Original Research Paper

Volume - 15 | Issue - 04 | April - 2025 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Nursing

ASSESS THE EFFECTIVENESS OF MUSIC THERAPY ON ANXIETY AMONG PATIENTS WITH LOWER LIMB FRACTURE ADMITTED TO SVBCH, SILVASSA, DNH AND DD.

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ABSTRACT

Aim: To assess the effectiveness of music therapy on the level of anxiety among patients with lower limb fracture

Objectives:

1) To assess the level of anxiety in experimental group and control group.
2) To determine the effectiveness of music therapy on anxiety among patients with lower limb fracture in experimental group.
3) To find the association between pre-test anxiety score of experimental group and control group with selected demographic variable and clinical variable.

Method: Total 60 (experimental group-30 and control group-30) samples selected as per inclusion and exclusion criteria, demographic variable and clinical variable collected. Pre-test anxiety score done by using Zung's self-rating anxiety scale, Music therapy of 3 sessions of 10minutes for 2 days and on 3rd day post-test of anxiety done. **Result:** Obtained paired t test value of pre-test and post-test of experimental group was 17.33 which was more than the table value (2.00) at 0.05 level of significance. Hence **alternative hypothesis H_1,** there is significant difference between pre-test and post-test on level of anxiety among patients with lower limb fracture in experimental group at 0.05 level of significance **was accepted.** Demographic variable and clinical variables were does not have significant association with pre-test level of anxiety as the obtained chi-square value were less than the table values. Hence, **the alternative hypothesis H_2,** there is significant association between pre-test on level of anxiety among patients with lower limb fracture and demographic variable in experimental and control group at 0.05 level of significance **was rejected** and **the alternative hypothesis H_3,** there is significant association between pre-test on level of anxiety among patients with lower limb fracture and clinical variable in experimental and control group at 0.05 level of significance **was rejected.**

KEYWORDS : effectiveness, anxiety, music therapy, patients, lower limb fracture

INTRODUCTION:

Bone is a type of connective tissue. It is hard, endoskeleton part of the body which supports the body against the gravity. It helps in producing movements, protects the vital organs from injury, serve as a reservoir of minerals especially calcium, phosphorous.[1]

Lower limb is also known as lower extremity which includes hip, thigh, knee, limbs, ankle, and foot. Fracture of lower limb is most common and sometimes patient may require assisting in fulfilling daily activities. Fracture is the break in limbs, anywhere from hip to feet. The most common lower limb fractures are hip fracture and ankle fracture also includes tibia fracture, limb fracture, knee fracture, foot fracture. Theses fractures can be very painful and sometimes it affects the ability of person to move around independently. Elders over 60 years of age, are more prone to develop these fractures because as they get older their bone gets weaker therefore bone breaks easily.[2]

NEED OF THE STUDY:

In India, the age-standardized incidence rate of lower leg fractures was 419.9 incidences per 100,000 individuals, citing a 2019 study. This covers fractures to the patella, tibia, fibula, or ankle. In India, lower limb fractures are more common than in other nations, and nearly half of them are caused by traffic accidents.[3]

According to census, in Shri Vinoba Bhave Civil Hospital, Silvassa approximately 750-800 patients every year gets admitted with lower limb fracture.

Music soothes and calms the mind, which helps to reduce anxiety. Indian classical raga is known to have health benefits in addition to being a kind of entertainment. This is due to the sound and vibrations produced by raga. A raga is a series of notes that, when combined, create the right atmosphere and feeling. Raga could be applied as an additional technique.[4]

Studies show that raga Hamsadwani should be listened to in the evening and raga Bhimpalasi in the afternoon. Ahir Bhairav is a raga for mornings. renowned for being peaceful and relaxing, it promotes emotional stability which is crucial during recovery.

Raga Bhimpalasi has a profound effect on emotional well-being. It is often used to relieve mental tension and anxiety, especially in patients dealing with pain and limited mobility.[5]

OBJECTIVES:

1) To assess the level of anxiety in experimental group and control group.
2) To determine the effectiveness of music therapy on anxiety among patients with lower limb fracture.
3) To find the association between pre-test anxiety score with selected demographic variable and clinical variable.

Operational Definition:

Effectiveness: In this study, it refers to music therapy achieves desire effect in reducing anxiety among patients with lower limb fracture which is assessed by using Zung's self-rating anxiety scale

Music therapy: In this study, it refers to therapy which is used as non-pharmacological, complementary support consists of soft, calm, non-lyrical, instrumental Indian music of healing ragas of 60-80 decibels by headphone, consists of 3 session of 10 minutes of duration per day for next consecutive 2 days.

Anxiety: In this study, it refers to a discomfort and emotion which is characterized by an unpleasant state of feeling, due to lower limb fracture which is assessed by using Zung's self-rating anxiety scale.

Patient: In this study, it refers to the person admitted to SVBCH with lower limb fracture and fulfil the inclusive and exclusive criteria.

Lower Limb Fracture: In this study, it refers to break in the continuity of bone of one or both lower limb. Here the lower limb, also known as the lower extremity, is the part of the body that includes the hip, thigh, knee, leg, ankle, and foot. Fracture can be simple (closed) fracture, compound(open) fracture, greensick fracture, comminuted fracture, transverse fracture, oblique fracture, compression fracture, stress fracture, pathological fracture, segmental fracture.

HYPOTHESES:

Null hypotheses:

H_{01}: There is no significant difference between the pre-test and post-test on level of anxiety among patients with lower limb fracture in experimental group and control group at 0.05 level of significance

H_{02}: There is no significant association between pre-test anxiety score with selected demographic variable among patients with lower limb fracture at 0.05 level of significance.

H_{03}: There is no significant association between pre-test anxiety score

with selected clinical variable among patients with lower limb fracture at 0.05 level of significance.

Alternative hypotheses:

H_1: There is significant difference between the pre-test and post-test on level of anxiety among patients with lower limb fracture in experimental group and control group at 0.05 level of significance

H_2: There is significant association between pre-test anxiety score with selected demographic variable among patients with lower limb fracture at 0.05 level of significance

H_3: There is significant association between pre-test anxiety score with selected clinical variable among patients with lower limb fracture at 0.05 level of significance.

RESEARCH DESIGN:

Quasi experimental two group pre-test post-test design

VARIABLES:

Independent variable: Music therapy

Dependent Variable: Anxiety among patients with lower limb fracture.

POPULATION:

Patients with lower limb fracture admitted to SVBCH, Silvassa and having level of anxiety mild to moderate as per Zung's Self-Rating Anxiety Scale

Sample Size: 60 samples (30 in experimental group and 30 in control group)

Sampling Technique:

Non probability convenient sampling technique used.

Inclusive Criteria: In this study, patients who are conscious, oriented, and able to respond,18 years and above, willing to participate, having fracture of one or both lower limbs, anxiety score is mild to moderate, completed at least 12hrs from admission, can read Hindi language.

Exclusion Criteria: In this study, patients who are on psychiatric drug therapy, post operative, having cognitive impairment, having hearing problem, having head or any other injury, no formal education, anxiety score marked to severe and extreme severe.

TOOLS USED FOR DATA COLLECTION

Section I: Demographic variable

Age, gender, marital status, religion, type of family, level of education, occupation, employment status, household monthly income, location, frequency of music listening, type of music likes, previous experience with music therapy.

Section II: Clinical variable

Any medical history, history of surgery, diagnosis of patient, type of fracture.

Section III: Zung's Self- Rating Anxiety Scale

It is standardized scale consists of 20 items. Each one is assessed on a four-point scale that goes from "none or a little of the time" to "most or all of the time. The rating was given as 1,2,3,4 for positive statement and 4,3,2,1 for negative statement.[6]

Scoring:

20-44 Normal range
45-59 Mild to moderate anxiety level
60-74 Marked to severe anxiety level
75 and above Extreme anxiety level.

DESCRIPTION OF MUSIC:

3 sessions of 10 minutes per day for 2 consecutive days were given. Permission was obtained from musician for using the music created by them.

1} Morning session(6am-9am) of Raga Ahir Bhairav created by Dr. Aakash Thakkar by using flute, tanpura and guitar.

2} Afternoon session(12pm-3pm) of Raga Bhimpalasi created by Mr. Bhaskar Das. by using flute.

3} Evening session(6pm-9pm) of Raga Hamsadwani by Geethanjali Indian Classical Musics by using sitar, violin, flute.

Validation given by music therapist Mr. Jatin Potdar to use above music as music therapy.

THE ETHICAL COMMITTEE CLEARANCE:

Taken from the institutional ethical committee.

Study participants voluntarily participated in the study after providing written informed consent. Confidentiality and anonymity were guaranteed.

A} Pre-Test:

On day 1, samples were selected as per inclusion and exclusion criteria and demographic and clinical variable collected, it took 5 minutes. Zung's self-rating anxiety scale administered; it took 10 minutes.

B} Intervention:

In the control group routine nursing care was given.

In the experimental group, routine nursing care with music therapy given. Day 1 {on the same day of pre-test} and day 2 music therapy was given by using headphone.

C} Post-Test:

On day 3 post-test was done in the morning by using Zung's self-rating anxiety scale.

RESULT:

Section 1: **Description of demographic variable and clinical variable of patients with lower limb fracture patients**.

Table 1.1) Frequency And Percentage Wise Distribution Of Demographic Variable In Experimental Group And Control Group Among Patients With Lower Limb Fracture. (N=60)

Demographic variables	Experimental group (n=30)		Control group (n=30)	
	f	%	f	%
1.Age in years:				
18-25	7	23.3	9	30
26-35	7	23.3	7	23.3
36-45	**8**	**26.7**	**10**	**33.3**
46-55	7	23.3	3	10
56-65	1	3.3	1	3.3
2.Gender:				
Male	**25**	**83.3**	**25**	**83.3**
Female	5	16.7	5	16.7
3. Marital status:				
Married	**17**	**56.7**	**20**	**66.7**
Unmarried	10	33.3	8	26.7
Widow	3	10	2	6.7
4.Religion:				
Hindu	**24**	**80**	**24**	**80**
Muslim	2	6.7	1	3.3
Christian	1	3.3	0	0
Others	3	10	5	16.7
5.Type of family:				
Nuclear family	13	43.3	13	43.3
Joint family	**17**	**56.7**	**17**	**56.7**
6.Level of education:				
Professional degree	1	3.3	3	10
graduate	8	26.7	4	13.3
Intermediate or Diploma	**17**	56.7	9	30
High school	4	**13.3**	**10**	**33.3**
Middle school	0	0	4	13.3
7.Occupation:				
Profession	1	3.3	0	0
Technicians/associate professors	3	10	1	3.3
Clerk	3	10	4	13.3
Skilled worker, shop and market sales worker	**13**	**43.3**	**12**	**40**
Skilled agriculture and fishery worker	1	3.3	4	13.3
Craft and related trade worker	1	3.3	1	3.3
Plant and machine operators' assemblers	2	6.7	1	3.3
Elementary occupation	1	3.3	3	10
Unemployed	5	16.7	4	13.3
8.Employment status:				
Employed full time	**20**	**66.7**	**17**	**56.7**
Employed part time	0	0	1	3.3
Self employed	5	16.7	8	26.7
Retired	2	6.7	1	3.3
Student	3	10	2	6.7
Home maker	0	0	1	3.3

9.House hold Monthly income:				
6768-20273	**19**	**63.3**	**19**	**63.3**
20274-33792	11	36.7	9	30
33793-50559	0	0	2	6.7
10.Location:				
Urban	**17**	**56.7**	8	26.7
Rural	12	40	**15**	**50**
Suburban	1	3.3	7	23.3
11.Frequancy of music listening:				
Rarely	1	3.3	1	3.3
Occasionally	**21**	**70**	**17**	**56.7**
Frequently	8	26.7	9	30
Daily	0	0	3	10
12.Type of music likes:				
Indian	30	100	30	100
13.Previous experience with music therapy:	30	100	30	100
No				

Table 1.2) Frequency And Percentage Wise Distribution Of Clinical Variable In Experimental Group And Control Group Among Patients With Lower Limb Fracture. (N=60)

Demographic variables	Experimental group (n=30)		Control group (n=30)	
	f	%	f	%
1.Any medical history:				
Yes	2	6.7	4	13.3
No	**28**	**93.3**	**26**	**86.7**
2.History of surgery:				
Yes	4	13.3	1	3.3
No	**26**	**86.7**	**29**	**96.7**
3. Diagnosis of patients:				
Right femur fracture	1	3%	**3**	**10%**
Left bimalleolar fracture	2	7%	1	3%
Left patella fracture	**3**	**10%**	0	0%
Right distal 1/3rd tibia fracture	1	3%	0	0%
Left neck femur fracture	**3**	**10%**	0	0%
Left subtrochanteric femur fracture	1	3%	0	0%
Right distal tibia fracture	2	7%	**3**	**10%**
Left distal shaft femur fracture	1	3%	0	0%
Left distal femur fracture	2	7%	2	7%
Right IT femur fracture	**3**	**10%**	2	7%
Right distal 1/3rd tibia fibula fracture	2	7%	0	0%
Left calcaneus fracture	2	7%	0	0%
Left tibia shaft fracture	1	3%	1	3%
Right proximal tibia fracture	1	3%	**3**	**10%**
Right bimalleolar ankle fracture	1	3%	0	0%
Left lateral femur fracture	1	3%	0	0%
Left distal tibia fracture	1	3%	0	0%
Right distal femur fracture	1	3%	2	7%
Left distal 1/3rd tibia fracture	1	3%	1	3%
Left proximal fibula fracture	0	0%	1	3%
Right tibia shaft fracture	0	0%	2	7%
Left IT femur fracture	0	0%	1	3%
Left Proximal tibia fracture	0	0%	2	7%
Left foot 2nd and 3rd metatarsal fracture	0	0%	**3**	**10%**
Right distal tibia fibula fracture	0	0%	2	7%
Right proximal tibia fibula fracture	0	0%	1	3%
4.Type of fracture:				
Simple(closed) fracture	**29**	**96.7**	**27**	**90**
Comminuted fracture	1	3.3	3	10

Section 2: Assessment of pre-test and post-test of anxiety among experimental group and control group of patients with lower limb fracture

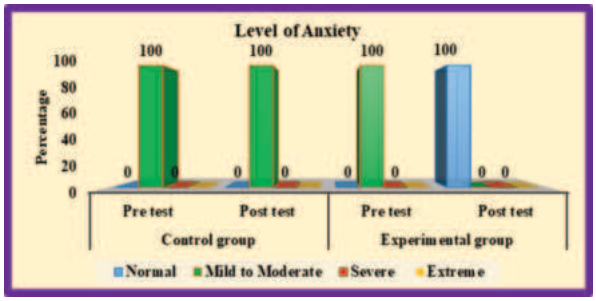

Fig. 1): Frequency and percentage wise distribution of anxiety among patients with lower limb fracture in experimental group and control group. **(N=60)**

Hypotheses testing:

Section 3: Mean, mean difference, SD and t-Test to determine the effectiveness of music therapy on anxiety among patients with lower limb fracture.

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Table 3.1): Area Wise Mean, SD, Mean Difference, Paired T Test To Determine Effectiveness Of Music Therapy On Anxiety Among Patients With Lower Limb. (N=60)

Level of anxiety	Pre-test		Post-test		Mean difference	t-Value	p-Value	Remark
	Mean	SD	Mean	SD				
Experimental group (n=30)	45.5	0.57	43.07	0.74	2.43	**17.33**	**P<0.001 *** **	**Highly significant**
Control group (n=30)	46.06	1.48	46.1	1.16	0.03	0.15	P=0.882	Not significant

-P<0.05, significant and **-P<0.01 &-P<0.001, Highly significant**

Hence **alternative hypothesis H_1 was accepted**

Table 3.2): Area Wise Mean, SD, Mean Difference, Unpaired T Test To Determine Effectiveness Of Music Therapy On Anxiety Among Patients With Lower Limb. N=60

Level Of Anxiety		Mean	SD	Mean Diff.	't' Value	P Value	Remark
Pre-Test	**Experimental Group (n=30)**	45.5	0.57	0.57	1.951	P=0.0558	Non-significant
	Control Group (n=30)	46.06	1.48				
Post-Test	**Experimental Group (n=30)**	43.07	0.74	3.03	**12.11**	**P<0.001 *** **	**Highly significant**
	Control Group (n=30)	46.1	1.16				

-P<0.05, significant and **-P<0.01 &-P<0.001, Highly significant**

Hence The music therapy reduced the anxiety among patients with lower limb fracture in experimental group.

Section 4: Association between pre-test anxiety score of with selected demographic variable and clinical variable among patients with lower limb fracture.

Table 4.1): Association For Level Of Anxiety In Experimental Group And Selected Demographic Variable. (N=60)

Demographic variables	≤Median		>Median		χ2-value	p-value
	f	%	f	%		
1.Age in years:					1.48	0.829
18-25	15	25	1	1.7	(df=4)	NS
26-35	13	21.7	1	1.7		
36-45	15	25	3	5		
46-55	9	15	1	1.7		
56-65	2	3.3	0	0		
2.Gender:					0	1
Male	45	75	5	8.3	(df=1)	NS
Female	9	15	1	1.7		
3. Marital status:					0.977	0.613
Married	33	55	4	6.7	(df=2)	NS
Unmarried	17	28.3	1	1.7		
Widow	4	6.7	1	1.7		
4.Religion:					1.67	0.644
Hindu	42	70	6	10	(df=3)	NS
Muslim	3	5	0	0		
Christian	1	1.7	0	0		
Others	8	13.3	0	0		
5.Type of family:					0.27	0.602
Nuclear family	24	40	2	3.3	(df=1)	NS
Joint family	30	50	4	6.7		
6.Level of education:					9.33	0.053
Professional degree	4	6.7	0	0	(df=4)	NS
graduate	12	20	0	0		

Intermediate or Diploma	24	40	2	3.3		
High school	12	20	2	3.3		
Middle school	2	3.3	2	3.3		
7.Occupation:					12.23	0.141
Profession	1	1.7	0	0	(df=8)	NS
Technicians/associate professors	4	6.7	0	0		
Clerk	7	11.7	0	0		
Skilled worker, shop and market sales worker	24	40	1	1.7		
Skilled worker, shop and market sales worker	3	5	2	3.3		
Craft and related trade worker	1	1.7	1	1.7		
Plant and machine operators' assemblers	3	5	0	0		
Elementary occupation	3	5	1	1.7		
Unemployed	8	13.3	1	1.7		
8.Employment status:					4.45	0.487
Employed full time	35	58.3	2	3.33	(df=5)	NS
Employed part time	1	1.7	0	0		
Self employed	10	16.7	3	5		
Unemployed	0	0	0	0		
Retired	3	5	0	0		
Student	4	6.7	1	1.7		
Home maker	1	1.7	0	0		
9.House hold Monthly income:					0.233	0.890
6768-20273	34	56.7	4	6.7	(df=2)	NS
20274-33792	18	30	2	3.3		
33793-50559	2	3.3	0	0		
10.Location:					1.75	0.417
Urban	24	40	1	1.7	(df=2)	NS
Rural	23	38.3	4	6.7		
Suburban	7	11.7	1	1.7		
11.Frequancy of music listening:					6.37	0.095
Rarely	1	1.7	1	1.7	(df=3)	NS
Occasionally	36	60	2	3.3		
Frequently	15	25	2	3.3		
Daily	2	3.3	1	1.7		
12.Type of music likes:					0	1
Indian	54	90	6	10	(df=1)	NS
13.Previous experience with music therapy:					(df=1)	1 NS
No	54	90	6	10		

***p<0.05 significant, ** p<0.01 & ***p<0.001 Highly significant.**

Table 4.1 indicates that **alternative hypothesis H_2 was rejected.**

Table 4.2): Association For Level Of Anxiety In Experimental Group And Selected Clinical Variable.(N=60)

Demographic variables	≤Median		>Median		χ2-value	p-value
	f	%	f	%		
1.Any medical history:					0.329	0.566
Yes	5	8.3	1	1.7	(df=1)	NS
No	49	81.7	5	8.3		
2.History of surgery:	4	6.7	1	1.7	0.606	0.436
Yes	50	83.3	5	8.3	(df=1)	NS
No						
3. Diagnosis of patients:					19.067	0.793
Right femur fracture	3	5	1	2	(df=25)	NS
Left bimalleolar fracture	2	3	1	2		
Left patella fracture	2	3	1	2		
Right distal 1/3rd tibia fracture	1	2	0	0		
Left neck femur fracture	3	5	0	0		
Left subtrochanteric femur fracture	1	2	0	0		
Right distal tibia fracture	5	8	0	0		
Left distal shaft femur fracture	1	2	0	0		
Left distal femur fracture	4	7	0	0		
Right IT femur fracture	4	7	1	2		
Right distal 1/3rd tibia fibula fracture	2	3	0	0		
Left calcaneus fracture	2	3	0	0		
Left tibia shaft fracture	2	3	0	0		
Right proximal tibia fracture	3	5	1	2		
Right bimalleolar ankle fracture	1	2	0	0		
Left lateral femur fracture	1	2	0	0		
Left distal tibia fracture	1	2	0	0		
Right distal femur fracture	2	3	1	2		
Left distal 1/3rd tibia fracture	2	3	0	0		
Left proximal fibula fracture	1	2	0	0		
Right tibia shaft fracture	2	3	0	0		
Left IT femur fracture	0	0	1	2		
Left Proximal tibia fracture	2	3	0	0		
Left foot 2nd and 3rd metatarsal fracture	3	5	0	0		
Right distal tibia fibula fracture	2	3	0	0		
Right proximal tibia fibula fracture	1	2	0	0		
4.Type of fracture:					1.07	0.301
simple(closed) fracture	51	85	5	8.3	(df=1)	NS
Comminuted fracture	3	5	1	1.7		

***p<0.05 significant, ** p<0.01 & ***p<0.001 Highly significant.**

Table 4.2 indicates that **alternative hypothesis H_3 was rejected.**

CONCLUSION:

The pretest revealed that majority of the samples had mild to moderate level of anxiety. In the experimental group, after the administration of music therapy sessions the post-test scores revealed reduction in anxiety among the patients with lower limb fracture. Thus, the investigator concluded that the music therapy was an effective non-pharmacological intervention in reducing the level of anxiety among patients with lower limb fracture.

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