

## Original article

# Marital satisfaction in patients with breast cancer who have undergone mastectomy at King Chulalongkorn Memorial Hospital

Chatchadaporn Pornleegalearn<sup>a</sup>, Chutima Roomruangwong<sup>b,\*</sup>

<sup>a</sup>Program in Mental Health, Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

<sup>b</sup>Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

**Background:** Breast is an organ that affects sexual symbol and sexual satisfaction. The patients with mastectomy may suffer from both physical and psychological effects. The reaction from their close relatives can lead negative effects to the patients, especially, in term of body image. Previous studies in Thailand focused on depression, body image, coping style, and quality of life in breast cancer patients who had undergone mastectomy. However, there are few studies on marital satisfaction and sexual satisfaction.

**Objectives:** To investigate marital satisfaction and related factors in breast cancer patients who had undergone mastectomy at King Chulalongkorn Memorial Hospital.

**Methods:** A cross-sectional descriptive study was conducted 100 breast cancer patients who had undergone mastectomy. Measurements consisted of 4 questionnaires, namely; personal information questionnaire, the Dyadic Adjustment Scale (DAS), Sexual Health questionnaire, and Body Image Scale (BIS). Statistics used to analyze were descriptive statistics, Chi-square, Pearson's correlation coefficient, and logistic regression.

**Results:** Most breast cancer patients with mastectomy, had moderate level of marital satisfaction (69.0%), moderate level of sexual problems (61.0%), and high level of body image satisfaction (64.0%). Logistic regression analysis showed 3 predictors of low marital satisfaction including: no marriage registration, having numbness of armpit/ inner upper arm/ tips of fingers, and having no skin retraction of the surgical wound.

**Conclusion:** Most breast cancer patients with mastectomy had moderate level of marital satisfaction. The results were consistent with other studies and might effectively help caregivers to plan for caring the breast cancer patients.

**Keywords:** Marital satisfaction, breast cancer, mastectomy.

Breast cancer is an important cause of illness in Thai women. A survey of the National Cancer Institute of Thailand found that among new female patients who suffered from cancer, most of them were diagnosed breast cancer (22.6%), mostly found in the second stage and the third stage, respectively.<sup>(1)</sup> This results were consistent with the survey data of King Chulalongkorn Memorial Hospital which found that female cancer patients who were mostly treated at the hospital are breast cancer.<sup>(2)</sup> Furthermore, the

National Statistical Office of Thailand found that surgery was mostly used to treat breast cancer (24.3%); and surgery together with chemotherapy was used in 16.5% of the cases.<sup>(1)</sup>

Breast is an organ that affects sexual symbol, sexual satisfaction, and appearance satisfaction. The breast surgery, such as mastectomy can directly lead to physical and mental effects on the patients. Physical effects were pain after surgery or any complications including swollen arm and adhesion joints. Mental effects include anxiety, low self-confidence, low self-esteem, especially response of intimate person. If mastectomy patients perceived negative responses from intimate person, they could negatively affect self-confidence of appearance.<sup>(3)</sup> Evidences showed that younger patients could have more lower appearance satisfaction and family support could also affect

\*Correspondence to: Chutima Roomruangwong, Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand.

E-mail: chutima.room@gmail.com

Received: May 5, 2020

Revised: July 3, 2020

Accepted: August 4, 2020

appearance satisfaction.<sup>(4)</sup> Thongsai P, *et al.* found that patients who had undergone mastectomy and breast conserving operations had anxiety about body appearance, symptoms, and sexual activities.<sup>(5)</sup> The surgery were mostly used to treat breast cancer that could affect body appearance and sexual activities of patients. Thasriphoo W. who found that emotional support and sexual satisfaction directly affected marital satisfaction.<sup>(6)</sup> Previously, most studies in Thailand focus on depression, body image, coping style, and quality of life in breast cancer patients who had breast surgery. There are few studies, however, on marital satisfaction in breast cancer patients. These have lead the researchers to have interest in the study of marital satisfaction in breast cancer patients. The expected results of this study may help caregivers plan for more effective patient care, decrease marital relationship problems, and increase quality of life in breast cancer patients who had undergone mastectomy.

### Materials and methods

This study was a cross-sectional descriptive study conducted in female patients with breast cancer who had undergone mastectomy at the Outpatient Clinic of King Chulalongkorn Memorial Hospital. The total subjects were 18 years old or more. The subjects were willing to respond to the questionnaires by themselves. The total number of subjects were 100. This study has been approved by the Institutional Review Board (IRB) of the Faculty of Medicine, Chulalongkorn University (COA no. 661/2019) Inclusion criteria were the subjects who had undergone mastectomy and had their spouse who were male gender and lived together. Moreover, the subjects were willing to provide their information, the subjects had no intellectual disabilities and no mental or physical illness in severe level.

### Measurements

All subjects completed four questionnaires including personal information questionnaire, the Dyadic Adjustment Scale, Sexual Health Questionnaire, and Body Image Scale (BIS).

**Personal Information Questionnaire** was developed by the researcher from review literatures and consisted of 17 items.

**The Dyadic Adjustment Scale (DAS)** of Spanier (1976) was translated into Thai version by Soomlek. Srimuang J. revised and tried out

with 30 female patients at the Infertility Clinic of King Chulalongkorn Memorial Hospital and found Cronbach's alpha coefficient was 0.9.<sup>(7)</sup> The scale was consisted of 21 items of positive parts and 7 items of negative parts, and consisted of 4 domains including dyadic consensus, dyadic satisfaction, dyadic cohesion, and affectional expression. Total scores were 28 – 140, divided into 3 levels of marital satisfaction including low level (28 – 56 scores), moderate level (57 – 112 scores), and high level (113 – 140 scores).

**Sexual Health Questionnaire** was developed by Prakobkit K, *et al.*<sup>(8)</sup> and found content validity was 0.90 and Cronbach's alpha coefficient was 0.90. This questionnaire was consisted of 17 items of positive parts and 21 items of negative parts. Total scores were 0 – 114. The result of questionnaire was translated as 4 levels including no sexual problems (0 score), low level of sexual problems (1 – 38 scores), moderate level of sexual problems (39 – 76 scores), and high level of sexual problems (77 – 114 scores).

**Body Image Scale (BIS)**, was developed by Hopwood P, *et al.* and translated into Thai version by Cheewapoonpol B.<sup>(3)</sup> It was consisted of 10 items, self-rating, and negative parts of all items. Cronbach's alpha coefficient was found 0.9. Total scores were 40. Mean scores of BIS were divided into 3 levels including high, moderate, and low level of body image satisfaction.

### Statistical analysis

The data were analyzed by using SPSS for Windows version 25. Descriptive statistics were presented by percentage, frequency, maximum, minimum, mean, and standard deviation (SD) to show personal characteristics of subjects. Chi-square and Pearson correlation were used to analyze relationship among personal characteristics, breast cancer characteristics, and psychosocial factors with marital satisfaction of breast cancer patients who had undergone mastectomy at King Chulalongkorn Memorial Hospital. And logistic regression analysis was used to investigate the relationships between marital satisfaction of breast cancer patients who had undergone mastectomy at King Chulalongkorn Memorial Hospital and other variables. A  $P$  – value < 0.05 was considered statistically significant.

## Results

### Personal characteristics

Most subjects were 51 - 60 years old (33.6%), mean age of subjects was  $55.2 \pm 12.0$  years, most age of spouses was 61 years old or more (43.0%), mean age of spouses was  $57.9 \pm 11.3$  years, and most subjects with marriage registration (66.0%). Most subjects were government officers and state enterprise employees (23.0%), most educational level was Bachelor's degree and higher (65.0%). The subjects had personal income 15,001 – 30,000 baht/month (37.0%), mean of subjects' income was  $33,567.4 \pm 27,205.2$  baht/month, family income less than 15,000 baht/month (30.8%) and higher than 45,000 baht/month (30.8%). Most subjects had adequate of income (58.0%). And most spouses had no physical illness (73.0%). Furthermore, most subjects had physical illness (26.7%), and most subjects' spouse had physical illness (27.0%) (Table 1).

### Disease information

Most subjects were diagnosed as a breast cancer for less than 1 year (28.3%) and had undergone mastectomy for less than 1 year (38.8%). Complications after surgery were: skin retraction of the surgical wound 51.0% numbness of armpit / inner upper arm / tips of fingers 46.0%. Most co-treatments were chemotherapy (79.0%), radiotherapy (53.0%), and hormonal therapy (41.0%), respectively (Table 1).

### Psychosocial factors

Most subjects had moderate level of sexual satisfaction (61.0%) and low level of sexual problems (36.0%). Regarding body image satisfaction, it was found that 64.0% of the subjects were in high level, and 30.0% in moderate level, respectively (Table 1).

**Table 1.** Subject's characteristics, breast cancer characteristics, and psychosocial factors.

Characteristics data (n = 100)	Mean $\pm$ SD or n (%)
<b>Subjects' characteristics</b>	
Age (year) (n = 100)	55.2 $\pm$ 12.0
Age of spouses (year) (n = 98)	57.9 $\pm$ 11.3
Marriage registration (n = 100)	66 (66.0)
Duration of marriage (year) (n = 100)	25.8 $\pm$ 12.9
The number of children (n = 100)	1.7 $\pm$ 1.3
Occupation (Government officers and state enterprise employees)	23 (23.0)
Years of education (year)	14.0 $\pm$ 4.1
Personal income (baht/month) (n = 92)	33,567.4 $\pm$ 27,205.2
Family income (baht/month) (n = 91)	67,725.3 $\pm$ 49,274.8
Adequacy of income (n = 100)	58 (58.0)
History of physical illness (n = 100)	26 (26.0)
Spouse's physical illness (n = 100)	27 (27.0)
Marital status of parents (one of parents/both parents were dead)	63 (63.0)
<b>Disease information</b>	
Duration of diagnosis (year) (n = 99)	4.4 $\pm$ 5.2
Duration after surgery (year) (n = 98)	3.9 $\pm$ 5.1
Complications after surgery (n = 100)	
Swollen arm	35 (35.0)
Infection of surgical wound	7 (7.0)
Numbness of armpit / inner upper arm / tips of fingers	46 (46.0)
Frozen shoulder	18 (18.0)
Skin retraction of surgical wound	51 (51.0)
Co-treatments (n = 100)	
Chemotherapy	79 (79.0)
Radiation therapy	53 (53.0)
Hormonal therapy	41 (41.0)
<b>Psychosocial factors</b>	
Sexual health scores (n = 100)	42.5 $\pm$ 13.0
Body image scores (n = 100)	17.9 $\pm$ 7.5

### ***Related factors with marital satisfaction of breast cancer patients who had undergone mastectomy at King Chulalongkorn Memorial Hospital***

Marital satisfaction of subjects was assessed by the Dyadic Adjustment Scale. The results showed that marital satisfaction was of moderate level (69.0%), high level (28.0%), and low level (3.0%), respectively. Marital satisfaction was significantly associated with factors including marriage registration, occupation, educational level, family income, adequacy of income, numbness of armpit/ inner upper arm / tips of fingers, skin retraction of surgical wound, and sexual health (Table 2).

Pearson correlation shows that total marital satisfaction was positively correlated with the number of educational years and family income. Regarding the domains of marital satisfaction, it was found that dyadic consensus, dyadic cohesion, and affectional expression were positively correlated with total marital satisfaction. Sexual health was negatively correlated with total marital satisfaction. Dyadic consensus, dyadic cohesion, affectional expression, and body

image were negatively correlated with marital satisfaction in terms of dyadic satisfaction (Table 3).

### ***Predictors for marital satisfaction of breast cancer patients who had undergone mastectomy at King Chulalongkorn Memorial Hospital***

Logistic regression analysis shows three predictors that could significantly predict marital satisfaction including no marriage registration, numbness of armpit/ inner upper arm / tips of fingers, and skin retraction of surgical wound. Subjects who had no marriage registration, had 18.8 times of low and moderate level of marital satisfaction than subjects who had marriage registration. Subjects who had numbness of armpit / inner upper arm / tips of fingers, had 4.7 times of low and moderate level of marital satisfaction than subjects who had no numbness of armpit/ inner upper arm/tips of fingers. Subjects who had skin retraction of surgical wound, had 0.2 times of low and moderate level of marital satisfaction than subjects who had no skin retraction of surgical wound (Table 4).

**Table 2.** Association among marital satisfaction and related factors by using Chi-square.

Factors (n = 100)	Marital satisfaction		$\chi^2$	P - value
	High level (n = 28) n (%)	Moderate and low level (n = 72) n (%)		
<b>Marriage registration</b>				
Yes	27 (36.5)	47 (63.5)	10.168	0.001**a
No	1 (3.8)	25 (96.2)		
<b>Occupation</b>				
Government and state enterprise	12 (52.2)	11 (47.8)	8.658	0.005*
Others	16 (20.8)	61 (79.2)		
<b>Educational level</b>				
Lower bachelor's degree	4 (11.4)	31 (88.6)	7.335	0.009**a
Higher bachelor's degree	24 (36.9)	41 (63.1)		
<b>Family income (baht / month)</b>				
≤ 30,000	23 (36.5)	40 (63.5)	6.319	0.013**a
> 30,000	3 (10.7)	25 (89.3)		
<b>Adequacy of income</b>				
Adequate	27 (32.1)	57 (67.9)	4.470	0.036**a
Not adequate	1 (6.3)	15 (93.8)		
<b>Complications after surgery</b>				
Numbness of armpit / inner upper arm / tips of fingers				
No	21 (38.9)	33 (61.1)	6.904	0.013*
Yes	7 (15.2)	39 (84.8)		
Skin retraction of surgical wound				
No	9 (18.4)	40 (81.6)	4.422	0.045*
Yes	19 (37.3)	32 (62.7)		
<b>Sexual health</b>				
Low level of sexual problems	15 (41.7)	21 (58.3)	5.211	0.036*
High and moderate level of sexual problems	13 (20.3)	51 (79.7)		

\* $P < 0.05$ , \*\* $P < 0.01$ , a = Fisher's exact test

**Table 3.** Correlation among marital satisfaction and related factors.

Total Factors	Marital satisfaction				
	marital satisfaction <i>r</i> ( <i>P</i> -value)	Dyadic consensus <i>r</i> ( <i>P</i> -value)	Dyadic satisfaction <i>r</i> ( <i>P</i> -value)	Dyadic cohesion <i>r</i> ( <i>P</i> -value)	Affectional expression <i>r</i> ( <i>P</i> -value)
The number of educational years	0.269 (0.007*)	0.225 (0.024*)		0.310 (0.002*)	0.228 (0.023*)
Personal income (baht/month)	0.259 (0.013*)			0.288 (0.005*)	0.285 (0.006*)
Family income (baht/month)	0.303 (0.004*)	0.240 (0.022*)		0.355 (0.001**)	0.276 (0.007*)
Sexual health	-0.442 (<0.001**)	-0.290 (0.003*)	-0.439 (<0.001**)	-0.404 (<0.001**)	-0.479 (<0.001**)
Body image			-0.223 (0.026*)		

\**P* < 0.05, \*\**P* < 0.001

**Table 4.** Predictors for marital satisfaction in low and moderate level by using logistic regression analysis.

Factors	OR	95% CI	<i>P</i> -value
No marriage registration	18.77	2.04 - 173.07	0.010*
Numbness of armpit/ inner upper arm / tips of fingers	4.67	1.34 - 15.88	0.016*
Skin retraction of surgical wound	0.23	0.72 - 0.79	0.019*

\**P* < 0.05

### Discussion

Our finding showed that most subjects had moderate level of marital satisfaction. This was consistent with the study of Prakobkit K, *et al.*<sup>(8)</sup> who found that marital relationship of breast cancer patients was mostly fair. Boostani H, *et al.*<sup>(9)</sup> found that breast cancer patients who had undergone mastectomy, had moderate level of marital satisfaction.

The study found that marriage registration of breast cancer patients had a significant association with marital satisfaction. The patients with mastectomy who had marriage registration, had marital satisfaction higher than the patients who had no marriage registration. The result was consistent with the study of Srimuang J.<sup>(7)</sup> who found that female patients at Infertility Clinic of King Chulalongkorn Memorial Hospital had marital satisfaction at moderate and low level, most patients had no marriage registration (61.7%). Moreover, marital satisfaction provided legal rights including legal cohabitation, marriage property and management of spouse's inheritances. In Thai culture, marriage registration was presented as married couples living legally together.<sup>(10)</sup> The study found that breast cancer patients with

mastectomy at King Chulalongkorn Memorial Hospital, most patients were 51- 60 years old; most of their spouses were above 60 years old; the duration of marriage was above 30 years. These results were consistent with that of Wuttikrakjumrat C.<sup>(11)</sup> who found that female labors who had marriage registration, had more duration of marriage and social acceptance than the other. And statistical data of marriage registration<sup>(12)</sup> showed that marriage registration has been decreasing since 2003 – 2013.

Government officers and state enterprise employees were significantly associated with marital satisfaction. Breast cancer patients with mastectomy who were government officers or state enterprise employees, had marital satisfaction higher than other occupations. The results were consistent with the study of Malarat P.<sup>(13)</sup> who found that occupation was associated with quality of life. Breast cancer patients who were government officers and state enterprise employees had quality of life higher than other occupations because they had the welfare to help managing medical expenses.

The number of educational years was positively associated with marital satisfaction. The patients who

had higher number of educational years, had higher marital satisfaction. This result was consistent with the study of Thongsai P, *et al.*<sup>(4)</sup> who found that patients who had the higher number of educational years, had high quality of life, and consistent with the study of Kochasenee D.<sup>(14)</sup> who found that married couples who had higher educational level, had higher marital satisfaction. Higher educational level could increase self-esteem of patients and could help patients to cope with stress of breast cancer and treatments.

Family income and adequacy of income were associated with marital satisfaction. The patients who had high family income and high adequacy of income, had higher marital satisfaction than the patients who had low family income and low adequacy of income. Breast cancer patients had long duration of illness and high medical expenses including chemotherapy and other treatments.<sup>(15)</sup> Thus, financial planning of family for treatments and other expenses was important. Boostani H, *et al.*<sup>(9)</sup> who found that breast cancer patients who had high expenses for medical treatments and had to manage financial planning of family. Female patients who could effectively manage financial planning of family, had high marital satisfaction. The patients felt grateful with their spouse for understanding and helping. The results were consistent with the study of Srimuang J.<sup>(7)</sup> who found that female patients who had high family income, had marital satisfaction higher than female patients who had low family income.

Numbness of armpit / inner upper arm/ tips of fingers was significantly associated with marital satisfaction. The breast cancer patients with mastectomy who had numbness of armpit/ inner upper arm/ tips of fingers, had moderate and low level of marital satisfaction. The result was consistent with the study of Boostani H, *et al.*<sup>(9)</sup> who found that patients who had negative feeling about their body appearance after mastectomy and other treatments, could negatively affect marital satisfaction.

Skin retraction of surgical wound was associated with marital satisfaction. The breast cancer patients with mastectomy who had skin retraction of surgical wound, had marital satisfaction higher than the patients who had no skin retraction of surgical wound. The result was not consistent with the study of Boostani H, *et al.*<sup>(9)</sup> who found that patients who had negative feeling about their changed appearance after breast surgery and other treatments, could affect

lower marital satisfaction. Skin retraction of surgical wound was associated with dyadic cohesion and affectional expression. Domains of affectional expression including sexual activities, joint-activity with spouse, and joint-opinion expression with spouse, were associated with marital satisfaction. It was consistent with study of Prakobkit K, *et al.*<sup>(8)</sup> who found that if patients' spouse perceived about information of breast cancer, treatment, caring, providing encouragement, and expressing love, they would have high marital satisfaction, more understood and loved in each other, although, they still had sexual problems.

Sexual health was negatively associated with marital satisfaction. The breast cancer patients with mastectomy who had high level of sexual health, had moderate and low level of marital satisfaction lower than patients who had low level of sexual health. Breast was the one of female sexual symbols, the patients with mastectomy could affect female feelings and marital satisfaction.<sup>(9)</sup> The result was consistent with the study of Prakobkit K, *et al.*<sup>(8)</sup> who found that sexual health after breast surgery was negatively associated with quality of life after the surgery. Moreover, the result found that patients with mastectomy had sexual health problems from low to high level. It was consistent with the study of Srimuang J.<sup>(7)</sup> who found that sexual satisfaction affected marital satisfaction.

Body image was negatively associated with marital satisfaction. The patients who highly perceived body image, had moderate and low level of marital satisfaction. The result was consistent with Thongsai P, *et al.*<sup>(5)</sup> who found that social and family supports were associated with body image. Chi-square analysis found that body image was not associated with marital satisfaction. The results found that most patients were 51–60 years old and perceived their body image was age-appropriate for them. The results were consistent with the studies of Thongsai P, *et al.*<sup>(5)</sup> and Chewabantheng C.<sup>(4)</sup> who found that breast cancer patients who were young age, had low marital satisfaction.

There were some limitations in this study, however, this study investigated only in breast cancer patients who had undergone mastectomy at King Chulalongkorn Memorial Hospital. The results of this study could not be generalized to other hospitals. Future researches should investigate marriage satisfaction in breast cancer patients' spouses

and investigate in longitudinal study and compare marital satisfaction in other hospitals. Furthermore, the results of this study suggested that if the spouse had information about breast cancer and treatments and involved in the treatment process, it might help to increase marital satisfaction in their married life.

### Conclusion

Most breast cancer patients who had undergone mastectomy, had marital satisfaction in moderate level. Marital satisfaction was associated with factors including marital status, occupation, the number of educational years, family income, adequacy of income, numbness of armpit/ inner upper arm / tips of fingers, skin retraction of surgical wound, and sexual health. The predictors for marital satisfaction had three factors including no marriage registration, numbness of armpit / inner upper arms / tips of fingers, and skin retraction of surgical wound. Further study should be in the comparative study between female patients and their spouse to investigate the difference of marital satisfaction between female patients and their spouse. In this study showed that sexual health was related with marital satisfaction of the patients. Providing psychoeducation about sexual health could help the patients increase higher marital satisfaction. Moreover, psychological counselling including positive communication, family communication, and family therapy might help the patients and their spouse increase marital satisfaction. The spouses who had knowledge about breast cancer and healthcare team might help the patients increase higher marital satisfaction.

### Acknowledgements

The authors would like to express appreciation to Ms. Kanitraporn Prakobkit for advocating the use of Sexual Health questionnaire, Ms. Benjarat Cheevapoonpol for advocating the use of Body Image Scale (BIS), and Ms. Jutharat Srimuang for advocating the use of the Dyadic Adjustment Scale. The authors would like to express gratitude to the medical staffs of outpatient surgery department and Queen Sirikit Centre for Breast Cancer at King Chulalongkorn Memorial Hospital for any supports and convenience. Moreover, the authors would like to express gratitude to all subjects who were involved in this study.

### Conflict of interest

The authors, hereby, declare no conflict of interest.

### References

1. King Chulalongkorn Memorial Hospital, Division of Therapeutic Radiology and Oncology. New patients' cancer 2015 [Internet]. 2016 [cited 2019 Jan 1]. Available from: <https://www.chulacancer.net/service-statistics-inner.php?id=580&fbclid=IwAR0g-pfyErAb2poaQR-DbeQPhhjaFjEdiAqj3hqq5hncuxTS8awB7jzyNTg>.
2. National Cancer Institute, Department of Medical Service, Ministry of Public Health. Hospital-based cancer registry annual report 2017 [Internet]. 2017 [cited 2018 Nov 20]. Available from: [http://www.nci.go.th/th/File\\_download/Nci%20Cancer%20Registry/HOSPITAL-BASED%202016%20Revise%204%20Final.pdf](http://www.nci.go.th/th/File_download/Nci%20Cancer%20Registry/HOSPITAL-BASED%202016%20Revise%204%20Final.pdf).
3. Cheevapoonpol B. Relationship between personal factors, fear of reaction of significant persons, coping strategies, social support, and body image of post mastectomy patients. *Kuakarun J Nurs* 2006;13:9-12.
4. Chewabantheng C. Body image and associated factors of the patients with breast cancer who underwent mastectomy at King Chulalongkorn Memorial Hospital [thesis]. Bangkok: Chulalongkorn University; 2013.
5. Thongsai P, Suksakorn P, Narasong P. Quality of life in the patients with breast cancer. *Siriraj Nurs J* 2008; 2:24-34.
6. Thasriphoo W. A causal model of marital satisfaction of woman: The effects of emotional support and sexual communication mediated via intimacy and sexual satisfaction [thesis]. Bangkok: Chulalongkorn University; 2010.
7. Srimuang J. Marital satisfaction and associated factors among female patients at infertility clinic of King Chulalongkorn Memorial Hospital [thesis]. Bangkok: Chulalongkorn University; 2012.
8. Prakobkit K, Junda T, Sumdaengrit B. Marital relationship before surgery, sexual health and quality of life in women with breast cancer after surgery and their spouse. *J Nurs Health Care* 2014;32:12-13.
9. Boostani H, Seyed HM, Negar K, Najmeh F. Marital satisfaction in women with breast cancer: a comparison between mastectomy and breast conserved patients. *Biomed Pharmacol J* 2015;8:1237-42.
10. Chaisayan N. Same-sex certificated [thesis]. Bangkok: National Institute of Development Administration; 2015.
11. Wuttikrakjumrat C. A study on factors related to legal and illegal marriage: A case study of labors in Laem Chabang industrial estate Chonburi province [thesis]. Samut Prakan: Huachiew Chalermprakiet University; 2001.

12. National Statistical Office, Ministry of Information and Communication Technology. Couples with marriage certificated by region and province 2004-2013 [Internet]. 2013 [cited 2020 Apr 24]. Available from: <http://service.nso.go.th/nso/web/statseries/statseries02.html>.
13. Malarat P. Quality of life and depression in breast cancer patients in King Chulalongkorn Memorial Hospital [thesis]. Bangkok: Chulalongkorn University; 2007.
14. Kochasenee D. Work-family conflict and life satisfaction of employed married adults in Bangkok [thesis]. Bangkok: Chulalongkorn University; 2006.
15. Soimadee S. Overall survival and prognostic factors for breast cancer patients at Vachira Phuket Hospital. *Thai Cancer J* 2017;37:62-71.