

## Body Image, Social Support, Effects of Chemotherapy, and Sexual Desire in Breast Cancer Patients

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### Abstract

The number of patients with breast cancer in the world, including Indonesia, is high. Breast cancer survivors experience numerous physical, psychological, and social changes, which affect their sexual desire. Sexual desire is intimately linked with body image, social support, and side effects of chemotherapy. This study aimed to investigate the correlations of body image, social support, and side effects of chemotherapy with sexual desire. This cross-sectional study included 110 consecutive patients undergoing chemotherapy at public and private hospitals in Semarang and in a public hospital in Jakarta. The results demonstrated significant correlations between sexual desire and body image ( $P=.000$ ), social support ( $P=.000$ ), and side effects of chemotherapy ( $P=.003$ ). The results of multivariate analysis showed that among the factors investigated, body image had the greatest effect on sexual desire. To address issues related to this decrease in sexual desire among patients with breast cancer, nurses should evaluate body image, social support, and side effects of chemotherapy soon after patients with breast cancer have undergone chemotherapy.

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### Introduction

Breast cancer is the second most common cancer worldwide after lung cancer<sup>1</sup>. According to data published by the World Health Organization in 2012, lung cancer affects 13% of the world's population and breast cancer affects 11.9%.<sup>1</sup> Approximately 14.7% of deaths in women are caused by breast cancer.<sup>1</sup> The incidence of deaths due to breast cancer is even greater in developing countries than in developed countries<sup>1</sup>. In Indonesia, breast cancer is the second most common type of cancer in women after cervical cancer, responsible for 21.4% deaths in women.<sup>2</sup>

Breast cancer patients experience numerous physical, psychological, and social changes as side effects of the diagnosis and treatment. Physical changes include alopecia, mastectomy, fatigue, pain, lymphedema in the arm, nausea, vomiting, and weight loss.

Patients are forced to adjust to a new body image.<sup>3</sup> Psychological changes experienced by cancer patients include stress, anxiety, and depression. Changes associated with breast cancer also affect social interactions.<sup>4</sup> Social interaction is indicated by changes in relationship; in terms of role and sexual desire, one determining aspect is social support.<sup>5</sup>

Physical changes commonly follow chemotherapy, radiotherapy, and surgery. Changes in physical changes in breast cancer patients are caused by changes in the shape of their breast as well as due to the effects of surgery, radiation, and chemotherapy on the reproductive organs<sup>5</sup>. Rashidi and Dashti reported that chemotherapy, radiotherapy, and hormone therapy, but not surgery, have negative effects on sexual behavior ( $P<0.014$ ).<sup>6</sup> The psychological changes may due to physical changes, such as surgical scar, damage to reproductive organs or other body parts, and feeling of the loss of femininity. Patients may have difficulty in accepting the changes in their bodies. Further, changes commonly occur in the self-concept of the breast cancer patient, i.e., body image. Body image disturbances cause perceptual, cognitive, emotional, and behavioral disturbances. Social support improves the ability of such patients to

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cope with psychological issues.<sup>7</sup> Social support for breast cancer survivors considerably affects their sexual function, general health, and physical and bodily function.<sup>8</sup> Breast cancer patients require social and emotional support to help them conquer their illness and deal with such physical, psychological, and social changes. The need for such social support increases the burden on their spouses.<sup>9</sup>

Physical, psychological, and social changes experienced by breast cancer patients can affect their sexuality desire.<sup>10-12</sup> Sexual desire is mostly affected by the physical changes caused by the side effects of chemotherapy for cancer treatment. Patients may be less sensitive to sexual stimulation or experience a decrease in sexual desire. Signs and symptoms of breast cancer patients when undergoing chemotherapy are vaginal dryness, urinary tract infections, hot flashes, mood changes, fatigue, nausea, alopecia (hair loss), menopause (cessation of menstruation), dyspareunia (pain during intercourse), orgasm dysfunction, loss of sexual desire, sexual dysfunction, and sexual dissatisfaction. Decreases in estrogen levels also negatively impact sexual desire.<sup>13</sup> Body image disturbances and sexual disorders are common in breast cancer patients in the early months of cancer.<sup>14</sup> Surgical scars may cause a patient to feel that she has lost some of her femininity.<sup>15</sup> Bakht and Najafi found significant differences in body image, sexual desire, sexual satisfaction, and dyspareunia between breast cancer patients and healthy women ( $t=0.13$ ,  $P<0.01$ ).<sup>15</sup> The decrease in sexual desire affects the patient's degree of sexual fulfillment. Patients may also struggle to maintain their relationships and worry about future ramifications of the disease and associated treatments.<sup>15</sup>

Sexual desire is an important issue in a cancer patient. The Oncology Nursing Society (2016) urges clinicians to attend to issues related to sexuality among cancer patients. Previous studies have shown that several changes occur in the quality of life in breast cancer patients, namely physical, emotional, and sexual satisfaction, and future prospect.<sup>16</sup> Health workers rarely discuss issues related to sexuality because such topics are considered as taboo, they feel inhibitions, or they feel no need for discussion. Few studies on sexual

desire have been published in Indonesia. Moreover, few studies on cancer patients have investigated correlations between sexuality and physical factors (effects of chemotherapy), psychological factors (body image), and social factors (social support). Therefore, this study aimed to evaluate the correlation of body image, social support, and side effects of chemotherapy with sexual desire.

## Materials and methods

### Participants

This cross-sectional study included 110 patients from public and private hospitals in Semarang and a public hospital in Jakarta. The inclusion criteria were patients 1) diagnosed with breast cancer, 2) having  $\geq$ stage II cancer, 3) undergoing chemotherapy, 4) has a husband, 5) compos mentis awareness (fully conscious), 6) and can read, write, and speak Indonesian. Patients with poor general health were excluded.

### Measurements

The following four instruments were used in this study:

#### Instrument body image (15 questions)

This instrument was developed independently by researchers and comprised 15 questions describing body image in breast cancer patients. Body image assessments were adjusted to body image dimensions in cancer patients and were designed for use in patients with cancer or undergoing cancer treatment. The answer choices included 0: none, 1: rare, 2: sometimes, and 3: often/always. Each question was assigned a positive or negative value based on the questions which allocated as positive or negative statement/question. The final value was the sum of the values of the 15 questions. Higher scores indicated more positive body image. Validity and reliability of this instrument were previously confirmed by the researchers.

#### The Sources Social Support Survey (SSSS)

Social support was measured using the SSSS questionnaire, which is aimed at measuring social support in a person, especially couples, when suffering from

chronic diseases, such as breast cancer.<sup>17</sup> This questionnaire includes items on emotional and social support, informational support, instrumental support, and lack of support. It is in English and comprises 10 questions on positive and negative support. They are assigned values from 1 stating "support does not exist" to 5 stating "very much" based on the meaning of the statement. The instrument's reliability was confirmed with Cronbach's alpha of 0.8-0.9.<sup>17</sup> The permission to use this questionnaire in Indonesia was obtained from the previous author (Carver), through email. This questionnaire was translated into Indonesian by a certified translator and subsequently discussed by professional experts.

### 3. Side effects of chemotherapy

The instrument to assess the side effects of chemotherapy were developed by the researchers based on the Worthing Chemotherapy Questionnaire and the Chemotherapy Symptom Assessment Scale. The questionnaire evaluated the side effects, namely those on the digestive system, mouth and nose, hair and skin, eyes, general physical health, and emotions and feelings, commonly experienced by breast cancer patients during chemotherapy. It comprised 15 questions, all of which were negative. The answer choices were 0: never, 1: rare, 2: sometimes, 3: often, and 4: always. All questions were negative. Questions that were answered with higher values indicated severe side effects experienced by the patient. The research instrument was developed by the researcher based on the patient's response and condition. The validity and reliability of the instrument were confirmed by the researchers.

### The Multidimensional Sexuality Questionnaire (MSQ)

The MSQ was used to assess the sexual desires of patients and partners. The MSQ is divided into 12 subscales: sexual esteem, sexual preoccupation, internal sexual control, sexual consciousness, sexual motivation, anxiety related to sex, assertiveness related to sex, depression related to sex, external sexual control, sexual monitoring, fear of sexual relationships, and sexual satisfaction. The subscales were scored on a 5-point Likert: 0 indicating absolutely not my characteristic, 1

indicating a bit of my characteristic, 1 indicating somewhat representing my characteristic, 3 indicating sufficiently represents my characteristic, and 4 indicating completely represents my characteristic. Higher scores indicated greater levels of sexual desire. The validity and reliability of this instrument were previously confirmed with Cronbach's alpha of 0.71-0.90 for each sub-scale item.<sup>18</sup> Because this instrument has never been used in Indonesia, its validity and reliability were retested prior to application. The permission to use the MSQ in Indonesia was obtained from email replies from Snell.<sup>18</sup> The MSQ questionnaire was translated into Indonesian by a certified translator and discussed by professional experts.

All instruments used in this study were valid and reliable (Cronbach's alpha of >.7). This study was approved by the research ethics committee of the Faculty of Nursing, University of Indonesia and hospitals. Researchers explained the aims and procedures of the study to all respondents and obtained written informed consent from all participants.

### Statistical Analysis

Data were analyzed using SPSS software, version 16.0. Data related to the correlation of body image, support social, and side effects of chemotherapy with sexual desire are ordinal data.

### Results

Table 1 shows that the most frequent level of education in breast cancer patients was primary education (65.5%). Most breast cancer patients were unemployed. Household incomes of their families were mostly under the regional minimum wage (RMW). The most frequent cancer stage was stage III, followed by stage II, and the least frequent was stage IV.

Table 2 shows that the average age of breast cancer patients was 48.95±7.859 years. The average length of marriage was 25.71±10.074 years. The average time since diagnosis was 21.10±20.065 months. Table 3 shows that the average body image was positive in 50.9% patients and negative in 49.1% patients. Social support received was inadequate in 50% patients and adequate in 50% patients. Severe side effects of chemotherapy were experienced by 42.7%

patients, and mild side effects were experienced by 57.3% patients. Table 4 show that the sexual desire was unfulfilled in 50% patients and fulfilled in 50% patients.

Table 5 shows that all variables, namely body image ( $P=0.000$ ;  $r=0.733$ ), social support ( $P=0.000$ ;  $r=0.617$ ), and side effects of chemotherapy ( $P=0.003$ ;  $r=0.518$ ), were significantly correlated to sexual desire. A highly positive correlation was observed between body image and sexual desire ( $P=0.000$ ), indicating that breast cancer patients with negative body image are unable to fulfill their sexual desire. Further, a highly positive correlation was observed between social support and sexual desire ( $P=0.000$ ), indicating that breast cancer patients who lack of social support are unable to fulfill their sexual desire. Furthermore, a moderately positive correlation was observed between the side effects of chemotherapy and sexual desire ( $P=0.003$ ), indicating that breast cancer patients with severe side effects of chemotherapy are unable to fulfill their sexual desire.

This multivariate study showed that among the studied variables, body image has the greatest influence on the quality of life of breast cancer patients (odds ratio: 8.63; 95% CI: 2.67, 2.78). After controlling for confounding variables, breast cancer patients

Characteristics	Frequency	Percentage
Education Level		
Primary (Elementary School, Junior High School)	72	65.5
Secondary (Senior High School)	24	21.7
Higher Education	9	12.8
Occupation		
Unemployed	78	70.9
Employed	32	29.1
Household Income		
Less than Regional Minimum Wage (RMW)	59	53.6
Equal or more than RMW	51	46.4
Breast Cancer Stage		
II	34	30.9
III	56	50.9
IV	20	18.2

**Table 1.** Frequency Distribution of Breast Cancer Patients According to the Education Level, Occupation, Household Income, and Breast Cancer Stage in Hospitals for June to September 2017.

with good body image were found to have quality of life 8.631-fold superior to that of breast cancer patients with poor body image.

Characteristics	Mean $\pm$ SD	Median	Min–Max	95% CI
Age (years)	48.95 $\pm$ 7.859	50.00	25-68	47.47, 50.44
Length of Marriage (years)	25.71 $\pm$ 10.074	26.00	2-46	23.81, 27.61
Time since Diagnosis (months)	21.10 $\pm$ 20.605	15.00	2-121	17.21, 24.99

**Table 2.** Age, Duration of Marriage, and Time since Diagnosis of Subjects.

Characteristics	Frequency	Percentage
Body Image		
Negative Body Image	54	49.1
Positive Body Image	56	50.9
Social Support		
Inadequate social support	55	50
Adequate social support	55	50
Side effects of Chemotherapy		
Severe	47	42.7
Mild	63	57.3

**Table 3.** Frequency Distribution of Breast Cancer Patients According to Body Image, Social Support, and Side effects of Chemotherapy.

Variables	Frequency	Percentage
Sexual Desire		
Unfulfilled	55	50
Fulfilled	55	50

**Table 4.** Frequency Distribution of Breast Cancer Patients According to Sexual Desires

### Discussion

Among the study participants, 65.5% had minimal education and 70.9% were unemployed. The factors that affect the quality of life of breast cancer patients were found to be their experiences related to physical conditions, interpersonal relations, occupation, and their perception toward quality of life and prosperity.<sup>19</sup> Changes in the quality of life affect sexual desire. Most breast cancer patients have income lower than RMW. Such socio-economic level affects their quality of life. Some studies have stated the factors affecting quality of life are earnings, education level, medical service access, type and length of treatment, and type and stage of cancer.<sup>20</sup>



In our study, the average time since diagnosis was 14 months, and most patients were already in stage III. The time since diagnosis and stage determines the patients' survival. The earlier patients are diagnosed, the longer are their chances of survival. Time since diagnosis in this study is classified as follows: 5 years (89%), 10 years (83%), and 15 years (78%). It is in contrast to breast cancer stage and survival, where in American Joint Committee on Cancer, breast cancer is divided into four stages, namely I, II, III, and IV. Stages I and II are considered "early," whereas stages III and IV are considered "advanced".<sup>21</sup>

In developed country, the number of breast cancer patients is high, but reportedly, 89% of these patients have a 5-year survival rate after diagnosis because of early diagnosis and early initiation of medical treatment.<sup>22</sup> However, mortality is high among breast cancer patients; 65% of breast cancer patients are diagnosed with advanced disease at their first presentation, which is associated with a high risk for complications.<sup>22</sup> Such late diagnosis has been found to be correlated to the education level in most patients, i.e., elementary school education.<sup>22</sup>

In this study, body image was negative in 49.1% of breast cancer patients and positive in 50.9% patients. Body image also showed a significantly positive correlation with sexual desire ( $P=0.000$ ;  $r=0.733$ ), indicating that negative body image is associated with unfulfilled sexual desire. In a previous study, 167 breast cancer patients at the Imam of Khomaeni Hospital, Iran before being diagnosed, up to 3 months and 18 months diagnosed. The results of this study showed that a decrease in body image was shown by scoring from 86.2 to 61.4 to 60.8. Decreased of body image changes to perception his body.<sup>23</sup> These findings are consistent with the results of another previous study that reported the effects of body image on social expression and existential standing.<sup>24</sup> Body image disturbances experienced by breast cancer patients is the side effect of treatment. Chemotherapy causes premature menopause, fatigue, hair loss, and hormonal disorders. Meanwhile, other management strategies, such as surgery, leave scars and may cause self-perception disorders, which reduce the perceived attractiveness, femininity, and overall body image of the patients.<sup>25-28</sup> Negative body

image can also occur because body image is considered important by women who now have to adjust to the side effects of cancer and its treatment. The patient anticipates that her symptoms will worsen.<sup>29</sup> Body image disorder makes breast cancer patients withdrawn, feel unattractively physical, embarrassed, hide body parts, have reduced self-esteem, and feel less feminine. One study has reported that after undergoing cancer surgery and treatment, breast cancer patients feel less attractive (58%) and less feminine (52%), are unwilling to see themselves naked (39%), and are dissatisfied with their naked body (54%).<sup>30</sup> These negative emotions are detrimental to the quality of sex and to the patient's sense of well-being.<sup>31,32</sup>

In the present study, equal number (50%) of breast cancer patients reported receiving adequate and inadequate social support. Further, a significant positive correlation was observed between social support and sexual desire ( $P=0.000$ ;  $r=0.617$ ), indicating that inadequate social support cases unfulfillment of sexual desires. Adequate social support is important to make patients feel comfortable about sharing their problems and experience during illness, improve their self-esteem and quality of life, increase their optimism, make them feel free to express their wishes about the future, reduce their social isolation, and encourage positive physical and psychological adaptation. Breast cancer patients may have a fear of hospitals and/or financial problems, as well as anger related to missed early detection.<sup>29,33-35</sup> Therefore, such patients most importantly need support from their close relatives,<sup>36,37</sup> especially their partners, who play an important role in helping the cancer patient deal with the illness.<sup>37</sup> Cancer is known to affect in intimacy and sexual desire due to the side effects of medical treatment, decreased self-esteem, and decreased communication. Intimacy could be re-established by sharing their feelings with their partner, spending more non-sexual time together, and understanding that intimacy is not always about sexual intercourse. Intimacy is not restricted to sexual intercourse but also involves kissing, hugging, sharing feelings, and communicating with the partner.<sup>38</sup>

Our study results revealed a moderately positive significant correlation between side effects of chemotherapy and sexual desire ( $P=0.003$ ;  $r=0.518$ ), indicating severe side

effects of chemotherapy leads to unfulfilled sexual desires. Most breast cancer patients are women, and their fertility may be affected by chemotherapy. The effect on fertility depends on the type of drug and the duration of the chemotherapy action. The side effects in women include absence of ovulation, sterility, and amenorrhea.<sup>39</sup> In addition, adjuvant treatment and surgery cause body image disorders that ultimately affect the sexual desire<sup>40</sup> as sexuality is often associated with body image, which is negatively affected by cancer treatment.<sup>41</sup> One has reported that sexual desires change after breast cancer treatment: 73% of the respondents expressed sexual arousal, 73% said they felt less sexually desirable, and 27% reported decreased sexual desire.<sup>42</sup>

Body image is a self-assessment or self-image of a person based on the appearance, body structure, or physical state and is an element of self-concept. Illnesses may have major effects on body image.<sup>43</sup> Body image is the most influential factor for sexual desire and sexuality, such that disturbed body image entail sexual adjustment. Sexual adjustment is affected by changes in appearance, femininity, and attractiveness and also by psychological state and social status.<sup>44,45</sup> Breast cancer patients may experience body image disorders because of changes in the breast or other parts of the body as side effects after mastectomy or other treatment. Alopecia, hair loss, vaginal dryness, and scarring around the surgical area affect the individual's assessment of self-appearance associated with femininity or sexuality. Breast cancer patients who are not ready to accept

changes may respond negatively to the overtures of others. Body image disorder may make breast cancer patients withdrawn, feel unattractive and/or embarrassed, and hide body parts. This often results in decreased self-esteem. Such negative feelings are detrimental to the patient's enjoyment of sex as well as her well-being.<sup>46-48</sup>

### Conclusions

This study investigated the correlations between sexual desire and body image, social support, and side effects of chemotherapy in breast cancer patients. The results presented above could be used as the foundation for additional studies on interventions to increase sexual desire in such patients. The information presented will be valuable for nursing students as well as breast cancer patients. Nurses who have been educated about these issues will be able to provide improved holistic treatment so as to ultimately increase the patient's quality of life and level of sexual desire.

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### Declaration of Interest

The authors report no conflict of interest.

Variables	Sexual Desire				Total		r	P value
	Unfulfilled		Fulfilled		N	%		
	n	%	n	%				
Body Image								
Negative	39	72.2	15	27.8	54	100	0.733	0.000*
Positive	16	28.6	40	71.4	56	100		
Social Support								
Inadequate	37	67.3	18	32.7	55	100	0.617	0.000*
Adequate	18	32.7	37	67.3	55	100		
Side effects of Chemotherapy								
Severe	31	65.96	16	34.04	47	100	0.518	0.003*
Mild	24	38.1	39	61.9	63	100		

**Table 5.** Correlation of Body Image, Social Support, Side effects of Chemotherapy with Sexual Desire in Breast Cancer Patients. Values with asterisk indicate significant difference; \* $P < 0.05$ .

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