

# “A Study to Assess the Effectiveness of Palliative Nursing Care Bundle to Reduce the Side Effects (Vomiting, Fatigue, Stress, Alopecia) of Clients Receiving Chemotherapy at SMVMCH, Puducherry”.

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## ABSTRACT

**Background:** Chemotherapy is a widely used treatment for cancer, but it is associated with multiple distressing side effects such as vomiting, fatigue, stress, and alopecia, which significantly affect the quality of life of clients. Palliative nursing care bundles can play a crucial role in managing these symptoms effectively. Therefore, the present study aims to assess the effectiveness of a palliative nursing care bundle in reducing chemotherapy-related side effects among clients at SMVMCH, Puducherry, there by contributing to improved patient outcomes and quality nursing care. **Methodology:** A quantitative approach with a quasi-experimental research design was adopted. The study was conducted at SMVMCH, Puducherry, among 30 clients receiving chemotherapy selected through purposive sampling. Data were collected using demographic and clinical variables and an observational checklist for side effects. Pre-test and post-test assessments were conducted after implementing the palliative nursing care bundle. Data were analyzed using descriptive and inferential statistics. **Results:** Pre-test findings revealed that 83.3% of clients experienced severe side effects, while 16.7% had moderate side effects. Post-test results showed significant improvement, with 83.3% experiencing moderate side effects, 13.3% mild, and only 3.3% severe. The mean score reduced from 46.10 (pre-test) to 33.60 (post-test), with a mean difference of 12.5. The calculated t-value (-19.285) was statistically significant at  $p < 0.05$ . **Conclusion:** The study concluded that the palliative nursing care bundle was highly effective in reducing chemotherapy-related side effects. Implementation of such interventions can improve patient comfort and quality of life.

**Keywords:** Palliative care, chemotherapy, nursing care bundle, fatigue, vomiting, stress, alopecia

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## I. INTRODUCTION

Cancer refers to a group of diseases marked by the uncontrolled proliferation and spread of abnormal cells. When left unchecked, these abnormal cells can form tumours and invade nearby tissues. They can also spread to distant parts of the body through the bloodstream and lymphatic system, a process called metastasis. These cancerous cells can originate in various tissues and organs, potentially affecting nearly any area of the body.<sup>1</sup>

Cancer is primarily caused by mutations or changes in the genetic material (DNA) of the cells, which leads to their unchecked division and the inability to undergo programmed cell death (apoptosis). These mutations can be triggered by a combination of genetic predispositions and environmental factors such as smoking, radiation, and exposure to carcinogens.<sup>2</sup>

According to the **American cancer society (2020)**, Cancer presents a variety of signs and symptoms, which can differ depending on the type and location of the cancer. Common indicators include unexplained weight loss, fatigue, and persistent pain, which may occur in specific areas like the back or head. Skin changes, such as new growths, sores that don't heal, or yellowing of the skin and eyes (jaundice), can also be warning signs. Additionally, fevers that do not resolve, lumps or thickening under the skin, and changes in bowel or bladder habits may indicate underlying malignancies.

According to the **National Cancer Institute (2021)**, difficulty swallowing, persistent cough or hoarseness, and unusual bleeding or discharge, such as blood in the urine, stool, or vaginal bleeding, can be critical symptoms of cancers affecting organs such as the throat, lungs, bladder, colon, or reproductive organs. It is essential to seek medical evaluation if these symptoms persist, as early detection often improves the prognosis for many cancers.

Cancer continues to be one of the leading causes of death worldwide, with an estimated 19.3 million new cases and nearly 10 million deaths in 2020 alone, according to the World Health Organization (WHO) (WHO, 2021). Chemotherapy, while essential in the fight against cancer, often presents severe side effects that impact clients' quality of life. These side effects ranging from nausea, fatigue, and neuropathy to psychological stress which lead to significant challenges for both clients and healthcare providers. Studies have shown that approximately 60% of clients undergoing chemotherapy experience moderate to severe pain, while nearly 80% suffer from nausea and fatigue.<sup>3</sup>

Chemotherapy is a widely used cancer treatment that involves powerful drugs designed to target and destroy rapidly growing cancer cells. Unfortunately, it also affects healthy cells that naturally divide quickly, such as those in the bone marrow, digestive system, hair follicles, and reproductive system, leading to various side effects. One of the most common side effects is fatigue, often leaving clients severely tired even after rest. Nausea and vomiting frequently occur due to the irritation of the stomach lining, while hair loss results from the destruction of hair follicles. Chemotherapy also weakens the immune system by lowering white blood cell counts, making clients more vulnerable to infections.<sup>4</sup>

Additionally, it can lead to anaemia and increased bleeding due to reduced red blood cells and platelets. Other side effects include mouth sores, digestive issues like diarrhoea or constipation, cognitive difficulties such as “chemo brain,” and peripheral neuropathy, which causes tingling and pain in the extremities. Fertility issues are also common, and in some cases, chemotherapy may lead to permanent infertility. While many side effects are temporary, some may persist long after treatment, including chronic fatigue and long-term cognitive impairments. Moreover, chemotherapy can increase the risk of secondary cancers due to the damage it inflicts on healthy cells.<sup>5</sup>

## II. NEED FOR STUDY

According to the **World Health Organization (2021)**, cancer remains a significant global health challenge, with approximately 19.3 million new cases and nearly 10 million deaths reported worldwide in 2020. Chemotherapy is one of the primary treatments used to control cancer growth, but it often comes with severe side effects that require careful management.<sup>9</sup> Projections indicate that the global cancer burden will reach 28.4 million cases by 2040, primarily due to population growth, aging, and changing lifestyle patterns (**GLOBOCAN, 2020**). As chemotherapy can cause side effects such as pain, fatigue, and emotional distress, palliative care becomes essential for improving the quality of life of cancer clients.<sup>10</sup>

In India, the **National Cancer Registry Programme (2020)** reports that around 1.39 million new cancer cases were diagnosed in 2020, with 850,000 deaths. The most common cancers in India are breast, lung, and cervical cancers. Approximately 2.25 million people are living with cancer, and about 700,000 of them undergo chemotherapy annually. Despite advancements in cancer treatment, access to palliative care remains limited. Studies show that 70-80% of cancer clients experience moderate to severe pain, but only 1% has access to adequate palliative care services. This underscores the need for effective symptom management strategies, such as nursing care bundles, to improve client outcomes.<sup>11</sup>

**In Tamil Nadu**, cancer incidence has risen sharply, with around 110,000 new cases reported in 2020. The state sees high rates of breast, cervical, and oral cancers, and while specialized centres like the Adyar Cancer Institute provide comprehensive treatment, palliative care access remains a challenge, especially in rural areas. Expanding these services is critical for improving cancer care in the state.<sup>12</sup>

**In Puducherry**, according to the Population-Based Cancer Registries (PBCRs) report published by the National Cancer Registry Programme (NCRP) under the Indian Council of Medical Research (ICMR), Puducherry has seen a rising cancer incidence, particularly in urban areas. The cancer incidence rate in Puducherry is reported at around 100-120 cases per 100,000 population annually. Breast cancer is the most common form, followed by oral and cervical cancers, reflecting national trends.<sup>13</sup>

As a result, an innovative, cost-effective, and safe palliative nursing care bundle is needed to improve symptom management, emotional well-being, and overall quality of life for cancer clients undergoing chemotherapy, as well as for their families. This study aims to evaluate the effectiveness of the palliative nursing care bundle in enhancing symptom relief, emotional resilience, and quality of life among clients receiving chemotherapy, while also providing support for their caregivers.

### STATEMENT OF THE PROBLEM

A study to assess the effectiveness of palliative nursing care bundle to reduce the side effects (vomiting, fatigue, stress, alopecia) of clients receiving chemotherapy at SMVMCH, puducherry.

### OBJECTIVES:

1. To assess the level of side effects (vomiting, fatigue, stress, alopecia) of client receiving chemotherapy
2. To evaluate the effectiveness of palliative nursing care bundle to reduce the side effects (vomiting, fatigue, stress, alopecia) of clients receiving chemotherapy

3. To associate the level of side effects (vomiting, fatigue, stress, alopecia) of clients receiving chemotherapy with their selected demographic variables and clinical variables.

### III. RESEARCH METHODOLOGY

The present study adopted a **quantitative research approach**, which is considered appropriate for assessing the effectiveness of an intervention through measurable outcomes. Quantitative research enables the researcher to collect numerical data and analyze it statistically to determine the significance of the findings. The **research design** selected for this study was a **quasi-experimental research design**, which is useful for evaluating the effectiveness of an intervention without randomization. This design allows the researcher to compare the outcomes before and after the implementation of the palliative nursing care bundle among clients receiving chemotherapy. The study was conducted at **Sri Manakula Vinayagar Medical College and Hospital (SMVMCH), Puducherry**, which served as the setting for data collection. The **target population** of the study consisted of all clients receiving chemotherapy, while the **accessible population** included clients undergoing chemotherapy at SMVMCH, Puducherry during the period of data collection. The **sample** for the study comprised clients receiving chemotherapy at SMVMCH, Puducherry who met the inclusion criteria. The **sample size** was determined to be 30 using power analysis, ensuring adequacy for statistical analysis. A **convenience sampling technique** was used to select the participants, as it allowed easy accessibility and feasibility in the clinical setting.

#### Description of Data collection instruments:

The tool was developed and standardized from extensive literature review, internet research, and expert discussion. The tool consists of the three sections.

#### Section A: PART-I

##### Demographic variables

The demographic variables consist of the **Age in years, Gender, Religion, Area of living, Education status, Occupation status, Monthly income per month, Type of family, Dietary habits, Previous history of illness, History of getting medications.**

#### PART-II

##### Clinical variables

The clinical variables consist of **Duration of Cancer, Duration of Chemotherapy administration, Site of administration of chemotherapy, Stage of Cancer, Family history of Cancer, presence of group of symptoms.**

#### Section B: Observational checklist for side effects

##### Scoring Interpretation For Each Domain

LEVEL OF SIDE EFFECTS	SCORE
MILD	0 TO 4
MODERATE	5 TO 8
SEVERE	9 TO 15

#### SCORING INTERPRETATION

LEVEL OF SIDE EFFECTS	SCORE
MILD	0 - 20
MODERATE	21 - 40
SEVERE	1 - 60

#### Section-c Palliative nursing care bundle intervention checklist

##### Data collection procedure

After obtaining formal permission, the researcher proceeded with data collection. An informed consent was taken from clients receiving chemotherapy who were included in the study. The researcher used a purposive sampling technique to select 30 clients receiving chemotherapy at SMVMCH, Puducherry. Demographic variables and clinical variables was collected. Assessment of symptoms done by with the observational check list of the side effects with the scoring interpretation. The investigator assured the study participants that the study information kept confidential.

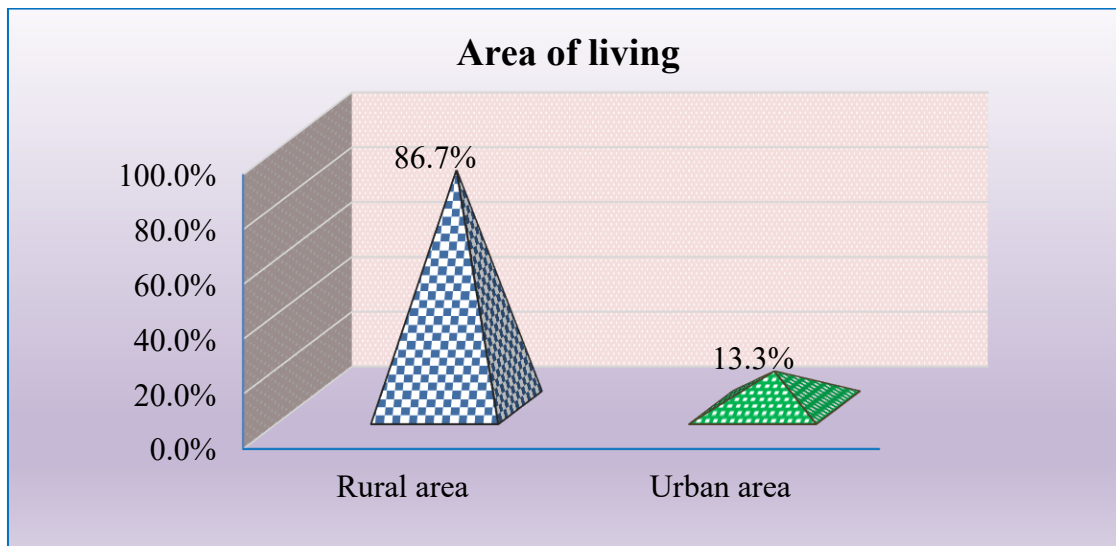
##### Plan for data analysis

The obtained data were entered in Microsoft Excel (2020) and coded in coding sheet. Analysis was done using SPSS (Statistical Package for Social Sciences) software version 26.0. Demographic variable was expressed in frequency and percentage wise distribution.

The level of significance was analysed using test of significance (chi – square test). The results were interpreted statistically if the level of significance  $p < 0.05$ .

#### IV. RESULTS

The findings of the study revealed that the **majority of clients receiving chemotherapy** were in the age group of **41–50 years (86.7%)**, and most of them were **female (83.3%)**. With regard to religion, the majority belonged to the **Hindu religion (66.7%)**. Most participants were from **joint families (60%)** and followed a **non-vegetarian diet (76.7%)**. A large proportion had a **previous history of illness (76.7%)** and had **received medications earlier (93.3%)**.



**Figure 1: Percentage wise distribution of the clients receiving chemotherapy according to the area of living.**

In terms of clinical variables, the majority of clients had cancer for **more than 3 years (36.7%)**, and more than half had been undergoing chemotherapy for **less than 6 months (53.3%)**. Almost all clients received chemotherapy through the **intravenous route (96.7%)**. Most clients were in **Stage II cancer (50%)**, and the majority had **no family history of cancer (83.3%)**, while **all clients (100%) experienced symptoms**.

Regarding the level of side effects, in the **pre-test**, the majority (**83.3%**) experienced **severe side effects**. After the intervention, in the **post-test**, most clients (**83.3%**) had **moderate side effects**, with a reduction in severe cases to **3.3%**, indicating improvement.

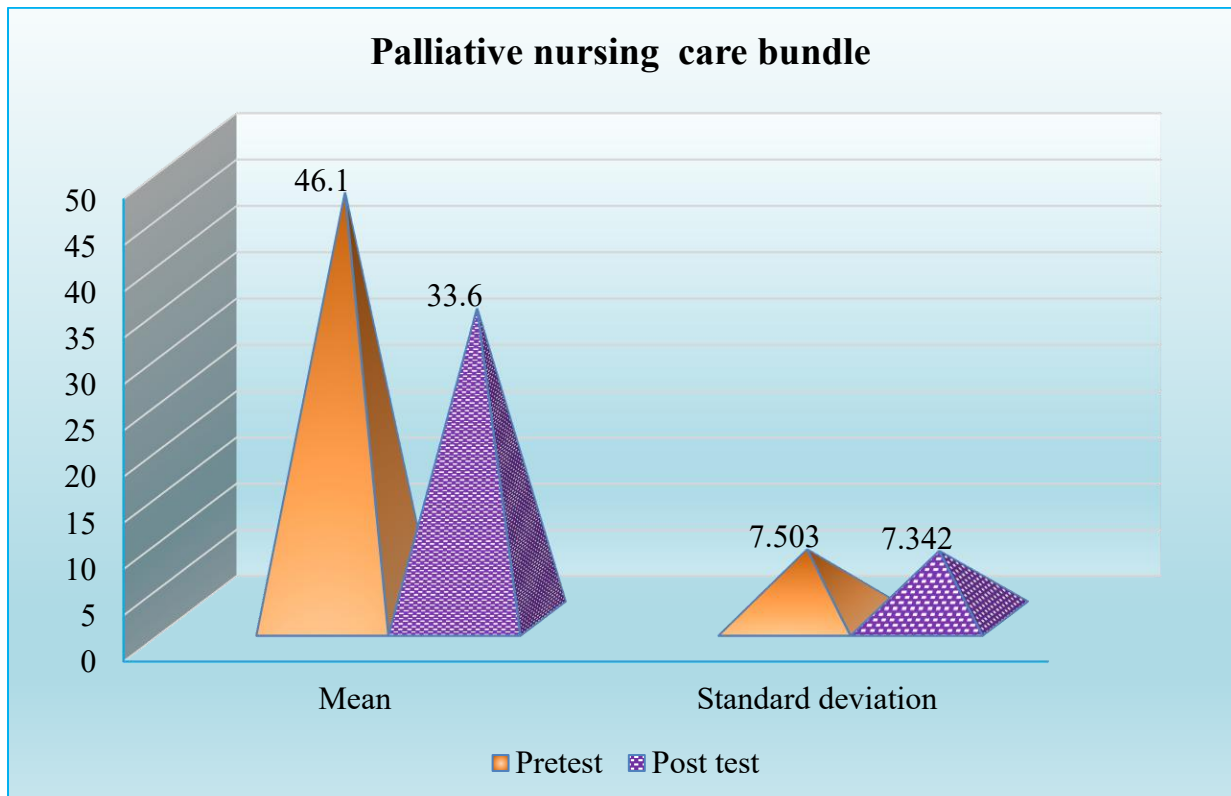
#### Frequency and percentage of the level of side effects of clients receiving chemotherapy

N=30

S.NO	LEVEL OF SIDE EFFECTS	Pre-test		Post-test	
		F	%	F	%
1.	Mild	0	0	4	13.3
2.	Moderate	5	16.7	25	83.3
3.	Severe	25	83.3	1	3.3

In the pre-test, the majority of clients (83.3%) experienced severe side effects of chemotherapy, while 16.7% had moderate side effects, and none reported mild side effects. In the post-test, however, a marked improvement was observed, with 83.3% of clients experiencing only moderate side effects, 13.3% reporting mild side effects, and only 3.3% continuing to experience severe side effects. This shift indicates that after the intervention, the severity of side effects reduced considerably, with most clients moving from severe to moderate or mild categories.

The study also showed that the **palliative nursing care bundle was highly effective**, as evidenced by a significant reduction in mean scores (mean difference = 12.5,  $p < 0.05$ ).



**Figure 2: Percentage wise distribution of the clients receiving chemotherapy according to the level of side effects in post-test.**

Furthermore, a significant association was found between the effectiveness of the intervention and selected demographic variables such as **age, area of living, and type of family**, whereas no significant association was found with other demographic and clinical variables.

## V. DISCUSSION

**The first objective was to assess the level of side effects (vomiting, fatigue, stress, alopecia) of clients receiving chemotherapy.**

In the pre-test, the majority of clients (83.3%) experienced severe side effects of chemotherapy, while 16.7% had moderate side effects, and none reported mild side effects. In the post-test, however, a marked improvement was observed, with 83.3% of clients experiencing only moderate side effects, 13.3% reporting mild side effects, and only 3.3% continuing to experience severe side effects. This shift indicates that after the intervention, the severity of side effects reduced considerably, with most clients moving from severe to moderate or mild categories.

**The second objective was to evaluate the effectiveness of palliative nursing care bundle to reduce the side effects (vomiting, fatigue, stress, alopecia) of clients receiving chemotherapy.**

The mean pre-test score was 46.10, whereas the post-test mean score was reduced by 12.5 points, indicating improvement following the intervention. The standard deviation was 7.503, and the calculated t-value was -19.285 with a corresponding p-value of 0.000. Since the p-value was less than 0.05, the results were found to be highly statistically significant, demonstrating that the palliative nursing care bundle was effective in reducing side effects among clients receiving chemotherapy.

**The third objective was to associate the effectiveness of palliative nursing care bundle of clients receiving chemotherapy with their selected demographic variables and clinical variables.**

The Chi-square test revealed a significant association between the effectiveness of the palliative nursing care bundle and the demographic variables of age ( $\chi^2=9.754$ ,  $df=4$ ,  $p=0.045$ ), area of living ( $\chi^2=7.154$ ,  $df=2$ ,  $p=0.028$ ), and type of family ( $\chi^2=19.500$ ,  $df=4$ ,  $p=0.001$ ) at  $p < 0.05$ .

## VI. CONCLUSION

The study concludes that the palliative nursing care bundle was highly effective in reducing chemotherapy-related side effects. A significant shift was observed from severe to moderate and mild categories, with post-test results showing marked improvement. The statistical analysis confirmed the intervention's

effectiveness, and significant associations were found with age, area of living, and family type. Overall, the care bundle proved to be a valuable strategy in improving the well-being of clients undergoing chemotherapy.

### **NURSING IMPLICATIONS**

The findings of this study have implications for nursing practice, nursing education, nursing administration, and nursing research, particularly in improving the quality of care and reducing chemotherapy-related side effects such as vomiting, fatigue, stress, and alopecia.

### **NURSING PRACTICE**

- The study results will help nursing personnel understand the common side effects of chemotherapy and the effectiveness of structured care bundles in reducing them.
- Nurses can provide appropriate physical, emotional, and psychological support to minimize distress, enhance coping, and improve the quality of life of clients undergoing chemotherapy.

### **NURSING EDUCATION**

- Nursing students should be trained in the use of evidence-based interventions, such as care bundles, to manage chemotherapy-related side effects effectively.
- Education should emphasize assessment skills, client-centered care, and the importance of supportive interventions to promote holistic well-being during cancer treatment.

### **NURSING ADMINISTRATION**

- Nursing administrators may encourage the implementation of palliative care bundles as part of routine oncology nursing practice to standardize and improve patient outcomes.
- Administrators may organize workshops, in-service education, and training programs for staff nurses to strengthen their knowledge and skills in managing chemotherapy side effects.

### **NURSING RESEARCH**

- This study provides a foundation for further research on the effectiveness of palliative nursing interventions in reducing chemotherapy-induced side effects.
- The findings contribute to evidence-based oncology nursing practice and support the development of new protocols for enhancing patient comfort and well-being.

### **RECOMMENDATIONS**

- Similar studies with larger samples in different healthcare settings should be conducted to validate and generalize the findings.
- Intervention studies should evaluate the impact of specific nursing-led care bundles on reducing different chemotherapy side effects.
- Educational materials and clinical guidelines should be developed to assist nurses in effectively applying palliative care bundles for clients receiving chemotherapy.

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