

## **Physiological and Psychological Responses of Breast Cancer Patients to Chemotherapeutic Regimen**

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**Abstract:** This descriptive correlational research was conducted to determine the physiological and psychological responses of breast cancer patients to chemotherapeutic regimen. A self- made survey questionnaire was validated and underwent reliability testing with a result of 0.952. The standardized items result was 0.954. Total population sampling was utilized. The study involved sixty (60) breast cancer patients in East Avenue Medical Center. The results revealed that majority of the respondents belonged to the age group of 51 to 60 years old (23, 38.3%), married (44, 73%), self- employed (26, 43%), earning for about 8,000 to 10,000 pesos (21, 35%), college undergraduate (21, 35%), and on their 4<sup>th</sup> cycle of chemotherapy (15, 25%). In addition, majority of the physiological side- effects are at high extent. Cutaneous (3.60), gastrointestinal (3.77) and neurotoxicity (3.52) while hematological responses were on moderate extent (3.11). Interestingly, majority of the psychological responses were also on high extent. All or nothing behavior (3.66), limiting behavior (3.48) and practical support seeking (3.72), while the emotional support seeking was on moderate extent (3.25). The findings also revealed that there is no significant relationship between and among the variables of Physiological and the Psychological aspects. The findings of the study suggest that hospital should develop a holistic clinical nursing care framework to establish a holistic recovery of the patients.

**Keywords:** *Physiological & psychological responses: Breast cancer; Chemotherapy*

## 1. INTRODUCTION

Breast cancer diagnosis is a distressing health condition a woman can ever experience in life. The distress continues as the breast cancer patient learns to accept the diagnosis. Women may not know the consequence of the diagnosis to their health and the changes it may give to their holistic well-being. As the treatment process continues and the battle for breast cancer takes place the patient may find their relationship in a great disturbance and for instance they bear both the physiological and psychological side-effects of chemotherapy process at high extent until the treatment has stopped.

Breast cancer remains a major public health problem. The incidence remains high and is projected to increase over the next decade despite the attempt to prevent the disease (Rahib, Smith, Aizenberg, Rozenzweig, Fleshman & Matrisan, 2014). Furthermore, it is the second most consistently diagnosed type of cancer worldwide and the leading cause of mortality among women (Ferlay, Soerjomataram, Dikshit, Eser, Mathers & Rebelo, 2015). According to the latest findings of American Cancer Society (2017) the cases have reached closer to 3 million US women were diagnosed of breast cancer. Although, some of the women were cancer-free and the rest have been subjected to treatment. In the Philippines, breast cancer remains the leading type of cancer for women (33%) with an estimated 20, 267 new cases in the country (Philippine Cancer Society, 2015). Still, women should undergo thorough physical assessment for early detection. Researches have revealed that some of the risk factors leading to breast cancer are age, menopausal status, BMI and smoking status. Genetic and cellular involvement also contributes to the development of breast cancer.

Chemotherapy is still one of the mainstay treatments for breast cancer over the years. However, the therapy itself could have short term and long term side-effects, so it is better to really explore the pathogenesis of the disease to identify which patients who would benefit from chemotherapy. Deshields, Potter, Olsen, & Liu (2014) stated that chemotherapy treatment has been linked to multiple side-effects and can contribute to the development of negative impact to the quality of life. Normally, the side-effects can be felt at home right after the chemotherapy session, in the absence of professional assistance (Ruland, Andersen & Jensen, 2013). Furthermore, there are several new chemotherapeutic drug for breast cancer that are less toxic than traditional chemotherapy because it selectively targets cancerous cells by blocking their ability to multiply. With these newly invented drugs the assurance of decreasing the suffering of the breast cancer patients to chemotherapy side-effects are still under investigation.

Chemotherapeutic medications were reputed to kill tumor cells, but now it was found out that even the normal cells were also damaged by these drugs. These sudden changes in the mechanism of actions of

chemotherapeutic drugs can lead to various side-effects and in some cases even death occurs (Lee & Longo, 2011). According to the study, the most frequently reported side effects physical side-effects of chemotherapy were weakness (95%), fatigue (90%), nausea (77%), hair loss (76%) and vomiting (75%) (Aslam, Sidra, Aftab & Zaigham, 2014). Most of these side-effects were experienced by almost 70% of the breast cancer patients who are receiving chemotherapy. Other noticeable side-effects include mouth sores, dry mouth and numbness, diarrhea and abdominal cramps. Memory impairment was less commonly occurring side effects (Aslam, Sidra, Aftab & Zaigham, 2014). However, a study conducted in Japan, (Sasaki, Tamura, Naito & Ogata, 2017) revealed that patient perceptions to chemotherapy side-effects have seemingly shifted from physiological symptoms to psychological disturbance. A multi-disciplinary approach was suggested, which includes the active involvement of healthcare team and family is required to minimize their agony.

The higher incidence of side-effects was due to the patient's limited comprehension to chemotherapy treatment regimen. Hence, there should be interventions to meet the particular needs of this population (Nies, Ali, Abdullah & Isahudin, 2018). Moreover, majority of the breast cancer patients conveyed their worries towards chemotherapy treatment regimen regardless of their stage. It was also found out that numerous patients may not like to seek treatment because of fear of hospital confinement. Lim, Potrata & Simonella (2015) reported solitude is one of the reasons for resisting hospital treatments. Moreover, patients' understanding of chemotherapy-induced side-effects could also make them feel uneasy and traumatizing, especially when they were informed of the previous negative experiences of the breast cancer patients to chemotherapy regimen (Nies, Ali, Abdullah & Isahudin, 2018).

A personal experience of the researcher on the chemotherapeutic treatment regimen of breast cancer patient during the whole span of the study was to encourage women to remain strong throughout the treatment course. The study hoped to contribute to the knowledge of the oncological nurses about the physiological and psychological side-effects of chemotherapy medications. Variety of clinical side-effects could occur during the chemotherapy session, at least in part, interventions are available for prevention and treating them. Specialized nursing interventions were recommended and could be achieved by utilizing holistic clinical nursing care management guidelines should be introduced to enhance the holistic well-being of breast cancer patient.

## *1.2. Physiological Responses to Chemotherapy*

### *1.2.1 Cutaneous Responses*

Chemotherapy produces side-effects on the skin, and it can be manageable. In general, the skin reactions induced by chemotherapy will subside once the drug is stopped. However, during treatment, it is essential to monitor and control the symptoms to the best extent possible in order to

maintain the patient's quality of life and to encourage patient compliance with treatment. Photosensitivity is one of the cutaneous responses. Patient's with phototoxic reactions initially complains of a burning and stinging sensation, followed by redness, which typically occurs within 24 hours of the sun exposure involving the areas of the body such as the forehead, nose, hands, arms, and lips. In severe cases, the unexposed areas of skin may also be involved (Benner, 2009).

Another extremely noticeable cutaneous side-effect is the chemotherapy-induced alopecia (CIA), although the likelihood of developing CIA and the severity of the hair loss is often drug or regimen dependent (Dunnill, Al-Tameemi, Collet, Haslam & Georgopoulos, 2018). An oncologist, namely Wagner (2015), explained that there are factors that can lead to the increasing severity of chemotherapy induced alopecia such as multiple drug combination, higher dosage, length of time and schedule of infusion and the current condition of the hair. He also added that hair loss usually begins 7 to 10 days following the initiation of chemotherapy and may be quite prominent within 1 or 2 months of treatment or within 2 to 3 weeks following chemotherapy and may be rapid. In addition, the toxic effects on the hair were almost always reversible after treatment is completed. A delay of 4 to 6 weeks is common before re-growth begins. Hair loss can either be complete or incomplete or occur on any hair-bearing areas of the body. Studies by Orfanos (2009) showed that in more than 50% of all cases of hair loss due to chemotherapy, it occurred not only on the scalp but also on other regions of the body.

### *1.2.2 Gastrointestinal Response*

The National Cancer Institute (2009) stated that chemotherapy – induced vomiting is one of the feared side-effects of chemotherapy treatment. The side-effects begin during the first 24 hours of drug initiation can be mild, moderate or severe. However, the severe cases of this side-effect are most common to patients receiving high doses of medication. Arbuckle (2010) added that diarrhea is also one of the gastrointestinal side-effects of chemotherapy. Although, the severity and prevalence of this side-effect depends on the drugs being administered. The incidence of diarrhea was reported to 50% of breast cancer patients who are receiving continuous 5FU medication via bolus injection (Vincenzi, Schiavon, Pantano, Santini & Tonini, 2009).

Meanwhile, the second most common gastrointestinal side-effect of chemotherapy treatment is the inflammation of the mouth it is initially presents as reddening of the mucus membrane of the mouth, then often progresses to erosion and ulceration but typically heals 2-4 weeks after the last dose of chemotherapy treatment regimen (Lalla, Sonis & Peterson, 2008). Lungham (2009) emphasized that there should be accurate assessment of oral cavity to effectively monitor the oral mucosal inflammation, to assist in planning and developing therapeutic measure and evaluation of patient's response to treatment.

### *1.2.3. Hematologic Response*

Clinical Oncologists, (Vincenzi, Schiavon, Pantano, Santini & Tonini, 2009) revealed that chemotherapy medications like paclitaxel-doxorubicin is known to be the reason for having anemia and thrombocytopenia especially if given in a high dosage or combined with other chemotherapy drugs. The mechanism of action of this drug works by killing the rapidly growing cancer cells. Unfortunately, the drug also affects normal cells that grow, such as blood cells forming in the bone marrow.

### *1.2.4 Neurotoxicity/ Motor Responses*

Cancer treatment regimen such as surgery, radiotherapy and chemotherapy all have negative impact on sexual health in several ways and leads to hormonal levels depletion such as estrogen, progesterone and testosterone resulting into irreparable menopause in women (Shankar, Prasad, Roy, Chakraborty, Biswas, & Patil, 2017). However, to effectively rule out this condition, it is important to assess the history, sexual activity, cultural issues and religious beliefs that can influence the sexual alterations during the cancer treatment women (Shankar, Prasad, Roy, Chakraborty, Biswas, & Patil, 2017).

In terms of neurotoxicity, a memory disturbance was noted as the most common side- effect of chemotherapy treatment regimen. This was supported by the findings of Segatore, Mehnert, Schleimer, Schirmer, Fehlauer & Kreinberg (2011) that the most common changes in cognitive functioning associated with chemotherapy treatment regimen include judgment, hindsight and foresight, processing speed or reaction time, working memory, and organizational skills. Furthermore, impairment of language ability, concentration, memory and attention can elevate the levels of stress and diminish the work performance in activity which requires higher cognitive functions. To address these concerns, nurses should effectively assess the detrimental effects of cognitive deficits to the holistic well- being of the breast cancer patients before it may lead to a more serious form of psychological disturbances.

## *1.3 Psychological Responses to Chemotherapeutic Regimen*

### *1.3.1 All or Nothing Behavior*

The all or nothing behavior also referred as 'sick role'. In this situation, an individual is given the privilege to be excluded from the usual responsibilities and duties, such as work, but should recover well and recuperate from being sick to get back from the daily activities. Similarly, illness behavior was defined as the strategy of individual to respond to physical indication, how do they perceive symptoms and also involving the possible remedies to be utilized as a form of care.

### *1.3.2 Limiting Behavior*

Breast cancer patients avoid physical activities because they might feel tired and experience pain brought about by physical activities all

throughout the day. Nelson (2014), an illuminating approach to the study on the identification and response to symptoms is the investigation of the attribution process itself, and how people come to make sense and give significance to the experiences they have. Evidently, a person takes an action for symptoms in a disruptive fashion where the concept of health are much more affected and the total functioning of the body has been limited because of the severity of the illness. Moreover, Hennes (2009) stated that person experiencing significant changes in the state of health tend to be the reason of limiting behavior. The degree and extent of the severity of the symptoms may be the contributing factors for this behavior. Once an individual is battling against illness, especially on an advance illness there is a tendency that a person may limit his/ her daily functioning. Sometimes, the physiological changes of the illness process can be devastating to one's holistic well- being.

### *1.3.3 Emotional Support Seeking*

Emotional support could get from many sources and the feeling of being supported in many ways is a spirit boosting, which can lighten the feelings of the sick people. The emotional support coming from the family members, friends and all the people around helps the sick people to cope immediately and effectively. Perhaps, this is good to say that at the end of every health threats there are silver linings and light that leads us to recovery. Based on the Journal literature released by Chang, Couture, Young, Lau & Lee (2009), affirmed that there are vast range of methods to cope from a distressing illness. An ill person needed to focus more on their own emotions and overall well- being. It was good to seek health counselors seek for meditation techniques during the course of treatment or diversion activities to eliminate anxiety causing situations and depression.

Hennes (2009) encouraged few patients to always look positively on life despite of the health challenges rather than anticipating the loss. Communication through counseling helped patients to redirect their emotions and improve their role. Few patients said counseling helped them to focus on themselves, their role and their emotions which give emphasis to their own feelings. Although, most of the time their feelings were complex, oftentimes they get so confused of what they were feel or why they were behaving a certain way.

### *1.3.5 Practical Support Seeking*

Practical support is considered as a coping resource which involves the people to provide interventions to different stressors. Social support has been the most frequently studied psychosocial resource. Benson (2009) stated that what matters most for some sick people is having few but sincere and strong ties are better than numerous but not for the longest time. However, Liu, Fiorentino, Natarajan, Parker & Mills, (2009) argue cogently that a person's network size and types of social network has been proven to influence the sick person for good and uplift the fighting spirit to continue

living and see the world in different perspective. It is important to communicate, to seek help with activities of daily living, to be open in verbalizing the things you want to happen. Nobody can tell what the sick person wants to do. It is important to channel out your needs to avoid frustration and anger that may lead to misinterpretation of behavior. Family and friends are excellent support; they completed the gap that is missing in the lives of the sick people the company that sets no limitation in helping and understanding the condition of people who were diagnosed of debilitating disease like breast cancer.

This study aimed to determine the physiological and psychological responses of breast cancer patients to chemotherapeutic regimen and sought to answer the following:

1. To what extent do breast cancer patients respond to chemotherapeutic regimen in terms of:
  - a. physiological;
  - b. psychological?
2. Is there a significant relationship between the psychological and physiological responses of breast cancer patients to chemotherapeutic regimen?

## 2.METHODOLOGY

A descriptive correlational design was utilized in the study. A self-made survey questionnaire was administered in the study. The tool underwent a reliability testing and was validated by experts. Chronbach alpha was employed to check its reliability and the score was 0.952. The standardized items result was 0.954. The researcher utilized a total population sampling. The samples were selected from a population of breast cancer patients based on the following criteria:

### *Inclusion Criteria*

1. Was diagnosed of breast cancer
2. Currently undergoing chemotherapy treatment
3. Either admitted or in outpatient department
4. Had consented for the study

### *Exclusion Criteria*

1. Those that refused in the study
2. Those that were diagnosed of other types of cancer

The subject of the study consisted of sixty (60) breast cancer patients from Philippine Foundation for Breast Cancer Inc. in East Avenue Medical Center. Out of 100 breast cancer patients who were invited in the study, only 60 met the criteria. The respondents included were those on chemotherapy treatment, and currently on their 1st to 8th cycle of chemotherapy session. For the data gathering procedure, the researcher sent

a letter to conduct the data gathering to the Director of Philippine Foundation for Breast Cancer Inc. in East Avenue Medical Center. When the approval of the request was approved, the data gathering started immediately by questionnaire administration. The respondents received a cover letter explaining the purpose of the study and the instructions on how to answer the questionnaire. The researcher questionnaires were distributed to the respondents after they have permitted the researcher. They were fully conscious and capable of expressing their physiological and psychological responses to chemotherapeutic regimen and willingly participated in the study.

The data that was gathered from the set of questionnaires was subject to a statistical tool, in lieu for the analysis of data. The tools utilized in this study were the following (a) weighted mean, (b) percentage distribution, (c) Pearson  $r$ . To determine the distribution of the respondents according to their demographic profile, frequency and percentage distribution was utilized. To determine the physiological and psychological responses of the respondents weighted mean was utilized. To determine the significant relationship between the physiological and psychological responses of breast cancer respondents' Pearson  $r$  was utilized.

### 3. RESULTS AND DISCUSSION

Table 1 shows the summary of the frequency and percentage of demographic profile of the respondents in terms of age, civil status, occupation, economic status, educational attainment and chemotherapy cycles. For the respondents' age, the results appeared that majority of the respondents belonged to the age group of 51 to 60 years old with the frequency of 23, which obtained a total percentage of 38.3%. While the respondents belonged to the age group of 21 to 40 years old got the frequency of 8 and accumulated the lowest percentage, which comprised the 13.4% of the total population.

For the civil status, majority of the respondents were married with the total frequency of 44, which is equivalent to 73% of the total respondents. The widower got 2% with the frequency of 1. Meanwhile, 26 (43%) of respondents are self-employed. Unfortunately, 10 (17%) of the respondents are jobless. In the above table, the respondents who have a monthly income of 8,000 to 10,000 pesos gained the highest frequency of 21, which accumulated the 35% of the total respondents. While the 3% of the total respondents receiving a monthly income of 17,000 and above, got the lowest frequency of 2. In terms of respondents' educational attainment, the table showed that 21 out of 60 respondents or 35% of the total respondents were College undergraduate. Meanwhile, the elementary graduate along with the high school undergraduate obtained the lowest frequency of 6 which is equivalent to 10%. Lastly, the table revealed that 25% of the total respondents currently on their 4<sup>th</sup> cycle of chemotherapy

with an equivalent frequency of 15. The respondents on their first cycle of chemotherapeutic regimen obtained the lowest percentage of 3% with the total frequency of 2.

Table 1  
*Distribution of the Demographic Profile of the Breast Cancer Patients*

	<i>Frequency</i>	<i>Percentage</i>
<i>Age</i>		
21 to 40 yrs old	8	13.4%
41 to 45 yrs old	17	28.3%
51 to 60 yrs old	23	38.3%
61 yrs old and above	12	20%
<i>Civil Status</i>		
Single	12	20%
Married	44	73%
Widower	1	2%
Live in Partner	3	5%
<i>Occupation</i>		
Government Employee	14	23%
Private Company Employee	10	17%
Self Employed	26	43%
Jobless	10	17%
<i>Economic Status</i>		
No Income	4	7%
2,000-4,000	5	8%
5,000-7,000	15	25%
8,000-10,000	21	35%
11,000-13,000	7	12%
14,000-16,000	6	10%
17,000 and above	2	3%
<i>Educational Attainment</i>		
Elementary Graduate	6	10%
High School Undergraduate	6	10%
High School Graduate	15	25%
College Undergraduate	21	35%
College Graduate	12	20%
<i>Chemotherapy Cycle</i>		
1 <sup>st</sup> Cycle	2	3%
2 <sup>nd</sup> Cycle	3	5%
3 <sup>rd</sup> Cycle	7	12%
4 <sup>th</sup> Cycle	15	25%
5 <sup>th</sup> Cycle	11	18%
6 <sup>th</sup> Cycle	10	17%
7 <sup>th</sup> Cycle	6	10%
8 <sup>th</sup> Cycle	6	10%

Table 2  
*Mean Distribution of Physiologic Responses to Chemotherapeutic Regimen*

<i>Physiological Responses</i>	<i>Mean</i>	<i>Interpretation</i>
Cutaneous	3.60	High Extent
Gastrointestinal	3.77	High Extent
Hematological	3.11	Moderate Extent
Neurotoxicity	3.52	High Extent

*Legend: 4.20- 5.00= Very High Extent, 3.40- 4.19= High Extent, 2.60- 3.39= Moderate Extent, 1.80- 2.59= Low Extent, 1.0- 1.79= No Extent at all*

The physiological responses of the respondents to chemotherapeutic regimen were calculated using mean. Table 2 shows the mean distribution of the respondents' physiological responses to chemotherapeutic regimen based on cutaneous, gastrointestinal, hematological and neurotoxicity responses. Taken singly, the cutaneous response obtained a mean score of 3.60 which interpreted as high extent. The most common cutaneous (skin) side- effects are hair loss or alopecia (4.35, very high extent), abnormal redness of the skin (3.43, high extent), darkening of the skin and nails (3.8, high extent) and redness of the skin upon exposure to sunlight (2.83, moderate extent). For the gastrointestinal response, the respondents' affirmed that at high extent (3.60) gastrointestinal side- effects were manifested. The most common gastrointestinal side effects are nausea (4.13, high extent), vomiting (4.44, very high extent), inflammation of the mouth (3.10, moderate extent) and diarrhea (3.40, moderate extent).

As shown in Table 2, the hematological responses obtained a mean score of 3.11 in which the respondents' agreed that chemotherapeutic side-effects were manifested at high extent. The hematological side- effects are decreased red blood cells (RBC) count or anemia (3.26, moderate extent), decreased platelet count or thrombocytopenia (3.00, moderate extent) and decreased in white blood cells (WBC) count or neutropenia (3.08, moderate extent). Neurotoxicity Responses got a mean score of 3.52, which interpreted as high extent. The side- effects for neurotoxicity are decreased in sexual functioning (4.43, very high extent), sleep disturbances (3.56, high extent), generalized body weakness (3.43, high extent), fever (3.26, high extent) and memory loss (2.96, moderate extent).

Table 3 revealed the mean distribution of respondents' psychological responses to chemotherapeutic regimen. All or nothing behavior obtained a mean score of 3.66, which is interpreted as high extent. There are five (5) indicators under this category namely: (1) I have overdone things, and then needed to rest up for while (3.83, high extent) (2) I have pushed myself as hard as ever until I cannot push myself any more (3.85, high extent) (3) I have felt obliged to carry out all my responsibilities, no matter how bad I feel (3.67, high extent) (4) I have tried to do too much and felt even worse as a result (3.70, high extent) lastly, (5)

I find myself rushing to get everything done before I crash (3.27, moderate extent). The limiting behaviors of the respondents were manifested at high extent (3.48). There are five indicators for this category namely: (1) I have avoided physical exercises (3.13, moderate extent) (2) I have put parts of my life on hold (3.27, moderate extent) (3) I have gone to bed during the day (3.39, moderate extent) (4) I have not been able to carry on with my usual level of activity (3.65, high extent) lastly, (5) I haven't slowed down; I've just carried on as normal (3.96, high extent). The respondents' emotional support seeking obtained a mean score of 3.25, interpreted as moderate extent. There are five (5) indicators for this category. (1) I have run people close to me for sympathy (3.26, moderate extent) (2) I have told people around me how miserable I feel in the hope that they feel sorry for me (3.04, moderate extent) (3) I have wanted people to understand how awful I feel (3.16, moderate extent) (4) I have wanted people to acknowledge how sick I am (3.16, moderate extent) (5) I have wanted people be concern to me all the times (3.64, high extent). Lastly, the practical support seeking was manifested at high extent with a mean score of 3.7. The indicators for this category are (1) I have relied on my family or friends to look after me (3.54, high extent) (2) I have asked for help from my family or friends (4.03, high extent) (3) I have made sure I had someone to help me out (3.98, high extent) (4) I have tried to find someone to help me out (3.25, moderate extent) (5) I have tried to seek professional advice particularly when I'm emotionally distress (3.83, high extent).

Table 3  
*Mean Distribution of Psychological Responses to Chemotherapeutic Regimen*

<i>Psychological Responses</i>	<i>Mean</i>	<i>Interpretation</i>
All or Nothing Behavior	3.66	High Extent
Limiting Behaviors	3.48	High Extent
Emotional Support Seeking	3.25	Moderate Extent
Practical Support Seeking	3.72	High Extent

*Legend: 4.20- 5.00= Very High Extent, 3.40- 4.19= High Extent, 2.60- 3.39= Moderate Extent, 1.80- 2.59= Low Extent, 1.0- 1.79= No Extent at all*

Table 4 shows the relationship between the physiological and psychological responses of breast cancer patients. It indicated no significant relationships between and among the variables of physiological and the psychological aspects of the breast cancer patients undergoing chemotherapy. With all p-values lower than the 0.05 level of significance, the researcher therefore affirmed that indeed there was no significant relationship between and among the physical and psychological aspects. This means that neither of the variables influenced each other. The independence was clearly manifested by the two major areas. The signs and symptoms over the skin changes, gastrointestinal, hematologic, and neurotoxicity/motor responses are not dependent on how a chemotherapy

patient would react on the psychological feelings and the behaviors that the patient is showing.

Table 4  
*Relationship between the Physiological and Psychological responses of Breast Cancer Patients*

Variables	CR		GR		HR		NMR	
	p-value	I	p-value	I	p-value	I	p-value	I
ANB	0.373	NS	0.255	NS	0.675	NS	0.838	NS
LB	0.744	NS	0.309	NS	0.891	NS	0.985	NS
ESS	0.676	NS	0.084	NS	0.766	NS	0.800	NS
PSS	0.390	NS	0.871	NS	0.539	NS	0.462	NS

*Legend: CR- Cutaneous Responses; GR- Gastrointestinal Responses; HR- Hematological Responses; NMR- Neurotoxicity/Motor Responses; ANB-All or Nothing Behavior; LB- Limiting Behaviors; ESS- Emotional Support Seeking; PSS- Practical Support Seeking*

The study identified the physiological and psychological responses of breast cancer patients to chemotherapy. Currently, chemotherapy remains a treatment of choice for breast cancer patients in both early and advanced stages (Nies, Ali, Abdullah & Isahudin, 2018). Chemotherapeutic drugs have been effective however, each drug differs in terms of constituent agents, route of administration, frequency and side- effects (Beusterien, Grinspan & Kuchuk, 2014). In this study majority of the respondents were at age range of 51 to 60 years old (38.3%), married (73%) and self-employed (43%). The result is the same with the study conducted by Suwankong and Laimputtong (2017) where majority of the respondents are in the age 40 to 60 years old, married and self- employed. Breast cancer patients' wants to feel that they are still worthy for their families to maintain their holistic well- being. They could have fears of being not able to be productive at home and in the workplace. They may feel psychologically disturbed because of the physiological side- effects of the chemotherapy treatment regimen. Others viewed their relationship to the family members and workmates has been changed. Respondents' income ranges from 8,000 to 10,000 pesos (21%). Financial issue could have a huge impact to undergo chemotherapy treatment, as supported by the article of Smith (2009), which stated that those with low- income have higher fatality rates and have been attributed a lot of factors such as lack of financial support to undergo screening test for breast cancer, lack of screening devices and facilities and decrease public awareness about breast cancer.

Meanwhile, (35%) of the respondents are college undergraduate. It is important to acquire greater knowledge because this could lead to early detection of breast cancer and proper assessment of the physiological and psychological responses to chemotherapeutic regimen, which was associated with higher long-term survival rates. This was supported by Bender (2009) he affirmed that women education levels fall somewhere in

the middle generally unaware of the different responses to chemotherapy less often than women with more years of education, but more often than women with little education. He also indicated that women who have low educational background have poor knowledge of lifestyles, environment and management of chemotherapy side – effects.

Chemotherapy treatment is given in cycles to allow the medication to kill the cancer cells at their most vulnerable time. As for the time duration it is done to allow the body's normal cells to take time from recovering to damage (National Cancer Institute, 2009). The respondents' revealed that chemotherapy complications usually started to occur during the third cycle of chemotherapy treatment and become increasingly felt on the fourth cycle and as the treatment goes on. It is important that healthcare providers especially nurses are knowledgeable on the drug adverse effects and expected time of occurrence, and knows how to intervene for side-effects (Romito, Shu & Gao, 2010). In addition, it is important that both patient and relatives knows the basic home care management for chemotherapy side- effects since most of it are experienced at home (Romito, Shu & Gao, 2010).

The physiological and psychological domains are the most affected to the breast cancer patients receiving chemotherapy. The side effects of chemotherapy affect their well- being. Symptoms arise days after the chemotherapy sessions and they really suffer a lot as it causes huge changes to their self- image. Majority of the physiological side- effects are at high extent meaning the respondents really felt the side- effects of chemotherapy in cutaneous (skin), gastrointestinal and neurotoxicity. Unfortunately, the respondents' psychological well- being has been affected as well. The results revealed that three categories under the psychological responses were experienced by the respondents at a high extent namely the: all or nothing behavior, limiting behavior and practical support seeking. The findings reflects how they cope with the psychological challenges they've been through during the course of chemotherapy treatment.

For the physiological side effects of chemotherapy, cutaneous (skin) side- effects obtained a mean score of (3.60). The most common cutaneous side effects experienced by the respondents are abnormal redness of the skin (3.43), darkening of the skin and nails (3.81), redness of the skin upon exposure to sunlight (2.83) and hair loss (4.35). Of all the cutaneous side- effects of chemotherapy, respondents were most worried about hair loss with a mean score of (4.35). The result is the same in the study conducted by Saraswat, Chopral, Sood, Kamboi & Kumar, (2019) where 56.4% of breast cancer patients found out that hair loss is the most traumatic physiological side- effects of chemotherapy, this costs them feeling of guilt during the entire chemotherapy treatment. Other cases involved eight percent (8%) of the breast cancer patients were hesitant to undergoing chemotherapy because of past experience of hair (Gunawan, Broeke, Van der Ven, Arnoldussen & Kapser, 2016). These finding suggests that hair loss due to chemotherapy has psychological impact to the

breast cancer patients (Saraswat, Chopral, Sood, Kamboi & Kumar, 2019) Hair loss vary depending on the drugs administered and dosage as well as the number of chemotherapy cycle (Dunnill, Al- Tameemi, Collet, Haslam & Georopoulos, 2018).

In this study, the most common gastrointestinal side- effects of chemotherapy experienced by the respondents are vomiting (4.44), nausea (4.13), inflammation of the mouth (3.10) and diarrhea (3.40). In a study that surveyed cancer patients in Jordan for the presence of cancer-related symptoms, the findings reported that most cancer patients experienced vomiting (Al Qadire & Al Khalaileh, 2016). Nausea and vomiting were experienced by more than two-third of patients after last cycle of chemotherapy of chemotherapy (Farrel, Brearley. Pilling, & Molassiotis, 2013). Consistent with these findings, of all the GI side effects vomiting was the most common manifestation experienced by the respondents with a mean score of (4.44) followed by nausea (4.13). A study conducted by Chan & Ismail (2014) revealed that 83% nausea and vomiting cases usually experienced on the last cycle of chemotherapy treatment. The National Cancer Institute (2009) stated that chemotherapy – induced nausea and vomiting is one of the feared side-effects concerning chemotherapy treatment within 24 hours of administration. The loss of hair can be classified as mild, moderate or severe. In most cases, hair loss is common in patients receiving high doses of medications. There was a survey conducted by Armes, Wagland, Finnegan, Ricahrdson & Corner (2013) involving the incidence of nausea and vomiting from moderate to severe cases tallied at 23% to 66%. Medications such as antiemetic's can lessen the onset of nausea and vomiting (Bevoor, Patel & Chitti, 2018).

According to this study the most common hematological side effects of chemotherapy are decreased red blood cells count (anemia), decrease platelet count (thrombocytopenia) decreased white blood cells count (neutropenia). Among the three, decreased in red blood cells count revealed as the most common hematological side effects which obtained a mean score of (3.26). Chemotherapy-induced anemia (CIA) is a side- effect caused by malignant invasion of cancer cells to the bone marrow leading to iron deficiency and abnormalities to erythropoietin functions (Gilreath, Stenehjem & Rodgers 2014). Xu, Xu, Page, Rodriguez & Chao (2014) stated that the patients with solid tumors have chances of developing anemia. On the other hand, chemotherapy induced thrombocytopenia ranks second (3.00) in this study as the common hematological side effects of chemotherapy. A study conducted by Weycker, Grossman, Hatfield, Hanau & Chandler (2019) revealed that chemotherapy induced thrombocytopenia is high to patients receiving chemotherapy. However, the incidence of CIT occurs based on the medication used to client. Some respondents of this study noted blood spots in their stool. Prior to chemotherapy respondents are required to undergo blood test CBC to monitor their blood counts. True to the evidences gathered some breast cancer patients in this study experienced a significant decreased in blood counts after chemotherapy.

For the neurotoxicity responses, it accumulated a mean score of (3.52) which interpreted as high extent. The side-effects for neurotoxicity are decreased in sexual functioning (4.43), sleep disturbances (3.56), generalized body weakness (3.43), fever (3.26) and memory loss (2.96). Decrease sexual functioning was the common chemotherapy side effects experienced by the respondents. American Cancer Society (2009), defined sexuality as a complex characteristic that involves the physical, psychological, interpersonal, and behavioral aspects of a person. A woman may experience loss of desire for sexual activity, change in the genital sensations and decrease ability to reach orgasm are the factors contributing for sexual disturbance of breast cancer patients. In the study conducted by Usta and Gockol (2017) the results revealed that most of the patient undergo chemotherapy treatment had sexual dysfunction. Furthermore, it is noteworthy that nearly 98% of respondents had not consulted anyone about their sexual concerns despite some of the patients are experiencing it. The result is consistent with previous researches, which found that most patients who receive breast cancer treatment experienced sexual dysfunction (Shandiz et al, 2016). The respondents of the study were hesitant in sharing their personal sexual problems for they have stated that their spouses understand their current situations and sex and other sexual activities are not the priority during the course of chemotherapy treatment.

As the physiological side effects of chemotherapy occur, there were also psychological disturbances felt by the respondents of the study. The self-image of the respondents' decreases as the physical side effects of chemotherapy occurs one by one, thus could also alter the psychological well-being of the respondents. The goal of this study is to identify the psychological responses of the breast cancer patients to chemotherapy treatment. The study categorized the psychological responses of the respondents into four (4) namely: (1) All or Nothing Behavior (2) Limiting Behavior (3) Emotional Support Seeking and (4) Practical Support Seeking.

The All or nothing behavior is defined in this study as the sick role. It obtained a mean score of (3.66, high extent). There are five (5) indicators under this category namely: (1) I have overdone things, and then needed to rest up for while (3.83, high extent) (2) I have pushed myself as hard as ever until I cannot push myself any more (3.85, high extent) (3) I have felt obliged to carry out all my responsibilities, no matter how bad I feel (3.67, high extent) (4) I have tried to do too much and felt even worse as a result (3.70, high extent) lastly, (5) I find myself rushing to get everything done before I crash (3.27, moderate extent). The findings of this study showed that all or nothing behavior happens to any breast cancer patient receiving chemotherapy. Respondents revealed that the course of treatment sometimes makes them feel sick at all times and decreases their interaction to people due to loss of confidence and self-esteem. Leite and Nogueira (2015) revealed that cancer patients undergoing chemotherapy mostly experience loss of self-esteem due to changes in the physiological appearance. However, counseling during the chemotherapy treatment

regimen improves the patients self- esteem (Sidik, Zavare, Periasamy, Rampla, & Irma, 2018).

For the limiting behaviors or avoidance to physical activities, this category of psychological response obtained a mean score of (3.48, high extent). There are five indicators for this category namely: (1) I have avoided physical exercises (3.13, moderate extent) (2) I have put parts of my life on hold (3.27, moderate extent) (3) I have gone to bed during the day (3.39, moderate extent) (4) I have not been able to carry on with my usual level of activity (3.65, high extent) lastly, (5) I haven't slowed down; I've just carried on as normal (3.96, high extent). Most of the respondents revealed that they still engage in activities whenever they are in good physical condition. However, physicians gave them limitations especially if fatigue and other physical symptoms occur during the activity. The breast cancer patients can still continue their activities of daily living but they should know when to stop and should consider their own limitations.

Emotional Support Seeking obtained a mean score of (3.25, moderate extent). There are five (5) indicators for this category. (1) I have run people close to me for sympathy (3.26, moderate extent) (2) I have told people around me how miserable I feel in the hope that they feel sorry for me (3.04, moderate extent) (3) I have wanted people to understand how awful I feel (3.16, moderate extent) (4) I have wanted people to acknowledge how sick I am (3.16, moderate extent) (5) I have wanted people be concern to me all the times (3.64, high extent). Emotional support could come to many sources like from family members, friends, colleagues and medical practitioners. Emotional burden of the breast cancer patients can be decreased if there are people who close to them shows support and spend time with them during the entire course of the therapy. Kang, Mc Laughlin, Yoo, Hull and Shah (2013) stated that the traditional conception of emotional support as something received by cancer patients may obscure a more complex process shaping psychosocial outcomes. The mechanism that appears to matter most for emotional support is a sense of shared group bonds, which is achieved best by providing support for others in a group context. Based on the Journal literature released by Chang, Couture, Young, Lau and Lee (2009), she recommended a vast range of methods to help patients cope. Some were reassured that their coping strategies were 'normal' and appropriate. In addition, Hennes (2009), encouraged a few patients to change their orientation to the future, to look positively on the time they still had together instead of anticipating the loss. Counseling also helped patients to achieve improved clarity about their role and emotions.

Practical Support Seeking obtained a mea score of (3.72, high extent). The indicators for this category are (1) I have relied on my family or friends to look after me (3.54, high extent) (2) I have asked for help from my family or friends (4.03, high extent) (3) I have made sure I had someone to help me out (3.98, high extent) (4) I have tried to find someone to help me out (3.25, moderate extent) (5) I have tried to seek professional advice particularly when I'm emotionally distress (3.83, high extent). The above

results were supported in the article of Benson (2009) stated that what matters most for some sick people is having few but sincere and strong ties are better than numerous but not for the longest time. However, Liu, Fiorentino, Natarajan, Parker and Mills (2009), argue cogently that a person's network size and types of social network has been proven to influence the sick person for good and uplift the fighting spirit to continue living and see the world in different perspective.

The present study found no significant relationship in the physiological and psychological responses of breast cancer patients to chemotherapy treatment regimen. This means that even if physical side effects were manifested by the respondents still it was not ascribed to the psychological responses because for some patients, physical symptoms are most likely not correlated with psychological symptoms. Primarily if the physiological reactions are controllable it is least likely to attribute with the psychological responses. Furthermore, Andrews (2012) emphasized that their ability to adapt to different diseases, cancer patients have the capacity to create changes in physiological and psychological but they are not significantly related. This may imply that those breast cancer patients could have different responses to chemotherapy. Physiologically, the breast cancer patients might become conscious of the possible changes the chemotherapy may give. Since majority of the breast cancer respondents in the study are older women, they rarely attribute their symptoms to the chemotherapy treatment regimen but instead attributed the symptoms to aging and decrease immune system. It has been reported that older women with breast cancer reported fewer psychological effects (Andersen, 2014). It has been noted during the respondents' interaction that they were less distressed through chemotherapy treatment and has fewer concerns with the side-effects of chemotherapy.

Support by the family members became vital help for the breast cancer patients. Respondents have a wide range of support coming from their family members, including husband, children, parents, siblings, other relatives and friends supporting them throughout the entire course of the treatment and on their cancer journey. This further supported by Muhamad, Afshari and Kazilan (2017) that family members supported them in their cancer journey in various ways. These include helping in making decisions, providing emotional support, motivating and inspiring, giving information, spiritual guidance. Evidently, on the results despite the presence of physiological side effects still the respondents managed to push themselves to the best of their abilities, they haven't slowed down, and they carried on things as if there's nothing wrong in their health.

The study has its own limitation because of the number of the participants. It is suggested in the future study to increase the number of the respondents. Hence, the generalizability of the findings cannot be assumed thus, it is advised that a replication of the study be conducted in other setting with similar respondent characteristics.

#### 4. CONCLUSION

The objective of the study was to determine the physiological and psychological responses of breast cancer patients to chemotherapy treatment. The physiological and psychological domains are the most affected to the breast cancer patients receiving chemotherapy. The side effects of chemotherapy significantly affect their well-being. Symptoms arise days after the chemotherapy sessions and they really suffer a lot as it causes significant changes to their self-image. Majority of the physiological side-effects are at high extent meaning the respondents really felt the side-effects of chemotherapy in cutaneous (skin), gastrointestinal and neurotoxicity. Unfortunately, the respondents' psychological well-being has been affected as well but was not attributed to the physiological side effects. The results revealed that three categories under the psychological responses were experienced by the respondents at a high extent namely the: all or nothing behavior, limiting behavior and practical support seeking. The findings reflect how they cope with the psychological challenges they have been through during the course of chemotherapy treatment. Nursing care management should be introduced before the start of the chemotherapy to manage the physiological and psychological side-effects of chemotherapy and to maintain the holistic well-being of the breast cancer patient. Also, there is no significant relationship between and among the variables of physiological and the psychological aspects of the breast cancer patients undergoing chemotherapy. Given the findings, it is recommended that breast cancer patients should always have a long time and patience in cooperating and should actively participate towards the plan of care set by the oncologist and nurses to attain their holistic health conditions. They should be able to identify the physiological and psychological responses to chemotherapy and be able to intervene it properly. Lastly, the hospital should develop a holistic clinical nursing care management care guidelines for chemotherapy treatment.

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