



Panchamutti kanji a Siddha nutritional intervention for the management of Vippuruthi (Cancer) related fatigue – A pilot study

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Abstract

Background: Cancer is a disease in which some cells of the body grow uncontrollably and tend to spread to other parts, causing metastasis. It is the leading cause of morbidity and mortality in the world. Cancer and its treatment give a lot of complications which affect the physical and mental well-being of the patients. In this study, a traditional Siddha nutritional porridge mentioned in our Siddha literature, named *panchamutti kanji* (PMK), which is prepared by five grain, is chosen for the management of cancer-related fatigue. It was given for a period of one month and evaluated through the fatigue severity scale (FSS). **Aim:** To assess the efficacy of *panchamutti kanji* (PMK) among cancer related fatigue(CRF) patients. **Methodology:** Ten cancer patients were enrolled in this study using FSS assessment. The patients were guided properly to make the *panchamutti kanji* (PMK) porridge and to consume the porridge of about 60ml before food in the morning for one month. The fatigue severity score was measured on the day of enrolment, 15th day, and on the 30th day. After that the collected data were entered in Microsoft Excel and analysis was done by SPSS software. **Result:** The data was expressed as mean, standard deviation. **Conclusion:** The study concludes that the intervention of PMK which contains nutrition and fiber, was observed to be effective for the management of cancer-related fatigue. Interventions for CRF include pharmacologic and non-pharmacologic options, in which a nutritional intervention like *Panchamutti Kanji* would be more effective. It is also cost-effective, easy to prepare, and easy to consume on a regular basis.

Keywords: Siddha, Nutrition, *Panchamutti kanji*, FSS, Cancer-related fatigue, Vippuruthi

1. Introduction

The Siddha system of medicine is considered as the ancient and traditional system of medicine that mostly belong to South India and some parts of Srilanka [1]. According to *Yugimuni Vaithiya Chinthamnai 800vippuruthi* is described as 7 types [2]. In siddha literature cancer is described under various name such as *vippuruthi, putrunoi, pilavai, kazhalai* [3, 4]. The symptoms of cancer depend on the site of the cancer and its metastasis to other organs and tissues. It also causes symptoms like fever, fatigue, and weight loss. Cancer and its treatments are often the main triggers of fatigue, either induced directly or indirectly by its associated toxicities [5].

Fatigue is now recognized as one of the most prevalent and distressing consequences of cancer and its therapies [6]. It can be present even before the initiation of treatment and generally worsens during interventions such as radiation, chemotherapy, hormonal, or biological therapies [7]. Estimates of fatigue prevalence during treatment vary widely, ranging from 25% to 99%, depending on factors such as patient population, type of therapy, and assessment methods. Most studies report that 30% to 60% of patients experience moderate to severe fatigue during treatment, which in some cases may necessitate discontinuation of therapy [8]. While fatigue often improves within the first year following treatment completion, a notable proportion of patients continue to experience persistent fatigue for months or even years. Research on long-term

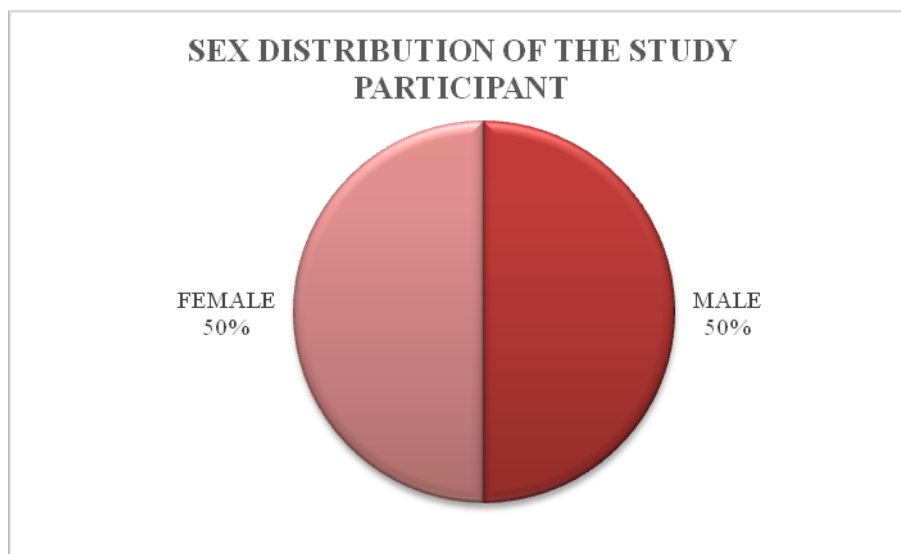
cancer survivors indicates that roughly 25% to 33% experience fatigue lasting up to a decade after diagnosis [9]. Fatigue significantly disrupts work performance, social interactions, mood, and daily functioning, leading to substantial declines in overall quality of life during and after treatment [10]. Additionally, fatigue may serve as a potential predictor of reduced survival [11]. Hence cancer cancer-related fatigue (CRF) should be addressed in cancer patients and survivors as a significant problem. Being fatigue has greater negative impact on functioning and health related quality of life. Although pharmacologic treatments have been used to treat cancer-related fatigue, nutritional intervention would be more effective and useful. Hence in this study *Panchamutti Kanji*, a Siddha porridge which contains rich macro nutrients (carbohydrates, protein, fat) and micro nutrients (Na, K, Fe, Mg, Ca, Zn, Vit B6, B12, dietary fiber) is recommended for cancer patients and survivors to treat cancer-related fatigue [12].

2. Patient Information

Ten patients (5 male, 5 female) aged 35–70 years presenting to the Cancer Special OPD at Arignar Anna Government Hospital of Indian Medicine with FSS scores >35 were enrolled after institutional ethics approval (CTRI/2023/10/058387). Cancer types included breast cancer (n=2), tongue cancer (n=2), oesophageal cancer (n=3), buccal mucosa cancer (n=1), rectal cancer (n=1), and chronic myeloid leukemia (n=1).

Table - 1 Age Distribution of the Study Participant

Age	Frequency	Percentage
35 - 45	5	50%
50 - 70	5	50%
Total	10	100%

Figure - 1 Sex Distribution of the Study Participant**Table - 2 Type of Cancer patients involved in the study**

S.No	Cancer	No. of Participant
1.	CA Tongue	2
2.	CA Oesophagus	3
3.	CA Rectum	1
4.	CA in Buccal Mucosa	1
5.	CA Breast	2
6.	Chronic Myeloid Leukemia	1

3. Clinical Findings

All participants reported significant fatigue impacting daily activities. Patients with oral or buccal cancers had difficulty eating due to ulcerative lesions, highlighting the need for a soft, nutritious intervention.

4. Timeline

The study timeline consisted of enrolling participants on Day 0, during which baseline Fatigue Severity Scale (FSS) assessments were conducted and dietary counseling regarding *Panchamutti Kanji* (PMK) consumption was provided. From Day 1 to Day 30, participants consumed 60 ml of PMK daily before breakfast.

An interim FSS assessment was performed on Day 15 to monitor progress, followed by a final FSS assessment and outcome evaluation on Day 30.

5. Diagnostic Assessment

Fatigue severity was assessed using the validated Fatigue Severity Scale (FSS) at baseline, day 15, and day 30.

6. Therapeutic Intervention

The ingredients of *Panchamutti Kanji* are enlisted in table 1 [13, 14].

Table – 3 Ingredients of *Panchamutti Kanji*

Tamil name	Botanical name	English name	Quantity
<i>Pacharasi</i>	<i>Oryza Sativa</i> [15]	Paddy	10g
<i>Ulundhu</i>	<i>Vigna Mungo</i> [15]	Black gram	10g
<i>Kadalai</i>	<i>Cicer Arientum</i> [15]	Bengal gram	10g
<i>Sirupayuru</i>	<i>Vigna Radiate</i> [15]	Green gram	10g
<i>Thuvarai</i>	<i>Cajanas Cajan</i> [15]	Dhal	10g

Preparation: Ingredients were purified, lightly roasted, and powdered. About 20 g of the powder was placed in a clean cloth pouch, boiled in 500

mL of water for 20 minutes to obtain a porridge. Patients consumed 60 ml before breakfast daily for one month.

7. Follow-up and Outcomes

Table – 4 FSS Score on Different Days

Participant	Day 01	Day 15	Day 30
Participant 1	50	49	43
Participant 2	55	53	50
Participant 3	57	57	56
Participant 4	59	57	56
Participant 5	59	57	55
Participant 6	54	53	51
Participant 7	58	57	55
Participant 8	60	58	56
Participant 9	58	57	55
Participant 10	55	50	48

The baseline mean Fatigue Severity Scale (FSS) score of participants was 56.5, which showed a gradual decline to 54.8 on Day 15 and further to 52.5 by Day 30. Thus, participants experienced some reduction in fatigue levels, with the most notable improvement observed in breast cancer

patients, whose scores decreased from 50 to 43 and from 55 to 48. In contrast, only minimal improvement was seen in rectal cancer patients, where the score showed a minimal change from 57 to 56.

Figure – 2 Mean Fatigue Severity Scale

Statistical analysis was carried out using a paired t-test to evaluate changes in fatigue severity from baseline (Day 1) to the end of the intervention (Day 30). The mean Fatigue Severity Scale (FSS) score at baseline was 56.5, which decreased to 52.5 after 30 days of *Panchamutti Kanji* administration, showing an average reduction of 4 points. The paired t-test revealed a statistically significant improvement in fatigue levels ($p < 0.001$). Since the p-value was well below the conventional threshold of 0.05, the null hypothesis was rejected, and the alternate hypothesis (H1) was accepted. These findings demonstrate that *Panchamutti Kanji* had a significant effect in reducing cancer-related fatigue over the 30-day study period.

8. Discussion

Cancer-related fatigue is a complex, multifactorial symptom influenced by various demographic, medical, psychosocial, behavioral, and biological factors. Among demographic factors, marital status and socioeconomic status are associated with fatigue, with unmarried individuals and those with lower household incomes often reporting higher fatigue levels, possibly due to a lack of emotional and practical support. Additional factors may include comorbid medical conditions, medications, nutritional deficiencies, physical deconditioning, mood disturbances, and other physical symptoms. However, fatigue can also occur in healthy patients without these risk factors, suggesting other mechanisms might be involved. Importantly, treatment-related factors such as the type of therapy or dose intensity do not consistently predict fatigue, especially during the post-treatment survivorship phase [16].

The basic principle of Siddha science is “*Unavae maranthu, Marunthae unavu*”; hence the balanced nutritive traditional porridge is recommended in the Siddha system to maintain good health. Cancer-related fatigue is a prevalent and distressing problem for a significant proportion of survivors during active treatment and in the survivorship phase. Although there is a range of interventions available, the gold standard for the treatment of CRF remains elusive. The current level of treatment of CRF shows moderate effects. Among the interventions available for CRF,

exercise-based interventions are recommended, which are not promising and difficult for the patient to perform [17]. Hence, a nutritional intervention for cancer-related fatigue would be more effective and helpful in providing them with a good quality of life. Thus, *panchamuttikanji*, which is an excellent immune-enhancer loaded with micro and macro nutrients and healthy fiber, helps to neutralize the derangement of *Uyir* and *Udal thaathukkal* in adults and children [18]. Hence, PMK which is rich in antioxidants and protein, will improve the immunity and may aid in gaining weight.

In this study, PMK was given to patients of breast cancer, rectal cancer, oesophageal cancer, tongue cancer, buccal cancer, and survivors of cancer who had completed the surgical interventions, chemo, and radiotherapy. Among these patients, breast cancer patients showed a significant weight change, and FSS was also decreased. In tongue and buccal carcinoma, the patient had difficulty in eating due to their ulcerative lesions; hence for these cases, PMK would be a good nutritional source, which is easy to consume as it is porridge in nature. After completing the surgery, chemo and radiation therapy, the patients will suffer with side effects like dysphagia, tiredness, and weight loss. This can be effectively managed by PMK and evidenced in this paper by changes in FSS. Patients who had recovered from cancer showed a significant decrease in fatigue when compared with patients with active disease.

9. Conclusion

The study concludes that the intervention of PMK, which contains nutrition and fiber, was observed to be effective for the management of cancer-related fatigue. Interventions for CRF include pharmacologic and non-pharmacologic options, in which a nutritional intervention like *Panchamutti Kanji* would be more effective. It is also cost-effective, easy to prepare, and easy to consume in a regular basis.

10. Patient Perspective

Patients reported PMK to be palatable, easy to consume despite oral discomfort, and beneficial in improving energy and daily functioning.

11. Limitations

The intervention was limited to one month and a small sample size. Extended use in a larger cohort may yield more significant improvements in fatigue.

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Patient perspectives

The patients expressed great satisfaction with the treatment, reporting significant weight gain. They were particularly impressed with the effectiveness of *Panchamutti Kanji* in weight gain.

Informed consent

Written informed consent was obtained from the patients. The patients had given their consent for their images and other clinical information to be reported in the journal. The patients understood that their names and initials would not be published, and due efforts would be made to conceal their identity, but anonymity cannot be guaranteed

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