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"A STUDY TO ASSESS THE EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION AND MUSIC THERAPY IN REDUCING PAIN AND ANXIETY AMONG CANCER PATIENTS IN SELECTED PRIVATE HOSPITAL AT NAMAKKAL DISTRICT"

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ABSTRACT

The aim of this study was to evaluate the efficacy of music therapy and progressive muscle relaxation in lowering cancer patients' pain and anxiety. Based on Betty Neuman's Systems Model as the conceptual framework, a quasi-experimental research approach was used with a pre-test and post-test experimental and control group design. Convenient sampling was used to choose 40 cancer patients between the ages of 20 and 60 for the study. Spielberger's State-Trait Anxiety Scale, the Visual Analogue Scale for Pain, and sociodemographic characteristics were all included. The experimental group received music therapy and progressive muscle relaxation after the pre-test evaluation, while the control group was given standard treatment. The post-test was administered following the intervention. Descriptive and inferential statistics, such as the Chi-square test, "t" test, frequency, percentage, mean, and standard deviation, were used to examine the data. The experimental group's pain and anxiety levels significantly decreased following the intervention, according to the data. Pain and anxiety mean percentage ratings dropped from 68% and 73.5% in the pre-test to 48% and 57.6% in the post-test, respectively. Progressive muscle relaxation and music therapy were successful in lowering cancer patients' pain and anxiety, as evidenced by the statistically significant differences ($p < 0.0001$). According to the study's findings, Progressive Muscle Relaxation and Music Therapy are efficient, non-invasive, and reasonably priced nursing interventions that can be incorporated into standard oncology nursing care to improve patients' comfort and mental health.

Keywords: pain and anxiety, cancer patients, progressive muscle relaxation and music therapy.

INTRODUCTION

Cancer is caused by DNA mutations that are either inherited or acquired through aging, environmental factors such as tobacco, pollution, viruses, or lifestyle factors such as diet, inactivity, which result in unchecked cell growth. The disease is highly prevalent worldwide, accounting for nearly 10 million deaths each year, with the most common cancers being breast, lung, colon, and prostate. Risk factors like obesity, smoking, and aging drive an increasing incidence, even though much of it is preventable.

Pain and anxiety are prevalent in cancer patients, and they have a substantial impact on their quality of life, psychological health, and physical comfort. Holistic nursing care includes non-pharmacological therapies like music therapy and progressive muscle relaxation in addition to pharmaceutical management. WHO released survey data from 115 nations, demonstrating that most nations do not sufficiently fund priority cancer and palliative care treatments as part of universal health coverage. An estimated 20 million new cases and 9.7 million deaths from cancer were reported in 2022. 53.5 million people were expected to have survived five years after receiving a cancer diagnosis. Approximately 1 in 5 people will get cancer at some point in their lives, and 1 in 9 men and 1 in 12 women will die from the condition.

OBJECTIVES OF THE STUDY

- To assess the pre-interventional level of pain of cancer patients.
- To assess the pre-interventional level of anxiety of cancer patients.
- To assess the post interventional level of pain in cancer patients.
- To assess the post interventional level of anxiety in cancer patients.
- To compare the pre and post interventional level of pain and anxiety of the experimental.
- To compare the level of pain and anxiety of experimental group with that of control group before and after intervention.
- To determine the association between level of pain, anxiety and the socio-demographic characterizes of patients with cancer.

MATERIALS AND METHODS

In this study the quasi experimental design is used for the method of study. The present study is intended to identify the effects of progressive muscle relaxation and music therapy in reducing pain and anxiety among cancer patients in selected private hospital at namakkal district.

DESCRIPTION OF THE TOOL

The instrument consists of three sections.

Section 1 → Socio - Demographic performa

Section II → Visual Analogue scale - pain

Section III → Spiel bergers state trait anxiety scale.

Section I

Demographic performa includes age, sex, education, occupational status, marital statues, income per month, stages of cancer, duration of diagnosis, spirituality and insight of the disease.

Section II

The Visual analogue scale (VAS) was used in the present study because it gives a subjective measure of the improvement. The VAS provides a continuous scale for magnitude estimation. It consists of a straight line, the ends is which are defined interms of the extreme limits of pain experience.

In the present study the VAS consisted of a straight line, 10cms in length which has been marked at one end as "no pain" and at the other end as "severe pain". The client is asked to mark along the line where he/she would like to place himself before and after the treatment.

Section III

The original Spielberg's state Trait Anxiety inventory (state form) is used for present study. It includes statement that can be graded on a four point scale. State form assess the state anxiety, defined as a transitory emotional state that various in intensity, fluctuates over time and is characterized by feeling of tension and apprehension and by heightened activity. It evaluates how the respondent feel right now at this moment.

It measures the state anxiety of the patients. All patients will be encouraged describe their present feeling for assessing the state anxiety. It consists 20 statements. The score range 20-80 with high score indicating presence of high anxiety. Each statement has a weighted score of 1-4.

The maximum score will be 80 and the minimum score is 20. High score indicates high anxiety and low score indicates less anxiety.

VALIDATION OF THE TOOL

The tools which used for the present study was standardized scales.

DATA COLLECTION METHOD

The data was collected for a period of 4 weeks. The study was conducted in private hospital at namakkal during June 2025. Assessment of the patients was done with baseline data on the first day. Total number cancer patient admitted in private hospital at namakkal were 150. The population comprise of both male and female patients among those 150 patients, 50 patients were the during data collection and they were selected for the pre-test. The assessed the pain and anxiety of cancer patient. The sample were divided into two groups consisting of 10 members in each group. Convenient samples of 40 patients were identified with pain and anxiety. The intervention was administered in separate experimental groups from 10am to 4pm in the hospital premises. Progressive muscle relaxation and music therapy was implemented daily for the duration of 30minutes for 4weeks. After the intervention the pain and anxiety was reassessed from both groups using the same tools.

REVIEW OF LITERATURE

Khanh Thi Nguyen (2025) Conducted a randomised wait-list controlled trial. A total of 120 participants were randomly allocated into an intervention group or a wait-list control group. The intervention group received an intervention comprising training on passive music listening and progressive muscle relaxation, with once-daily self-practice at home for 3 weeks. The wait-list control group received the same intervention after the outcome assessment at week 6. All outcome data were collected before (T0) and 3 weeks (T1), 6 weeks (T2), and 12 months (T3) after randomisation. A generalised estimating equations model was used to compare the changes in each outcome at different time points. Process evaluation was conducted using data from the patient's self-report forms and interviews.The findings indicated that at T1 and T2, the intervention group's reductions in anxiety were significantly larger than those of the control group. Additionally, the intervention group exhibited significantly better decreases in depression at T2, stress at T1, and dysfunctional coping at T2, and a greater improvement in quality-of-life score at T1 and T2 when compared to the control group. Most of the interviewed participants provided positive feedback on the intervention.

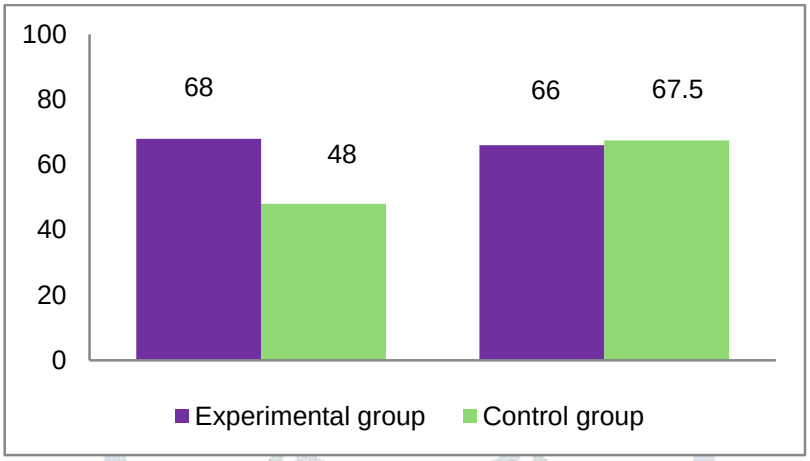
ZHONG (2025) A retrospective study was conducted on the medical records of 124 patients with LAGC who received CCRT in Jiaozhou Central Hospital from December 2021 to November 2023. These patients were divided into the conventional care group ($n = 65$) and the music relaxation group ($n = 59$) on the basis of different nursing methods. Negative emotions (Hospital Anxiety and Depression Scale [HADS]), sleep quality (Self-Rating Scale of Sleep [SRSS]), and quality of life (Quality-of-Life Questionnaire-Chinese Cancer Chemotherapy Patients) were compared between the two groups before and after treatment. **Results:** After treatment, the HADS and SRSS scores of the music relaxation group were significantly lower than those of the conventional care group ($P < 0.001$), and the Quality-of-Life Questionnaire-Chinese Cancer Chemotherapy Patients scores of the music relaxation group were significantly higher than those of the conventional care group ($P < 0.001$). **Conclusion:** Music-assisted progressive muscle relaxation can improve the psychological state of patients with LAGC undergoing concurrent radiotherapy, promote sleep quality and help improve quality of life.

RESULTS

ANALYSIS OF EFFECTIVENESS OF RELAXATION TECHNIQUE (EXPERIMENTAL AND CONTROL GROUP)

Description about pain and anxiety score of patients under experimental and control group
Mean, standard deviation and mean score percentage of pain score

Groups	Maximum score	Pre- test			Post-test			% of pain Reduction
		Mean	S.D	Mean score %	Mean	S.D	Mean score %	
Experimental	10	6.8	1.32	68	4.8	1.19	48	20
Control	10	6.6	1.39	66	6.75	1.20	67.5	-1.5



The above table envisages the descriptive measures computed on pain score of cancer patients. The visual analogue scale ranges from one to ten was sed as pain rating scale. The subjects undervent the interventional programme were resulted with reduction of mean pain rating index of 4.8 from 6.8. The mean pain rating index of control was found to be more or less same in pre and post scores of 6.6 and 6.75 respectively. Additionally the impact of intervention was quantified through percentage of pain reduction and it was found to be 20% in experimental group and no percentage of reduction was achieved in control group instead negative proportion (-1,5%) increase found, ie, 1.5% increase in control group.

Description about pain and anxiety score of patients under experimental and control group
Mean, standard deviation and mean score percentage of anxiety score

Groups	Maximum score	Pre- test			Post-test			% of pain Reduction
		Mean	S.D	Mean score %	Mean	S.D	Mean score %	
Experimental	80	58.8	7.59	73.5	46.15	10.6	57.6	15.9
Control	80	57.9	7	72.3	58	7.2	72.5	-0.2

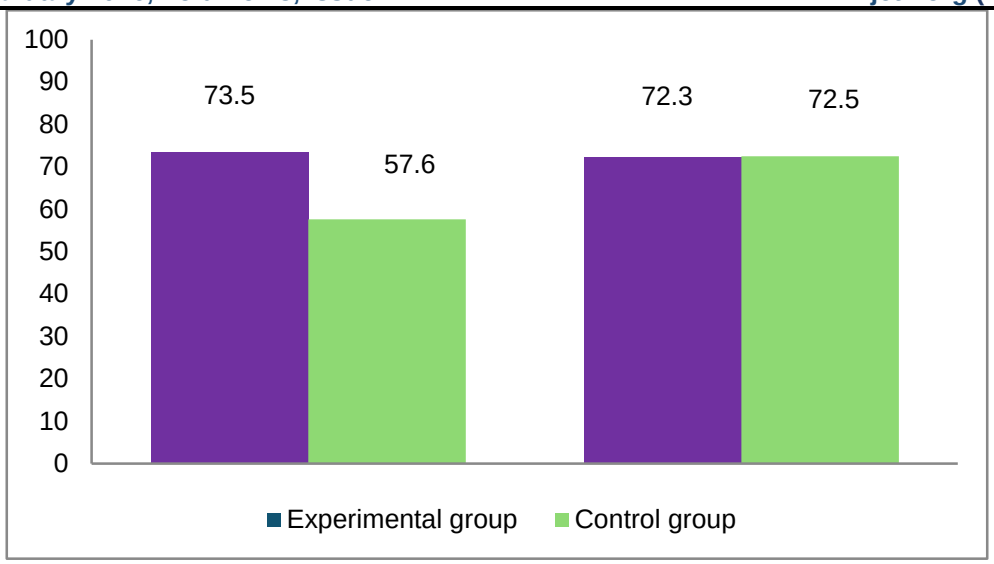


Table depicts the descriptive measures obtained on anxiety score of cancer patients. The Speilberges state trait anxiety inventory form with maximum score of 80 was used to obtain the anxiety score. The group which undergone the interventional programme was resulted with reduction of mean anxiety score of 46.15 from 58.8. The group was considered as control resulted with pre and post anxiety score of 57.9 and 58 respectively. Additionally the effect of intervention was quantified through percentage of anxiety reduction and it was found to be 15.9% in experimental group and no percentage of reduction in control group. It indicates that there is a reduction in anxiety in the experimental group through the intervention.

RELATIONSHIP BETWEEN DEMOGRAPHIC AND BASELINE VARIABLES WITH PRE-TEST SCORE OF PAIN AND ANXIETY

Relationship between performance on pre test score of pain and demographic variables of the subjects

S.NO	Demographic Variable	PAIN SCORE		Total	x^2 values	Results
		Moderate	Severe			
1	**Sex**				0.84	Not Significant
	Male	8(44)	10(56)	18		
	Female	13(59)	9(41)	22		
2	**Education**				2.54	Not Significant
	Illiterate	5(83)	1(17)	6		
	Primary/ secondary/>graduation	16(47)	18(53)	34		
3	**Monthly family income**				**11.61***	**Significant**
	Less than Rs.10000/-	13(52)	12(48)	25		
	>10000	8(53)	7(47)	15		
4	**Stages of cancer**				0.31	Not Significant
	Stage I&II	4(44)	5(56)	9		
	Stage III	17(55)	14(45)	31		
5	**Duration of diagnosis**				0.21	Not Significant
	≤ 1 year	14(50)	14(50)	28		
	> 1 year	7(58)	5(42)	12		
6	**Spirituality**				**12.9***	**Significant**
	Good	15(54)	13(46)	28		
	No	6(50)	6(50)	12		
7	**Insight of disease**				**9.82***	**Significant**
	present	16(52)	15(48)	31		
	Absent	5(56)	4(44)	9		

Table which shows the association between the pain score and the socio-demographic variables of the subjects studied. To assess the significant association, the Chi-square analysis was worked out and it was found that there is a significant relationship

between the insight of disease and spirituality with the pain score and it was significant at 5% level (ie P<0.05). But there is no association between the pain score with sex, education, income and duration of diagnosis of disease and stages of cancer.

Table shows that Relationship between performance on pre fest score of Anxiety with demographic variables of the subjects

S.NO	Demographic Variable	ANXIETY SCORE		Total	x^2 values	Results
		Moderate	Severe			
1	**Sex**				0.35	Not Significant
	Male	15(79)	4(21)	19		
	Female	15(71)	6(21)	21		
2	**Education**				0.39	Not Significant
	Illiterate	5(83)	1(17)	6		
	Primary/ secondary/>graduation	24(71)	10(29)	34		
3	**Monthly family income**				0.18	Not Significant
	Less than Rs.10000/-	18(72)	7(28)	25		
	>10000	12(80)	3(20)	15		
4	**Stages of cancer**				0.54	Not Significant
	Stage I&II	17(71)	7(29)	24		
	Stage III	13(81)	3(19)	16		
5	**Duration of diagnosis**				0.62	Not Significant
	≤ 1 year	22(79)	6(21)	28		
	> 1 year	8(67)	4(33)	12		
6	**Spirituality**				**5.7***	**Significant**
	Good	24(86)	4(14)	28		
	No	6(50)	6(50)	12		
7	**Insight of disease**				5.77*	**Significant**
	present	26(84)	5(16)	31		
	Absent	4(44)	5(56)	9		

Above the table was shows that association between the anxiety score wwith the socio-demographic variables of the subjects studied. To assess the significant association Chi-square (x ^ 2) analysis was worked out and it was found that there is an association between the anxiety score with income, spirituality and insight of the disease and it was significant at 5% level lie, P < 0.05) . But there is no significant association between the age, sex, duration of diagnosis and stages of cancer with the anxiety score.

DISCUSSION

The primary purpose of this study is evaluating the effectiveness of progressive muscle relaxation and music therapy in reducing pain and anxiety of cancer patients.

Analysis of effectiveness of progressive muscle relaxation and music therapy

In the present study, it is showed that the post test mean score percentage of the pain (48) and anxiety (57.6%) of cancer patients in the experimental group was lesser than the pre test mean score percentage of pain and anxiety (68%) and 73.5%) respectively. This result indicates that the progressive muscle relaxation and music therapy was effective in reducing the pain and anxiety in cancer patients. The Chi-square (x2) analysis was conducted to test the association between the anxiety and pain before and after intervention. The result reveals that there is no association between pain and anxiety before the intervention programme due to the chemotherapy. But x^2 analysis (x2=5.07) was significant at 5% level after intervention and it was concluded that there is an association between pain and anxiety. This reveals that the effectiveness of relaxation technique in reducing pain and anxiety on cancer patients is in same direction and uniformly.

Paired T test analysis was conducted to test the hypothesis between the pre and post pain score of experimental and control groups which has been assessed by using Visual analoque pain index. It was found that the obtained value of experimental T = 80 which is significant at 0.0001 level (je P < 0.0001) . Same way the 't' value of pre test and post test score of anxiety in experimental and control group was assessed by using Spielberg's state trait anxiety inventory. It was found that the obtained value in the experimental group t = 6.09 which is significant at 0.001 level (ie, P < 0.0001) and null hypothesis was rejected and research hypothesis was accepted that the relaxation technique is effective in reducing pain and anxiety in cancer patients.

The above findings imply that the relaxation technique has a significant effect in reducing the pain and anxiety of cancer patients in experimental group. Relationship between socio-demographic characteristics with pre test score of pain an anxiety and

baseline. The present study reveals that there is an association between the insight of disease and spirituality with pain score. But there is no associates between the sex, education, income and duration of diagnosis and stages of cancer with pain score.

Relationship between socio-demographic characteristics with pre test score of pain an anxiety and baseline

The present study reveals that there is an association between the insight of disease and spirituality with pain score. But there is no associates between the sex, education, income and duration of diagnosis and stages of cancer with pain score.

The association between the anxiety score with the socio demographic and baseline characteristics, which was found that there is a significant association between the anxiety score with the income, spirituality and insight of disease but there is no significant association between the age, sex, education, duration of diagnosis and stages of cancer.

CONCLUSION

Relaxation to the cancer patients is a vital aspect, which should be considered as a necessary function of a nurse. Relaxation to the cancer patients helped in reducing pain and anxiety. The patients in the experimental group were much relaxed, had a positive perception of life and were more co-operative when compared to patients in control group.In view of the positive results, the researcher believes that the study would benefit from widening its scope and using a much large subject sample.

RECOMMENDATIONS

- ✓ A similar study can be conducted for a larger group of sample to draw more conclusive generalization.
- ✓ Using other relaxation technique measures in different combination can do a similar study.
- ✓ Involving family members during relaxation can do a similar study.
- ✓ A longitudinal study can be carried out on the effects of relaxation.
- ✓ A similar study can be conducted for long duration of intervention.
- ✓ Multi site randomized controlled clinical trials should be used to measure the external reliability of the study.
- ✓ This chapter has dealt with summary, major findings of the study, conclusion, implication and recommendations.

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