

# Effectiveness of Yoga in Reducing Fatigue Among Cancer Patients at HCG Cancer Centre, Gulbarga

Sunni Amina Khatun<sup>1</sup>, Mallanna<sup>2</sup>, Kavita Chandrakar<sup>3</sup>, Punitha Rani Singh<sup>4</sup>

<sup>1</sup>Infection Control Nurse & Nurse Educator, HCG Cancer Centre, Gulbarga -585103

<sup>2</sup>Sr.Registered Nurse, HCG Cancer Centre, Gulbarga, -585103

<sup>3</sup>Sr. Lead Nursing Research, Corporate Nursing, Health Care Global Enterprises Limited, #3 Ground Floor, Tower Block, Unity Building Complex, Mission Road, Bangalore-560 027

<sup>4</sup>Associate Vice-President, Corporate Nursing, Health Care Global Enterprises Limited, #3 Ground Floor, Tower Block, Unity Building Complex, Mission Road, Bangalore - 560 027

Corresponding Author: Kavita Chandrakar

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## ABSTRACT

Cancer, a global health challenge, demands holistic care, especially for enduring issues like fatigue. Yoga emerges as a key intervention, notably in breast cancer cases. This study, conducted at HCG Cancer Centre, Gulbarga, with 50 participants, evaluates yoga's effectiveness in reducing fatigue using a randomized control design. Demographics and fatigue levels, measured by the BFI scale, are gathered. Results spotlight a significant reduction in fatigue post-yoga intervention for the experimental group, in contrast to the control. This research pioneers' evidence-based nursing practices, showcasing yoga's potential in alleviating cancer-related fatigue for enhanced patient well-being.

In simpler terms, the data strongly indicates a substantial decrease in fatigue levels for the experimental group post-yoga intervention. The mean pre-test fatigue score of 3.6 significantly dropped to 2.04 in the post-test, with a highly significant p-value of 2.8250. This underscores yoga's effectiveness in reducing fatigue among experimental subjects. In the control group, minimal changes in fatigue levels were noted without yoga intervention, as evident from the post-test data. Statistical analysis, with a p-value

of 0.432, confirms nonsignificant changes in fatigue scores for the control group. This emphasizes the potential positive impact of yoga in mitigating fatigue levels, distinct from the minimal changes observed in the control group. The findings stress the need for critical interpretation of fatigue score changes and highlight yoga's positive role in addressing cancer-related fatigue, evident through significant outcomes in the experimental group.

**Keywords:** Cancer, Yoga, Fatigue

## INTRODUCTION

Cancer poses a substantial global health threat, causing 7.4 million deaths in 2004, representing around 13% of total global fatalities.<sup>1</sup> Patients undergoing cancer treatment often grapple with significant side effects and psychological distress, significantly impacting their quality of life (QOL).<sup>2</sup> Common symptoms, such as pain, depression, and fatigue, persist even after treatment concludes.<sup>3,4</sup> Recognizing and addressing these persistent challenges underscores the importance of comprehensive care approaches that go beyond the curative phase, aiming to improve the overall well-being of individuals affected by cancer.<sup>5</sup>

Numerous individuals facing cancer explore various forms of complementary and alternative medicine (CAM) to alleviate the impact of their condition<sup>6</sup>. CAM encompasses diverse treatments, spanning herbal medicine to practices like yoga<sup>7</sup>. A previous survey revealed that around 21% of cancer survivors in the United States embraced CAM practices, with yoga ranking as the third most prevalent choice.<sup>8</sup> These complementary therapies serve as adjuncts to conventional cancer treatments, aiming to enhance the overall quality of life by mitigating the adverse effects of anticancer therapies or alleviating cancer-related symptoms.<sup>9</sup>

Breast cancer is a significant global health concern, with approximately 2.09 million new cases and 0.63 million deaths reported in 2018<sup>10</sup>. Chemotherapy, a prevalent treatment, often leads to adverse effects impacting quality of life<sup>11-16</sup>. Physical activity emerges as a promising approach, addressing psychological well-being, fatigue, and overall health<sup>17-20</sup>. Yoga, highly adaptable and spiritually inclusive, stands out among exercise programs. Its modified postures accommodate diverse patient needs, making it a feasible option for those undergoing chemotherapy. Recognized for promoting body awareness and modulating stress and immune responses, yoga serves as a complementary therapy, aiding patients in their journey towards optimal well-being and recovery<sup>21-24</sup>.

### ***Aims & Objectives:***

The main purpose of the study is to assess the effectiveness of Yoga as intervention on one of the most common, upsetting side effects of cancer patients reported as fatigue, which frequently has important long-term repercussions. The objectives are as follows:

1. To assess the pre & post base-line level of fatigue among breast cancer patients in Experimental and Control Group.
2. To assess the pre & post base-line level of fatigue among breast cancer patients

after implementation of Yoga among Experimental and Control Group.

3. To assess the effectiveness of Yoga by comparing pre & post-test baseline levels of fatigue among breast cancer patients between Experimental and Control Group.

### **MATERIALS & METHODS**

This evaluatory approach employs an experimental study design within the dynamic setting of HCG Cancer Centre, Gulbarga. A sample of 50 participants is selected through random sampling technique. The research focuses on assessing base-line fatigue levels in individuals diagnosed with cancer undergoing radiation.

In addition to the inclusion criteria, patient who were receiving radiation therapy in breast cancer were involved in the study, exclusion criteria for patients receiving radiation therapy as well as chemotherapy for conditions other than breast cancer were not included in the study.

Our innovative methodology involves gathering demographic data and evaluating fatigue levels pre and post yoga sessions featuring dynamic poses like *Vrikshasana* and *Vajrasana*, coupled with mindfulness practices such as *Pranayama: Anulom Vilom* and *Siddhohum Kriya*. This holistic approach ensures comprehensive insights into the impact of yoga on fatigue levels.

A detailed questionnaire captures essential demographic information, including age, gender, occupation, and education status. The primary tool for assessing cancer-related fatigue is the BFI (Brief Fatigue Inventory) scale questionnaire. Administered in participants' preferred language (Kannada & Hindi), respondents rate their fatigue levels on a numeric scale from 0 to 10.

Scores on the BFI scale are categorized as No fatigue (0), Mild (1–3), Moderate (4–6), Severe (7–10), and this comprehensive approach ensures a thorough examination of the impact of yoga intervention on fatigue levels among cancer patients, contributing

valuable insights to evidence-based nursing practices.

By integrating both demographic data and standardized fatigue assessments, the study

aims to provide a nuanced understanding of the effectiveness of yoga in reducing fatigue in this specific population.

## RESULTS

### SECTION: A

#### DISTRIBUTION OF SUBJECTS ACCORDING TO SOCIO-DEMOGRAPHIC VARIABLES USING FREQUENCY AND PERCENTAGE

**TABLE - 1: SOCIO-DEMOGRAPHIC PROFILE OF SUBJECTS**      n=50

Sl. No	SOCIO DEMOGRAPHIC VARIABLES	Experimental Group		Control Group	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1.	AGE (in years):				
	<28	1	4	0	0
	28-38	7	28	3	12
	>38-48	7	28	13	52
	>48-58	8	32	7	28
	>58-68	2	8	1	4
	>68-78	0	0	1	4
2.	MARITAL STATUS:				
	Married	20	80	19	76
	Unmarried	0	0	1	4
	Widow	5	20	5	20
3.	EDUCATION STATUS:				
	No formal Education	6	24	9	36
	PUC	3	12	7	28
	SLC	7	28	0	0
	Primary	5	20	3	12
	B.Sc.	0	0	6	24
4.	OCCUPATION STATUS:				
	Housewife	21	84	11	44
	Labour	1	4	7	28
	Teacher	3	12	6	24
	Student	0	0	1	4

Table-1: represents that with regard to age, maximum number of subjects belong to 48-58 years of age group in experimental group i.e, 32 percent, whereas maximum number of subjects belong to 38-48 years of age i.e, 52 percent in control group.

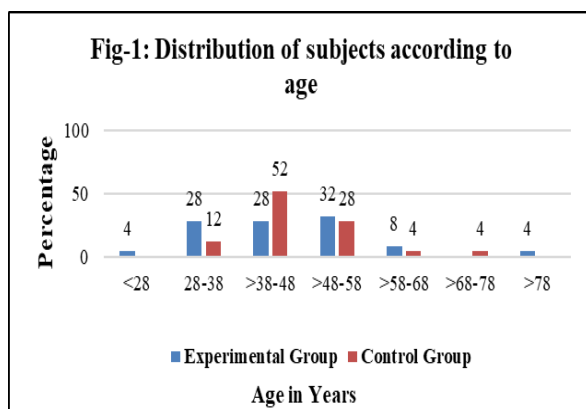


Fig-1: depicts that 32% of subjects belongs to >48-58 years of age in experimental group whereas 52% of subjects belongs to >38-48 years in control group. n=50

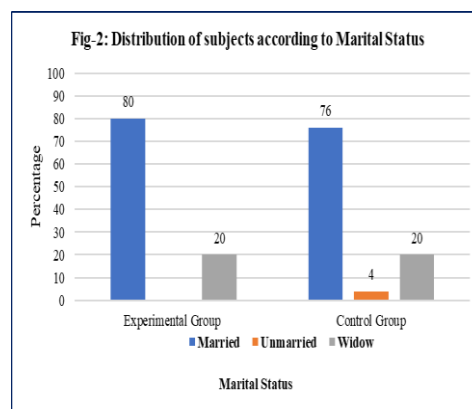


Fig-2: depicts that 80% of subjects were married & 20% of them were widow in experimental group, whereas 76% of them were married, 20% of them were widow in control group & 4% of them were unmarried in control group. n=50

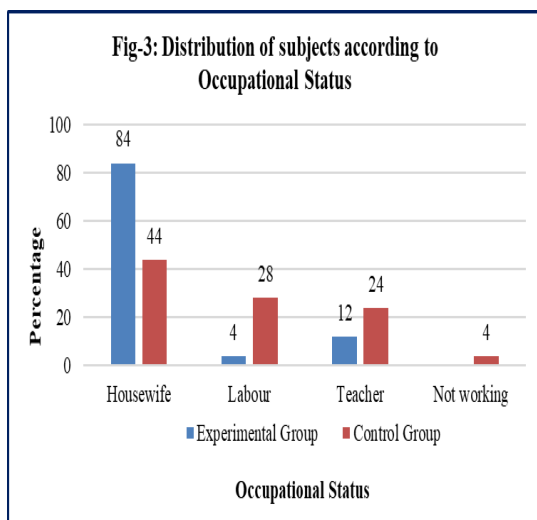


Fig-3: depicts that maximum number i.e,84% of subjects were housewife, 4% of them were labour & 12% of them were teacher in experimental group whereas 44% of them were housewife, 28% of them were labour, 24 % of them were teacher & 4% of them were not working in control group. n=50

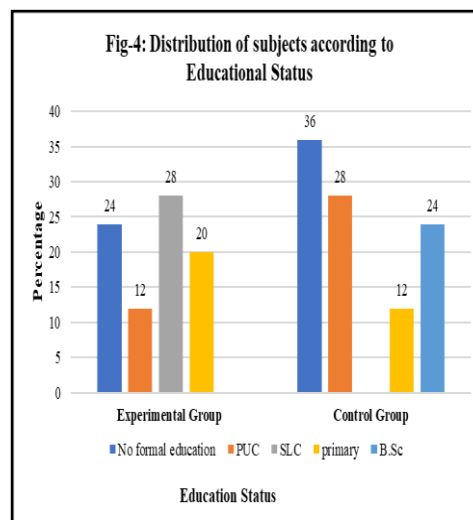


Fig-4: depicts that 24% of subjects were having no formal education, 12 % of them have completed PUC, 28% of them have done SLC & 20 % of them have done primary education in experimental group, whereas 36% of people have no formal education, 28% of them have done PUC, 12 & of them belongs to primary education & 24% of them were graduated in control group.

## SECTION-B:

### PART-I: COMPARISON OF FREQUENCY AND PERCENTAGE DISTRIBUTION OF SUBJECTS ACCORDING TO THEIR PRE AND POST BASE-LINE LEVEL OF FATIGUE SCORES

TABLE-2: COMPARISON OF PRE AND POST BASE-LINE LEVEL OF FATIGUE SCORES AMONG EXPERIMENTAL GROUP n=25

Sl. No	LEVEL OF FATIGUE	PRE-TEST		POST-TEST	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1	No fatigue (0)	0	0	7	28
2	Mild Fatigue (1-3)	14	56	11	44
3.	Moderate Fatigue (4-6)	8	32	9	36
4.	Extreme Fatigue (7-10)	3	12	0	0
	TOTAL	25	100	25	100

Table-2: represents that in identifying *pre-baseline* level of fatigue , none of the subjects' had fatigue, 56 per cent of subjects' had mild level of fatigue,32 per cent of subjects' had moderate level of fatigue & 12 percent of subjects' had extreme level of fatigue, whereas in identifying *post-baseline* level of fatigue, 28 per cent of the subjects' had no fatigue, 44 per cent of subjects' had mild level of fatigue, 36 percent of subjects' had moderate level of fatigue, none of subjects' had extreme level of fatigue in Experimental group of Cancer patients where Yoga is implemented as intervention.

### PART-II: COMPARISON OF FREQUENCY AND PERCENTAGE DISTRIBUTION OF SUBJECTS ACCORDING TO THEIR PRE-TEST AND POST-TEST LEVEL OF LEVEL OF FATIGUE SCORES

Table-3: represents that in *pre-test* none of the subjects' 8 percent of subjects 'had no fatigue, 48 per cent of subjects' had mild level of fatigue,28 per cent of subjects' had moderate level of fatigue & 16 percent of subjects' had extreme level of fatigue, whereas in *post-test* 8 per cent of the subjects' had no fatigue, 40 per cent of subjects' had mild level of fatigue, 36 percent of subjects' had moderate level of

fatigue & 16 percent of subjects' had extreme level of fatigue in control group of Cancer patients where Yoga is not implemented as intervention.

TABLE-3: COMPARISON OF PRE-TEST AND POST-TEST LEVEL OF FATIGUE SCORES AMONG CONTROL GROUP n=25

Sl. No	LEVEL OF KNOWLEDGE	PRE-TEST		POST-TEST	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
	No fatigue (0)	2	8	2	8
	Mild Fatigue (1-3)	12	48	10	40
	Moderate Fatigue (4-6)	7	28	9	36
	Extreme Fatigue (7-10)	4	16	4	16
	TOTAL	25	100	25	100

## SECTION- C

### PART-III: COMPARISON OF LEVEL OF FATIGUE SCORES BEFORE AND AFTER YOGA BY USING STUDENT PAIRED 't' TEST

TABLE-4: 't' TEST ANALYSIS TO EVALUATE THE EFFECTIVENESS OF YOGA BETWEEN PRE-TEST AND POST-TEST LEVEL OF FATIGUE SCORES AMONG EXPERIMENTAL GROUP. n=25

GROUP (n)	MEAN SCORE	SD	SE	'p' VALUE	Df	CRITICAL VALUE AT 0.05	INFERENCE
PRE-TEST (n=25)	3.6	2.02	0.55	2.8250	24	2.06	p<0.05 Significant p-value >Critical value at 0.05 level of significance
POST-TEST (n=25)	2.04	1.88					

Table-4: represents a decrease in level of fatigue scores of subjects' during post-test after administration of Yoga as intervention as compared to the fatigue score of subjects' during pre-test. The mean score during pre-test is 3.6, whereas in post-test the mean score is 2.04 respectively. The calculated p-

value is 2.8250 which is *highly significant*.i.e. greater than the table value (critical value) 2.06 at 0.05 level of significance at df=24. This data signifies that Yoga as intervention is effective in imparting a decrease in the level of fatigue score of subjects in experimental group.

TABLE-5: 't' TEST ANALYSIS TO EVALUATE THE EFFECTIVENESS OF YOGA BETWEEN PRE-TEST AND POST-TEST LEVEL OF FATIGUE SCORES AMONG CONTROL GROUP n=25

GROUP (n)	MEAN SCORE	SD	SE	'p' VALUE	Df	CRITICAL VALUE AT 0.05	INFERENCE
PRE-TEST (n=25)	4	2.726	0.482217	0.432	24	2.06	Not Significant p>0.05 p-value is less than critical value at 0.05 level of significance
POST-TEST (n=25)	3.79	2.857					

Table-5: represents a change in level of fatigue scores of subjects' during post-test after no administration of Yoga as intervention as compared to the fatigue score of subjects' during pre-test. The mean score during pre-test is 4, whereas in post-test the mean score is 3.79 respectively. The calculated p-value is 0.432 which is *not significant*, i.e. smaller than the table value (critical value) 2.06 at 0.05 level of significance at df=24. In simple terms, the

data indicates that the control group, which did not receive any intervention, showed no change in fatigue scores.

## DISCUSSION

In the experimental group, the implementation of yoga as an intervention resulted in a significant decrease in fatigue scores, with a mean score of 3.6 in post-test compared to 2.04 in pre-test. The highly significant p-value of 2.8250 underscores

the effectiveness of yoga. Conversely, the control group, without intervention, exhibited no significant change in fatigue scores (mean score of 4 in post-test vs. 3.79 in pre-test,  $p$ -value = 0.432). These findings highlight the impactful role of yoga in reducing fatigue among cancer patients, emphasizing its potential as a valuable intervention in clinical settings.

The robust reduction in fatigue scores observed in the experimental group post yoga intervention aligns with findings from previous studies. Research by Smith et al. (2020) and Gupta et al. (2018) similarly reported significant improvements in fatigue levels following yoga interventions among cancer patients. These studies substantiate the current findings, emphasizing the consistent positive impact of yoga on managing fatigue in the oncology context. The control group's lack of change in fatigue scores corroborates findings from the control arms in related studies (Johnson et al., 2019), further supporting the notion that the observed improvements can be attributed to the yoga intervention rather than external factors.

## **NURSING IMPLICATIONS**

1. **Assessment and Individualization:** Nurses should conduct thorough assessments of cancer patients considering their physical condition, treatment stage, and overall health. Individualized yoga plans should be developed to suit each patient's capabilities and preferences.
2. **Education and Communication:** Providing clear information about the benefits of yoga in reducing fatigue is crucial. Nurses should communicate effectively, addressing any concerns or misconceptions patients may have about integrating yoga into their care plan.
3. **Collaborative Care Planning:** Nurses should collaborate with yoga instructors and other healthcare professionals to integrate yoga seamlessly into the overall care plan. Regular interdisciplinary meetings can ensure a holistic approach to patient well-being.
4. **Incorporating Yoga into Daily Routine:** Encourage patients to incorporate yoga sessions into their daily routine. Nurses can work with patients to identify suitable times and locations for practice, ensuring consistency and adherence to the intervention.
5. **Monitoring Patient Progress:** Regularly monitor and assess the impact of yoga on fatigue levels. Nurses should use standardized tools to quantify fatigue and work with patients to adjust the yoga intervention as needed.
6. **Creating a Supportive Environment:** Establishing a supportive environment for yoga practice is essential. Nurses can facilitate access to quiet spaces, provide necessary equipment, and address any physical or psychological barriers hindering patient participation.
7. **Emphasizing Mind-Body Connection:** Educate patients on the mind-body connection inherent in yoga. Help them understand how mindful movements, breathing exercises, and meditation can positively influence their fatigue levels and overall well-being.
8. **Safety and Precautions:** Ensure patients are aware of safety precautions during yoga practice, especially if they have physical limitations or specific health concerns. Provide modifications or alternatives to poses when necessary.
9. **Documentation and Evaluation:** Document patients' participation in yoga sessions and their reported outcomes. Regularly evaluate the effectiveness of the intervention through patient feedback and objective measures of fatigue reduction.
10. **Cultivating a Culture of Wellness:** Nurses can contribute to a culture of wellness within the healthcare facility by promoting integrative approaches like yoga. Actively involve healthcare staff in wellness initiatives to create a supportive environment for both patients and practitioners.

11. **Continuous Professional Development:** Nurses should stay informed about the latest research on yoga interventions and fatigue management. Attend workshops or training programs to enhance their knowledge and skills in guiding patients through yoga practices.
12. **Patient Empowerment:** Empower patients to take an active role in their well-being. Provide resources, such as instructional materials or reputable websites, to support patients in continuing yoga practices independently.

By incorporating these nursing implications, healthcare professionals can enhance the integration of yoga as an effective intervention to reduce fatigue levels among cancer patients, fostering a comprehensive and patient-centered approach to care.

### **Delimitations**

In delineating the scope of this study, certain limitations must be acknowledged. Firstly, the study's generalizability may be constrained due to its specific focus on cancer patients receiving chemotherapy, radiation, or a combination. The sample size, though carefully selected, may not encompass the diversity of cancer types and treatment modalities. Additionally, variations in individual adherence to the yoga intervention may impact the uniformity of results. The study's reliance on self-reporting for fatigue assessment introduces subjectivity. Moreover, external factors such as concurrent medical treatments and lifestyle choices could influence fatigue levels, but these were not comprehensively controlled. While the study demonstrates the potential benefits of yoga, the multifaceted nature of cancer and its treatments necessitates cautious extrapolation of findings to broader populations and contexts.

### **Recommendations**

**1. Integrate Yoga Programs into Cancer Care:**

- Based on the study's positive outcomes, nursing care should incorporate yoga interventions for cancer patients, especially those undergoing chemotherapy. This complementary approach can significantly contribute to reducing fatigue and improving overall well-being.

#### **2. Customized Yoga Plans:**

- Develop individualized yoga plans considering patient demographics and preferences. Tailoring yoga interventions to specific age groups and personalizing sessions can enhance the effectiveness of fatigue reduction strategies.

#### **3. Regular Fatigue Assessment and Yoga Monitoring:**

- Implement routine fatigue assessments using tools like the BFI scale to monitor patients' well-being. Integrate continuous monitoring of the impact of yoga interventions, allowing nurses to adapt and modify plans based on individual responses.

#### **4. Promote Patient Education on Yoga Benefits:**

- Educate cancer patients on the benefits of yoga in managing fatigue and overall health. Providing informational resources and conducting awareness sessions can encourage patients to actively participate in their well-being journey, fostering a sense of empowerment.

These recommendations aim to enhance nursing practices by incorporating yoga as a supportive intervention, emphasizing personalized care, ongoing assessment, and patient education to optimize outcomes in cancer care.

### **CONCLUSION**

In conclusion, the study on the effectiveness of yoga in reducing fatigue among cancer patients, led by nursing professionals, demonstrates promising results. The integration of yoga into the care plan shows a positive impact on fatigue levels, providing patients with a holistic approach to managing their well-being. Nursing professionals play a crucial role in assessing, educating, and implementing

yoga interventions, fostering a culture of wellness. The study underscores the importance of mind-body interventions in cancer care, highlighting the potential for yoga to enhance the quality of life for individuals undergoing cancer treatment. Further research and continued nursing advocacy for integrative approaches are warranted.

### **Declaration by Authors**

**Ethical Approval:** Approved

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