

Effect of Shaitso Massage on fatigue and anxiety in Cancer patients receiving chemotherapy

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Abstract

Cancer patients survive with chemotherapy as it treats many types of cancer, but it often causes side effects like fatigue, anxiety, nausea, vomiting, etc.; hence this study was conducted to determine the effect of shiatsu massage on reducing the side effects of anxiety and fatigue. The research design was quasi-experimental, with 30 samples matched with the inclusion criteria at Saveetha Medical College and Hospital. Samples were assigned into experimental group (n=15) and the control group (n=15). The fatigue assessment scale and Hamilton anxiety measurement scale were used to measure fatigue and anxiety before and after the intervention for both groups. The experimental group received shiatsu massage for 2-8 minutes twice a day for seven days, whereas the control group received routine hospital care. After the intervention, the mean scores of fatigue and anxiety are significantly lower than before the intervention ($p < 0.001$). The result also showed the post-test mean score of fatigue and anxiety is significantly ($p < 0.001$) less in the experimental group than in the control group. The study findings conclude that shiatsu massage effectively reduces fatigue and anxiety among chemotherapy patients. Shiatsu massage is also non-invasive, cost-effective, non-pharmacological, and feasible to practice across the continuum of outpatient and inpatient settings throughout chemotherapy treatment.

Keywords: shiatsu massage, anxiety, fatigue, chemotherapy, cancer

1. Introduction

Cancer is a non-communicable disease due to the uncontrollable growth of abnormal cells with various manifestations depending on the type of tumour cells involved and which body system is affected. It is in second place for causing death globally, next to heart disease. In 2020, nearly 10 million deaths occurred due to cancer, with approximately one in six deaths [1]. In India, the incidence rate of cancer among males was 94.1 per 100,000, and among females, 103.6 per 100,000 in the year 2020 [2]. It may affect any age group of people, gender, race, or geographic province. Though there is advancement in cancer treatment modalities according to the diagnosis, it is still considered a feared disease due to its impact. Treatment modalities of cancer include adjuvant or neo-adjuvant or single therapy or combination surgery, radiotherapy, chemotherapy, and biological therapy. Among patients on Chemotherapy, the prevalence of anxiety and depression was 26.7% and 41.2%, and anxiety was highly associated with chemotherapy sessions [3]. Chemotherapy is a commonly used drug to kill fast-growing cells or stop the cancerous cell from dividing in the body [4]. Chemotherapy provides a complete cure, prolongs survival, and improves the

quality of life; however, patients are affected very badly due to the side effects of chemotherapeutic drugs [5,6]. The common side effects experienced by patients on Chemotherapy were Nausea & vomiting, and fatigue was the most recurrent [7, 8]. In addition, fatigue [74.7%] was the most commonly noted adverse effect among patients receiving Chemotherapy [9, 10]. The percentage of cancer-related fatigue reported during diagnosis [40%], treated with radiation [90%], and under chemotherapy treatment was 40%, 90%, and 80%, respectively [11]. The most common incapacitate and exhaustive symptom of patients with cancer in the advanced stage was fatigue [12–15].

National Institute of Health recently stated state of science that it needs more attention and striving to manage the cancer symptoms, such as fatigue in addition to pain and depression [16]. It has been found that anxiety has happened with depression [17, 18] mutually. Emotional reactions may mask the process of adaptation to treatment [19, 20]. Non-pharmacological methods can minimize the development of fatigue and anxiety during chemotherapy treatment without interfering with the effects of chemotherapeutic drugs. Most recently, the National Cancer Institute reported that using complementary and alternative therapies along with standard medical care might help the patient get through the adverse side effects of cancer

treatments, including fatigue, pain, and nausea [21]. Shiatsu massage is a complementary and alternative medicine primarily developed in Japan according to the principle of historical treatment in China [22]. During the massage, Shiatsu uses fingers, which translates to Japanese, meaning pressure by fingers. It manipulates by gentle stretch or pressure using either finger, thumbs, elbows, and even the knees and feet [23]. The basic science behind this is associated with the flow of energy, called Qi or Ki. Press or stretch the energy points in the body that align in the energy line is pronounced as Meridian channels [24, 25]. It involves applying pressure on specific vital points in the body to help the vital energy to flow unobstructed, thereby relieving stress, anxiety, depression, fatigue, and vitalized nervous system because any disturbance in the flow of energy leads to disease [26]. Shiatsu massage stimulates circulation, releases toxins and muscle tension, and triggers the endocrine glands, which allows the body to heal and recover [25]. There are so many potential benefits that may be amenable to Shiatsu massage. It includes relieving pain and weakness in the low back, shoulder, joints, headache, and stiffness in the neck, induces sleep, reduces fatigue, and also has a significant impact on the problems of respiratory, cardiac, circulatory, digestive, reproductive, and psychological complaints such as stress, tension, anxiety, depression [23]. The current study considered the potential benefits of shiatsu massage after reviewing the related literature. The present study hypothesized significant changes in fatigue and anxiety after administration of shiatsu massage in patients with cancer on chemotherapy treatment.

2. Materials and Methods

The Quasi-experimental research design study was conducted after obtaining formal approval from the hospital authority of Saveetha Medical College and Hospital, Chennai. Sigma Plot 13 (Systat Software Inc., USA) was used to calculate the sample size. It was estimated to assume a 20% reduction in anxiety and fatigue with a 35% standard deviation, a 5% significance level, and 90% power. It was rounded off to 15 for the control and experimental groups, considering 20% as a dropout. A consecutive sampling technique was adopted to select the samples from the medical oncology ward. Participants for the experimental and control group were selected from the I and II unit of the Oncology ward. Patients with more than four cycles of Chemotherapy had mild to moderate levels of anxiety and fatigue and were willing to participate included in the research study. The participants excluded from the study were patients with either palpable or visible tumors, receiving adjuvant or neo-adjuvant therapy with surgery, radiation, and Chemotherapy, who underwent surgery with one-month duration, were debilitated, and had altered levels of consciousness. The participants explained the study's purpose in their regional language and clarified their doubts. After assuring confidentiality,

researchers obtained informed consent in writing from the participants.

Data Collection Methods

Baseline information was obtained by interview method using a structured questionnaire. The primary outcome variables are fatigue and anxiety, measured by the fatigue assessment scale (FAS) and Hamilton anxiety measurement scale (HAM-A). Both scales were assessed for validity and reliability and found to be more valid and reliable. The fatigue assessment scale is a Likert-type scale with ten items designed to measure fatigue symptoms. Each item of the FAS has five-point. It ranges from 1 to 5, like 1=never, 2=sometimes, 3=regularly, 4=often, and 5= always. A reverse scored in Items 4, 5, and 10. Total scores range from 10 to 50, with a score of 10 indicating the lowest level and 50 denoting the highest level of fatigue. The reliability and internal consistency of the FAS are 0.9. HAM-A is a commonly used scale with 14 items that measure anxiety's severity, each with a 5-point score. The items include mood, fear, somatic complaint, insomnia, and behaviour during the interview. It ranges from 0 to 4. A score of 0 represents not present, and four is severe. The experimental group received the shiatsu massage twice daily for 2-8 minutes, along with regular care. Shiatsu massages contain two techniques as Shiatsu massages technique for anxiety and the fatigue energy flow technique. Participants were placed in a comfortable position during the shiatsu massages technique for anxiety. Investigator's thumb was used to apply pressure in the middle of the left palm for 30-60 seconds. Pulled out all fingers to stretch and released the stretch after 5 seconds, and a vigorous stroke was applied to the entire palm for 30-60 seconds. Flip over the hand and massage the wrist in a circular motion for 30 to 60 seconds. The same technique is applied to the right hand. For fatigue energy flow, the pressure was given on foot by holding the right foot in both palms near the toes and separating each toe using the thumb and index finger of both hands for 2 minutes. The massage was started in the big toe with the thumb in an upward motion for 2 minutes and 10 seconds. Performed this technique on each toe 5 to 10 times and repeated the same on the left foot. Every massage took 60 seconds, and overall it took 2-8 minutes per session. The frequency of massage was twice a day, the total duration of intervention was seven days for the experimental group, and participants were monitored during the intervention for any untoward reaction. There was no adverse effect reported throughout the study. The control group was only on routine care at the hospital. The post-test assessment was done at the end of the 7th day for both groups using the same tool. The experimental group The ethical principles were adhered to protect the rights of the participants. Confidentiality was maintained during and after the study.

3. Analysis

The collected data were tabulated, and descriptive and inferential methods inferred the results. The

baseline information was described as frequency and percentage. The effectiveness of intervention within and between the group was calculated by paired t-test and unpaired t-test. A chi-square test determined the association between the level of fatigue and anxiety with baseline information. Statistically significant was considered when the probability of $p < 0.05$ or less [1].

4. Results and Discussion

The participants background information is shown in

Table 1. In the experimental group, 67% were female with the mean age of 39.28 ± 3.68 . More than 50% had cancer in the gastrointestinal tract with the duration of 1-2 years, and were in stage II cancer receiving chemotherapy cycle of 4th to 5th. Whereas in the control group, 73% were female with the mean age of 40.59 ± 2.76 . 9[60%] had cancer in the gastrointestinal tract and received the 6th to 7th cycle of Chemotherapy; 7 [47%] had cancer with a duration of 6 months to 1 year and on II stage of cancer.

Table 1. Description of background variables

Background Variables	Experimental Group		Control Group	
	Frequency (%)		Frequency (%)	
Age in years				
20 – 30	1	(7)	2	(13)
31 – 40	3	(20)	4	(27)
41 – 50	6	(40)	5	(33)
51 – 60	5	(33)	4	(27)
Gender				
Male	5	(33)	4	(27)
Female	10	(67)	11	(73)
Site of Cancer				
Respiratory	1	(7)	1	(7)
Gastro intestinal	8	(53)	9	(60)
Reproductive	6	(40)	4	(26)
Others	-		1	(7)
Duration of illness				
6 months – 1 Year	6	(40)	7	(47)
1-2 years	7	(47)	5	(33)
More than 2 years	2	(13)	3	(20)
Stage of Cancer				
Stage I	2	(13)	1	(7)
Stage II	8	(53)	7	(46)
Stage III	4	(27)	6	(40)
Stage IV	1	(7)	1	(7)
Cycle of Chemotherapy				
4 – 5	9	(60)	5	(33)
6 – 7	4	(27)	9	(60)
More than 7	2	(13)	1	(7)

Cancer is the most stressful event; anxiety and fatigue are the unpleasant symptoms patients encounter during Chemotherapy. The current study intensively analyzed and found that in the pre-test, all 100% had fatigue and 11(3.33%) had very severe

anxiety, as shown in Table 2 and 3. The reason for the same may be an impact of the disease itself or the treatment effect of Chemotherapy. Anxiety may interfere with cancer treatment, and the main concern is minimizing the anxiety and fatigue necessary for good cancer care.

Table 2. Pre-test and post-test level of Fatigue

Level of Fatigue	No Fatigue [≤ 22]		Fatigue [> 22]	
	No	%	No	%
Experimental Group				
Pre-test	0	0	15	100.
Post-test	13	87	2	13
Control Group				
Pre-test	0	0	15	100
Post-test	0	0	15	100

Table 3. Pre-test and post-test level of Anxiety

Level of Anxiety	Mild [≤ 17]		Moderate [18 – 24]		Severe [25 – 30]		Very Severe [Above 35]	
	No	%	No	%	No	%	No	%
Experimental Group								
Pre-test	0	0	1	7	3	20	11	73.33
Post-test	10	67	4	26	1	7	0	0
Control Group								
Pre-test	0	0	1	7	3	20	11	73
Post-test	0	0	2	13.5	2	13.5	11	73

A research study reported that practicing Shiatsu loosens the flow of energy, which helps to divert the mind and higher energy levels, naturally improving

well-being and feeling good [25]. Oz Argash et al. revealed that Shiatsu offers a non-pharmacologic method to relieve symptoms. Another safe and effective method of acupressure could reduce

symptoms like nausea & vomiting, and insomnia associated with cancer among cancer patients. Similarly, Shiatsu is also relatively safe and practical for other common cancer symptoms, including myalgia, fatigue, and dissatisfaction with body image [27]. In the systematic review, Kang Wang et al. mentioned that Shiatsu is the type of intervention used in a clinical setting to manage fatigue associated with cancer [28]. The current study elucidated the impact of shiatsu massage on anxiety

and fatigue and found a significant reduction in both levels in cancer patients on chemotherapy treatment. The percentage in level of fatigue is reduced from 100% to 87% of no fatigue; In addition, the percentage of very severe anxiety is reduced from 73% to six percent in the experimental group. It also found significant changes in fatigue and anxiety in the experimental group compared with the control group, as depicted in Table 4.

Table 4. Within and Between Group Analysis of Anxiety and Fatigue

S.No	Parameter	Group	Mean ± SD	Paired 't' test	Unpaired 't' test
				Experimental Pre – Post	Experimental - Control Post – Post
1.	Fatigue		43.73±3.67	t=15.209 p=0.0001 S***	t=22.829 p=0.0001 S***
			16.13±3.94		
		Control Post test	43.27±2.37		
2.	Anxiety		41.60±9.76	t=8.762 p=0.0001 S***	t=9.339 p=0.0001 S***
			14.20±5.21		
		Control Post test	40.87±9.75		

***p<0.001, S – Significant

This finding is supported by Mitue Lida et al., who proved that intervening with Shiatsu would relieve anxiety; however, there was no reduction in physical symptoms of both strong and weak anxiety groups [29]. Another study by Neil Browne et al. was conducted in an outpatient clinic to analyze the effects of Shiatsu therapy on the health and well-being of patients with cancer and palliative care. And also found improvement in the scores on anxiety, pain, and stress; well-being scores [30]. Similarly, Geremia et al. conducted an observational study with 21 cancer patients receiving Shiatsu in a day hospital. They found that Shiatsu massage impacts the perception and relaxation of the body and mind, subjective perception of decreased fatigue, emesis, anxiety, and depression, and experienced improved quality of sleep [31]. There are minimal studies concerning Shiatsu in cancer patients on Chemotherapy; however, studies on similar therapy findings support the current study's result. Serife Karagozoglu et al. reported that back massage in the course of chemotherapy treatment significantly reduces fatigue and anxiety suffered during chemotherapy treatment [32]. Study findings by Nahid Aghabati et al. showed that touch therapy effectively decreased fatigue and pain in the experimental group than in the placebo and control group after five days of touch therapy intervention among patients with cancer Chemotherapy [33]. Also, Subashini proved that a back massage for 15 minutes for three consecutive days effectively reduces fatigue and anxiety caused by chemotherapy [34]. A systematic review by Jing Miao et al. proposed that acupressure has a protective effect on nausea and vomiting induced by the

adverse impact of Chemotherapy [35]. Hence the present study's finding is aligned with the results of similar studies. However, it has limited to the cancer patients receiving only chemotherapy, has a small sample size, and includes the samples from the 4th cycle of Chemotherapy onwards. Also, the shiatsu massage is restricted to trained persons to administer in clinical settings. Although shiatsu massage is safe, less cost-effective, has no adverse effects, and significantly improves the outcome, minimal studies are available regarding the effectiveness of Shiatsu, which lacks a solid evidence base in the scientific nursing community. A present study may be recommended to conduct with an increase in sample size and duration to design the intervention protocol and determine the definitive conclusion.

5. Conclusion

The present study's findings concluded that the participants who received shiatsu massage twice a day for seven days significantly positively impacted reducing the level of chemotherapy-related fatigue and anxiety. Moreover, this therapy is non-invasive, less cost-effective, has no side effects, is non-pharmacological, reduces the selected adverse effects of chemotherapy, and is feasible to practice throughout chemotherapy treatment. Though there is the effectiveness of shiatsu massage, the availability of limited studies lacks a strong scientific evidence base. The current study may be replicated with large samples to modulate the intervention protocol for a better understanding of the scientific effects of Shiatsu.

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7. Conflict of Interest

Authors have no conflict of interest.

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9. Ethical Statement

The Institutional Scientific Review Board (ISRB) screened the intervention protocol ethically with 513/2021/ISRB/SCON dated 28.12.2020.

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