Obstet Gynecol Res 2022; 5 (1): 020-033 DOI: 10.26502/ogr075

Research Article

Quality of Life of Women after Mastectomy in Two Training Hospitals in the City of Douala, Cameroon

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Received: 09 December 2021; **Accepted:** 23 December 2021; **Published:** 24 January 2022

Citation: Charlotte Nguefack Tchente, Jean Paul Ndamba Engbang, Christian Eyoum, Meguia Kamdem, Lucie Sorelle Lekuikeu Tchuinte, Albertine Eloundou, Henri Essome, Michel Ekono, Pierre Marie Tebeu, Emile Telesphore Mboudou. Quality of Life of Women after Mastectomy in Two Training Hospitals in the City of Douala, Cameroon. Obstetrics and Gynecology Research 5 (2022): 20-33.

Abstract

Introduction: Breast cancer is the most common cancer in women worldwide. In Cameroon, several women with breast cancer have gone through mastectomy for treatment. They face some difficulties living in society and within their couple with

only one breast. The aim of this study was to describe the quality of life (QOL) of women after mastectomy in two hospitals in Douala.

Methods: This was a cross-sectional study carried out in two healthcare facilities over 4 months. Data from 102 consenting patients with unilateral mastectomy was collected. A survey sheet was used to collect patient socio-demographic, clinical, therapeutic data and data on QOL. We evaluated the QOL using questions from the various recognized questionnaires (EORTC QLQ-BR45, WHOQOL-BREF, FACT-MBIS and FACT-B) which we adapted according to our context. Chi-squared and Fisher tests allowed us to assess the association between variables. Statistical significance was set at $p < 0.05$.

Results: The mean age at mastectomy was 48.2 ± 10years and 54.4% were married. Clinically, patients with a tumor size more than 5cm and inflammatory tumors were most represented (76.3%); 89.1% had lymph node involvement and 16.1% were metastatic at diagnosis. Other treatments received include chemotherapy (93%), radiotherapy (32.3%) and hormone therapy (22.1%). The overall QOL was impaired. Using a mean score on a scale of 0 to 4, physical (0.3), social (0.5), and sexual (1.2) QOL were less impaired than emotional (1.5), functional (2.7), and psychological (3) QOL. Factors associated with impaired physical QOL included young age (OR:6.11[2-18.58]; p:0.00007), being single (OR:3.1 [1.2-7.7]; p:0.01), tumor size between 2 and 5cm (OR:4.97[2-12.4]; p:0.0002). Those associated with the deterioration in overall QOL included delayed diagnosis and mastectomy (OR:16.60[1.61-170.45]; p:0.008).

Conclusion: The overall quality of life was impaired in all patients. Thus, patients undergoing mastectomy should benefit from pre- and postoperative psychological care.

Keywords: Breast Cancer; Mastectomy; Quality of Life; Douala; Cameroon

1. Introduction

The World Health Organization (WHO) defines breast cancer as a genetic alteration occurring within a cell of the mammary gland with anarchic proliferation, invasion and destruction of the tissue of the breast, as well as the ability to give distant metastases [1]. Breast cancer is a major global public health problem due to its high incidence and mortality. It is the most common cancer in women worldwide; According to a study conducted by GLOBOCAN in 2018, there are about 2.1 million new cases (11.6%) and 626,679 deaths (6.6%) related to breast cancer worldwide [2]. Its incidence is four to ten times higher in Western countries compared to Asia and Africa [2]. The incidence and mortality per 100,000 women in major countries and regions of the world has been estimated as follows: In America, it is 60 with a mortality of 12; In Europe, 79.3 with a mortality of 14.6; In Asia, 37.1 with a mortality of 12.4. In Africa, the average incidence is 38 with a mortality of 16.6. There is a variable distribution in Africa according to regions with a maximum for North Africa (48.9). South Africa follows with 46.2, then West Africa (37.3), East Africa (29.9), and finally Central Africa with 27.9 [2]. In Cameroon, the incidence of breast cancer is 2625 new cases and 26.8% of mortality in women [3]. It is also the most frequent gynecological cancer with 34% of cases,

followed by cervical cancer in the city of Yaoundé [4].

The management of breast cancer includes chemotherapy, targeted therapy, hormonal therapy, radiotherapy, and conservative or radical mastectomy. Mastectomy is a procedure performed under general anesthesia to remove the area of the breast where the tumor is located, often including the areola and the nipple [5]. It is indicated for inflammatory cancers (after neoadjuvant chemotherapy); when the tumor size is large (generally more than 5 cm, but adjustable according to the ratio between tumor volume and breast volume), and when there is multifocal cancer or even a recurrence on the same breast after conservative treatment [6]. In addition, the frequent discovery of ductal carcinoma in situ (DCIS) leads to a paradox, because they are usually less aggressive but will sometimes be treated with mastectomies because of their diffuse extension throughout the breast [7]. Finally, other indications for mastectomy are the existence of genetic mutations (BRCA1 or BRCA2), family history of breast cancer, and high-risk histological lesions [7].

A significant reduction in breast cancer-related mortality has been observed since the end of the 20th century, with constant diagnostic and therapeutic progress [8]. However, despite these advances, the surgical treatment of breast cancer still involves mastectomy in more than 20% of cases in France and 92.6% of cases in Cameroon [9, 10]. This treatment has many consequences on the physical aspect of a woman and requires both physical and psychological rehabilitation [11]. Nowadays beauty and appearance are increasingly valuable on the female body [12]. Female breasts are also sources of eroticization, the perfect symbol of fertility, femininity, sensuality and sexuality [13]. The experience of mastectomy varies considerably from one woman to another, leading to varying degrees of disruption in self-image, femininity and sexuality [9]. According to Lehmann, this mutilation is difficulty accepted by women in three levels: the body image is altered, the identity of these women is affected and so are their sexual and emotional lives [13]. In Cameroon, surgical treatment of breast cancer is most often radical (92.6% mastectomy according to Nguefack et al.) this is due to the diagnosis of breast cancer at advanced stages in 2/3 of cases [10]. Thus, being diagnosed with cancer and treated with mastectomy is certainly one of the most memorable experiences in a woman's life. Moreover, reconstructive surgery is quite rare in Cameroon. While many studies to date have explored the epidemiology, clinic and management of breast cancer in Cameroon, very few studies have focused on the experience of women after mastectomy, hence this research.

2. Methodology

This was cross sectional study which took place in the gynecology, oncology and radiotherapy unit of Douala General Hospital and Laquintinie Hospital, both referral centers for management of breast cancer in Douala, Cameroon. We included consenting patients who had mastectomy for breast cancer and came for routine follow-up from October 1, 2019 to April 30, 2020. Patients who had conservative surgery, local recurrence and psychologically unstable patients were excluded. The minimum sample size was estimated with the Lorentz formula. Considering the frequency of 92% of mastectomy in Douala [10]; we obtained a sample size of 105 cases. We have obtained ethical clearance number 2188

CEI-Udo/08/2020/T from the institutional ethic committee of the University of Douala. Research authorization was obtained from the directors of the 2 hospitals. Data was collected using a pre-tested data collection sheet. Collected variables include socio-demographic and anthropometric data (age at diagnosis of cancer, sex, marital status, ethnicity, nationality, parity, height, weight), clinical data (clinical size of the tumor and staging at diagnosis, presence or absence of ulceration), therapeutic data (surgery, chemotherapy, radiotherapy, hormone therapy and complications of treatment), data on quality of life (physical, social, sexual, emotional, functional and psychological QOL). To assess quality of life, we used questions from the following recognized quality of life questionnaires that we adapted to our context:

- EORTC QLQ-BR45: this assesses the quality of life after breast cancer.
- WHOQOL-BREF: this evaluates the overall quality of life.
- FACT-MBIS: this evaluates body image
- FACT-B: this assesses the quality of life after breast cancer

Our questionnaires consisted of 39 questions with each answer scored from 0 to 4 (0: never, 1: slightly, 2: occasionally, 3: enough, 4: significantly). The answers were to relate to the events that took place in the previous two weeks. The questions were grouped according to the different aspects of quality of life (6 groups):

- Group1: physical quality of life (11 questions)
- Group2: social quality of life (10 questions)
- Group3: sexual quality of life (7 questions)
- Group4: emotional quality of life (4 questions)
- Group5: functional quality of life (2 questions)
- Group6: psychological quality of life (5 questions)

Epi info software version 7.2 and Microsoft Excel 2013 were used for statistical analysis. We conducted a descriptive analysis of the study population: qualitative variables were expressed in frequency and percentage; quantitative variables were expressed by the median with outliers, mean and standard deviation. Univariate analysis was performed to identify factors affecting quality of life, Chi-squared and Fisher tests allowed us to assess association between qualitative variables. Statistical significance was set at $p < 0.05$ with a 95% confidence interval.

3. Results

3.1 General characteristics of the study population

The mean age at the time of recruitment was 48.2 years ± 10 with extremes of age ranging from 30 to 70 years and a median of 48. The most represented age group was 40 to 50 years with 38.2 % of cases. Most patients worked in the private sector (42.5%). Secondary level of education was the most represented (47%), followed by primary and university level with respectively 27.5% and 25.5%. Married women represented 54.4% of the studied population. Concerning clinical characteristics of patients, mean gravidity was 4.1 pregnancies ± 2.1 with extremes ranging from 0 to 12.

The mean parity was 3.4 deliveries ± 1.8 with extremes ranging from 0 to 11. 8.8% of patients had a history of mastectomy in their family, with 40% of cases being an extended family member (cousin or aunt). The mean size of the remaining breast at the time of recruitment was 37.8 cm ± 2.6 with extremes

ranging from 32 to 42 cm for a median of 38. The most represented group was 34 to 38cm. The left breast was most affected (53.9%). Following the TNM classification of breast cancer, majority of patients were classified T3 and T4 (76.3% of cases); N1 (64.6%); 89.1% of patients had lymph node involvement. Metastases at diagnosis were found in 16.1% of the study population. In our series, 8.8% of patients had ulcerated tumors at the time of diagnosis.

The average time between cancer diagnosis and mastectomy was 8.4 months ± 9.7 with outliers ranging from 1 to 56 months for a median of 5.5 months. The most represented group was between 3 and 6 months. The mean time between mastectomy and recruitment was 14.6 months ± 21 with extremes ranging from 1 to 99 months for a median of 6 months. Many patients were seen 12 months after mastectomy (29.5%). 13.8% of patients had postoperative complications, with wound infection being the most common postoperative complication. Abnormal healing (mostly hypertrophic scars) affected 4.9% of patients. Patients using an external prosthesis represented 77.4% of cases; textile prostheses were the most used (97.4%). Overall, 93% of patients were treated with chemotherapy; the most common side effect of chemotherapy in these patients was hair loss. Radiotherapy was done in 32.3% of cases, the major side effect being skin burn. Hormonal therapy was administered in 22.1% of patients and no side effect was related to this treatment.

3.2 Quality of life

3.2.1 Cross-sectional analysis : Physical, social and sexual quality of life was normal in 58.8%, 25.4% and 11.7% respectively (Table 1). The functional and emotional quality of life was impaired in 63.4% and 92.2% respectively. All patients had an impaired psychological quality of life (Table 2). Overall, no patient had a normal quality of life after undergoing mastectomy. The majority of patients (84.3%) had a markedly impaired overall quality of life. While evaluating the overall quality of life on a scale of 0 to 4, we realized that women who were treated with mastectomy had QOL scores in the functional and psychological domains above the mean (2.7 and 3). In contrast, in the sexual and emotional domains, they achieved an intermediate average score (1.2 and 1.5). The average scores were close to the minimum in the physical and social domains (0.3 and 0.5).

3.2.2 Factors influencing quality of life: Women aged between 30-40 years and single women were at greater risk of presenting with altered physical quality of life (OR 6.11 [2-18.58] and OR 3.1 [1.2-7.7]). Those with tumor sizes between 2 and 5cm had a 4.9 increased risk. Hormone therapy also increased the risk of altered physical quality of life (OR 3.8 [1.1-12]). Time between diagnosis and mastectomy of less than 3 months (OR 0.3 [0.1-0.8]) and age between 50 to 60 years (OR 0.33 [0.1-0.9]) appeared to be protective factors (Table 3, 4, 5). No factor significantly influenced the global quality of life in this study (Table 6).

Quality of life	Characteristics	Frequency	Percentage (%)
Physical	Not at all altered	60	58.8
	Slightly altered	29	28.4
	Occasionally altered	9	8.8
	Quite altered	3	2.9
	significantly altered	1	0.9
Social	not at all altered	26	25.4
	Slightly altered	52	50.9
	Occasionally altered	19	18.6
	Quite altered	3	2.9
	significantly altered	2	1.9
Sexual	not at all altered	12	11.7
	Slightly altered	37	36.3
	Occasionally altered	37	36.3
	Quite altered	16	15.6
	significantly altered	00	0.0

Table 1: Physical, social and sexual quality of life.

Quality of life	Characteristics	Frequency	Percentage (%)
Functional	not at all altered	37	36.6
	Slightly altered	23	22.7
	Occasionally altered	29	28.7
	Quite altered	11	10.8
	significantly altered	1	0.9
	Total	102	100
Emotional	not at all altered	8	7.8
	Slightly altered	25	24.5
	Occasionally altered	43	42.1
	Quite altered	24	23.5
	significantly altered	2	1.9
Psychological	not at all altered	0	0
	Slightly altered	2	1.9
	Occasionally altered	9	8.8
	Quite altered	45	44.1
	significantly altered	46	45.1

Table 2: Functional, emotional and psychological quality of live.

		Total	Altered	Normal	OR [IC95%]	P value
Age	[30-40]	20	15	5	6.11 [2-18.58]	0.00007
	[40-50]	38	16	22	1.06 [0.4-2.1]	0.82
	[50-60]	26	6	20	0.33 [0.1-0.9]	0.02
	[60-70]	16	3	13	0.33 [0.1-0.9]	4.7
	≥70	2	2	0	…	…..
	Total	102	42	60		
Profession	None	34	17	17	1.6 [0.7-3.8]	0.3
	Civil servant	16	9	7	2.06 [0.6-5.9]	0.3
	Retired	8	2	6	0.4 [0.4-11.8]	0.03
	Private sector	43	14	29	0.51 [0.8-4.3]	0.1
	Total	101	42	59		
Level of education	Primary	29	7	21	0.3 [0.84-5.4]	0.009
	Secondary	48	20	28	1.14 [0.5-2.5]	0.7
	University	24	13	11	2.14 [0.8-5.4]	0.1
	Total	101	40	60		
Marital status	Single	28	17	11	3.1 [1.2-7.7]	0.01
	Divorce	2	1	1	1.4 [0.08-24]	0.7
	Married	55	20	35	0.7 [0.3-1.5]	0.4
	Widow	16	3	13	0.2 [0.07-1.07]	0.4
	Total	101	41	60		

Table 3: Sociodemographic characteristics associated to physical quality of live.

		Total	Altered	Normal	OR [IC95%]	P value
Gravidity	≥ 5	35	25	10	2.3 [0.8-5.1]	0.09
	< 5	63	34	29		
	Total	98	59	39		
Parity	≥ 5	22	19	3	1.96 [0.86-4.4]	0.1
	< 5	75	40	35		
	Total	97	59	38		
Breast ulceration	yes	9	3	6	0.3 [0.7-1.3]	0.1
	No	86	53	33		
	Total	95	56	39		
Post operative Complications	yes	14	5	9	0.3 [0.09-1.04]	0.05
	No	87	55	32		
	Total	101	60	41		

Tumor size	< 2cm	1	1	0	…	….
	[2-5cm]	56	35	21	4.97 [2-12.4]	0.0002
	> 5 cm	45	24	21	0.6 [0.3-1.4]	0.3
	Total	102	60	42		
Mastectomy in a loved one	Yes	9	7	2	2.6 [0.5-13.6]	0.1
	No	90	51	39		
	Total	99	58	39		
Breast size	[28-32]	16	10	6	1.2 [0.3-36]	0.7
	[34-38]	50	27	23	0.3 [0.3-1.4]	0.3
	[40-44]	36	23	13	1.3 [0.6-3.1]	0.4
	Total	102	60	42		
State of healing	Bad*	5	1	4	0.1 [0.01-1.4]	0.07
	Normal	97	59	38		
	Total	102	60	42		

*Bad: big scar, keloid, delayed healing due to infection

Table 4: clinical characteristics associated to physical quality of life.

		Total	**Altered**	**Normal**	**OR [IC95%]**	**P value**
Chemotherapy	Yes	94	57	37	2 [0.4-2.5]	0.3
	No	7	3	4		
	Total	101	60	41		
Radiotherapy	Yes	31	19	12	1 [0.4-2.5]	0.8
	No	69	41	28		
	Total	100	60	40		
Hormone therapy	Yes	21	17	4	3.8 [1.1-12]	0.02
	No	74	39	35		
	Total	95	56	39		
Wearing external prosthesis	Yes	79	48	31	1.4 [0.5-3.5]	0.4
	No	23	12	11		
	Total	102	60	42		
Nature of prosthesis	Tissue	77	45	32	…. ….	…..
	Silicone	4	4	0		
	Total	81	49	32		
Time between diagnosis and mastectomy (months)	[1-3]	22	8	14	0.3 [0.1-0.8]	0.02
	[3-6]	23	12	11	0.7 [0.2-1.8]	0.4
	[6-9]	16	11	5	1.6 [0.5-5.1]	0.7
	[9-12]	12	10	2	4 [0.8-19.3]	0.06

	≥ 12	29	19	10	1.4 [0.6-3.6]	0.1
	Total	102	60	42		

Table 5: Analysis of therapeutic characteristics associated to physical quality of life.

Variables	Characteristics	Altered QOL*	Normal QOL	Total	OR [IC95%]	P value
Age	[30-40]	19	1	20	0.56 [0.06-4.36]	0.3
	[40-50]	36	2	38	0.53 [0.10-2.5]	0.2
	[50-60]	24	2	26	1 [0.18-5.1]	0.4
	[60-70]	14	2	16	2 [0.34-10.4]	0.2
	≥70	1	1	2	13.28 [0.7-235.8]	0.02
	Total	94	8	102		
Profession	Unemployed	33	1	34	0.4 [0.05-4.4]	0.28
	Civil servant	14	2	16	3.9 [0.59-25.5]	0.1
	Retired	8	0	8	-----	---
	Private sector	41	2	43	0.8 [0.1-5.5]	0.4
	Total	96	5	101		
Level of education	Primairy	27	1	28	1 [0.08-8.5]	0.4
	Secondary	47	1	48	0.34 [0.3-3.3]	0.2
	University	22	2	24	3.36 [0.4-25.2]	0.14
	Total	96	4	100		
Marital status	Single	28	0)	28	…	…
	Divorce	1	1	2	98 [3.2-938.2]	0.01
	Maried	54	1	55	0.8 [0.05-13.7]	0.4
	widow	16	0	16	…	…
	Total	99	2	101		

QOL*: Quality Of Life

Table 6: Sociodemographic factors associated to global quality of life.

4. Discussion

The mean age at recruitment was 48.2 ± 10 years with extremes of age ranging from 30 to 70 years and a median of 48 years. This average age is close to that reported in Cameroon by Belley Priso et al. in 2010 (47.4 years), Engbang et al. in 2015 (48.1 years), Mayi-tsonga et al., in Gabon (48 years), as well as Togo et al. in Mali (47.4 years) [14-17]. This average age is lower than that of Emidio et al in Brazil in 2017, Shozo et al. in Japan in 2009, Jing et al. in Germany in 2009, Benjamen et al. in Australia in 2015, who found the respective mean ages of 54 years, 61 years, 57.7 and 55 years respectively [18-21]. Breast cancer appears early in black, African or African American women, which could partly explain this difference. The role of certain gene

mutations is increasingly mentioned in this early genesis of breast cancer [22]. In our cases, married women represented 54.4% of the studied population. The proportion of married women differs in different studies: Shozo et al. in Japan in 2009 (82.9%), Emidio et al in Brazil in 2017 (36%), Liang in China in 2014 (90%), Mustafa et al in Turkie in 2014 (94.8%), and Jing et al. in Germany in 2009 (50%) [18-20, 23, 24].

In our study population, the mean parity was 3.19 ± 2.3 with extremes ranging from 0 to 10. This data is comparable to those of Essiben et al. in 2013 who found an average parity of 3.9 ± 2.1 with extremes ranging from 0 to 10 [25]. Tumors in advanced stages (T3 and T4) were most frequently diagnosed (76.9%); this data is comparable to that of Mayi-tsonga et al. in Gabon, who also found the T3 and T4 stages in the majority of cases (74%) [16]. Patients in developing countries often consult late not only because of lack of education and money, but also because of cultural or religious beliefs. Regarding quality of life, the psychological domain obtained the highest average score (3). According to Sousa et al in Brazil, the psychological domain also had the highest average score (14.7 on a scale of 4 to 20) [26]. Breast cancer and mastectomy are associated with beliefs and imaginations that haunt thoughts of women in their daily lives [27]. According to Greendale et al. in North America, women who were satisfied with their partner reported being psychologically well adjusted [28]. In addition, partners of women with breast cancer can be a source of emotional support or a source of stress, thereby having a positive or negative influence on the QOL of these patients [29]. Depending on the type of relationship a woman after mastectomy will have with her partner, her quality of life can change profoundly [30].

In our study, one of the most compromised scores was in the functional domain (2.7), which corro-borates the results found by Sousa et al. in Brazil, where the functional domain had a score of 12.1 on a scale of 4 to 20 [30]. In Brazil, patients' complaints were mostly pain and discomfort [26]. They expre-ssed dissatisfaction with their ability to carry out activities of daily living [26]. In 2016, Canário et al. (also in Brazil) conducted a study which yielded results similar to ours. A high prevalence of the symptoms mentioned above has been found, thus affecting the functional domain [31]. For the sexual QOL, the score was 1.2. Nowadays beauty and appearance have become increasingly valuable on a woman's body. In addition, the breasts are also sources of eroticization, the perfect symbol of fertility, femininity, sensuality, sexuality [12]. Participants in our study obtained average score in the social domain of 0.5. This result is different not only from the conclusions of Kluthcovsky et al. in Brazil (2012), where the highest average score for quality of life was in the social domain, but also results found by Al-Ghazal et al. in London (2000), Amivhetti and Caffo in Italy (2001), Yan et al. in China (2016), and Neto et al in Brazil (2017) [18, 32-35]. This difference could be explained by the fact that the diagnosis of breast cancer is made at advanced stages in 2/3 of the cases in Cameroon [10]. Many people care about patient recovery. Also, in the economic context, breast cancer treatment is extremely costly [36]. The patients would thus be more concerned about financial problems than social problems.

In this study, physical QOL had the lowest mean score (0.3). We can conclude that, participants' preoccupation is treatment or cure, and not physical appearance. Young age significantly increased altered physical QOL. This may be due to the trauma created by mastectomy in these patients who have not yet finished their maternity or for whom body image remains very important. These observations are close to those of Musarezaie et al who found an association between age and mental quality of life [37]. Some single women are still looking for partners and may feel inadequate after mastectomy. This can explain the higher risk (2, 3) of impaired physical quality of life in this group as found in our study. Musarezaie et al did not find a significant association between quality of life and marital status [37], probably because they analyzed the overall quality of life and not specifically the physical quality of life. We did not observe any factors significantly associated with impaired overall quality of life.

Shim et al found that there was a direct relationship between the patient's level of education and their QOL [38], Kamińska et al also reported association between low level of education and altered quality of life [39]. These observations were not found in our study, probably due the limited sample size. It is known that patients with higher level of education, patients better understand their pathology and will less likely have altered QOL. When including all domains of quality of life, we found that no patient had achieved a normal life after having a mastectomy. In other words, mastectomy was responsible for an alteration in the QOL in all patients (although this alteration varied amongst women). Our results are similar to those of Kim et al. in Korea (2014), Howes et al in Australia (2016), and Shozo et al. in Japan (2009) who obtained the highest alterations in QOL in the group of patients who had undergone total mastectomy without reconstruction [40, 10, 21]. The experience of mastectomy varies considerably from one woman to another, leading to varying degrees of disruption in self-image, femininity and sexuality [12].

4.1 Limitations of the study

During this study, we were confronted with the lack of QOL assessment scale adapted to our context; a large number of patients with an impaired quality of life compared to those with a normal quality of life, which made it impossible to better investigate factors associated with the deterioration in QOL.

5. Conclusion

Women who had mastectomy for breast cancer are relatively young, married, with a high level of education. They are multiparous patients whose tumors were greater than 5 cm or inflammatory, most often with lymph node involvement. Mastectomy in these patients was most often accompanied by neoadjuvant chemotherapy and adjuvant radiotherapy. The majority of patients who had mastectomy used tissue prosthesis. The overall quality of life was altered in all of the patients, but when we look at the different domains, the physical, social and functional qualities of life were less altered than the sexual, emotional, and psychological qualities of life. Factors associated with impaired physical quality of life included young age, tumor size between 2 and 5cm and being on hormone therapy. No factor was associated with impaired overall quality of life. Thus, all Cameroonian women (especially young, single women) who have been treated with mastectomy should benefit from pre- and postoperative psycholo-

gical care to improve QOL.

Acknowledgments

We thank patients who kindly participated in this study.

Disclosure

There is no conflict of interest.

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