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"A Study to Assess Effectiveness of Progressive Muscle Relaxation Technique on Reduction of Stress among Patients with Breast Cancer Admitted in Selected Cancer Hospitals of Bagalkot''

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Abstract **Original Research Article**

Background: Breast cancer is one of the major disease conditions. Majority of the breast cancer patients won't go for proper treatment and it may leads to multiple complications. Hence the researcher developed an Progressive muscle relaxation technique on reduction of stress among Breast cancer patients. The researcher interested to conduct an experimental study with an aim towards reduction of stress among Breast cancer patients. ***Objectives:*** 1) To assess the pre test and post test level of stress among Breast cancer patients. 2) To evaluate the effectiveness of Progressive muscle relaxation in reducing stress among Breast cancer patients. 3) To find out association between the post test level of stress among patients with their selected socio demographic variables. ***Methodology:*** The Quasi experimental one group pre test post test design with sample 50 Breast cancer patients was selected by Probability simple random sampling technique. Structured questionnaire was used to collect baseline information, perceived stress scale, and the data analysis is done by using descriptive and inferential statistics. ***Results:*** The finding related to significance of difference between the level of pre test stress score and post test score revealed that there is a statistically difference was found. [t=6.3466(p value=0.0001), p<0.05]. A Significant association was found between stress score of Age, Occupation, Marital status and Number of chemotherapy. No significant association found between stress score and other socio demographic variables. ***Conclusion:*** The study proved that administration of Progressive muscle relaxation technique on reduction of stress among Breast cancer patients, was effective, scientific and logical.

Keywords: Assess, Effectiveness, Progressive muscle relaxation technique, Stress, Breast cancer, Perceived stress scale.

INTRODUCTION

Cancer refers to any one of a large number of diseases characterized by the development of abnormal cells that divide uncontrollably and have the ability to infiltrate and destroy normal body tissue. Cancer often has the ability to spread throughout body [1]. Cancer cells are often shaped differently from healthy cells, they do not function properly, and they can spread to many areas of the body. Tumors, abnormal growth of tissue, are clusters of cells that are capable of growing and dividing uncontrollably, their growth is not regulated [2]. The main cause of cancer is mutations, or changes to the DNA in cells. Genetic mutations can be inherited. They can also occur after birth as a result of environmental forces [3]. Cells start to grow uncontrollably. A tumor can be cancerous or benign. A cancerous tumor is malignant, meaning it can grow and spread to other parts of the body. A benign tumor means the tumor can grow but will not spread. Some types of cancer do not form a tumor. These include leukemia's, most types of lymphoma, and myeloma [4]. Breast cancer happens when cells in your breast grow and divide in an uncontrolled way, creating a mass of tissue called a tumor. Breast cancer originates in breast tissue. Breast cancer is one of the most common cancers among women, second only to skin cancer. It's most likely to affect women over the age of 50 [5]. Cancer treatment is the use of surgery, radiation, medications and other therapies to cure a cancer shrink a cancer or stop the progression of a cancer [6]. Breast cancer is a disease characterized by the growth of malignant cells in the mammary gland. Breast cancer can

strike males and females, although women are about 100 times more likely to develop the disease than men [7]. Breast cancer is not a transmissible or infectious disease [8]. Unlike some cancers that have infection-related causes, such as human papillomavirus (HPV) infection. Certain factors increase the risk of breast cancer including increasing age, obesity, harmful use of alcohol, family history of breast cancer, history of radiation exposure, reproductive history (such as age that menstrual periods began and age at first pregnancy), tobacco use and postmenopausal hormone therapy [9]. The exact causes of Breast cancer are largely unknown, but both environmental and genetic factors are involved. Specific mutations in genes called *HER2*, BRCA1, BRCA2, *CHEK2*, and p53 have been linked to breast cancer, these mutations may be inherited or acquired [10]. Stress is considered a major precipitating psychological issue in cancer patients from diagnosis, through treatment and prognosis, even after the disease is long gone. Cancer patients are often stressed with the uncertainty, disease severity, physical difficulties, medical treatments, psychological state, and family issues [11]. Progressive muscle relaxation (PMR) is one of the simplest and easiest to learn techniques for relaxation. It is a widely-used procedure that was originally developed by Dr. Edmund Jacobson in the early 1920s. Dr. Jacobson published *Progressive Relaxation in* 1938, detailing this method of relaxation involving alternately tensing and relaxing 14 different muscle groups. PMR is a two-step relaxation practice to reduce stress and build awareness of sensations of tension and deep relaxation in various muscle groups. The first step in this practice is to create tension in specific muscle groups and begin to notice what tension feels like in this body part. The second step is to then release this muscle tension and begin to notice what a relaxed muscle feels like as the tension drains away [12].

MATERIAL AND METHOD

The Quasi experimental one group pre test post test study with an aim intended to assess effectiveness of progressive muscle relaxation technique on reduction of stress among patients with breast cancer admitted in selected cancer hospitals of Bagalkot.

Study design: The Quasi experimental design was used to assess effectiveness of progressive muscle relaxation technique on reduction of stress among patients with breast cancer.

Setting of the study: The study was conducted in BVVS HSK Hospital & Research center

Study participants: The Breast cancer patients who are admitted in the BVVS HSK Hospital & Research center bagalkot.

Sample Size: The sample size for the present study is 50 Breast cancer patients who are admitted in the BVVS HSK Hospital & Research center bagalkot.

Sampling Technique: Sampling is the process of selecting a part of the assigned population to represent the entire population. The sampling technique adopted for this study is Probability simple random sampling technique.

Instrument: Pereceived stress scale it includes items related to stress among breast cancer patients. The questionnaire each item was given a score of 0,1,2,3 & 4.

Description of the tool:

Self-constructed structured questionnaire and standardized intervention scale

Self-constructed structured questionnaire which consists of one part and standardized intervention scale it consists of one part;

PART I: Socio demographic data of breast cancer patients.

PART II; Standardized intervention scale on reduce the stress.

DATA COLLECTION PROCEDURE:

The data collection was Conducted from Breast cancer patients who are admitted in the BVVS HSK Hospital and Research centre, Bagalkot. Permission was obtained from the medical superintendent of BVVS HSK Hospital before data collection. Written consent was obtained from 50 sample. Breast cancer patients were selected on the basis of Probability simple random sampling technique. Then the investigator did a pretest on assessment of stress among breast cancer patients. For assessing the level of stress Standardized Perceived stress scale was used. Then the Progressive Muscle Relaxation Technique was administered to the subjects for 10 days. The researcher spents 20 minutes with each subject. The progressive muscle relaxation technique was given for 20 minutes a day, in 2 session (morning/ evening) for 6 days. After the completion of last session stress level was assessed by perceived stress scale.

Socio demographic variables: Age, Education, Type of family, Occupation, Marital status, Income per month, Religon, Source of information, Number of chemotherapy.

Statistical analysis: The obtained data were statistically examined in terms of the objectives of the study using inferential statistics. A master sheet is prepared with response given by the study participants. Frequencies and percentage was used for the analysis of demographic data. The mean and standard deviation, mean difference and standard deviation difference is used for inferential statistics. The chi square test was used to determine

association between the level of stress in pre and post test scores and selected sociodemographic variables of breast cancer patients.

Ethical Approval: A certificate of ethical permission was obtained from ethical committee of the institute and written consent was taken from each participants.

RESULTS

The collected information was organized and presented in four parts: Part I, Part II, Part III and Part IV.

Part I: Description of socio-demographic characteristics of subjects.
Part II: Assessment of pre test and post test level of stress among Breast cancer patients.

Part III: Evaluation of the Effectiveness of Progressive muscle relaxation technique on reduction of stress among Breast cancer patients.

Part IV: To find out the Association between pre test level of stress with their selected socio demographic variables among the Breast cancer patients.

SECTION I: Description of socio-demographic characteristics of sample.

Table 5.1: Demographic characteristics of study subjects (N=50)

Characteristics	No of respondents	% of respondents
Age groups		
21-30 yrs	7	14.00%
31-40 yrs	13	26.00%
41 and yrs	30	60.00%
Educations		
No formal education	17	34.00%
Primary education	15	30.00%
High & higher secondary	11	22.00%
Graduate & above	7	14.00%
Type of family		
Nuclear family	34	68.00%
Joint family	16	32.00%
Occupation		
Housewife	23	46.00%
Employee	15	30.00%
Coolie	12	24.00%
Marital status		
Single	8	16.00%
Married	34	68.00%
Widow/ Divorced	8	16.00%
Income per month		
< 5000/-	22	44.00%
5001 to 10,000/-	21	42.00%
10,000/- & Above	7	14.00%
Religion		
Hindu	32	64.00%
Muslim	9	18.00%
Others	9	18.00%
Source of information		
Friends	12	24.00%
Relatives	15	30.00%
Mass media	14	28.00%
Health professional	9	18.00%
Number of chemotherapy		
<4	37	74.00%
>4	13	26.00%
Total	50	100.00%

SECTION II: Assessment of pre test and post test level of stress among Breast cancer patients.

Table5. 11: Assessment of Mean, SD and paired 't' test of Pre and post test scores towards reduction of stress among breast cancer patients (N=50)

Times	Mean	SD	Mean Diff.	SD Diff.	% of change effect	t-value	p-value
Pretest	23.44	10.23					
Posttest	13.86	3.91	9.58	10.67	40.87	6.3467	0.0001*

The above table shows that the calculated 't' value is 6.3467, which was lower significant at the $p < 0.0001$ level. As Hypothesis H_1 states, H_1: The mean post test level of stress will be significantly lower than the mean pre test level of stress among breast cancer patients.

Hence it is clear that there is a statistically difference between mean post test level of stress and mean pre test level of stress among breast cancer patients.

Hence H_1 is accepted.

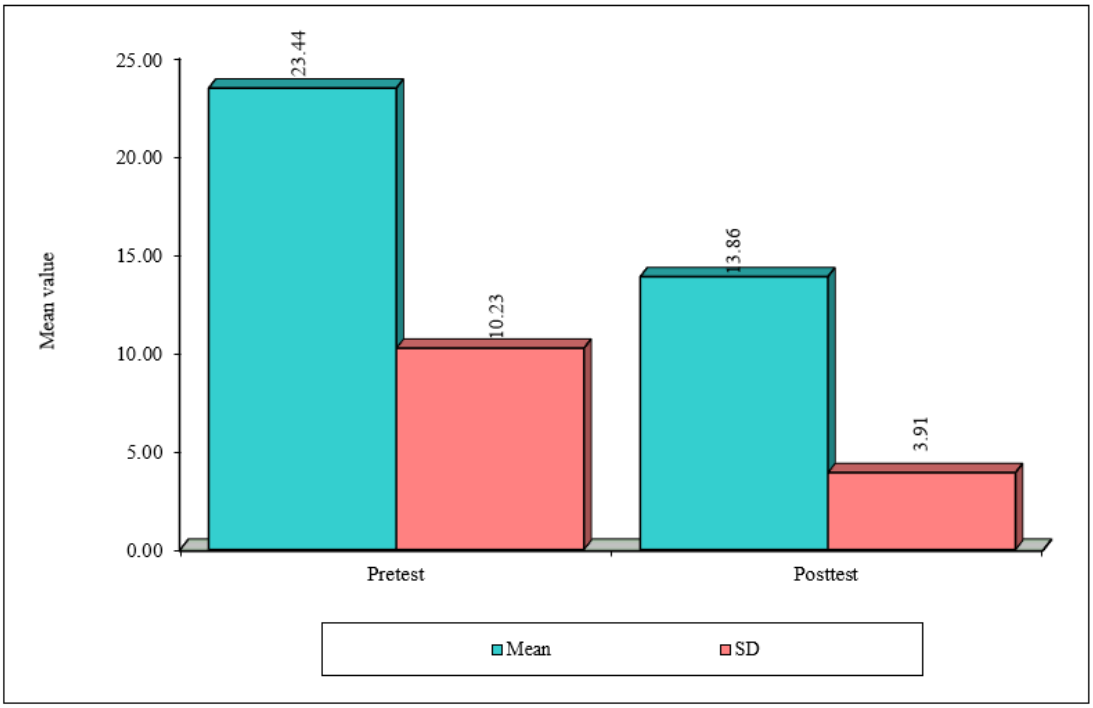

Figure 5.10: Comparison of pretest and posttest stress scores

SECTION III: Evaluation of the Effectiveness of Progressive muscle relaxation technique on reduction of stress among Breast cancer patients.

Table 5.12: Comparison between Pre test and post test levels of Stress score reduction of stress among Breast cancer patients (N=50)

Levels of pretest stress	Pretest		Posttest	
	No	%	No	%
Low stress	9	18.00	24	48.00
Moderate	25	50.00	26	52.00
High stress	16	32.00	0	0.00
Total	50	100.00	50	100.00
Wilcoxon matched pairs test, Z=3.9642, p=0.0001*				

*p<0.05

Above table, depict findings about the comparison of level of stress of Breast cancer patients. In pre test (18%) of the Breast cancer patients had low stress, (50%) had moderate stress and (32%) had high stress. In post test (52%) had moderate level of stress and (48%) had low stress. The above stated results clearly suggest that Breast cancer patients level of stress was reduced in post test, as compared to the level of stress in pre test. Thus the administration of Progressive muscle relaxation intervention programme was successful in reducing the level of stress among Breast cancer patients.

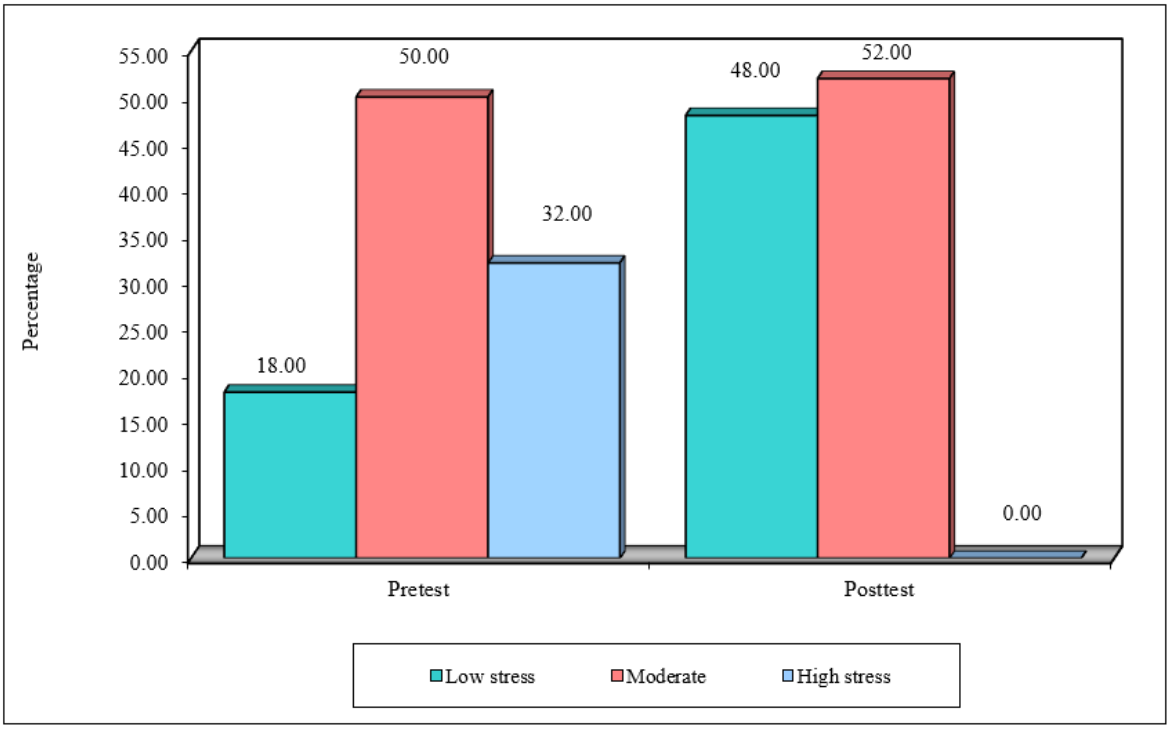

Figure 5.11: Comparison of levels of pretest and posttest stress scores

SECTION IV: Association between levels of pre test stress with their selected socio-demographic Variables. N=50

Table 5.13:

Characteristics	Levels of pretest stress						Total	%	Chi-square	p-value
	Low stress	%	Moderate	%	High stress	%				
Age groups										
21-30 yrs	4	57.1	3	42.9	0	0.0	7	14.0	14.2520	0.0070*
31-40 yrs	4	30.8	5	38.5	4	30.8	13	26.0		
41 and yrs	1	3.3	17	56.7	12	40.0	30	60.0		
Educations										
No formal education	1	5.9	9	52.9	7	41.2	17	34.0	11.2380	0.0810
Primary education	3	20.0	9	60.0	3	20.0	15	30.0		
High & higher	1	9.1	6	54.5	4	36.4	11	22.0		
Graduate & above	4	57.1	1	14.3	2	28.6	7	14.0		
Type of family										
Nuclear family	5	14.7	20	58.8	9	26.5	34	68.0	3.3100	0.1910
Joint family	4	25.0	5	31.3	7	43.8	16	32.0		
Occupation										
Housewife	1	4.3	11	47.8	11	47.8	23	46.0	29.6160	0.0001*
Employee	0	0.0	12	80.0	3	20.0	15	30.0		
Coolie	8	66.7	2	16.7	2	16.7	12	24.0		
Marital status										
Single	1	12.5	5	62.5	2	25.0	8	16.0	13.6220	0.0090*
Married	3	8.8	19	55.9	12	35.3	34	68.0		
Widow/ Divorced	5	62.5	1	12.5	2	25.0	8	16.0		
Income per month										
< 5000/-	3	13.6	13	59.1	6	27.3	22	44.0	2.1340	0.7110
5001 to 10,000/-	4	19.0	10	47.6	7	33.3	21	42.0		
10,000/- & Above	2	28.6	2	28.6	3	42.9	7	14.0		
Religion										

Hindu	4	12.5	17	53.1	11	34.4	32	64.0	2.3060	0.6800
Muslim	3	33.3	4	44.4	2	22.2	9	18.0		
Others	2	22.2	4	44.4	3	33.3	9	18.0		
Source of information										
Friends	0	0.0	8	66.7	4	33.3	12	24.0	11.4160	0.0760
Relatives	1	6.7	7	46.7	7	46.7	15	30.0		
Mass media	6	42.9	6	42.9	2	14.3	14	28.0		
Health professional	2	22.2	4	44.4	3	33.3	9	18.0		
Number of chemotherapy										
<4	3	8.1	18	48.6	16	43.2	37	74.0	13.4100	0.0010*
>4	6	46.2	7	53.8	0	0.0	13	26.0		
Total	9	18.0	25	50.0	16	32.0	50	100.0		

Chi square and Yates correction was calculated to find out the association between post test scores of breast cancer patients in reduction of stress with their socio demographic variables by using contingency table.

Calculated Chi square and Yates correction value is lesser than table value for soci demographic variables Age ($\chi 2$=14.2520, P=0.0070), Occupation ($\chi 2$=29.6160, P=0.0001), Marital status ($\chi 2$=13.6220, P=0.0090), and Number of chemotherapy ($\chi 2$=13.4100, P=0.0010). No significant association found between stress score and other socio demographic variables.

Hence H_2 is accepted for Age, Occupation, Marital status, and Number of chemotherapy and rejected for others.

DISCUSSION

This chapter discusses the main findings of the study and considers them in relation to the results of other studies. The present study was conducted to assess effectiveness of progressive muscle relaxation technique on reduction of stress among patients with breast cancer admitted in selected cancer hospitals of Bagalkot''

To achieve the objectives of the study, Quasi pre experimental research design was adopted. A sample of 50 breast cancer patients was selected using a probability simple random sampling technique.

The post test assessment of the stress level of the breast cancer patients reveals that 42.00% of the participants had low level of stress score, 58.00% of the participants had moderate level of stress score and no high level of stress. The results were supported by the study conducted by Ms. Giftshia Sheny (2015) a study that investigated the effect of an PMRI intervention to reduce the stress among breast cancer patients. Subject received repeated session of intervention on breast cancer. After the intervention, it was found that patients stress and intervention of the patients on breast cancer patients to reduce the stress.

The Karl Pearson correlation coefficient was used to determine the relationship between the pre and post test level of stress among breast cancer patients. The 'r' value of the post test is (0.84). It shows that there is a positive correlation between pre test and post test level of stress. It implies that the stress score of breast cancer patients in terms to reduce the stress.

The findings were supported by study conducted by H.A. Alagizy, M. R. Soltan, S. S. Soliman, N. N. Hegazy and S. F. Gohar1(2020), to assess the anxiety, depression and perceived stress among breast cancer patients: single institute experience.

Findings related to the significance of the difference between pre test and post test scores of the Breast cancer patients shows that, difference between mean pre test [23.44] with SD of [10.23], and mean post test [13.86] with SD of [3.91], found to be statistically difference at 0.05 level of significant [t=6.3467 (p valve=0.0001) p<0.05]. The findings were supported by study conducted by Ms. Kanaga Jothi (2015), a quasi experimental study to evaluate the effectiveness of progressive muscle relaxation technique on stress among school teachers. The study showed that pre test mean score was 97.63 with S.D 6.75 and the post test mean score of stress was 58.0 with S.D 5.10., the calculated value found to be statistically significant at pp<0.001 level.

The study Findings reveals about the comparison of level of stress of Breast cancer patients. In pre test (18%) of the Breast cancer patients had low stress, (50%) had moderate stress and (32%) had high stress. In post test (52%) had moderate level of stress and (48%) had low stress. The findings were supported by study conducted by Latha, I (2019), The mean pre-test score was 64.16 and mean post-test score was 36. The paired "t" test value was 44 when compared to the table value (2.0) it is high.

The study results showed that there was no association between the level of stress in post test with demographic characteristics of Age, Education, Type of family, Occupation, Marital status, Income per month, Religion, Source of information, Number of chemotherapy. The findings were supported by study conducted by Mrs. A. M. Leethum (2012). The calculated value is less than the tabulated value (at 0.05

levels) for age sex, religion, education, occupation, type of family monthly income.

CONCLUSION

The study is helpful to find the overall impact of intervention on reduction of stress among breast cancer patients. Intervention was administered, significant variation between the level of stress score on pre test and post test was discovered. The research demonstrated that intervention was very helpful in enhancing intervention to reduction of the stress.

CONTRIBUTION OF AUTHOR

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