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RESEARCH ARTICLE

RANDOMIZED CONTROLLED TRAIL OF ZONE THERAPY FOR REDUCING DEPRESSION IN CANCER PATIENTS

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ABSTRACT

Background: Cancer is seen to be the main cause for death in both developed and developing countries. A cancer diagnosis generates a higher sense of distress may lead to anxiety, depression or both. Depression is a common co-morbidity among cancer cases. Therefore, addressing the impact of depression with the help of complementary therapies is needed. In that, Zone Therapy have been doing their own fancy footwork on depression among cancer patients. It is of applying pressure to specific points in the feet, hand and ear. It helps to restore and maintain the bodies natural equilibrium. **Aim:** To evaluate the Effectiveness of Zone Therapy on Depression among Cancer Patients. **Methods:** Randomized controlled trial research design was used for this study. 50 samples were divided into 25 in experimental group who received Zone therapy and other 25 in control group who received routine treatment. Samples were selected using simple random sampling method. The data was collected, organized and analyzed in terms of both descriptive and inferential statistics. **Results:** The study result showed that, obtained T test value for pre test is 1.074 and post test is -3.158 and p-value is < 0.05. **Conclusion:** The study findings reveals that the zone therapy is effective to bring about changes in the level of depression among cancer patients in Puducherry Cancer Trust Hospital and Research Centre.

INTRODUCTION

Cancer is seen to be the primary cause of death in economically developed countries and the secondary cause of death in developing countries (Quatrin, 2006). India stands 3rd highest number of cancer cases among women (World Health Organization). It is a life-threatening and feared diagnosis, and is a source of great distress in patients (Mishel, 1981). In, India, Cancer has got profound social and economic consequences for people in India, often leading to family impoverishment and societal inequity. Person who are more likely to die from cancer before the age of 70 years than those who are more affluent (The growing burden of cancer in India, 2014). Even a cancer diagnosis generates a high levels of mental distress. If it's prolong may lead to anxiety, depression or both (Linden, 2012). Depression is a common co-morbidity in the case of cancer. A strong body of evidence confirms the coexistence of depression and cancer, reported the prevalence of depression ranging from 20 to 50%. The rate of depression in cancer patients is thought to be up to three times higher than in the general population (Purohit samit, 2010). Persons with untreated depression may be less likely to take his cancer treatment medication because of fatigue or the lack of motivation. They may also withdraw themselves from family or other social support systems (Mary, 2004).

Therefore, addressing the impact of depression with the help of complementary therapies in which Zone therapist have been doing their own fancy footwork with research on depression among cancer patients (National Library of Medicine online). Zone therapy is a complementary alternative medicine procedure that is carried out by applying pressure to some specific points located often in the feet (sometimes in the hands), with intent to provide relief from certain symptoms. It is believed that those specific points in the feet are linked to certain organs and systems in the human body, through energy channels, and that applying pressure to these points provides relief in the relevant organ and the system, as well (Journal of Oncological Sciences, 2010). It has an amazing effect on the negative side effects of chemotherapy, pain, anxiety, stress and depression. These symptoms are often associated with cancer and its treatment can impinge on the quality of life of the person, almost as much as the disease itself. The ease with which Zone therapy can be applied in a medical environment--no equipment needed, no invasion of privacy--makes it a convenient alternative treatment for these symptoms (Hanne Marquardt, 2010). It is believed to be a safe method in terms of unwanted effects and it can be offered to patients as a supportive care service (Ninnart, 2006). Moreover, there are only limited proportion of studies related to Zone Therapy on depression among cancer patients have been done.

Hence, researcher has an interest in application of Zone Therapy aims among cancer patients to reduce depression level. Thereby maintaining good balance in emotional factors and promoting better outcome in health condition. On addressing these problems, Zone Therapy aims in reducing depression among cancer patients. The researcher stated that, the level of depression among cancer patients differs before and after zone therapy.

Statement of the problem: Effectiveness of zone therapy on depression among cancer patients in puducherry cancer trust hospital and research centre at puducherry.

Objectives

- To assess the level of depression among cancer patients in Puducherry Cancer Trust Hospital and Research Centre by using Modified Beck Depression Inventory Scale.
- To evaluate the effectiveness of Zone Therapy on depression among cancer patients in Puducherry Cancer Trust Hospital and Research Centre.
- To associate the level of depression with the selected demographic variables.

Research Hypotheses

H_1 - Level of depression among cancer patients differs before and after zone therapy.

H_2 – Association exists between the level of depression among cancer patients and the selected demographic variables.

METHODOLOGY

Research approach: An quantitative research approach was chosen for this study.

Research design: A Randomized Controlled Trial research design has been used in this study.

Setting of the study: The study was conducted at Puducherry Cancer Trust Hospital & Research Centre., Puducherry.

Population: The population of the study is cancer patients who are receiving treatment in the Puducherry Cancer Trust Hospital & Research Centre, Puducherry

Samples: The sample for the present study composed of 50 cancer patients, 25 in experimental and 25 in control group in the Puducherry Cancer Trust Hospital & Research Centre, Puducherry.

Sample size: The sample size for the study was 50 cancer patients.

Sampling technique: Simple Random Sampling technique (Lottery method) was adopted to select the samples for the study

Research variables

- Independent variable
 - Zone therapy

Dependent variable

- Depression

Criteria for sample selection

Inclusion Criteria

- Patients who are exhibiting the symptoms of depression such as sadness, guilt, suicidal thoughts, agitation, worthlessness etc.
- Patients who are available at the time of data collection.
- Patients who are able to understand the Tamil.
- Patients who are receiving Radiation therapy.

Exclusion criteria

- Patients undergoing Cancer treatment who are suffering with Psychiatric Illness except depression.
- Patients undergoing Cancer treatment who are suffering with any Physical Injuries.
- Patients who are not willing to be a part of the study.
- Patients who are receiving Chemotherapy

Description of tool

Part I: The demographic variables of Cancer Patients: The demographic variables such, Age, Gender, Education, Religion., Marital status, Number of children, Occupation, Residence, Type of family, Monthly income of the family, Socio economic status of the family, Family History of cancer, Family history of psychiatry illness, Number of hospitalization, Source of information about intervention.

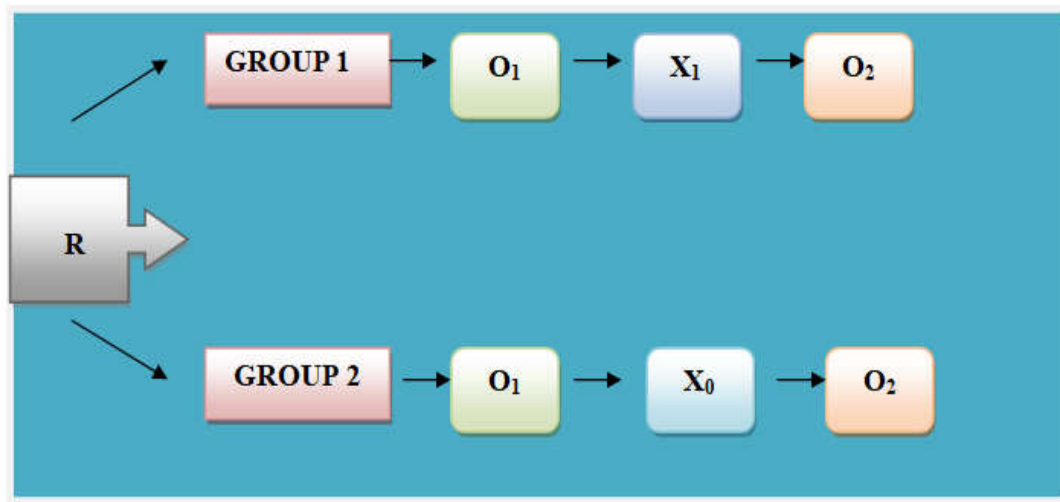
Part II: Beck depression inventory Scale: Level of Depression is assessed by using Beck Depression Inventory. Beck Depression Inventory (BDI) was created by Aaron T. Beck is a 21 question multiple choice self report inventory, one of the most widely used psychometric tests for measuring the severity of depression. There are 2 versions of the BDI, the original version first published in 1961 and revised in 1971; BDI-II, a revision of BDI was published in 1996. It has been designed to document a range of depressive symptoms that the individual experienced over the preceding week. Responses to the 21 items are made on a 4-point scale, total scores can range from 0 to 63.⁵²

Scoring interpretation: The score on Modified Beck Depression Inventory -21 will need to be multiplied by 3 to calculate the final score.

Testing of the tool

Content validity: The content validity of the Modified Beck Depression Inventory (BDI) which is Semi-Structured scale was assessed by obtaining opinion from two experts in the field of nursing.

Reliability: In this study the researcher used Modified Beck Depression Inventory. It is a semi-structured scale the reliability value was $r = 0.83$ by using Cronbach's alpha formula.



Key note: R- Random assignment of subjects to groups, O1- Pre-assessment of Depression level, X1- Administration of Zone Therapy, X0 - No intervention, O2- Post- assessment of Depression level

Figure 1. Diagrammatic representation of research design

Table. 1. Frequency and Percentage Distribution of Demographic Variables of Cancer Patients with Depression

S.No	Demographic variables		Group (N=50)			
			Experimental		Control	
			Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1.	Age in years	20-30	3	12.0	2	8.0
		31-40	5	20.0	3	12.0
		41-50	9	36.0	4	16.0
		>51	8	32.0	16	64.0
2.	Gender	Male	6	24.0	13	52.0
		Female	19	76.0	12	48.0
3.	Educational status	No education	13	52.0	4	16.0
		Primary education	7	28.0	7	28.0
		Secondary education	3	12.0	10	40.0
		Higher secondary	1	4.0	3	12.0
		Degree	1	4.0	1	4.0
4.	Occupational status	Unemployed	12	48.0	12	48.0
		Business	6	24.0	5	20.0
		Private employee	2	8.0	3	12.0
		Government employee	0	0.0	3	12.0
		Daily wages	5	20.0	2	8.0
5.	Monthly income of the family	1000-5000	3	12.0	1	4.0
		5000-15000	14	56.0	12	48.0
		15000-30000	8	32.0	11	44.0
		>30000	0	0.0	1	4.0
6.	Marital status	Married	18	72.0	22	88.0
		Unmarried	3	12.0	1	4.0
		Widow or Widower	4	16.0	2	8.0
7.	No. of children	0	3	12.0	1	4.0
		1	2	8.0	4	16.0
		2	6	24.0	14	56.0
		3	5	20.0	1	4.0
		>3	9	36.0	5	20.0
8.	Type of family	Nuclear	18	72.0	21	84.0
		Joint	7	28.0	4	16.0
9.	Place of residence	Urban	6	24.0	9	36.0
		Rural	19	76.0	16	64.0
10.	Family history of cancer	Yes	3	12.0	3	12.0
		No	22	88.0	22	88.0
11.	Family history of mental illness	No	25	100.0	25	100.0
12.	Frequency of treatment taken	Daily	25	100.0	25	100.0
13.	Duration of treatment taken for cancer at hospital	< 1 year	22	88.0	23	92.0
		1-3 years	3	12.0	2	8.0
14.	Previous knowledge regarding zone therapy	Yes	4	16.0	5	20.0
		No	21	84.0	20	80.0
15.	Mode of transport	Two wheeler	5	20.0	5	20.0
		Bus	8	32.0	10	40.0
		Hospital vehicle	12	48.0	7	28.0
		Four wheeler	0	0.0	3	12.0

Data collection method: Ethical clearance was received from the Institutional Human Ethics Committee. The purpose of interview was explained to the cancer patient with the help of information sheet. During the interview, the investigator explained the ethical issues related to the study to the patients. After explaining the procedure to the cancer patient, the investigator obtained an informed consent from each cancer patients regarding their willingness to participate in the study. A separate place was selected for interview and subjects were made comfortable and relaxed. The data collection was carried out in three phases. Through the interview method, pre-test level of depression was assessed by using Modified Beck depression inventory (BDI) scale. . Next 50 cancer patients, 25 in experimental group and 25 in control group were selected and Zone Therapy was administered for the duration of 20 min daily for 21 days to experimental group. Post-test level of depression was assessed on after Zone Therapy with Modified Beck depression inventory Scale (BDI) and the data were analyzed in terms of both descriptive and inferential statistics.

RESULTS

The study findings are presented in sections as follows:

SECTION-A: Demographic variables of cancer patients with depression: Data pertaining to age in years 3(12%) in Experimental group, 2(8%) in Control group belongs to the age group of 20-31 years, and 5(20%) in Experimental group, 3(12%) in Control group belongs to the age group of 31-40 years and 3(36%) in Experimental group and 4(16%) belongs to the age group of 41-50 years and in 8(32%) in Experimental group and 16(64%) belongs to the age group of >50 years. Regarding gender 6(24%) in Experimental group, 13(52%) in Control group were male and 19(76%) in Experimental group, 12 (48%) in Control were female. The demographics data of our study population is given in Table 1.

SECTION-B: Effectiveness of Zone Therapy on level of Depression among cancer patients: Figure 2 highlights regarding, pre-test 6(24%) had mild depression, 12(48%) had

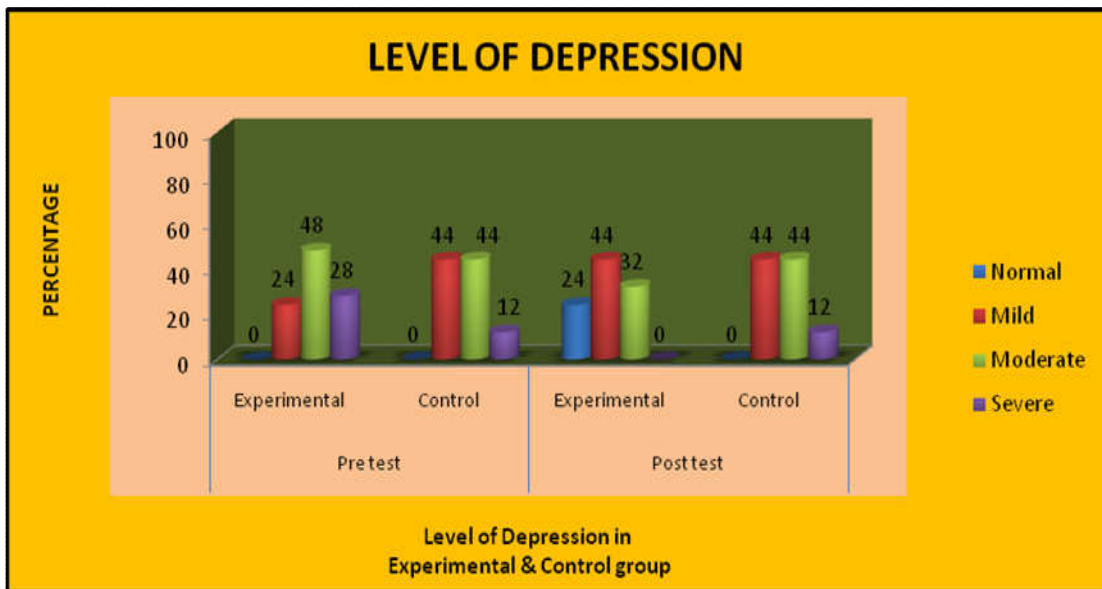


Figure.2. Distribution of Level of Depression in Experimental group and Control group during Pre test and Post Test

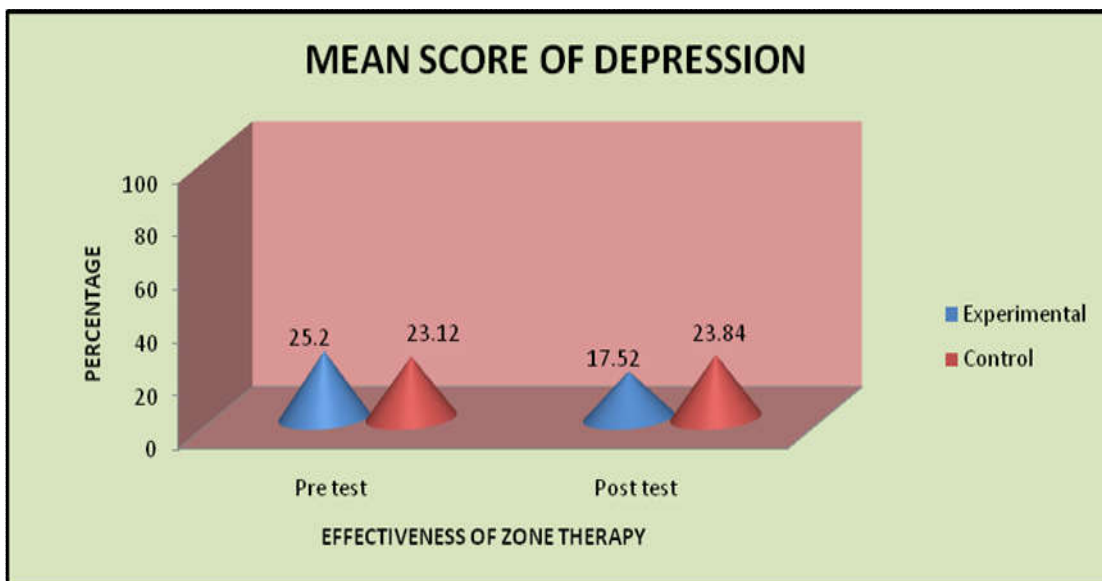


Figure 3. Comparison of Pre and Post-test of Mean depression level between Experimental Group and Control Group among cancer patients

Table 2. Association of level of depression with selected demographic variables

(N=50)

S.No	Demographic variables		Number of cancer patients	Level of Depression			KW/MW test	p-value
				Mean	Median	Standard Deviation		
1.	Age in years	20-30	5	21.8	24	5.4	4.2827	0.2325 NS
		31-40	8	25.62	25	7.46		
		41-50	13	21.46	22	6.5		
		>51	24	25.62	26	6.91		
2.	Gender	Male	19	23.95	26	5.81	0.0025	0.9999 NS
		Female	31	24.29	23	7.52		
3.	Educational status	No education	17	26.29	26	6.96	4.1937	0.3804 NS
		Primary education	14	21.36	19.5	6.5		
		Secondary education	13	23.69	24	6.2		
		Higher secondary	4	25	23	10.1		
		Degree	2	27	27	1.41		
4.	Occupational status	Unemployed	24	24.62	24.5	7.02	2.323	0.6766 NS
		Business	11	23.73	24	8.25		
		Private employee	5	23.6	24	4.56		
		Government employee	3	19	16	6.08		
		Daily wages	7	25.86	26	6.09		
5.	Monthly income of the family	1000-5000	4	24	23.5	8.68	0.5826	0.9004 NS
		5000-15000	26	24.38	25	6.77		
		15000-30000	19	23.68	24	7.11		
		>30000	1	28	28	--		
6.	Marital status	Married	40	23.38	23.5	6.72	3.4947	0.1742 NS
		Unmarried	4	23.25	25	4.99		
		Widow or Widower	6	30	28.5	6.87		
7.	No. of children	0	4	23.25	25	4.99	6.1084	0.1912 NS
		1	6	24	23.5	9.06		
		2	20	23.4	25	5.87		
		3	6	30.33	32.5	4.23		
		>3	14	22.93	21	7.89		
8.	Type of family	Nuclear	39	24.15	26	6.56	0.086	0.7694 NS
		Joint	11	24.18	23	8.18		
9.	Place of residence	Urban	15	22.73	24	7.13	1.0794	0.2988 NS
		Rural	35	24.77	26	6.75		
10.	Family history of cancer	Yes	6	24	23	8.29	0.1287	0.7197 NS
		No	44	24.18	25.5	6.75		
11.	Duration of treatment taken for cancer at hospital	< 1 year	45	24.27	25	6.42	0.236	0.6271 NS
		1-3 years	5	23.2	19	10.99		
12.	Previous knowledge regarding zone therapy	Yes	9	22.22	19	8.41	1.0492	0.3057 NS
		No	41	24.59	25	6.51		
13.	Mode of transport	Two wheeler	10	24.6	24	6.74	6.1054	0.1066 NS
		Bus	18	24.56	24.5	6.46		
		Hospital vehicle	19	22.11	22	6.62		
		Four wheeler	3	33.33	33	5.51		

*NS- Non Significant

moderate depression and 7(28%) had severe depression in experimental group and in control group 1 (44%) had mild depression, 11(44%) had moderate depression and 3(12%) had severe depression. During post-test, In pre-test 6 (24%) had normal level, 11(44%) had mild depression and 8(32%) had moderate depression in experimental group. In control Experimental group 1(44%) had mild depression, 11(44%) had moderate depression and 3(12%) had severe depression.

Figure 3 depicts, the pre-test mean depression level of Experimental group and Control group was 25.2 and 23.12 respectively. The post-test mean depression level of Experimental group and Control group was 17.52 and 23.84 respectively. The obtained independent t test was 1.074 and -3.158 and the P - value was 0.288 and 0.003. There is a significant difference between pre- and post-test mean value of depression level in Experimental group and Control group.

Thus, indicates that Zone Therapy is significantly effective in reducing depression at $P < 0.05$.

SECTION-C: Association between the level of Depression among cancer patients and the selected demographic variables: Table 2 aimed to find out the association between socio-demographic variable and Depression. The result showed that there was no significant association with $p < 0.05$.

DISCUSSION

The first objective of the present study was to assess the level of depression among cancer patients. It shows that, pre-test 6 (24%) had mild depression, 12(48%) had moderate depression and 7(28%) had severe depression in experimental group and in control group 1(44%) had mild depression, 11(44%) had moderate depression and 3(12%) had severe depression. During post-test, 6(24%) had normal level, 11(44%) had mild depression and 8(32%) had moderate depression in experimental group. In control Experimental group 11(44%) had mild depression, 11(44%) had moderate depression and 3(12%) had severe depression. The above results were supported by a cross-sectional study on Prevalence of depression among 270 breast cancer patients in ernakulam, Kerala. Findings shows that 58 (21.5%) had depression. Among those with depression, 17 had mild depression (6%), 19 had moderate depression (7%), 12 had moderately severe depression (4%), and ten had severe depression (4%) (Chitra Venkateswaran, 2017).

The second objective was to evaluate the effectiveness of Zone Therapy on depression among cancer patients: It reveals that, pre-test mean depression level of Experimental group and Control group was 25.2 and 23.12 respectively. The post-test mean depression level of Experimental group and Control group was 17.52 and 23.84 respectively. The obtained independent t test was 1.074 and -3.158 and the p-value was 0.288 and 0.003. There is a significant difference between pre- and post-test mean value of depression level in Experimental group and Control group. Thus, indicates that Zone Therapy is significantly effective in reducing depression at $P < 0.05$. The above results were supported by a quasi-experimental study on effect of zone therapy on depression among 40 breast cancer patients in Bangalore. The results was demonstrated that, pre-test measurements $t = 8.4$ ($P = 0.001$) was decreased to $t = 5.38$ ($P = 0.001$) in the post-test measurements (Derick, 2010).

The third objective was to associate the level of depression with selected demographic variables: It reveals that none of the demographic variables are significant with the P value < 0.05 . The above results were consistent with the study conducted by a quasi-experimental on effects of zone therapy on depression in patients with 60 breast and lung cancer patients. Finding shows that there is a significant level of depression ($p < 0.001$) where highly significant and no associated with the demographic variables of type of families, Education status, occupation and family income (Nancy, 2007).

Limitation

- Difficulty to gather the study samples for the workout section in the hospital.

Recommendation

Based on the findings, the following recommendations have been made for further study

- A comparative study can be conducted to assess the effectiveness of zone therapy and self reflexology on depression using a large number of samples.
- A descriptive study can be conducted on knowledge and attitude of the cancer patient and their caregivers, regarding Zone Therapy as one of the method to reduce depression.
- The study can be done in different setting with different sample.

Conclusion

The research study was done in a view to assess the Effectiveness of Zone Therapy on Depression among Cancer patients in Puducherry Cancer Trust Hospital and Research Centre, Puducherry. The study was done with 50 samples, 25 in experimental group and 25 in control group. The present findings of this study reveal the Frequency and Percentage distribution of subjects by Pre-test and Post-test Level of depression and Effectiveness of Zone Therapy on Depression among cancer patients. Thus, this study proves that Zone Therapy was effective in reduction of depression among cancer patients.

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