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## RESEARCH ARTICLE

# Breast Conserving Therapy and Quality of Life in Thai Females: a Mixed Methods Study

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## Abstract

**Background:** To explore factors that influence quality of life (QOL) in patients receiving breast conserving therapy (BCT). **Materials and Methods:** In this sequential mixed methods study, 118 women from Songklanagarind Hospital were included. We used participants' characteristics, Body Image Scale (BIS), and Functional Assessment of Cancer Therapy with the Breast Cancer Subscale (FACT-B) for analysis. The BIS transformed into presence of body image disturbance (BID). Factors that influenced QOL were determined by stepwise multiple linear regression. Forty-one participants were selected for qualitative analysis. Our female researcher performed the semi-structured interviews with questions based on the symbolic interaction theory. Final codes were analysed using thematic analysis along with investigator triangulation methods. **Results:** Ninety percent had early stage breast cancer with post-completed BCT, for an average of 2.7 years. The median BIS score and FACT-B score were 2 (IQR=10) and 130 (IQR=39). In the regression analysis, an age of more than 50 years and BID were significant factors. As for the value of conserved breasts, two themes emerged: a conserved breast is an essential part of a participant's life and also the representation of her womanhood; the importance of a breast is related to age. **Conclusions:** Body image influenced QOL in post BCT participants. The conserved breasts also lead to positive and better impact on their body image as an essential part of their life.

**Keywords:** Breast cancer - breast conservation - quality of life - body image - mixed methods.

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## Introduction

Breast conserving therapy (BCT) is the local treatment for women with breast cancer; it can preserve a woman's breast by using wide local excision and adjuvant radiotherapy. Nowadays, BCT is an alternative treatment for modified radical mastectomy (MRM). The 10-year risk of recurrence is 19.3% and the 15-year breast cancer mortality rate is 21.4% (Veronesi et al., 2002; Early Breast Cancer Trialists' Collaborative et al., 2011). However, after the treatment, patients will have undergone permanent changes, both physical and emotional, that can affect their overall well-being.

Quality of life (QOL) is the subjective point of view in people's well-being, dependent on the context of their culture and value system. There are many factors which influence QOL in females with breast cancer, such as age, marital status, body mass index (BMI), educational level, income, and cancer staging (Hopwood et al., 2007; Al-Naggar et al., 2011; Shen et al., 2012; Chang et al., 2014). Additionally, breast cancer treatment also yields

undesirable effects on QOL.

In patients who underwent systemic treatment, intravenous chemotherapy was found to be the sole significant factor predicting QOL. Patients who received tamoxifen had better QOL than those treated with an aromatase inhibitor (Hopwood et al., 2007; Takei et al., 2012). As for the local treatment, the differences in QOL between participants who received BCT and MRM are controversial, depending on their cultural background (Ohsumi et al., 2009; Huang et al., 2010; Munshi et al., 2010; He et al., 2012; Acil and Cavdar, 2014; Sun et al., 2014).

For women with BCT, there is little data regarding the factors that influence their QOL. Previous studies showed that only breast symmetry, with the use of the patients' rating cosmetic results, was influential for determining their QOL (Waljee et al., 2008). However, the effect did not demonstrate any objective cosmetic results (Krishnan et al., 2001; Exner et al., 2012; Peerawong et al., 2015). Therefore, this study's aim was to explore other factors which influence QOL in BCT.

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## Materials and Methods

We used the mixed methods sequential method for this study. Initially, we started with secondary data analysis by including BCT women from the Cosmetic Outcome and Quality of Life Correlation project conducted between April 2014 and October 2014. Inclusion criteria were women with breast cancer aged more than 18 years' old who had undergone BCT for at least one year. Exclusion criteria were those who had bilateral breast cancer, had recurrent or distance metastasis, other types of cancers, impaired cognition, had a clinical diagnosis of overt psychosis, major depression, or delirium.

The questionnaires for the study comprised 3 parts; 1) participants' characteristics and clinical information; 2) Body Image Scale (BIS); 3) Functional Assessment of Cancer Therapy with Breast Cancer Subscale (FACT-B). As for the BIS, there was a 10-item questionnaire with 4 possible scores (not at all, a little, quite a bit, and very much) for evaluating body image disturbance. BIS was then transformed into Body Image Disturbance (BID) (Yes/No). FACT-B was a cancer specific questionnaire which measured five aspects: Physical Well-Being (PWB), Social Well-Being (SWB), Emotional Well-Being (EWB), Functional Well-Being, and Breast Cancer Subscale (BCS). The range of score was from 0-144. A higher score represented better QOL.

We used descriptive statistical analysis for participants' demographic data and clinical information. Comparisons of QOL scores between the two groups were performed by Student's t-test for the normal distribution data. The Wilcoxon rank-sum test was performed for non-normally distributed data. Comparisons between the QOL scores of at least three groups were calculated using the Kruskal-Wallis test for non-normally distributed data. Stepwise multiple linear regression was used to determine multiple variable analysis.

For the second part of the study, we recruited participants using the purposive sampling method. Our female researcher (SS) performed all of the semi-structured interviews. In the interviews, SS used three open-ended questions based on the symbolic interaction theory: 1) How do you associate your post-treatment cosmetic results with your quality of life? 2) How important are breasts to you? 3). What do your breasts represent? The researcher made field notes immediately after each session. After that, each researcher analysed and created individual codes using investigators triangulation methods for methodological rigor. Emerging concepts were then analysed the thematic analysis approach. Different codes were discussed and modified by the authors before the analysis of the final codes.

The Ethics Committee of the Faculty of Medicine, Prince of Songkla University approved this study (EC: 56-456- 07-1).

## Results

One-hundred eighteen participants joined the study. Ninety percent had early breast cancer and had completed BCT for 2.7 years. Most were Buddhist (87.3%), with

an average age of 52(9.0) years, had enough children, (86.4%), had at least a college degree (50%), had job security (65.3%), and had no financial difficulties (83.9%), as shown in Table 1.

Almost all of the participants were satisfied with the results of the treatment. However, the BIS score was a measly 2 (0,11). The top three issues were dissatisfaction with appearances, scars, and body being less than whole (Figure 1). The median FACT-B score was 130(105,144). Scores for each aspect were 26 (16,28), 26(18,28), 23(15,24), 27(21,28), and 29(17,36) for PWB, SWB, EWB, FWB, and BCS respectively.

In the univariate analysis (Table2), aged more than 50 years with body image problems had a significant influence on total QOL score. Aged more than 50 years had a significant effect on SWB and EWB, with scores of 26 (24,28), 27(26,28) for SWB, 23(21,24), and 23(22,24) for EWB. BID was the sole significant factor which affected all domains in FACT-B. Having enough children affected BCS. Systemic treatment also affected the domain in FACT-B. Having received chemotherapy prior to surgery also had a significant influence on BCS: 32(29,32) and 29(25,31) for women who received neoadjuvant chemotherapy and did not receive chemotherapy, respectively.

For the stepwise multiple linear regression, we took aged more than 50 years, having enough children, chemotherapy regimens, receiving neoadjuvant chemotherapy, and presence of BID into account. The results showed that only aged more than 50 years and presence of BID were the factors that significantly influenced QOL in BCT women with breast cancer, with coefficients (95% CI) of 4.37(1.16,7.58) and -7.85 (-10.95, -4.75).

**Table 1. Demographic and Clinical Information (n=118)**

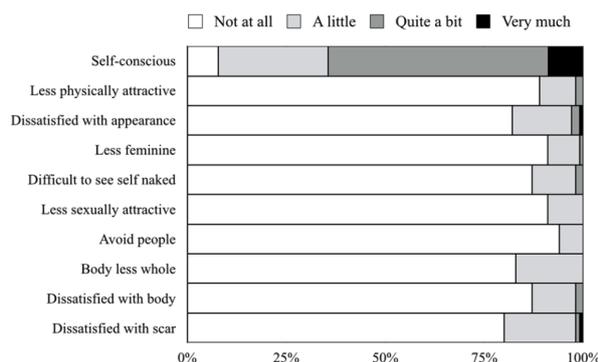
Characteristics	n (%)
Age >50 year	51 ( 43.2)
Marital status	
Single	23 (19.5)
Married	76 (64.4)
Divorced	19 (16.1)
Children adequacy	102 (86.4)
Obesity	53 (44.9)
Educated at least high school	60 (50.9)
Working	77 (65.3)
Having economic problem	19 (16.1)
Disease status	
Stage	
0-I-II	111 ( 94.1)
III	7 (5.9)
Received neoadjuvant chemotherapy	11 (9.3)
Received adjuvant chemotherapy	93 (78.8)
Regimens	
CMF	8 (6.8)
Antracycline baaed	68 (57.6)
Taxane based	23 (19.5)
Received anti-hormonal therapy	
Tamoxifen	67 (56.8)
Aromatase inhibitor	10 (7.9)

CMF, Cyclophosphamide Methotrexate 5-Fluorouracil

As for the qualitative part thematic analysis, 41 participants were recruited for the interview. Two themes emerged. (Table 3).

#### *A conserved breast is an essential part of a participant's life*

Participants regarded breasts as a crucial part of them, physically and psychologically. Having breasts made them feel complete as a woman, a mother, and a wife. Thirty-six viewed breasts as a representation of their womanhood. They mentioned feeling a lack of wholeness or even handicapped if their "womanhood" were to be removed. "If I don't have a breast then I will feel like a handicapped woman. Manly, even." [Regarding the meaning of breast]



**Figure 1. Severity and Frequency of Body Image Problem in Each Aspect**

#### *"Perfection of my womanhood."*

Twenty-five participants related breasts to their motherhood, a maternal bond with their child. They also felt that they would be incomplete as mothers if they didn't have breasts. "If I have breasts then we will be a perfect family and I can call myself a good mother."

Ten expressed concerns about being unable to breastfeed their children, unrelated to their age and their children's age. As a wife, major concerns (9) were about sexual intimacy with their spouse and feelings of infidelity. [The importance of breast] "Sexual pleasure." "He [her husband] may find someone else if I don't have it [breast]."

As for body image, 12 of the participants described the lack of confidence they would feel if their breasts were to be removed. "It [having breast] boosts my confidence when I'm dressing up." "I wouldn't feel so confident if I don't have it [breast]."

#### *The importance of conserved breasts is relational with age*

Despite the major concerns regarding conserved breasts, participants saw it as less important relative to their age. Twenty-two emphasized the importance of breasts in correlation with physical body image and self-perceived body image in their younger years, but felt more accepting toward the lack of one in older age. [To have her breast removed "If I was young, I would be devastated. But now that I'm getting older so it's fine." "Now as I got older, I don't feel attached to it that much."]

[Breast and QOL] "It has nothing to do with each

**Table 2. Univariate Analysis of Demographic and Clinical Information**

Factors		PWB	SBW	EWB	FWB	BCS	Total
Age (year)	≥ 50	26 (23,27)	26 (24,28)	23 (21,24)	27 (26,28)	29 (25,31)	128 (122,133)
	< 50	26 (25,28)	27 (26,28) <sup>a</sup>	23 (22,24) <sup>a</sup>	27 (26,28)	30 (25,32)	133 (125,137) <sup>a</sup>
Children adequacy	Yes	26 (24,27)	27 (25,28) <sup>b</sup>	23 (22,24)	27 (26,28)	29 (25,32) <sup>a</sup>	131 (124,136) <sup>b</sup>
	No	26 (25,27)	27 (26,28)	23 (21,23)	26 (25,28)	29 (24,29)	124 (122,132)
Chemotherapy regimens	CMF	25 (22,26)	24 (22,26)	23 (22,24)	28 (26,28)	23(21,31)	120 (114.4,131.2)
	Antracycline based	26 (25,27)	27 (26,28)	23 (22,24)	27 (26,28)	29 (25,32)	131 (125,137)
	Taxane based	26 (25,28)	26 (25,28) <sup>c</sup>	22 (22,24)	27 (26,28)	29 (26,31)	130 (124,134)
Received neoadjuvant chemotherapy	Yes	26 (26,27)	26 (23,28)	23 (23,24)	27 (26,28)	32 (29,32) <sup>a</sup>	134 (125,137)
	No	26 (25,27)	26 (25,28)	23 (21,24)	27 (26,28)	29 (25,31)	130 (123,135)
BID	Yes	25 (23,27) <sup>a</sup>	26 (24,27) <sup>a</sup>	22 (21,23) <sup>a</sup>	26 (25,28) <sup>a</sup>	26 (5) <sup>b</sup>	125 (118,130) <sup>a</sup>
	No	27 (25,28)	28 (26,28)	24 (23,24)	28 (27,28)	30 (4)	134 (129,137)

PWB, physical well-being; SBW, family/social well-being; EWB, emotional well-being; FWB, functional well-being; CMF, Cyclophosphamide Methotrexate 5-Fluorouracil; BID, body image disturbance; Significant by using statistic: a, the wilcoxon rank-sum test; b, t-test; c, Kruskal-Wallis test

**Table 3. Values of Conserved Breasts in the Participants**

Themes	Categories	Subcategories	Codes	Sub codes
Conserved breast is an essential part of participants' life	Role	Woman	Womanhood	-Symbol of female perfection
		Mother	Breastfeeding	-A bond between mother and child
	Body image	Wife	Sexual Intimacy	-Symbol of a complete family
		Physical		-Expressing intimacy with spouse
The importance of breast is relational with age	Dynamic	Young	Personality	-Concerns about scars and changed appearance
		Old		-Crucial in younger age
				-Not so important in older years
			-Does not impact body image in older group	

## Discussion

At our institute, BCT is abundant in well-educated women who have no financial issues and could receive multiple fractions of external beam radiotherapy. The QOL and BI of the BCT subgroup seem to be better than those who received mastectomy or mastectomy with reconstruction (Collins et al., 2011; Acil and Cavdar, 2014; Sun et al., 2014). Therefore, to improve QOL of the participants with BCT, factors that influence their QOL require separate inspection. At first, our results found no significant correlation between objective cosmetic result and QOL. Thus, we performed further thematic analysis in order to explore the effects of BCT on participants' QOL.

From our findings, there were two significant factors that impacted QOL, aged more than 50, and body image disturbance (BID). Since age is an uncontrollable factor, we delved into BID. By definition, the meaning of BI varies (Lehmann et al., 2015). We chose Hopwood's body image scale because of the high accountability in the European Organization for Research and Treatment of Cancer studies (Hopwood et al., 2001). However, the cut point of the severity of BID was not clearly defined (Falk et al., 2010).

Previous studies showed a correlation between BID, self-compassion, and QOL (Figueiredo et al., 2004; Falk Dahl et al., 2010; Przewdziecki et al., 2013). In the young age group: traditional gender roles, attitudes, and the social expectations of females had a major impact regarding BID, especially in collectivist cultures (Hofstede et al., 2010; Boquiren et al., 2013; Miller et al., 2014). The qualitative value of breast conservation as a social identity and the importance of breasts is multidimensional (Bredin, 1999). Participants were concerned about conserved breasts because society has related the breast to the symbol of feminism. For example, breasts were not merely an organ but also viewed as a maternal bond, perfection within the family, and also one way to demonstrate intimacy with their spouses. Therefore, the importance of breasts is rather multidimensional.

The second theme showed the devaluing of breasts is related to time. In the elderly subgroup, their self-body image that revolved around breasts was less important. Their major emphasis was on physical abilities and being independent (Jankowski et al., 2016). This phenomenon was also related to the social context in which a society expected less from elderly females (Lamarche et al., 2012; Chang et al., 2014).

Our work emphasized the same message as previous studies: Having breasts is not equal to good QOL (Huang et al., 2010; Munshi et al., 2010; He et al., 2012). Still, previous studies are unable to correlate QOL outcome between BCT and MRM, much like this study. More work, especially a comparison between these two groups, is recommended.

From our findings, participants valued conserved breasts as much more than just an organ: breasts are essential, representing their womanhood and also the familial bond with their families. These socially-constructed values need to be taken into account by

physicians when they are considering treatment choices.

To our knowledge, our work is the first mixed-method study regarding body image disturbance and QOL in BCT patients. Findings from the qualitative part also correlate with and enhance the statistical findings, which still requires further exploration.

Our study has several limitations. Firstly, the qualitative data analysis was based on the open-ended questionnaires used during the interview. Some deeper aspects, such as the meaning of womanhood and motherhood, still need further clarification from participants. Secondly, we only recruited participants who had undergone BCT. Their answers may differ from those who went through MRM, as shown in previous studies (Bredin, 1999; Shoma et al., 2009; Collins et al., 2011). Data and the interviews were also collected from a single tertiary care center, which could have led to selection bias.

In conclusion, body image is the sole independent factor that had an influence over quality of life. Conserved breasts were essential to participants' lives, had a positive impact, and led to a better body image. Physicians should take these aspects into consideration when regarding a patient's choice of treatment.

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