

Effects of music therapy on anxiety, blood pressure and respiratory rate in patients undergoing chemotherapy

Abstract

The purpose of this study was to assess the effectiveness of music therapy in decreasing anxiety in patients undergoing chemotherapy for the first time after being diagnosed to have cancer. A pre-post control group design was used. The oncology unit of Yenepoya Medical College hospital was used as the setting for this study. Twenty patients with cancer were recruited for the study. Mean age of the sample was 45 years. Most (70%) were men. Physiologic measures of anxiety assessed in this study were mean blood pressure and respiratory rate. An additional measure was the Spielberg State-Trait Anxiety Inventory.¹

Patients in experimental group were assigned to receive 60 minutes of music therapy and control group had normal routine care. Patients in experimental group listened to relaxing music by using iPod connected to the musical pillow. Subjects selected the music of their choice from a selection including light instrumental music of wind and string instruments. Subjects had physiologic measures taken immediately before the intervention and after the intervention.²⁻⁴ The Spielberg's State-Trait Anxiety Inventory was completed before the intervention and immediately after the intervention.

Findings indicated that music therapy was more effective in decreasing state anxiety in experimental group ($P < .01$). Significant differences were observed in blood pressure and respiratory rate at the end of the music therapy in experimental group.⁵ Music therapy is an effective nursing intervention in decreasing anxiety in patients undergoing chemotherapy.⁶

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Syed Imran,¹ Moosabba MS,² Alphonsa Ancheril³

¹Department of Psychiatric Nursing, Yenepoya University, India

²Department of General Surgery, Yenepoya University, India

³Dept of Psychiatric Nursing, Athena College of Nursing, India

Correspondence: Syed Imran, Department of Psychiatric Nursing, Yenepoya University, India, Email: syed_vinu@yahoo.co.in

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Introduction

The word "cancer" brings up many ideas for the individual. Surprisingly, they are afraid, not so much of death, but for themselves, the fear of pain or the end of life as they know it, and for others, the fear of being a nuisance or even objectionable. The diagnosis of cancer means a change in the lifestyle of the person in whom the cancer is found. The degree and permanency of that change is, of course, dependent on the extent of the disease, the course of treatment undertaken, and the resultant disabilities, all of which place that individual and his family under tremendous stress.⁷

The stress begins before the person even enters hospital and is compounded by the events which follow the individual's transformation into the hospital patient. A sick person is taken out of his or her natural environment and placed in the strange and often overwhelming atmosphere of a hospital, which, by its very nature, strips the patient of his or her individualism. It is, therefore, very important for the hospital worker, who is so familiar with this environment, not only to be aware of this anxiety-producing process, but to cope with it herself and to alleviate it for the patient as much as possible. The person who is diagnosed as having a cancer is anxious over many things in addition to being hospitalized.⁸

Music is considered to be effective stress burner and also helps in decreasing anxiety in patients undergoing various treatment modalities. There is a growing body of research documenting the effects of many alternative treatment modalities in cancer care, one among which is the music therapy. Research has proved that engaging in the music listening or music composing activities will reduce the overall health ailments which will arise due to the treatment part and

increases the quality of life in terms of comfort, relaxation in patients with cancer.^{9,10} Thus the aim of this study was to examine the effects of relaxing music on the anxiety of patients undergoing chemotherapy as reflected by state anxiety scores, mean blood pressure, and respiratory rate.

Material and methods

This study used a pretest/post-test control group design. A non probability convenience sampling was adopted to select the sample. Inclusion criteria for sample selection were able to read English or Kannada, mentally competent, without hearing problems, undergoing first time chemotherapy. Sample size was determined based on a previous study. Permission was obtained from the university ethics committee to carry out the study. Patients were approached and explained about the study and the consent was taken to participate in the study.¹¹ The blood pressure, respiratory rate and the state anxiety inventory was administered to both the group before starting the chemotherapy. The experimental group listened to the preferred music for 60 minutes with the help of iPod which was connected to the sleep tune musical pillow. The control group had normal routine care during the chemotherapy session.

Results

Frequency and percentage of demographic variables of patients with cancer undergoing chemotherapy

Paired t test was used Table 1 to determine the effects of music on state anxiety level scores within groups. A statistically significant difference in subjects receiving music therapy compare to control

group was noted. Paired *t* test results on the post-test mean state anxiety scores also revealed significant difference between groups ($P<.01$), as the mean post-test anxiety score in the control condition was 47.6(SD, 4.72) and 35.6(SD, 5.2) in the experimental. Subjects in

both conditions had experienced reduced state anxiety scores; hence, subjects who listened to relaxing music for 60 minutes had less state anxiety than control group Table 2.

Table 1 Determining the effects of music on state anxiety level scores

S. No	Variable	Frequency (f)		Percentage (%)	
		Control	Experimental	Control	Experimental
1.	Age (in years)				
	19-30	2	1	20	10
	31-40	2	3	20	30
	41-50	5	5	50	50
	51-60	1	1	10	10
2.	Gender				
	Male	6	5	60	50
	Female	4	5	40	50
3.	Education				
	No formal education	3	4	30	40
	Primary education	2	3	20	30
	Secondary education	3	2	30	20
	Pre university and above	2	1	20	10
4.	Occupation				
	Agriculture	4	3	40	30
	Business	2	-	20	-
	Govt. Employee	-	3	-	30
	Private Employee	3	1	30	10
	Unemployed	1	3	10	30
5.	Stage of Cancer				
	I	2	2	20	20
	II	4	3	40	30
	III	2	3	20	30
	IV	2	2	20	20

N=10+10

Table 2 Results on anxiety levels

Group	Pre test mean (SD)	Post test mean (SD)	Mean difference	t	p
Control	53.51(5.12)	47.6(4.72)	3.84	4.72	<.01
Experimental	52.67(5.98)	35.6(5.20)	14.00	10.83	<.01

Effect of music therapy on anxiety level, blood pressure and respiratory rate

The mean blood pressure of in experimental group ranged between

82.2 and 76.15mmHg, and in control group it was ranged between 84.25 and 80.9mmHg. The mean respiratory rate in experimental group ranged between 18 and 21 breaths per minute whereas in control group it was ranged between 20 and 24 breaths per minute.¹²

Conclusion

The study showed the significant changes in the anxiety level, blood pressure and respiratory rate in experimental group listened to the music during chemotherapy compared the control group who had normal routine care during the chemotherapy. So use of music as therapeutic approach in the oncology setting is helpful for the patients undergoing different treatment modalities.

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Conflict of interest

The author declares no conflict of interest.

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