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LIFESTYLE CHANGES AFTER BREAST CANCER SURGERY

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ABSTRACT

Background: Breast cancer is the most commonly diagnosed cancer in women worldwide, and it is also the second most significant cause of cancer death. Lifestyle is important to change among breast cancer women to prevent breast cancer recurrence and improve breast cancer prognosis. this study aims to explore the lifestyle changes of patients with breast cancer after surgery.

Methods: A descriptive cross-sectional study design was directed to find out the change of lifestyle after breast cancer surgery among females who had breast cancer surgery in Duhok Governorate. The study was conducted on 110 patients who had breast cancer surgery in Duhok Governorate.

Results: the mean age of the patients was (49.4 ± 10.1 SD) ranging from (30 to 71 years) and 75.5% were married, 57.3% were from urban, 86.4% were Muslim, 47.3% were illiterate, finally, 78.2% were unemployed. Sleep patterns of the patients have not changed after breast surgery and most of them were normal sleepers 62.7%. physical activity has reduced significantly (p-value= <0.0001) from preoperative to postoperative time. The study found that a significant improvement has been developed in the diet items of the patients, including increasing fruits and a reduction in creamy foods, sweet patisseries, soft drinks, and sugar-sweetened juices.

Conclusion: the current study concluded that the lifestyle was not changed in physical activity and sleep. But a significant change in terms of diet was founded among patients after breast cancer surgery

KEYWORDS: Female patient, Change lifestyle, Breast cancer, Surgery

INTRODUCTION

Breast cancer is the most commonly diagnosed cancer in women worldwide, and it is also the second most significant cause of cancer death. According to Global Cancer Observatory (GLOBOCAN) data in 2020, 2.26 million (11.7%) of new cases of breast cancer were detected in women over the world and 684,996 (6.9%) cases of breast cancer death were reported over the world (Sung et al., 2021).

In both developing and developed countries, breast cancer is regarded as a major public health issue. Breast cancer is more common in some areas than others. It is lower rate in developing countries than in developed countries. They vary from 22 and 71 per 100,000 women, although fatality rates are significantly higher (Corbex et al., 2014), however, breast cancer is the most frequently diagnosed malignancy among women in the Middle East, owing to the fact that many women do not seek medical help promptly (Hirko et al., 2013). As a result, the rate of growth in incidents in this region lowers. The average age of women diagnosed with breast cancer in the Middle East is roughly a decade younger than in the West.

In Duhok city, the incidence of breast cancer in 2013 to 2019 was 18.1 cases/100,000 (Karwan et al., 2022). Breast cancer is less common among Kurdish people in Iraq than in adjacent countries in the Middle East, Asia, Europe, and the United States of America. The highest prevalence was found in the age group younger than Middle-East and Western data registry. In comparison to women in Western countries, premenopausal Kurdish women have a higher rate of breast cancer (Karim et al., 2015).

Lifestyle change is one of the many possible action's women may take when they have been diagnosed with breast cancer in order to improve breast cancer prognosis and reduce the probability of cancer recurrence (Yaw et al., 2011). Risky lifestyle behaviors such as, physical inactivity, consuming a poor diet, excessive alcohol drinking and smoking have been associated to elevated incidence rates of cancer (including breast cancer) (Khan et al., 2010). Contrarily, adopting a healthy lifestyle is linked to enhanced survival, decreased chances

for second and recurrent malignancies, decreased cancer mortality, and improved quality of life among cancer patients. (McCullough et al., 2011).

Women diagnosed with breast cancer who increased physical activity after diagnosis had a 45% lower risk of mortality compared to women who were physically inactive both before and after diagnosis; whereas, women who decreased physical activity after diagnosis had a threefold higher risk for death (Zhao et al., 2013). Also, Women with breast cancer who followed diets scoring higher on the Healthy Eating Index, the index exhibited an 80% reduction in the risk of dying from breast cancer and a 60% reduction in the chance of dying from all causes (George et al., 2011).

Objectives and Aims of the Studies

Aim:

The aim of this study is to identify the lifestyle changes of patients with breast cancer after surgery.

Objectives:

1.To Describe the socio-demographic characteristics of the patients with breast cancer after surgery through a questionnaire designed by the researcher.

2.To determine the lifestyle changes of the patients with breast cancer after surgery; including physical activity, diet, sleep, and smoking.

Methodology

Design of the study

A descriptive cross-sectional study design was used to find out the change of lifestyle after breast cancer surgery among females who had breast cancer surgery in Duhok Governorate.

The setting and time of the study

The study was conducted on patients who had breast cancer surgery in Duhok Governorate which include surgical outpatient in Azadi Teaching Hospital, Oncology ward in Azadi Teaching Hospital, and Vajeen Private Hospital. All these hospitals are located in the center of Duhok. The total period of the study lasted for one year, from 1th of November 2021 to 1th of November 2022.

Sample of the study:

A non-probability purposive sampling method was used for the curet study. A total of 110 patients were participate in this study. The patients who were diagnosed with breast cancer and had the surgery were recruited included in a face-to-face technique.

Inclusion criteria included:

- Oriented patient and able to communicate.
- Women had breast cancer surgery
- Attending Azadi Teaching hospital and Vajeen private hospital.
- Aged 18 and older.
- The surgery should not exceed three years.

Exclusion criteria:

- Age less than 18 years old.
- Refuse to participate.

Method of data collection:

The data were taken from the participants by interview (face to face) method or through the phone call according to the questionnaire structured for the study. The questionnaire was composed of two parts:

Part I: A socio-demographic characteristics such as age, marital status, residency, religion, educational level, employment status, sleep pattern, smoking)

Part II: A lifestyle habits that includes diet and physical activity.

Physical activity was measured by The International Physical Activity Questionnaire (IPAQ) - Short Form, which was designed by the IPAQ scientific group and evaluated for adult populations ranging from 15 to 69 years old, was used to assess physical activity. IPAQ-Short Form evaluates a wide range of activities, including free or leisure time, gardening and domestic activities, transportation, and work. The IPAQ Short Form assesses three types or categories of specific activities in the last seven days: walking, vigorous-intensity activities, and moderate-intensity activities.

For each type of exercise, the frequency and duration of physical activity are measured in days per week and minutes per day, respectively. The IPAQ provides data in continuous metrics such as median and interquartile because of the non-normal ranges or distributions of energy expenditure among populations. In this survey, vigorous-intensity activities are defined as activities that involve more physical effort than normal, such as heavy digging, lifting, aerobics, or quick riding. Light weights, doubles tennis, and constant-speed cycling are examples of moderate-intensity activities that demand modest physical exertion to make breathing somewhat more difficult than typical. Walking also includes tasks done at home and at work, walking to get from one location to another, and

people who walk solely for pleasure (Bermúdez et al., 2013).

Diet was measured by Validation of a 16-Item Food Intake Questionnaire.

Statistical analysis methods

The general information of the patients was presented in mean (SD) or No (%). The prevalence of diet and food habits and physical activity were determined in number and percentage. The comparisons of pre and postoperative sleep and physical activity, food habits among patients with breast cancer were examined in McNemar and Paired t-tests. The comparisons of pre and postoperative diet items among patients with breast cancer were examined in the McNemar test. The comparisons of total diet scores between preoperative and postoperative among patients with breast cancer were examined in paired t-test. The comparisons of diet item consumption among breast cancer patients with different socio-demographic characteristics were examined in the Pearson Chi-squared test. The role of socio-demographic and sleep patterns on total diet score at the postoperative time was examined in the least squared test. The significant level of difference was determined in a p-value of less than 0.05. The statistical calculations were performed in JMP Pro 14.3.0.

Administrative arrangement and Ethical considerations:

This study was approved by the scientific committee of college of Nursing at University of Duhok. The study was approved from ethical committee in the Directorate General of Health in Duhok governorate. The patients' involvement in the trial was entirely voluntary. In this study, no treatment was given to the participants. In addition, the study steps ensured that the patients' personal information will be remained confidential.

RESULTS

Table 1 shows changes of lifestyle after breast cancer surgery the mean age of the patients was (49.4 ± 10.1 SD) ranging from (30 to 71 years) with a 95% Confidence Interval of (47.5- 51.3). In addition, the ages of patients were determined as a group by range. The most breast cancer patients were between 41-50 years old with a percentage of 38.18%, followed by 26.36% in age groups of 51-60 years old. Regarding the marital status, the highest percentage of patients (75.5%) were married. Most of the participants (57.3%) were living in urban. The majority of patients (86.4%) were Muslim. Concerning the educational level of breast cancer patients, the highest percentage (47.3%) were illiterate. finally, about employment status, the highest percentage of patients (78.2%) were unemployed.

Table (1): General characteristics of patients with breast cancer

Characteristics (n=110)	**Frequency Distribution**	
	No (%)	**95 CI%**
Age (Range: 30-71 yrs.) mean (SD)	**49.4 (10.1)**	**47.5-51.3**
30-40	24 (21.82)	15.12-30.42
41-50	42 (38.18)	29.65-47.51
51-60	29 (26.36)	19.03-35.29
61-70	15 (13.64)	8.44-21.29
Marital status		
Single	13 (11.8)	7.0-19.2
Married	**83 (75.5)**	66.6-82.5
Widow	14 (12.7)	7.7-20.2
Residency		
Rural	47 (42.7)	33.9-52.1
Urban	**63 (57.3)**	47.9-66.1
Religion		
Muslim	**95 (86.4)**	78.7-91.6
Yazidi	13 (11.8)	7.0-19.2
Christian	2 (1.8)	0.5-6.4
Education		

Illiterate	**52 (47.3)**	38.2-56.5
Primary-Secondary School	35 (31.8)	23.9-41.0
High School	5 (4.5)	2.0-10.2
Undergraduate college	18 (16.4)	10.6-24.4
Employment Status		
Employed	21 (19.1)	12.8-27.4
Unemployed	**86 (78.2)**	69.6-84.9
Retired	3 (2.7)	0.9-7.7

Table 2 reveals physical activity of participants. This study found that there was a significant reduction in terms of walking before and after surgery. Before surgery walking duration was more than after surgery. The present study found that none of the patients had moderate and vigorous physical activity before and after surgery. According to sleep patterns, current study found that there was no significant difference (p-value=06724) in terms of sleep between pre-operative and post-operative, but most of the cases had normal sleeping pattern (62.7%). Pre-operative and post-operative patients were the same. There was no improvement and no escalation in term of sleep.

Table (2): Comparisons of pre and postoperative sleep and physical activity among **patients with breast cancer**

Sleep and physical activity (n=110)	**Time period**		**P-value**
	Preoperative	**Postoperative**	
Sleep			0.6724[a]
Short Sleepers	34 (30.9)	37 (33.6)	
Normal sleeper	**69 (62.7)**	**69 (62.7)**	
Long sleeper	7 (6.4)	4 (3.6)	
Smoking			**<0.001[a]**
Yes	3 (2.7)	1 (0.9)	
No	54 (49.1)	79 (71.8)	
Second smoker	53 (48.2)	30 (27.3)	
Cigarettes/day*	Range: 2-40	15 only	
Walking	7 (0)	6.9 (0.8)	0.1736[b]
Preoperative walking duration	236.2 (117.3)	136.7 (89.1)	**<0.0001[b]**
Preoperative moderate PA	None	None	NA
Preoperative moderate PA duration	None	None	NA
Preoperative vigorous PA	None	None	NA
Preoperative vigorous PA duration	None	None	NA

[a] McNemar and [b] Paired t-tests were performed for statistical analyses.

*The total number of smokers were 3 and 1 in preoperative and postoperative, respectively. The range of the number of cigarettess/day were presented in the table.

Table 3 shows dietary habits among participants. This study found that patient after breast cancer surgery significantly changed their diet, mainly they increased fruit consumption decreased sugars and fat and there was an improvement in vegetable consumption and eating fish, and decreased milk products. The study also found that the predict factor to change sugar waseducation. Also, the factor to decrease cream was education.

Table (3): Comparisons of pre and postoperative diet items among patients with breast cancer

Diet (n=110)	Frequency of diet items					p-Value
	Never	One time per a week	Two times per a week	3-4 times per a week	5-6 times per a week	
Fish dishes						
Preoperative	57 (51.82)	41 (37.27)	10 (9.09)	2 (1.82)	0 (0.0)	0.0967
Postoperative	43 (39.09)	45 (40.91)	19 (17.27)	3 (2.73)	0 (0.0)	
Sausage dishes						
Preoperative	98 (89.09)	7 (6.36)	4 (3.64)	1 (0.91)	0 (0.0)	0.2037
Postoperative	107 (97.27)	1 (0.91)	0 (0.0)	2 (1.82)	0 (0.0)	
Butter						
Preoperative	82 (74.55)	10 (9.09)	7 (6.36)	1 (0.91)	10 (9.09)	0.2290
Postoperative	94 (85.45)	4 (3.64)	8 (7.27)	0 (0.0)	4 (3.64)	
Vegetable-based margarine						
Preoperative	87 (79.09)	2 (1.82)	2 (1.82)	1 (0.91)	18 (16.36)	0.8554
Postoperative	81 (73.64)	1 (0.91)	2 (1.82)	2 (1.82)	24 (21.82)	
Cream						
Preoperative	82 (74.55)	20 (18.18)	5 (4.55)	3 (2.73)	0 (0.0)	**0.0062**
Postoperative	100 (90.91)	7 (6.36)	2 (1.82)	1 (0.91)	0 (0.0)	
Fruits						
Preoperative	0 (0.0)	1 (0.91)	6 (5.45)	8 (7.27)	95 (86.36)	**0.0234**
Postoperative	0 (0.0)	0 (0.0)	0 (0.0)	3 (2.73)	107 (97.27)	
Vegetables						
Preoperative	0 (0.0)	2 (1.82)	1 (0.91)	2 (1.82)	105 (95.45)	0.4159
Postoperative	0 (0.0)	0 (0.0)	1 (0.91)	0 (0.0)	109 (99.09)	
Slices of rye or crispbread						
Preoperative	94 (85.45)	1 (0.91)	2 (1.82)	0 (0.0)	13 (11.82)	0.9559
Postoperative	90 (81.82)	0 (0.0)	3 (2.73)	1 (0.91)	16 (14.55)	
Graham or mixed grain bread or roll						
Preoperative	4 (3.64)	1 (0.91)	1 (0.91)	1 (0.91)	103 (93.64)	0.9931
Postoperative	5 (4.55)	2 (1.82)	0 (0.0)	1 (0.91)	102 (92.73)	
Porridge						
Preoperative	108 (98.18)	0 (0.0)	1 (0.91)	1 (0.91)	0 (0.0)	NA
Postoperative	110 (100)		0 (0.0)	0 (0.0)	0 (0.0)	
Muesli or high-fiber breakfast cereals						
Preoperative	110 (100)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	NA
Postoperative	110 (100)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	
Milk products						
Preoperative	1 (0.91)	4 (3.64)	7 (6.36)	1 (0.91)	97 (88.18)	0.4702
Postoperative	6 (5.45)	2 (1.82)	7 (6.36)	2 (1.82)	93 (84.55)	
Sweet patisseries						
Preoperative	25 (22.73)	26 (23.64)	26 (23.64)	13 (11.82)	20 (18.18)	**<0.0001**
Postoperative	70 (63.64)	19 (17.27)	10 (9.09)	4 (3.64)	7 (6.36)	
Honey						
Preoperative	71 (64.55)	7 (6.36)	9 (8.18)	1 (0.91)	22 (20.00)	0.5141
Postoperative	66 (60.00)	7 (6.36)	6 (5.45)	2 (1.82)	29 (26.36)	
Soft drink with sugar						
Preoperative	41 (37.27)	22 (20.00)	14 (12.73)	6 (5.45)	27 (24.55)	**<0.0001**
Postoperative	83 (75.45)	12 (10.91)	4 (3.64)	2 (1.82)	9 (8.18)	
Sugar-sweetened juice						
Preoperative	45 (40.91)	19 (17.27)	18 (16.36)	12 (10.91)	16 (14.55)	**0.0004**
Postoperative	78 (70.91)	6 (5.45)	6 (5.45)	9 (8.18)	11 (10.00)	
Fruit juice						
Preoperative	51 (46.36)	16 (14.55)	21 (19.09)	11 (10.00)	11 (10.00)	0.3700
Postoperative	48 (43.64)	11 (10.00)	20 (18.18)	10 (9.09)	21 (19.09)	

McNemat test was performed for statistical analyses.

The red bold numbers show the significant differences.

Table 4 shows the comparisons of total diet score between preoperative and postoperative among patients with breast cancer, The current study found that, there was significant improvement in diet habits among patients postoperatively.

Table (4): Comparisons of total diet score between preoperative and postoperative among patients with breast cancer

Postoperative diet score	41.9		
Preoperative diet score	37.5		
Mean Difference	4.5	Prob > |t|	**<0.0001**
Std Error	0.5	Prob > t	**<0.0001**
95% CI Upper 95%	5.4	Prob < t	
95% CI Lower 95%	3.5		
Paired t-test was performed for statistical analyses.			

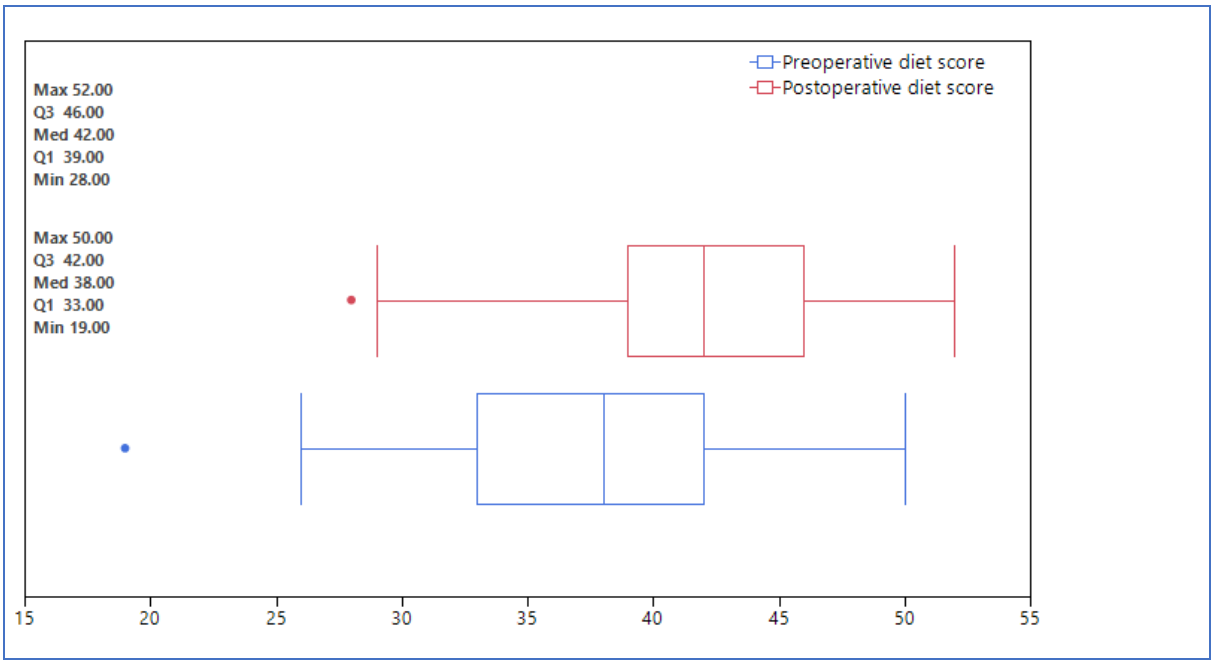

Fig (1): Comparisons of total diet score between preoperative and postoperative among patients with breast cancer

Table 5: The role of socio-demographic and sleep patterns on total diet score at postoperative time the study shows there is significant association of age factor at p-value = 0.02497 on total diet score at postoperative time.

Table (5): Role of socio-demographic and sleep patterns on total diet score at postoperative time

Factors (n=110)	Presentations	P-value
Age		**0.02497**
Preoperative smoking		0.05310
Residency		0.08266
Education level		0.10976
Religion		0.11102
Employment Status		0.46915
Marital status		0.67970
Preoperative sleep		0.69477

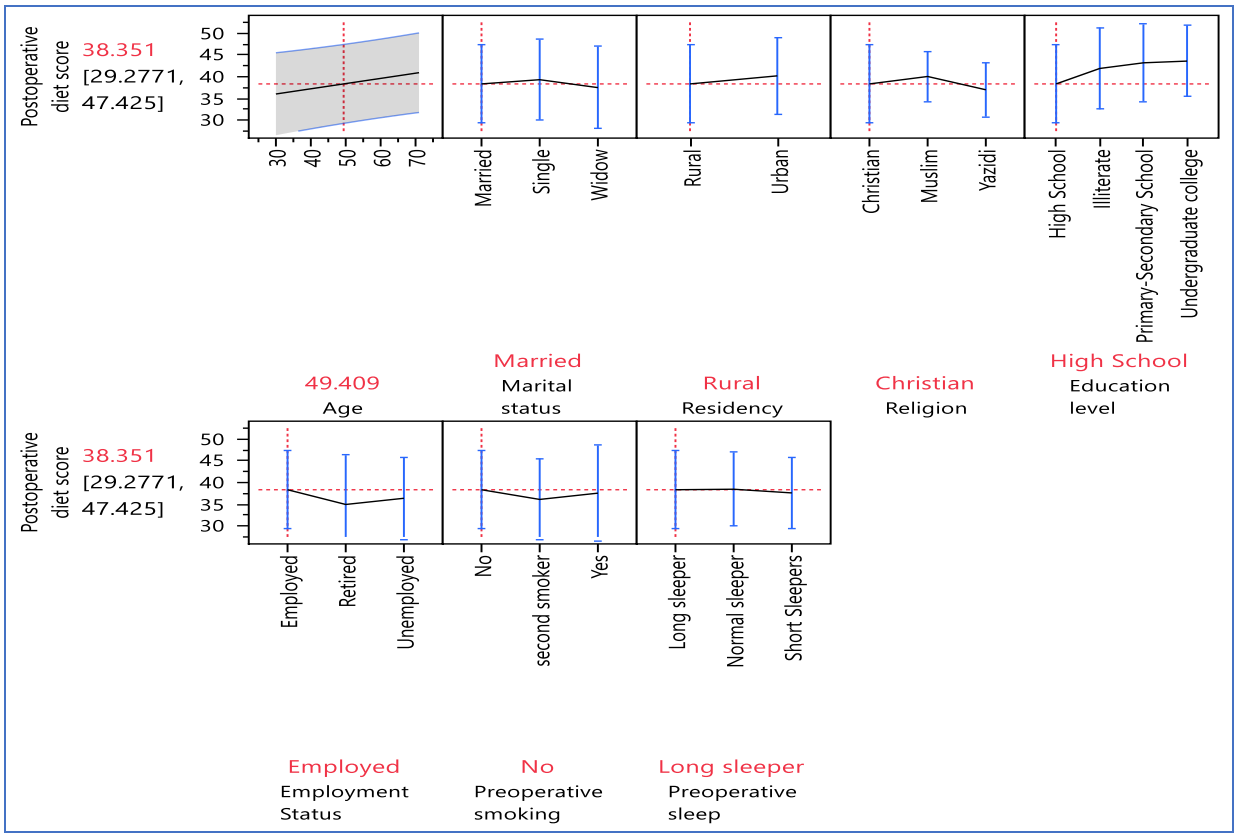

Fig (2): Prediction profiler of role of socio-demographic and sleep patterns on total diet score at postoperative time

(Fig 2): the study should the patient after 49 years old were more likely to change their diet postoperatively.

DISCUSSION

This study showed that the sleep patterns of the patients has not been changed after breast surgery and most of them were normal sleepers. But the duration of physical activity has reduced significantly from preoperative to postoperative time. The study found that the significant improvement has been shown in diet items of the patients, including increasing fruits and reduction in creamy foods, sweet patisseries, soft drinks, and sugar sweetened juices.

Life style change of breast cancer in developed and developing countries

Developed countries

The lifestyles changes after breast cancer surgery are totally different between developed and developing countries. Most of the studies published in the literature reported that the significant improvement in lifestyle has been observed among women after breast cancer surgery in developed countries (Otte et al., 2011; Liu et al., 2013; Costa et al., 2014; Otte et al., 2016; Fontes et al., 2017; Gonzalez et al., 2018; Abrahams et al., 2018; Berger et al., 2019).

Sleep patterns

In terms of sleep, most of the studies in developed countries reported that women with breast cancer after surgery had poor sleep quality. for example, a study done by (Liu et al., 2013) in California stated that the sleep quality of breast cancer women at baseline sleep quality was (65%) and after treatment (74%) due to chemotherapy. Another study by (Gonzalez & Lu, 2018) in the USA on Chinese breast cancer on 80 survivors concluded that 66.25% had poor sleep quality. Across sectional studies in the USA reported 53% of breast cancer over 3 years since diagnosis self-reported as poor sleep quality (Berger et al., 2019). Furthermore, the study found that factors associated with poor sleep quality were a young age, fatigue, low physical activity, low general health, pain, anxiety, and depression.

A study in Portugal done on 458 women with breast cancer found that 385 women (84%) had poor sleep quality before treatments and continued for three years. (Fontes et al., 2017). Otte et al (2011) in their study explored that most patient had poor sleep pattern and slept less than six hours.

Most of the study reported breast cancer patients after treatment had poor sleep quality and the reason for this attributed to chemotherapy and radiotherapy, for example; according to a comprehensive evaluation of 12 studies that examined the relationship between sleep disturbances and various types of breast cancer treatment, Costa et al (2014) found that sleep disturbance was linked to chemotherapy and radiotherapy. The completion of both chemotherapy and radiotherapy was linked to greater levels of sleep disturbance. Many studies investigated sleep quality among breast cancer survivors and revealed that nearly 65-87 % of patients had poor sleep quality due to factors such as exhaustion, despair, and anxiety brought on by the illness or by cancer treatment side effects. (Otte et al., 2016; Abrahams et al., 2018).

Physical activity

In term of physical activity, this study found there was a significant reduction in terms of walking after surgery. In this study none of the patients did moderate and vigorous physical activity before and after surgery. This behavior may be due to low level of education towards physical activity. Another possible reasons may back to stigma of exercise in our society because the women shame to go GYM. In addition, the patients who did the breast surgery may not have the power to do the physical activity due to chemotherapy.

Correspondingly, a study by (Devoogdt et al., 2010) in Belgium reported that total activity, after breast cancer surgery was significantly reduced compared to before surgery ($p < 0.01$), and chemotherapy was a predictor factor. Another study done by De Groef et al (2018) in Belgium showed that overall physical activity 24 months after surgery was still significantly lower post-surgery compare to preoperatively. Furthermore, they declared significant predictors factors to decrease physical activity 12 months post- operative which were employed, age, having a ducal carcinoma, chemotherapy, and having no partner. A longitudinal studies done by Littman et al (2010) in Washington, USA reported that physical activity decreased during the first year after diagnosis due to treatment.

Diet

Regarding diet, this study found that patient after breast cancer surgery significantly changed their diet. These include increased fruit consumption, decreased sugars and fat, an improvement in vegetable consumption and eating fish, decreased milk products. The present study found that the predictor factors to change sugar were religion and education. Furthermore, the factor to decrease cream was education.

Most of the studies in developed countries confirmed that diet was changed after breast cancer surgery among women. For instance, a study in Germany found that a significantly increased intake of fruits and vegetable consumption and decreased dairy products after one year of surgery compared to before diagnosis were reported (Steinhilper et al., 2013). A similar study in the UK reported that there was a significant change in diet after breast cancer surgery compared to pre-diagnosis. Moreover, after one year of surgery, patients increased their intake of fruits and vegetable consumption and increased fish significantly. In

addition, there were decrease in high-sugar and high-fat production (Velentzis et al., 2011).

Another study in Slovenia among 102 breast cancer patients, found that most patients (68.6%) modified their diets. They increased their intake of fruits and vegetables and decreased their intake of sugar and fat after diagnosis. Additionally, that study showed no statistically significant difference in the relationship between changes in eating habits and age, education, or time since diagnosis (Lunar et al., 2021). A study in Italy reported that after breast cancer diagnosis, patient increased their intake of vegetables (36.3%) and increased intake of fruits (29.6%), increased their eating of fish (24.4%), decreased cake and desserts (37.9%), (28.7%) reduced animal fat and (12.0%) stopped animal fat. In addition, the study found that patients older than 65 years old were less likely to change their diet than young patients (Caprara et al., 2021).

Developing countries

Sleep pattern

According to the literature less improvement has been found among breast cancer women after surgery. For example, in terms of sleeping patterns, a study conducted in Oman reported that 58.6% of the patients slept less than 6 hrs. after breast cancer treatment (Al Maqbali, 2021).

Another study in Iran revealed that 50.8% of breast cancer patients after surgery underwent chemotherapy were poor sleepers (Shorofi et al., 2021). Moreover, a study in Indonesia found that almost all breast cancer patients after treatment were poor sleepers and they slept less than five hrs. (Hermayanti & Setyorini, 2018). Furthermore, they reported that all types of breast cancer treatments were the causes of poor sleep quality.

Physical activity

The current study did not find many studies in developing countries to compare the results of current study. Only two studies, one in Brazil reported that majority of the participants were sedentary level (Ceccatto et al., 2014), and one study in Iran found that physical activity was at an undesirable level (Khalili et al., 2015).

Food behaviors

In developing countries, most studies explored that the diet changed after breast cancer surgery. such as: in China revealed that there were significant changes in the diet of most the patient increased intake of fruits and vegetable consumption, decreased fat, sugars, and dairy products after breast cancer treatment (Lei et al., 2018). On the other side, in Malaysia a total of 116 patients were investigated in term of food behaviors after 2 years of breast cancer surgery. The researcher found that more than half of breast cancer patients change their diet after a breast cancer diagnosis. Total daily fruit and vegetable increased significantly, while fat intake decreased significantly among breast cancer. furthermore, they found that 38% of the breast cancer in this study did not change their diet most of them were older women. They stated that diet was not associated with their disease and that dietary habits changing could not improve their disease condition. This might be due to educational or cultural background. They also reported that the most common reason to change their diet was following the doctor's advice (Shaharudin et al., 2013).

Limitation: the only limitation of the current study was the small sample size which may not be a representative sample. Further studies with large sample sizes are suggested for the future.

CONCLUSION

The result of this study found that lifestyle was not changed in relation to physical activity and sleep. But in terms of diet, the lifestyle significantly changed. Also, the study found that education, age, and religion was the factor to change their diet.

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