

# Sexual quality of life in young women with breast cancer during adjuvant endocrine therapy: objective assessment and patient-reported supportive measures.

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## Research Article

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# Abstract

**Purpose:** sexual quality of life (QoL) is affected during and after breast cancer (BC) treatment. Young women are more frequently and severely affected. We analyzed the sexual and global QoL in less than 51 years old women with BC receiving adjuvant endocrine therapy for at least 2 years, to analyze sexual dysfunction after the acute treatment phase. We also questioned women on the actions taken individually and on those they would find useful to address these issues.

**Methods:** a prospective study was conducted to evaluate the sexual QoL of young women with BC during the adjuvant endocrine treatment and to assess patient-reported supportive measures.

**Results:** a total of 45 women completed the 3 EORTC questionnaires and an additional specific questionnaire proposed in the context of the study. We showed a deterioration of the sexual QoL and a poor communication with healthcare professionals about this issue. Most patients (88.9%) declared important that sexuality should be discussed with caregivers and that the partner should be involved in the discussion. The majority of patients (60%) had taken at least one action to overcome the sexual problems, in order of frequency: local treatment like vaginal moisturizer, consultation with a psychologist, while a consultation with a sexologist remained rare. Most of these interventions (63%) originated from the patient herself.

**Conclusion:** sexual QoL is a major issue in BC patients less than 51 years old during endocrine treatment. Communication on sexuality with healthcare professionals needs to be improved. Most of the supportive methods used by the patients were at their own initiative, highlighting the need for a professional counseling on this topic. Finally, patients suggested supportive measures they would find useful and appropriate to develop in clinic.

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## Introduction

Advances in breast cancer (BC) diagnosis and treatment have led to the improvement of the patients' prognosis with a 5-year survival in wealthier countries reaching now 90% [1]. Disease and its treatment can affect day-to-day life of BC survivors and these physical, psychological and social concerns became important issues to be addressed in clinic [2]. Among these quality of life (QoL) concerns, sexual difficulties have been more recently studied [3–7]. In this regard, a specific health-related quality of life questionnaire (HRQLQ) dedicated to evaluate sexual dysfunction related to the disease and its treatment, in cancer patients, the EORTC SHQ-22, has recently been developed [8].

We previously published the results of a longitudinal assessment analyzing the sexual and global QoL of 106 women with hormone receptor-positive (HR+) BC, during the first year of endocrine therapy, using the EORTC SHQ-22 and global HRQLQ [9]. This study showed a deterioration of patient's sexual QoL as

compared to women in the general population and a very low communication level about sexual themes between patients and healthcare givers.

In this study, we focused on young patients, less than 51 years old, a population whose QoL and sexuality is more frequently and severely affected following BC care [9–13]. We analyzed the sexual and global QoL in these women with HR+ BC during endocrine therapy for at least 2 years, to analyze sexual dysfunction after the acute surgical, chemotherapeutic and radiotherapeutic treatment phase. We also used an additional specific questionnaire, proposed in the context of our study, to question women on the actions taken individually to address sexual issues and on which supportive measures they would find useful and appropriate to develop in clinic.

## **Materials And Methods**

### **Study design and subject recruitment**

This unicentric prospective study (CUPIDON 2) was conducted in the Institut du Cancer de Montpellier (ICM). The protocol was approved by the French Ethics Committee and the internal review board of the institution. Patients received an information letter and all provided written consent before the enrolment. The primary objective was to evaluate the sexual QoL of women younger than 51 years old, with HR + BC during endocrine therapy received for at least two years, using the EORTC SHQ-22 questionnaire. The secondary objectives were to evaluate the non-sexual QoL at the same time-point using the EORTC QLQ-C30 [14] and QLQ-BR23 [15] questionnaires; to evaluate the information received by patients about sexual issues; to evaluate the need for specific management of sexual troubles and to describe supportive measures or therapeutic interventions used by women on their own initiative using the specific Cupidon questionnaire, proposed for the study. Eligible women were between 18 and 51 years old, sexually active, displaying HR + early BC, having completed surgery as well as chemotherapy and/or radiotherapy when indicated. They all had received their endocrine therapy for at least 24 months.

### **Data And Measures**

General health and socio-demographic information, including employment status, physical activity and partner status were self-reported by participants. Age, weight, size, menopausal status, pathology report, type of treatment (type of surgery, radiotherapy, chemotherapy) as well as co-morbidities were collected from the medical records.

Patients were invited to complete the three EORTC HRQLQ only once.

The general EORTC QLQ-C30 questionnaire dedicated to all cancer patients includes 30 items assessing the global health status with 5 functional scores (physical, role, cognitive, social and emotional) and 9 symptom scores (nausea and vomiting, pain, fatigue, dyspnea, sleeping disturbances, appetite loss, constipation, diarrhea and financial difficulties).

The specific EORTC QLQ-BR23 module dedicated to breast cancer patients includes 23 items allowing to assess 4 functional scores (body image, sexual functioning, sexual enjoyment, future perspective) and 4 symptom scores (systemic side effects, arm symptoms, breast symptoms, being upset by the hair loss).

The EORTC SHQ-22 is a multidimensional QoL instrument used to measure sexual health in patients with cancer (men or women). This new tool covers both sexual functioning and psychosexual components. It includes 8 items on sexual satisfaction, 3 items on sexual pain and 11 single items, in an integrative approach, leading to 7 functional scales and 4 symptom scales.

In these questionnaires, higher scores in the functioning scales indicate better functional level whereas higher scores in the symptom scales indicate rather severity of problems. A user agreement for the use of the EORTC SHQ-22 was signed.

In addition, a home-made questionnaire containing 11 questions was proposed to patients in order to explore (1) the information regarding sexuality received during treatment, (2) the supportive measures or therapeutic interventions used by patients to overcome sexual dysfunction, (3) the need and acceptability for specific management of sexual dysfunction. This specific Cupidon questionnaire is reproduced *in extenso* in the supplemental data.

## **Statistical Considerations**

In this descriptive study, the sample size was based on the recruitment capacity of our institution, which represented a potential of around 50 patients meeting the inclusion criteria of the study for the planned duration. Considering an 80% acceptance rate (20% of refusal), a total of 40 patients were expected to participate. The inclusion of at least 40 patients permits to estimate (for descriptive purposes) the mean scores of the dimensions of the EORTC SHQ-22 (ranged from 0 to 100) and its 95% confidence intervals (95% CI) with a width of 15, and hypothesizing a standard deviation of 24 [16].

Scorings of the three EORTC HRQLQ were calculated according to the EORTC Scoring Manuals and results were presented as means and standard deviations (SD). Categorical variables were described using frequencies and percentages.

Statistical analysis was performed using the Stata v16 software (College Station, TX, 2019).

# **Results**

## **Patients' Characteristics**

Among the 65 patients contacted between February and April 2020 to participate in the study, 11 were not eligible (8 had no sexual activity, 2 had relapsed, 1 had discontinued her endocrine therapy) and 9 refused to participate. A total of 45 patients have been included and completed the four questionnaires. Clinical and socio-demographic characteristics are summarized in Table 1. Median age was 45 years. A majority of women had been treated by breast conserving surgery (62%), and had received chemotherapy (87%).

Most women (87%) had received endocrine treatment for 2 to 5 years. Sixty % of women were premenopausal at cancer diagnosis. Endocrine therapy consisted mostly of tamoxifen (73%), and included a chemical castration in 18% of cases. According to the body mass index (BMI), 33% and 11% of patients were overweight and obese, respectively. Most patients (58%) practiced regular physical activity, i.e. minimum 30 minutes, 3 times a week, and 76 % were professionally active. All women were sexually active at baseline (inclusion criteria) and 17 % declared a previous history of sexual problem either in the couple (5%) or of their partner (12%).

Table 1  
Clinical and sociodemographic characteristics of the women

	<b>Total (n = 45)</b>
<b>Median age - years (range)</b>	45 (33–50)
<b>Surgery</b>	
Breast conserving	28 (62%)
Mastectomy	17 (38%)
<b>Adjuvant chemotherapy</b>	
Yes	39 (87%)
No	6 (13%)
<b>Adjuvant radiotherapy</b>	
Yes	41 (91%)
No	4 (9%)
<b>Adjuvant endocrine therapy</b>	
Tamoxifen	33 (73%)
Tamoxifen followed by LH-RH agonist + AI	5 (11%)
Tamoxifen followed by AI	4 (9%)
LH-RH agonist + AI	3 (7%)
<b>Time since the beginning of the endocrine therapy</b>	
2–5 years	39 (87%)
> 5 years	6 (13%)
<b>Menopausal status at cancer diagnosis</b>	
Premenopausal	27 (60%)
Postmenopausal	18 (40%)
<b>Body mass index</b>	
Median	23.6
< 18	3 (7%)
18–24	22 (49%)

**Abbreviations: AI aromatase inhibitor; LH-RH Luteinizing hormone-releasing hormone**

	Total (n = 45)
25–29	15 (33%)
≥ 30	5 (11%)
<b>Children</b>	
Yes	38 (84%)
No	7 (16%)
<b>Physical activity</b>	
Yes	26 (58%)
No	19 (42%)
<b>Smoker</b>	
Yes	14 (31%)
No	16 (36%)
Stopped	15 (33%)
<b>Professional activity</b>	
Worker	34 (76%)
Unemployed	10 (22%)
Retired	1 (2%)
<b>History of sexual problem</b>	
Within the current couple	2 (5%)
Of the partner	5 (12%)
<b>Abbreviations: AI aromatase inhibitor; LH-RH Luteinizing hormone-releasing hormone</b>	

## Sexual Health Questionnaire

Mean scores for the EORTC SHQ-22 questionnaire are shown in Table 2. The importance attributed to the sexual activity appeared relatively preserved (mean score of 60.00) but sexual satisfaction was lower (mean score of 45.80). The libido and the impact of treatment on sexual life scores were low (mean scores of 29.63 and 37.78) and the communication about sexuality with professionals score was extremely low (mean score of 11.11). The feeling of security with the partner and the femininity were less altered (mean scores of 52.71 and 59.69 respectively).

Table 2  
Sexual quality of life assessed by the EORTC SHQ-22

<b>N = 45</b>			
<b>EORTC SHQ-C22</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>
<b>Functional scales</b>			
Sexual satisfaction	45	45.80	22.89
Importance of sexual activity	45	60.00	34.52
Libido	45	29.63	33.50
Impact of treatment on sexual life	45	37.78	39.31
Communication with professionals	45	11.11	23.57
Security with partner	43	52.71	40.00
Femininity	43	59.69	42.14
<b>Symptom scales</b>			
Sexual pain	41	31.98	32.03
Worrying about incontinence	44	9.09	24.23
Fatigue	44	49.24	39.69
Vaginal dryness	37	57.66	42.05
N = number of women who answered the question			
Higher scores in the functioning scales indicate better functional level whereas higher scores in the symptom scales indicate severity of the symptoms			

Vaginal dryness was the most important symptom (mean score of 57.66). Fatigue appeared important (mean score of 49.24) as well as pain related to intercourses (mean score of 31.98). Worrying about incontinence was rare (mean score 9.09).

### Quality Of Life Questionnaires

Mean scores for the EORTC QLQ-C30 and the EORTC QLQ-BR23 are shown in Tables 3 and 4, respectively.

Table 3  
Global quality of life assessed by the EORTC QLQ-C30

<b>N = 45</b>			
<b>EORTC QLQ-C30</b>			
	<b>N</b>	<b>Mean</b>	<b>SD</b>
<b>Functional scales</b>			
Global health status	45	69.63	17.60
Physical functioning	45	87.85	12.89
Role functioning	45	82.22	24.46
Emotional functioning	45	55.37	32.18
Cognitive functioning	45	59.26	31.89
Social functioning	45	80.37	23.65
<b>Symptom scales</b>			
Fatigue	45	41.48	27.67
Nausea and vomiting	45	4.07	9.51
Pain	45	27.04	29.15
Dyspnea	45	22.96	24.44
Insomnia	45	46.67	43.46
Appetite loss	45	7.41	21.19
Constipation	45	11.85	22.65
Diarrhea	45	8.89	16.51
Financial difficulties	45	13.33	31.30
N = number of women who answered the question			

Table 4  
Global quality of life assessed by the EORTC QLQ-BR23

<b>N = 45</b>			
<b>EORTC QLQ-BR23</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>
<b>Functional scales</b>			
Body image	45	66.30	30.25
Sexual functioning	45	35.19	24.68
Sexual enjoyment	34	62.75	28.15
Future Perspective	45	40.74	31.69
<b>Symptom scales</b>			
Systemic therapy side effects	45	26.56	17.69
Breast symptoms	44	22.73	18.97
Arm symptoms	44	22.73	23.96
Upset by hair loss	0		
N = number of women who answered the question			

According to the EORTC QLQ-C30, the global health status score was 69.63. The mean scores of physical functioning, role functioning and social functioning appeared better than those of emotional and cognitive functioning.

Regarding the symptom scales, the highest scores were fatigue and insomnia (mean scores of 41.48 and 46.67 respectively).

According to the EORTC QLQ-BR23, the score for the body image was 66.30 while the score of the sexual functioning scale appeared low (mean score of 35.19). Sexual enjoyment appeared better (mean score of 62.75) but only 75% of patients answered this item. Side effects of systemic therapy and local breast and arm symptoms had similar scores. With a minimum of 2 years since the end of the chemotherapy, women were no more concerned by hair loss.

### **Specific Cupidon Questionnaire**

The answers to the specific Cupidon questionnaire are shown in Table 5 and Table 6.

Table 5

Patient-reported communication with health professionals and supportive measures, assessed by the CUPIDON questionnaire

<b>Evaluation of the received information and satisfaction</b>	<b>N</b> <b>=</b> <b>45</b>	<b>%</b>
<b>1. Did you receive any information from the medical oncologist or another caregiver on the possible impacts of cancer and of your treatment on sexuality?</b>		
No	24	53.3
Yes <sup>1</sup>	12	26.7
I don't remember	9	20.0
<i><sup>1</sup>Among the 12 patients: 10 were satisfied (agreed/fully agreed) by the received information and 2 had no opinion (question 2).</i>		
<b>2. I'm satisfied with the information I received about the possible impacts of cancer and the treatments on my sexuality</b>		
Strongly disagree / Disagree	14	31.1
No opinion	19	42.2
Agree / Fully agree	12	26.7
<b>3. Have you had any discussion with the oncologist or another caregiver from the Cancer Center about potential sexual problems?</b>		
No	39	86.7
Yes	6	13.3
<b>Talking about sexual health and barriers</b>	<b>N</b> <b>=</b> <b>39</b>	<b>%</b>
<b>4. I did not discuss about sexuality because:</b>		
<b>I had no question or I didn't feel the need to discuss about it</b>		
Strongly disagree / Disagree	6	15.4
No opinion	6	15.4
Agree / Fully agree	27	69.2
<b>I considered sexuality as a minor issue compared to cancer treatment</b>		
Strongly disagree / Disagree	9	23.1
No opinion	4	10.2

N = number of women who answered the question

<b>Evaluation of the received information and satisfaction</b>	<b>N</b>	<b>%</b>
	<b>=</b>	
	<b>45</b>	
Agree / Fully agree	26	66.7
<b>Physicians and/or nurses looked in a hurry or too busy</b>		
Strongly disagree / Disagree	27	69.2
No opinion	2	5.1
Agree / Fully agree	10	25.7
<b>I felt too shy and/or discomfort to discuss this topic</b>		
Strongly disagree / Disagree	23	59.0
No opinion	4	10.2
Agree / Fully agree	12	30.8
<b>I felt discomfort since my physician was a man and/or since I had no positive contact with him/her</b>		
Strongly disagree / Disagree	34	87.2
No opinion	1	2.6
Agree / Fully agree	4	10.2
<b>It is in contradiction with my education, beliefs, culture</b>		
Strongly disagree / Disagree	36	92.3
No opinion	0	0.0
Agree / Fully agree	3	7.7
<b>Management of sexual issues: evaluation of the needs in information and therapeutic proposals</b>	<b>N</b>	<b>%</b>
	<b>=</b>	
	<b>45</b>	
<b>5. In my opinion, it is important that a physician and/or a caregiver from the Cancer Center addresses the issue of sexuality and its potential dysfunction due to the cancer or to cancer treatments</b>		
Strongly disagree / Disagree	1	2.2
No opinion	4	8.9
Agree / Fully agree	40	88.9
<b>6. In my opinion, it is important that a physician and/or a caregiver from the Cancer Center addresses the issue of sexuality and its potential dysfunction due to the cancer or to cancer treatments with my partner</b>		

N = number of women who answered the question

<b>Evaluation of the received information and satisfaction</b>	<b>N</b>	<b>%</b>
	<b>=</b>	
	<b>45</b>	
Strongly disagree / Disagree	5	11.1
No opinion	6	13.3
Agree / Fully agree	33	73.4
No partner	1	2.2
<b>7. I would have wished that a consultation about sexuality was systematically proposed at the beginning of cancer treatment</b>		
Strongly disagree / Disagree	12	26.7
No opinion	9	20.0
Agree / Fully agree	24	53.3
<b>8. I would have wished that a consultation about sexuality was available in the Cancer Center when needed during my treatment</b>		
Strongly disagree / Disagree	2	4.4
No opinion	9	20.0
Agree / Fully agree	34	75.6
<b>9. Have you been using any of these methods for sexual purpose since the beginning of your disease?</b>		
<i>(each sub-item was binary, only category 'yes' is shown)</i>		
<b>Consultation with a psychologist</b>	8	17.8
<b>Consultation with a psychiatrist</b>	2	4.4
<b>Consultation with a sexologist</b>	1	2.2
<b>Pelvic floor physical therapy</b>	3	6.7
<b>Use of vaginal moisturizer</b>	22	48.9
<b>Use of vaginal laser therapy</b>	0	0.0
<b>Use of at least one the methods mentioned above</b>	27	60.0
	<b>N</b>	<b>%</b>
	<b>=</b>	
	<b>27</b>	
<b>10. If you have been using any method from the previous question, have you decided it on your own?</b>		

N = number of women who answered the question

<b>Evaluation of the received information and satisfaction</b>	<b>N</b>	<b>%</b>
	<b>= 45</b>	
Yes (own initiative)	17	63.0
Yes (own initiative) and advice (from my: oncologist (n = 1), my gynecologist (n = 1))	2	7.4
No: advice <sup>2</sup>	8	29.6
<sup>2</sup> from my: oncologist (n = 1), general practitioner (n = 1), general practitioner and my gynecologist (n = 1), gynecologist (n = 5)		
N = number of women who answered the question		

Table 6  
Patients' suggestions for sexual care assessed by the CUPIDON questionnaire

<b>Patients' suggestions for sexual care</b>	<b>N = 45</b>	<b>%</b>
<b>In your opinion, which method would be useful and/or appropriate to address the sexual problems (several answers possible)?</b>		
<b>Consultation with a caregiver trained in sexology</b>		
Strongly disagree / Disagree	2	4.4
No opinion	2	4.4
Agree / Fully agree	41	91.2
<b>Consultation with a psychiatrist</b>		
Strongly disagree / Disagree	11	24.4
No opinion	16	35.6
Agree / Fully agree	18	40.0
<b>Consultation with a sexologist</b>		
Strongly disagree / Disagree	6	13.3
No opinion	9	20.0
Agree / Fully agree	30	66.7
<b>Couple consultation</b>		
Strongly disagree / Disagree	6	13.3
No opinion	7	15.6
Agree / Fully agree	32	71.1
<b>Group consultation</b>		
Strongly disagree / Disagree	26	57.8
No opinion	8	17.8
Agree / Fully agree	11	24.4
<b>On-line therapy using on-line questionnaires and consultations</b>		
Strongly disagree / Disagree	14	31.1
No opinion	10	22.2
Agree / Fully agree	21	46.7

N = number of women who answered the question

<b>Patients' suggestions for sexual care</b>	<b>N = 45</b>	<b>%</b>
<b>Pelvic floor physical therapy</b>		
Strongly disagree / Disagree	2	4.4
No opinion	10	22.2
Agree / Fully agree	33	73.4
<b>Vaginal moisturizer</b>		
Strongly disagree / Disagree	1	2.2
No opinion	9	20.0
Agree / Fully agree	35	77.8
N = number of women who answered the question		

Most patients (73.3%) had not received or didn't remember receiving information about sexuality by their oncologist or any caregiver. Among the 12 patients that had received information, 10 (83.3%) were satisfied by the received information. Most patients (86.7%) had never discussed about potential sexual problems with their oncologist or caregiver.

When asked why they didn't discuss about sexuality with them, most patients declared having no question about sexuality (69.2%, categories agree or fully agree) and feeling it was a minor issue (66.7%) as compared to the cancer and the cancer treatment. Only a minority of patients felt that the caregivers were too busy to discuss (25.7%) or felt discomfort (30.8%) to talk about the subject.

At the same time, most patients (88.9%) declared important that sexuality and its potential problems should be discussed with caregivers and that the partner should be involved in the discussion (73.4%). Half of patients (53.3%) wished a systematic initial consultation with a sexologist and 75.6% wished that such a consultation would be available when needed.

The majority of patients (60%) had tried at least one method to overcome the sexual problems, in order of frequency: local treatment like vaginal moisturizer (48.9%), consultation with a psychologist (17.8%), while a consultation with a sexologist remained rare (2.2%). Most of these interventions (63%) originated from the patient herself. Eight patients declared having used another help: consultation with a gynecologist (n = 5), with a midwife (n = 1), with a general practitioner (n = 1), with a general practitioner and a gynecologist (n = 1).

Patients suggested as desirable the following interventions in order of frequency: consultation with a caregiver trained in sexology (91.1%), vaginal moisturizer (77.8%), pelvic floor physical therapy (73.4%), combined consultation with her partner and a caregiver (71.1%), consultation with a sexologist (66.7%), online psychotherapy (46.7%), psychiatric consultation (40%), group consultation (24.4%).

## Discussion

This study described the sexual health and global QoL of 45 women less than 51 years old during adjuvant endocrine treatment for HR + early BC, as well as the actions taken and suggested by these women to overcome the encountered problems.

First of all, women displayed a high level of interest in the study as demonstrated by the 83% participation rate and a high rate of response to the items of the questionnaires.

The scores observed for the sexual QoL evaluation with the EORTC SHQ-22 were similar to those previously observed using the same questionnaire in a population, without age restriction [9], during endocrine therapy (sexual satisfaction scores were 43.43 and 45.80 in the previous and in the current study respectively), with, though, a higher importance for sexual activity in this younger population (scores of 42.95 and 60.00 respectively). The observed score deteriorations were similar, in both studies, with an extremely low score for communication with professionals, and a high level of alteration of the sexual satisfaction and of the libido scores. This deleterious effect of BC and its treatment is consistent to what has been shown in the literature with other questionnaires [17–21] and is significant when compared to the French general population in which the rate of sexual satisfaction of women was 88% in a 2006 survey including 6824 women [22]. It should be noted that the professional activity, physical activity and body mass index rates of our study population were similar to those of the same age general population [23, 24].

The global QoL deterioration analyzed with the QLQ-C30 and BR23 was also similar to what we previously reported [9] with the most frequent symptoms being fatigue and insomnia.

We explored the actions taken and proposed by patients to overcome these sexual dysfunctions using a home-made questionnaire specific to our study. Firstly, most patients had not received any information neither, a fortiori, help from their oncologist or caregiver. A vast majority of them declared important that sexuality should be discussed and that their partner should be involved. However, among the women who had received information by their oncologist or any caregiver, the vast majority were satisfied by the received information, which is altogether encouraging, since these caregivers were not trained before the study.

The majority of patients used interventions to overcome sexual problems from their own initiative, underlying the need for a specific management of this issue. They stated, mostly not based on their personal experience, that it would be desirable to develop, by order of frequency: consultation with a caregiver trained in sexology, vaginal moisturizer, pelvic floor physical therapy, consultation including their partner, consultation with a sexologist, and less frequently, any kind of psychotherapy.

Most patients declared that sexuality remains a minor issue compared to cancer treatment as the main reason to explain why they didn't discuss about it with their oncologist or caregiver. This seemingly contradictory response might reflect the patients' ambivalence about the theme and/or the fact that they

want to prioritize the time with their oncologist to focus on the medical information regarding the cancer and its treatment. The role of the oncologist is probably mostly to raise the subject with the patient and to question for the need for such a dedicated consultation.

The limitations of our study are the low number of patients included and the absence of longitudinal evaluation. The strengths are the homogeneity of this young women population as well as the use of standardized EORTC questionnaires integrating physical, psychological and social aspects to evaluate sexual QoL. Moreover, despite the fact that the specific Cupidon questionnaire is not a validated research instrument, asking women their opinion on the actions that could be useful and appropriate to develop in clinic is crucial. This latter information from the involved women going through this issue is precious and should be used to identify the actions to be taken to support these women. The key proposals from the affected patients should be considered to tailor patient's management, the final goal being to improve the QoL of our patient with the adequate intervention and support.

## Declarations

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### Conflicts of interest

The authors have no conflicts of interest to disclose.

## References

### References

1. Allemani C, Matsuda T, Di Carlo V et al (2018) Global surveillance of trends in cancer survival 2000–14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. *The Lancet* 391:1023–1075. [https://doi.org/10.1016/S0140-6736\(17\)33326-3](https://doi.org/10.1016/S0140-6736(17)33326-3)
2. Runowicz CD, Leach CR, Henry NL et al (2016) American Cancer Society/American Society of Clinical Oncology Breast Cancer Survivorship Care Guideline. *J Clin Oncol* 34:611–635. <https://doi.org/10.1200/JCO.2015.64.3809>
3. Ananth H, Jones L, King M, Tookman A (2003) The impact of cancer on sexual function: a controlled study. *Palliat Med* 17:202–205. <https://doi.org/10.1191/0269216303pm759oa>
4. Krychman ML, Katz A (2012) Breast Cancer and Sexuality: Multi-modal Treatment Options (CME). *J Sex Med* 9:5–13. <https://doi.org/10.1111/j.1743-6109.2011.02566.x>
5. Frechette D, Paquet L, Verma S et al (2013) The impact of endocrine therapy on sexual dysfunction in postmenopausal women with early stage breast cancer: encouraging results from a prospective study. *Breast Cancer Res Treat* 141:111–117. <https://doi.org/10.1007/s10549-013-2659-y>

6. Aerts L, Christiaens MR, Enzlin P et al (2014) Sexual functioning in women after mastectomy versus breast conserving therapy for early-stage breast cancer: A prospective controlled study. *The Breast* 23:629–636. <https://doi.org/10.1016/j.breast.2014.06.012>
7. Pup LD, Villa P, Amar ID et al (2019) Approach to sexual dysfunction in women with cancer. *Int J Gynecol Cancer* 29:. <https://doi.org/10.1136/ijgc-2018-000096>
8. Oberguggenberger AS, Nagele E, Inwald EC et al (2018) Phase 1–3 of the cross-cultural development of an EORTC questionnaire for the assessment of sexual health in cancer patients: the EORTC SHQ-22. *Cancer Med* 7:635–645. <https://doi.org/10.1002/cam4.1338>
9. Aptecar L, Fiteni F, Jarlier M et al (2021) Prospective evaluation of sexual health in breast cancer women during the first year of adjuvant hormonal treatment using a cancer patient’s dedicated questionnaire: A glaring gap of communication between health professionals and patients. *Breast Cancer Res Treat*. <https://doi.org/10.1007/s10549-020-06062-x>
10. Fobair P, Stewart SL, Chang S et al (2006) Body image and sexual problems in young women with breast cancer. *Psychooncology* 15:579–594. <https://doi.org/10.1002/pon.991>
11. Muñoz M (2010) Quality of life during treatment in young women with breast cancer. *Breast Cancer Res Treat* 123:75–77. <https://doi.org/10.1007/s10549-010-1061-2>
12. Howard-Anderson J, Ganz PA, Bower JE, Stanton AL (2012) Quality of life, fertility concerns, and behavioral health outcomes in younger breast cancer survivors: a systematic review. *J Natl Cancer Inst* 104:386–405. <https://doi.org/10.1093/jnci/djr541>
13. Hsu T, Ennis M, Hood N et al (2013) Quality of life in long-term breast cancer survivors. *J Clin Oncol Off J Am Soc Clin Oncol* 31:3540–3548. <https://doi.org/10.1200/JCO.2012.48.1903>
14. Aaronson NK, Ahmedzai S, Bergman B et al (1993) The European Organization for Research and Treatment of Cancer QLQ-C30: A Quality-of-Life Instrument for Use in International Clinical Trials in Oncology. *JNCI J Natl Cancer Inst* 85:365–376. <https://doi.org/10.1093/jnci/85.5.365>
15. Sprangers MA, Groenvold M, Arraras JI et al (1996) The European Organization for Research and Treatment of Cancer breast cancer-specific quality-of-life questionnaire module: first results from a three-country field study. *J Clin Oncol* 14:2756–2768. <https://doi.org/10.1200/JCO.1996.14.10.2756>
16. 9781405146500\$4 Sample Size Tables for Clinical Studies - AbeBooks - Machin, David; Campbell MJ, Tan, Say–Beng; Tan, Sze–Huey: 1405146508. <https://www.abebooks.fr/9781405146500/Sample-Size-Tables-Clinical-Studies-1405146508/plp> . Accessed 2 Nov 2020
17. Ribí K, Luo W, Walley BA et al (2020) Treatment-induced symptoms, depression and age as predictors of sexual problems in premenopausal women with early breast cancer receiving adjuvant endocrine therapy. *Breast Cancer Res Treat* 181:347–359. <https://doi.org/10.1007/s10549-020-05622-5>
18. Den Oudsten BL, Van Heck GL, Van der Steeg AFW et al (2010) Clinical factors are not the best predictors of quality of sexual life and sexual functioning in women with early stage breast cancer. *Psychooncology* 19:646–656. <https://doi.org/10.1002/pon.1610>

19. Yang EJ, Kim S-W, Heo C-Y, Lim J-Y (2011) Longitudinal changes in sexual problems related to cancer treatment in Korean breast cancer survivors: a prospective cohort study. *Support Care Cancer* 19:909–918. <https://doi.org/10.1007/s00520-010-0885-y>
20. Rosenberg SM, Tamimi RM, Gelber S et al (2014) Treatment-related amenorrhea and sexual functioning in young breast cancer survivors: Sexual Function and Breast Cancer. *Cancer* 120:2264–2271. <https://doi.org/10.1002/cncr.28738>
21. Kowalczyk R, Nowosielski K, Cedrych I et al (2019) Factors Affecting Sexual Function and Body Image of Early-Stage Breast Cancer Survivors in Poland: A Short-Term Observation. *Clin Breast Cancer* 19:e30–e39. <https://doi.org/10.1016/j.clbc.2018.09.006>
22. Bajos N, Bozon M, Beltzer N, l'équipe CSF (2008) Sexualité, prévention et rapports sociaux de sexe au fil de la vie. *médecine/sciences* 24:24–32. <https://doi.org/10.1051/medsci/2008242s24>
23. Institut national de la statistique et des études économiques (France) (2020) Tableaux de l'économie française
24. DGOS (2021) Obésité: prévention et prise en charge. In: Ministère Solidar. Santé. <https://solidarites-sante.gouv.fr/systeme-de-sante-et-medico-social/strategie-nationale-de-sante/priorite-prevention-rester-en-bonne-sante-tout-au-long-de-sa-vie-11031/priorite-prevention-les-mesures-phares-detaillees/article/obesite-prevention-et-prise-en-charge>. Accessed 27 Apr 2021