	8.500 3.00	10.000 7.07	70.000 6.92
		P= 0.338	P= 0.063	P= 0.211	P= 0.197	P= 0.616	P= 0.612
Radiotherapy:							
Yes	49	17.976 2.45	15.265 2.08	16.244 4.21	10.530 3.09	16.693 4.76	76.714
No	117	18.299 2.51	15.743 2.33	16.948 3.58	11.179 4.83	16.205 5.44	78.376
		P= 0.526	P= 0.299	P= 0.104	P= 0.000	P= 0.101	P= 0.509
Chemotherapy:							
Yes	149	18.441 2.45	15.516 2.23	16.879 3.85	10.677 4.382	16.140 5.42	77.657 8.255
No	17	16.117 1.93	16.352 2.49	15.529 2.85	13.705 3.601	18.176 2.33	79.882 6.872
		P= 0.060	P= 0.478	P= 0.002	P= 0.191	P= 0.001	P= 0.606
Tamoxifen:							
Yes	60	18.433 2.44	16.116 2.21	17.716 3.44	10.783 5.39	16.333 5.14	79.383 6.859
No	106	18.075 2.53	15.311 2.60	16.188 3.86	11.103 3.73	16.358 5.32	77.037 8.690
		P= 0.948	P= 0.657	P= 0.102	P= 0.001	P= 0.496	P= 0.002

Table 3: Prediction Model for Total QoL.

Dependent variable	**Sum of Squares**	**df**	**Mean square**	**F**	**R^2**	**Adjust R^2**	**Sig.**
Age (Year)	11.838	1	0.268	3.643	0.224	0.062	0.058
Job	13.921^a	28	0.497	1.752	0.268	0.115	0.019
Educational status	1.639	1	1.639	0.504	0.313	0.158	0.479
Family History of cancer	3.757	28	0.134	0.777	0.140	-0.040	0.779
Stage	24.882	28	.889	2.812	0.370	0.238	0.000
Size of tumor	0.985	28	0.035	1.616	0.252	0.096	0.038
Type of surgery	0.420	28	0.015	1.292	0.213	0.048	0.169
Radiotherapy	6.780	28	.242	1.180	0.198	.030	0.262
Chemotherapy	2.374	28	0.085	0.884	0.156	-0.020	0.636
Tamoxifen	11.001	28	0.393	1.956	0.290	0.142	0.006

DISCUSSION

The QoL refers to "global well-being," that is manifested in elements such as physical, emotional, mental, social, and behavioural components. Well-established QoL tools that measure up health issues have recently become handy (Rizzo *et al.*, 2008; RA Al-Naggar *et al.*, 2013; RA Al-Naggar *et al.*, 2015). Now a days QoL is being used effectively to compare among cancer types, especially in advanced phases (Bottomley *et al.*, 2005). The QoL is now considered an important outcome in cancer clinical trials. It has been shown that assessing the QoL in cancer patients could contribute to improving treatment and could even be as prognostic as medical factors (Montazeri *et al.*, 1996; Goodwin *et al.*, 2004). Above all, studies regarding QoL can aid in the development of more efficient cancer treatment. Monitoring patients by physicians is necessary where QoL hands itself easily in this regard to show up illness progress (Velikova *et al.*, 2008).QoL shows both disease impact and treatment as patients conceive it to be (Spilker, 1996). QoL is affected by factors such as functional stress, perceptions, impairments as well as social opportunities (Testa and Simonson, 1996).

Breast cancer has received the greatest attention among studies interested in cancer patients' QoL for several reasons. First, the number of women with breast cancer is increasing (Stewart *et al.*, 2003, Moro-Valdezate *et al.*, 2013). Second, in terms of early detection and treatment, breast cancer has greatly improved. Survivors now live longer; therefore, studying the QoL in this context is important (Shen *et al.*, 2012; Wyatt *et al.*, 2013). Besides, breast cancer affects women's self-image, and maintenance of QoL is vital in those who have their breasts removed (Exner *et al.*, 2012). In addition, women play an important role as partners, wives, and mothers (Moro-Valdezate *et al.*, 2012; Schleife *et al.*, 2014). Therefore, when a woman develops breast cancer, her family members can also experience the consequences of that illness (Yanez *et al.*, 2011). In fact, breast cancer is a family disease. Other reasons could also be considered, but overall, it is crucial to acknowledge that along with improvements in treatment, the study of QoL in patients with all types of cancer, regardless of gender, is highly relevant.

In the present study, participants were 30 to 67 years old (mean = 49.6 ± 8.2) and the majority of them were 40 years of age or older (71.7%). Previous study showed that the average age of these women were 47.7 ± 10.3 years and the youngest woman was just 23 years old which is conform with the results about the median age of women diagnosed with breast cancer in China is 48 years, nearly 10 years younger than among women in Western countries (Hu, 2008).

No demographic variables contributed significantly to these women's QoL. This is consistent with a study by Huang *et al.* (2008) which found no significant relationships between age, marital status, occupation, family income and QoL. There is a significant difference between the quality of life among cancer patients and job.It was noted that employment status was the most important factors that determined QoL (Yıldız, 2014).

An earlier study suggested that patients who are long-term cancer survivors or have co-morbid conditions need meticulous consideration (Lee *et al.*, 2015).Among cancer patients, the association between quality of life and cancer stage has proved to be significant. Such a finding goes along with the findings of two earlier studies of the same researcher: one in Malaysia (Al-Naggar *et al.*, 2008), and the other in Yemen (Al-Naggar *et al.*, 2011). Other studies also supported our findings (Isikhan *et al.*2001; Uzun *et al.*2004). A further supporting finding was stated by Pandey *et al.*, 2006) in which breast specific scales and functional well-being were shown to be influenced by histological grade. Moreover, a significant association is highlighted between quality of life and tumour size among breast cancer patients (Al-Naggar *et al.*, 2008).

With regard to breast cancer patients, radiation therapy after breast-conserving surgery is the standard of care for the majority, because radiation significantly reduces breast cancer recurrence (Early Breast Cancer Trialists' Collaborative Group, 2011). Nevertheless, many women will forego radiation from "fearing the unknown," "getting burnt," "damaging internal parts," and "anticipating tiredness" (Halkett *et al.*, 2008).Fear of radiation may impact QoL both during and after, may decrease compliance with treatment and, ultimately, may add up the chances of having cancer recurrence (Early Breast Cancer Trial ists' Collaborative Group, 2011; Badakhshi *et al.*, 2013).The study found that there was a significant difference between the quality of cancer patients and radiotherapy. This is in agreement with a study with a 15-year follow-up period which demonstrated that women treated with surgery and radiation had very high QoL (Freedman *et al.*, 2010).

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