

## The Physical Functional Status Among Women With Breast Cancer Receiving Intravenous Chemotherapy

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### Abstract

**Background:** Functional status typically refers to the ability to physically perform activities such as self-care, being mobile, and independence at home or community. Chemotherapy is a treatment using anti-cancer (cytotoxic) drugs and is considered one of the most important treatments for breast cancer. **Aim:** is to assess the physical functional status among women with breast cancer receiving intravenous chemotherapy. **Subject and Methods:** **Design:** a descriptive research design was utilized in the current study. **Setting:** study was conducted in Clinical Oncology Department at Kasr El Eini Hospital. **Sample:** A convenient consecutive sample consisting of 100 women with a confirmed diagnosis of breast cancer for first time and receives chemotherapy intravenously. **Tools of data collection:** a- Structured interview questionnaire b- Functional status Assessment tool. **Results:** (63%) of study sample were independent, (30%) partly dependent and (7%) totally dependent. **Conclusion:** Patients who received chemotherapy showed functional problems. **Recommendations:** Replication of the study on a larger probability sample selected from different geographical areas in Egypt is recommended to obtain more generalizable data. Functional status assessment should become an integrated part of the total management of breast cancer patient.

**Key Words:** Functional status- Cancer- Breast cancer- intravenous chemotherapy.

### Introduction:

One of the most worst fear to people is getting sick particularly with chronic disease such as cancer, and the women per say terrified of breast cancer which is justified because In 2022, there were 2.3 million case diagnosed with breast cancer and 670,000 deaths worldwide reported by national cancer institute,2023. Unfortunately breast cancer appears at all countries, in women at any age after puberty increasing with age. (NCI, 2023)

The morbidity and mortality in countries having a very high Human Development Index (HDI), 1 in 12 women will be diagnosed with breast cancer, and 1 in 71 women die of it, In contrast, in countries with a low HDI; while only 1 in 27 women is diagnosed with breast cancer, 1 in 48 women will die from it (WHO, 2024)

The treacherous of breast cancer that like any cancer it evolve silently and mostly discovered accidentally or during breast self-examination which still till now a day is

unknown / un practiced by women specifically at the developing countries due to a Nemours of reasons like low education level, lack of professional knowledge delivered to public, low socioeconomic status that force people to ignore routine check-up, raising concern, that even some of diagnosed patients refuse treatment due to the treatment side effect. (Barba, 2021)

Treatment of breast cancer has a several pathways such as surgical management wither adjuvant (therapy given after the initial management) or non-adjuvant (treatment given before surgery to shrink the tumor), radiotherapy, hormonal therapy, target therapy, biological therapy and chemotherapy which still consider the main choice of oncologist till now, in spite of, the adversely consequence of chemotherapy. (Biswas, Banerjee, Baker, Kuo, & Chowdhury, 2022).

The side effect of chemo therapy alienated to, common side effect such as, Loss of hair on the head, eyebrows, and other parts of the body, nausea and vomiting: Feeling sick to your stomach and throwing up, Painful sores inside

the mouth, Eating less or more than usual, Changes in bowel habits, Dryness, redness, or peeling skin, Nail changes (Discoloration, thickening, or brittleness) Foods might taste different or you might lose the sense of smell. (Carrara, & Ziglio, (2022).

Less Common but Serious Side Effects, for example Infection (A weakened immune system can make you more susceptible to infections.), Bleeding (Low platelet count can lead to easy bruising or bleeding) Anemia (Low red blood cell count can cause fatigue and shortness of breath) Kidney problems, Heart problems, neurological problems, Numbness, tingling, or weakness in hands or feet and that only on physical aspect and regarding psychological aspect (Di Maio et al, 2022)

There are Common Psychological Side Effects depend on multiple Factors that Contributing to Psychological Distress, as **Disease severity:** The stage and type of cancer can influence psychological response, **Treatment intensity:** The type and duration of chemotherapy can impact emotional well-being., **Social support:** A strong support system can help mitigate psychological distress, **Coping mechanisms:** Effective coping strategies can help manage emotional challenges., **Personality factors:** Individual differences in personality can influence how people respond to stress and it shown through variety of signs and symptoms. (Dubsky et al ,2021)

Psychological manifestations to chemotherapy such as, **Anxiety and Depression:** The fear of the unknown, pain, and the potential impact of cancer on life can lead to significant anxiety. Depression can also set in due to the challenges of treatment, physical limitations, and changes in lifestyle. **Mood Swings:** Hormonal changes and the stress of the illness can cause unpredictable mood fluctuations. **Body Image Issues:** Hair loss, weight changes, and physical changes due to the treatment can negatively impact self-esteem and body image. (Fenton, Downes, Mendiola, Cordova, Lukity & Imani, 2022).

**Cognitive Changes:** Some patients experience "chemo brain," which includes difficulties with memory, concentration, and

multitasking. **Fatigue:** Feeling constantly tired can lead to irritability, frustration, and social withdrawal. **Isolation:** The physical and emotional challenges of chemotherapy can lead to social isolation as patients may withdraw from activities and relationships (Gennari et al,2021). therefore it is crucial to assess the patient holistically to ensure the maximum quality of nursing care through multiple assessment approach precisely the functional status assessment

### Significance of the study

Knowledge gained from this study may lead to improved symptom management and palliative care services to women with cancer in Egypt. Improved symptom management and palliative care services may lead to a better quality of life for this group of patients, which may also positively impact their families, and the communities as well and extends to the caregivers.

This study innovates as it brings the functional assessment as a routine nursing assessment to women with breast cancer through the use of validated instruments. This has never been done in this patient population

### Operational definitions:

The following operational definitions were used in the current study:

**Women's physical functional status.** The women's quantitative total scores obtained from physical functional assessment tool as developed by KATZ (2020). The tool assesses the following six variables (bathing, dressing, toileting, transferring, continence and feeding).

**women with breast cancer,** Women with a confirmed diagnosis of breast cancer for the first time and receives chemotherapy.

### Aim of the study

The aim of the current study is to assess the physical functional status among women with breast cancer and receiving intravenous chemotherapy.

**Research Questions:**

To achieve the aim of this study, the following research question was formulated:

Q1-What is the physical functional status among women with breast cancer receiving chemotherapy?

Q2-What is the level of dependency and or independency among women with breast cancer receiving chemotherapy?.

**Material and Methods:****Design:**

An exploratory descriptive research design was utilized in this study. The combination of its characteristic summary and correlation statistics, along with its focus on specific types of research questions, methods, and outcomes is what distinguishes descriptive research from other research types. With this design three main purposes of research are to describe, explain and validate findings. Description emerges following creative exploration, and serves to organize the findings in order to fit them with explanations, and then test or validate those explanations (McCombes,2022).

**Setting:**

The current study was conducted at Kasr Al Einy hospital which is located in El-Manial and it is considered one of the oldest and biggest hospital not just in Egypt but at the Middle Eastern Region. The data for the current study gathered from The Oncology and Nuclear Medicine department.

The Oncology and Nuclear Medicine department consists of a basement and five floors. The basement for involve, therapeutic radiology devices, CT scans and physics, Whereas The first floor contains the outpatient clinics – chemotherapy clinic, in addition the administrative offices and the electronic network While The second floor entails the inpatient department for (women and children) as for The third floor is for (men – operating room), The fourth floor involves the nuclear medicine,

laboratories and The fifth floor hold the nuclear medicine clinics physiotherapy.

On the other hand, the out-patient clinics consist of six rooms. There is a room for examining and collecting data about newly diagnosed patients with cancer, three rooms for patient examination, follow up, and treatment prescription of previously

**Subjects & selection method:**

A Purposive sample consisting of women with a confirmed diagnosis of breast cancer for first time and receives chemotherapy intravenously will be recruited for this study . **Requirements for potential subjects** were that they be between the ages of 30-70 years and have cancer in the first or second stage . In addition **the following selection**

**Criteria were established** (a) no previous history of other cancerous diseases (b) no know metastatic diseases (c) no other debilitating illnesses such as renal failure and liver failure. On the other hand, women receiving radiotherapy will be excluded from the data collection.

**Data Collection Tools :**

The following three tools were utilized to collect data pertinent to the study, the designed and adopted three tools were reviewed by panel of three experts in the field of Medical Surgical Nursing, these tools are: a) Socio-demographic Data Sheet ,b) Medical Data Sheet and c) Physical Functional Status Assessment Sheet(Krešević, 2003).

**a) Socio-demographic Data Sheet:**

It was designed by the researchers .The tool included; age, marital status, level of education, occupation, place of residence, number of family members, history of smoking. These data were collected utilizing the sheet and interviewing methods.

**b) Medical Data Sheet:**

It includes questions related to medical history and clinical data, designed by the researchers and it was used to elicit the

following data :history of the diseases, diagnosis, grade of breast cancer, history of the current illness, number of chemotherapy cycle, sessions. These data were collected through reviewing women's chart, and laboratory investigation report, as well as asking questions.

### c) Physical Functional Status Assessment Sheet:

The Katz index of Independence in Activities of Daily Living, commonly referred to as the KATZ ADL, is one of the most appropriate instruments to assess functional status as a measurement of the women's ability to perform activities of daily living independently. Clinicians typically use this tool to detect problems in performing activities of daily living and to plan care accordingly, the adequacy of performance stated in the following six functions namely; bathing, dressing, toileting, transferring, continence and feeding. Patients are scored as yes/no for independence in each of the six functions. A score of eight indicates full functional dependency, while score of four indicates moderate impairment, and three or less indicates severe functional impairment.

In the thirty-five years since the instrument has been developed, it has been modified and simplified and different approaches to scoring have been used. However, the tool has consistently demonstrated its utility in evaluating functional status. Although no formal Reliability and Validity reports could be found in the literature, the tool is used extensively as a flag signaling functional capabilities of adults in clinical environment. Although the tool is Sensitive to changes in declining health status, it is limited in its ability to measure small increments of change seen in adults. Never less, the tool is very useful in creating a common language about patient function for all practitioners involved in overall care planning and discharge planning (**Katz, 1983**).

### Validity and Reliability

Content validity of the study tools tested by a panel of five experts (two oncologist and three medical-surgical nursing expertise). The experts were asked to examine the instruments

for content coverage, clarity, wording, length, format, and overall appearance, after modification were done. Reliability of the study tools were tested using Cronbach's alpha. The WHO tool reliability was 0.83 and the reliability of translated modified tool is 0.8

### Ethical Consideration

Once official permission was granted to conduct this study from the ethics committee at faculty of nursing, Cairo University, the researcher started the data collection. Each potential participant was informed about the purpose, the nature and the significance of the study. Also, all of them were informed that participation in the study is completely voluntary, and they have the right to withdraw from the study at any point without any penalty. Additionally, all potential participants were assured that anonymity and confidentiality will be considered through coding the data. Moreover, all of them were informed that the data will not be reused for any other research studies without their permission then consents were obtained.

### Procedure methodology:

The study will be conducted in two phases: preparatory and implementation phase

**The preparatory phase:** The researcher will conduct the literature review regarding all study variables, reviewing other studies, prepare the data collection tools and seeking expert's advice in addition to obtain the official permission to proceed with the proposed study. Once permission was obtained to proceed with the proposed study. The eligible subjects who were scheduled for chemotherapy were identified from admission records with the help of chemotherapy department nurses; also agreement of subjects to participate in the study was secured through oral informed consent.

### Implementation phase

Data collection started by introducing self and explaining the purpose and the nature of the study briefly to the patients. All study participants were met individually and informed consent for participation was obtained. Data were collected from study subjects via a

structured interview using firstly, socio-demographic data sheet, second part of meeting is for assessment the medical condition and third part is for assessing the level of activity daily levels in their life. The questionnaire sheets consumed about 30-45 minutes to be fulfilled by the researcher.

### Statistical analysis

Upon completion of data collection, obtained data was tabulated, computed and analyzed using statistical package for the social sciences (SPSS) program version 23. Descriptive statistics were utilized to analyze data pertinent to the study such as frequency, percentage distribution, mean and standard deviation

### Result:

The statistical findings of the current study were presented in three main sections at the following order: the first section is devoted to the description of personal information (**tables 1**). While, the representation of medical data pertinent to the second section (**table 2 and figure 2**). Last but not least, the third section displayed data concerning frequency, percentage and distribution of the fictional assessment tool that were tabulated in (**tables 3 to5**).

As shown in **table (1)**, the studied subjects consisted of 100 adult women, their mean Age was  $3.37 \pm 1.11$  years, the common age group was  $41 \geq 50$  years with a percentage of (32%). Regarding the marital status, the married

subjects were (65%). In relation to education (39%) of the studied subjects were illiterate as Concerning place of residence, the same table showed that (54%) came from urban areas playing house wife by (85 %) lived with family consisted of from 1 to 5 personal (76%) and (93%) of the study subjects were non- smokers

**Table (2)** revealed that, (54%) of study subjects were suffering from breast cancer stage 1, as (71%) discovered the cancer by felling breast lump, notably, that (79%) un expectably didn't have any family history of breast cancer. As **Figure (2)** illustrated that, the higher frequency of study subjects were at their second sessions.

**Table (3.1)** which delineates three of the functional assessment items firstly bathing, ashown at the table (63%) of study sample can shower their self completely without seeking any help, but (46%) May need help tying shoes, wearing trousers and seeking any help in dressing while (73%) Goes to toilet, gets on and off, arranges clothes, cleans genital area without help,

While **table (3.2)** represent the other three item of functional status tool according to the table (66%) of study subjects moves in and out of bed or chair dependently as well as (87%) exercises complete self-control over urination and defecation on other hand (44%) Needs partial help with feeding, preparation of food done by another person. Finally table 4 conclude that (63%) of study sample were independent.

Table (1). Frequency and percentage distribution of personal characteristics among the women with breast cancer (n = 100).

Variable	N	(%)*
Age		
20 ≥ 30	2	2.0
31 ≥ 40	23	23.0
41 ≥ 50	32	32.0
51 ≥ 60	22	22.0
61 ≥ 70	21	21.0
	X 3.37 + 1.11	1.11604
Marital status		
single	4	4.0
married	65	65.0
divorced	10	10.0
widow	18	18.0
separated	3	3.0
Educational level		
illiterate	39	39.0
primary	19	19.0
secondary	22	22.0
bachelor degree	15	15.0
others	5	5.0
Place of residence		
urban	54	54
rural	46	46
Occupation	85	85
House wife	5	5
Office work	10	10
Non office work		
No. of family living with		
1-5	76	76
6-10	24	24
Smoking		
No	93	93
Yes. cigarettes	6	6
Yes. Hookah	1	1

Table (2). Frequency and percentage distribution of medical data among the women with breast cancer (n = 100).

Variable	N	%
<b>Grade of breast cancer</b>		
stage 1	54	54
stage 2	45	45
stage 3	1	1
<b>How cancer is discovered</b>		
i feel pain at my arm	18	18
i felt a lump at my breast	71	71
while routine check up	1	1
accidentally	2	2
both pain and lump	8	8
<b>Family history</b>		
No	79	79
mother	10	10
sister	3	3
cousin	6	6
mother and sister	2	2

Figure (1). Frequency of chemotherapy sessions, among the studied sample (n = 100)

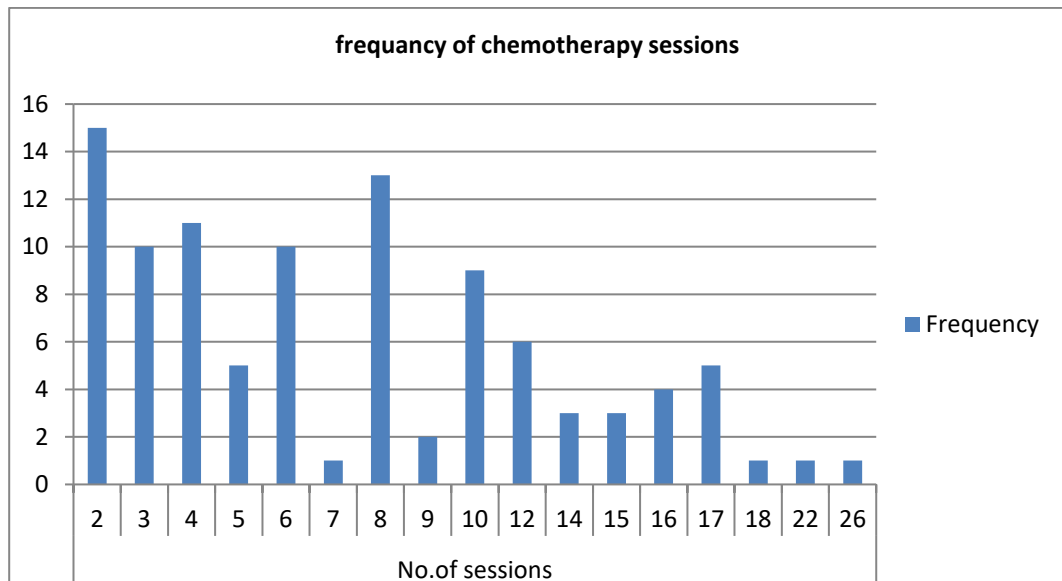


Table (3.1). Frequency and percentage distribution functional assessment tool among the women with breast cancer (n = 100).

Variable	NO	%
<b>BATHING</b>		
Bathes self completely without seeking any help	63	63
Needs help in bathing only a single part of the body such as the back, genital area or weak extremity.	30	30
Needs help with bathing requires total bathing.	7	7
<b>DRESSING</b>		
Gets clothes from closets and drawers and puts on clothes and outer garments complete with fasteners	41	41
May have help tying shoes, wearing trousers, seeking any help in dressing	46	46
Needs help to be completely dressed	13	13
<b>TOILETING</b>		
Goes to toilet, gets on and off, arranges clothes, cleans genital area without help.	73	73
Needs help transferring to the toilet, gets on and off, arranges clothes	18	18
Needs help cleaning self or uses bedpan or commode	9	9



Table (3.2). Frequency and percentage distribution functional assessment tool among the women with breast cancer (n = 100),

Variable	NO	%
<b>TRANSFERRING</b>		
Moves in and out of bed or chair dependently.	66	66
Needs help transferring. Mechanical transferring aides are acceptable or wheelchair	30	30
Needs help in moving from bed to chair or requires a complete transfer.	4	4
<b>CONTINENCE</b>		
Exercises complete self-control over urination and defecation.	87	87
Is partially incontinent of bowel or bladder.	9	9
Is totally incontinent of bowel or bladder.	4	4
<b>FEEDING</b>		
Gets food from plate into mouth without help. Preparation of food by herself	36	36
Needs partial help with feeding, preparation of food done by another person	44	44
Needs partial or total help with feeding or requires parenteral	20	20

Table (4). Frequency and percentage distribution for total score to functional assessment tool among the women with breast cancer (n = 100).

Variable	NO	%
patient is totally dependent 8-12	7	7
patient is partly dependent 4-7	30	30
patient is independent 0-3	63	63

## Discussion:

With early detection, modern medicines, treatments and surgeries, breast cancer may not be a death sentence. The methods that can save a patient's life can also leave them fatigued, emotionally drained and unable to physically function. One intervention technique that can have an effect on patient's quality of life and helps avoid reoccurrence is physical activity. Understanding the correlation between physical activity and quality of life can help increase or maintain the level of physical activity in a patient's life. In the fight against cancer, patients have taken a voice in their choices of treatments and aftercare. In order to make the most appropriate choices for their individual situation, it is important to know the consequences of their choices. As they become more knowledgeable about the benefits of physical activity, they will find a wide array of choices they may enjoy and pursue. Having a wider understanding of the benefits of physical activity and the array of activity choices appropriate to each individual can help breast cancer patients make choices that will add to their enjoyment of the lives they fought so hard to keep (Lemij, et al 2022).

Nurses must undergo assessment based on the International Classification of Functioning, Disability and Health (ICF) model before, during, and after physical therapy for each cancer patient. ICF enables nurses to provide cancer patients with therapy. Cancer patients have many problems caused by cancer treatment or cancer itself. Physical therapy assessment should include manual muscle testing (MMT), range of motion (ROM), balance test, endurance test, and ADL test. Performance status, Palliative Performance Scale functional independence measure and QOL are also used as assessment tools for cancer patients. The nurses may be effective in reducing fatigue, increasing muscle strength and exercise capacity, and improving QOL in various cancer patients (Pinto, et al 2022).

Discussion of statistical findings of the current study were presented in three main sections at the following order: the first section is devoted to the description of personal information, the mean age of the studied subject was  $3.37 \pm 1.11$  years and the highest age group

is between 41-50 years. Regarding the marital status and that consist with the **American Cancer Institute (ACI), 2024** which state that breast cancer mainly occurs in middle-aged and older women. This means half of the women who developed breast cancer are 62 years of age or younger when they are diagnosed. A very small number of women diagnosed with breast cancer are younger than 45 from researcher point of view may be related to hormonal changes at that age.

The overwhelming majority of study subject were married. In relation to education less than half of the studied subjects were illiterate as Concerning place of residence, the same table showed that more than half of subjects came from urban areas and the majority playing house wife, living with family consist of from 1 to 5 personal was third quarter and most of the study subjects are non- smokers which could be related to geographical tradition of sample.

As regards to breast cancer's women who receiving chemotherapy medical condition results:

The study revealed that more than of study subjects were suffering from breast cancer stage 1 and that related to selection criteria of study sample, as less than three quarter discovered the cancer by felling breast lump matching **Cuthrell & Tzenios, 2023** that reported that one of the most early signs of breast cancer is the breast lump that also approved by researchers upon extensive review of literature that confirm that, notably.

That majority of the subjects un expectably didn't have any family history of breast cancer unexpectedly contrast a lot of studies that conveyed .that the breast cancer mainly hereditary the researchers may related that to low educational level of sample that maybe they don't know

As regards to breast cancer's women who receiving chemotherapy functional status results:

The study revealed that two third of study sample were independent and that only because the study sample with at stage 1 which expected to be worse with bad prognosis congruent with

**Cannioto,2021**, that sanctioned for patient with cancer the level of independency decrease with time and prognosis of disease therefore level of functional must be assessed

### Conclusion

The aim of the current study is to assess the physical functional status among women with breast cancer and receiving intravenous chemotherapy. This study answered the research questions were there will be significant level of independency of the functional status among women with breast cancer receiving chemotherapy Fortunately, the researcher found that, there were statistical significance leve the physical activity of daily living among women with breast cancer receiving chemotherapy.

This review of the literature has summarized what is currently known about physical activity in women with breast cancer receiving chemotherapy, Currently, the literature suggests that women with breast cancer receiving chemotherapy the following:-

#### The study recommended that:

Based on the previous findings of the present study, the following recommendations are suggested:

##### Physical activity:

- a) At least 150 minutes per week of physical activity is recommended, but less than 13% of patients with breast cancer attain this.

##### •Diet:

- a) Western-style diets (high in processed grains, processed meats and red meat) and prudent diets (high in fruits, vegetables, whole grains and chicken) have similar rates of breast cancer recurrence.
- b) Dietary saturated fat, especially from high-fat dairy products, may be associated with increased breast cancer mortality.

##### •Smoking:

- a) Compared with women who continue to smoke after a breast cancer diagnosis, those who quit smoking after diagnosis have higher overall survival and possibly better breast cancer-specific survival.

##### •Alcohol intake:

- a) Moderate increases in dietary vitamin C or oral supplementation may reduce breast cancer mortality.
- b) Vitamin E supplementation is not associated with breast cancer outcomes.
- c) Low levels of serum 25-hydroxyvitamin D at diagnosis have been associated with an increased risk of breast cancer mortality.

•A physical examination that includes examination of the breasts and adjacent node regions.

•Bilateral, yearly mammograms in two projections, after conservative surgery of the breast or if the breast has been reconstructed. Annual follow-up visits will be maintained throughout their life

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