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Cover Page Footnote

Nil

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Abstract

Introduction: Patients become anxious prior to any invasive procedures. In an attempt to relieve anxiety among the patients undergoing invasive endoscopic interventions, music has been proposed as safe and inexpensive anti-anxiety intervention. **Methods:** The study aimed to compare the effectiveness of Choice music and Anandabhairavi raga on adult patients' pre-procedural anxiety in Kasturba Medical College and Hospital (KMCH), Mangalore. True-experimental pre-test post-test design was used. Using purposive sampling technique with random assignment, 30 samples each were assigned to both the Choice music and Anandabhairavi raga groups. Pre-procedural anxiety was assessed in both the groups before and after music intervention. **Results:** The study identified that 93.3% of subjects had severe anxiety in Choice music group whereas 96.7% of subjects had severe anxiety in Anandabhairavi raga group before the music intervention. After the music administration, 56.7% of the subjects had mild anxiety and 43.3% had moderate anxiety in Choice music group whereas 50% of subjects had mild anxiety and 50% of subjects had moderate anxiety in Anandabhairavi raga group. Independent t test was done to compare the effectiveness of Choice music and Anandabhairavi raga and it was found that there was no significant difference in pre-procedural anxiety between two groups ($p>0.05$). **Conclusion:** It can be safely identified that both the interventions, Choice music and Anandabhairavi raga, were equally effective in reducing pre procedural anxiety.

Key words: Anandabhairavi raga, Choice music, Invasive procedure, Pre-procedural anxiety.

INTRODUCTION

Any invasive procedure in hospital leads to feeling of anxiety among patients. Increased anxiety levels among patients during procedure may result in difficult or incomplete procedures and they require greater use of sedatives and there are increased chances of developing sedative-related complications (Gillen, Biley and Allen, 2008). Upper and lower intestinal endoscopic procedures are very commonly performed in hospitals as an important diagnostic and therapeutic treatment modality. In an attempt to relieve anxiety in patients undergoing invasive endoscopic interventions, music has been considered as safe and inexpensive non-pharmacologic anti-anxiety intervention (Evans, 2002).

An experimental (Hayes et al., 2003) study was conducted to evaluate the effect of music intervention prior to gastrointestinal procedures. In a randomized

controlled trial, 198 patients were introduced to 15 minutes of self-selected music. The State Trait Anxiety Inventory was used to measure patients' anxiety among 193 men and 5 women. Patients who listened to music ($n=100$) experienced significant reduction in their anxiety score than those who did not listen to music ($n=98$). A quasi-experimental study was conducted in India to assess the effect of music therapy on primary hypertension among older adults living in selected old age homes. Investigator used Anandabhairavi raga for the study and it was found be effective in reducing blood pressure (Mathew, 2008). A report indicates that Anandabhairavi raga is a beautiful raga, has the capability to relieve stress and mental tension. Almost all ragas of Indian music have this quality, but Anandabhairavi raga has something special - a very soothing effect on one's mind (Narayanan, 1995).

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The investigator felt the need to study the effect of two different music interventions on pre-procedural anxiety, as anxiety is a common problem among patients who are undergoing invasive procedures. The investigator had done extensive literature review to find out the effective intervention to reduce pre-procedural anxiety and found that music therapy is better but it has not specified any specific type of music to be used. Hence, the investigator became curious to find specifically the two different types of music namely Anandabhairavi *raga* and Choice music to be tested as an intervention on pre-procedural anxiety. The study was carried out with a purpose to investigate whether playing two different types of music to the patients, who are in immediate pre-procedural state, is effective in reducing their anxiety. The study evaluated and compared the effects of Choice music and Anandabhairavi *raga* on adult patients' pre-procedural anxiety.

METHODS

The study adopted quantitative approach with true-experimental pre-test post-test design. In this study, one group acts as a control for the other group. Adult patients in the age group of 20 to 60 years undergoing invasive procedures were selected for the study. The sample consisted of 60 patients posted for endoscopic procedures in KMCH, Mangalore. Data collection instruments were: Tool I: Demographic proforma and Tool II: Rating scale for Pre-procedural anxiety assessment which was developed by the investigator consisting of four areas such as state of mind, spirituality, cognitive, procedural and environmental feelings. The pre-procedural anxiety was measured on a four point scale ranging from almost never-1, sometimes-2, often-3 and almost always-4. The negative items in the tool were scored in reverse order. The content validity was obtained by submitting tool to nine experts, including two musicians. Split half method was used to test reliability and the value was $r=0.81$. Pilot study was conducted to assess the feasibility and practicability of the tool and it was found feasible.

Prior permission to conduct the study was obtained from the institution and concerned authorities of KMCH. The inclusion criteria for study were: the

patients without any hearing impairment, who were conscious and well oriented, who were available for at least one hour prior to undergoing invasive procedure. Keeping in mind the ethical aspects of research, data was collected after obtaining the informed consent from the subjects. The samples were selected using purposive sampling technique with random assignment into Choice music and Anandabhairavi *raga* groups. As per the availability of the samples, all the odd numbers were selected for Choice music group and even numbers were selected for Anandabhairavi *raga* group, with sample size of 30 in each group. Using pre-procedural anxiety assessment tool, pre-procedural anxiety was assessed. The subjects in the Choice music group were asked to select music from pre-listed songs, as desired by the patients, from a list of selected songs of eighties, nineties and recent songs in Kannada, Malayalam and Hindi languages and Anandabhairavi *raga* songs were selected for other group. The music was administered to the subjects for 15 minutes in both groups using iPod and headphone. Pre-procedural anxiety was assessed after the music intervention using the same tool.

Demographic variables were analysed by using frequency and percentages. Paired t test was used to identify difference within the experimental groups. Independent t test was used to compare the difference between the two experimental groups.

RESULTS

Sample characteristics

Majority of the samples, 24 (80%), in Choice music group were in the age group of 20 to 40 years. Majority of the samples, 17 (56.7%), in Anandabhairavi *raga* group were in the age group of 41 to 60 years. It was observed that the majority of the participants in Choice music group, 19 (63.3%) and Anandabhairavi *raga*, 24 (80%), were males whereas 11 (36.7%) samples in the Choice music group and 6 (20%) samples in the Anandabhairavi *raga* group were females. The majority of the samples from Choice music group, 28 (93.3%) and Anandabhairavi *raga* group, 29 (96.7%), had not undergone invasive procedure previously. The number of subjects who had undergone at

least one invasive procedure previously included 2 (6.7%) in Choice music group and 1 (3.3%) in the Anandabhairavi raga group.

Pre-procedural anxiety in Choice music group and Anandabhairavi raga group before music intervention

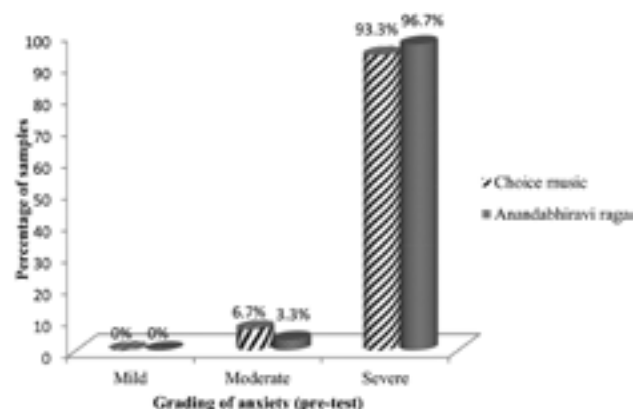


Fig. 1: Distribution of samples according to pre procedural anxiety in Choice music and Anandabhairavi raga group before music intervention

Data presented in Fig. 1 shows that 93.3% of the subjects had severe anxiety and 6.7% had moderate anxiety in choice music group whereas 96.7% of subjects had severe anxiety and 3.3% had moderate anxiety in Anandabhairavi raga group before music intervention.

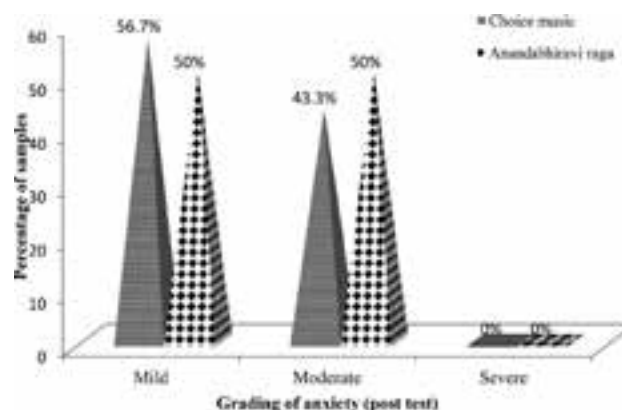


Fig. 2: Distribution of samples according to pre-procedural anxiety in Choice music and Anandabhairavi raga group after music intervention.

The data presented in Fig. 2 shows that 56.7% of the subjects had mild anxiety and 43.3% had moderate anxiety in Choice music group whereas 50% of subjects had mild anxiety and 50% had moderate anxiety in Anandabhairavi raga group after music intervention.

Effectiveness of Choice music on pre-procedural anxiety

In order to find out the significant difference between the pre-test and post-test pre-procedural anxiety scores within the groups, paired t test was computed.

Table 1: Pre-test and post-test intervention of pre- procedural anxiety scores in Choice music group (n=30)

Areas of Pre-procedural anxiety	Pre-test			Post-test			Mean actual reduction of pre-procedural anxiety score %	Obtained t value
	Mean	SD	Mean %	Mean	SD	Mean %		
State of mind	29.00	2.519	80.56	16.93	2.348	47.04	33.52	28.69*
Spirituality	10.33	1.561	86.11	9.87	1.525	82.22	3.89	2.00*
Cognitive	12.63	1.033	78.96	7.10	1.155	44.38	34.58	18.54*
Procedural and Environmental feelings	27.43	3.287	85.73	14.03	2.526	43.85	41.88	22.19*

$t_{(29)} = 1.70$, $P < 0.05$,

* Significant at 0.05 level

Table 1 depicts that the obtained t value scores in areas like state of mind ($t_{(29)}=28.69$), spirituality ($t_{(29)}= 2.00$), cognitive ($t_{(29)}= 18.54$) and procedural and environmental feelings ($t_{(29)}= 22.19$) were higher than the computed t value ($t_{(29)}= 1.70$; $p<0.05$). The findings suggest that there was significant reduction in pre-procedural anxiety score in all the areas after introducing choice music.

The data presented in Table 2 depicts that the obtained t value scores in areas like state of mind ($t_{(29)}=24.26$), spirituality ($t_{(29)}= 2.11$) cognitive ($t_{(29)}=26.11$) and procedural and environmental ($t_{(29)}=29.04$) were higher than the computed t value ($t_{(29)}=1.70$; $p<0.05$). The findings suggest that there was significant reduction in pre-procedural anxiety score in all areas after introducing Anandabhairavi raga.

Effectiveness of Anandabhairavi raga on pre-procedural anxiety**Table 2:** Pre-test and Post-test pre- procedural anxiety scores in Anandabhairavi raga group (n=30)

Areas of Pre-procedural anxiety	Pre-test			Post-test			Mean actual reduction of pre-procedural anxiety score %	Obtained t value
	Mean	SD	Mean %	Mean	SD	Mean %		
State of mind	28.97	1.956	80.46	17.47	2.609	48.52	31.94	24.26*
Spirituality	10.27	1.999	85.56	9.87	1.871	82.22	3.34	2.11*
Cognitive	12.63	1.098	78.96	7.23	0.935	45.21	33.75	26.11*
Procedural and Environmental feelings	27.50	1.815	85.94	14.10	2.006	44.06	41.88	29.04*

t₍₂₉₎ = 1.70, P < 0.05.

* Significant at 0.05 level

Comparing the effectiveness of Choice music and Anandabhairavi raga on pre-procedural anxiety

Comparison of effect of Choice music and Anandabhairavi raga was analysed by computing the mean, standard deviation and independent t test.

The data presented in Table 3 shows that the calculated t value of anxiety scores are less than the table value (t₅₈ =1.670; p<0.05). There are no statistically significant differences found between the mean anxiety scores among adult patients receiving Anandabhairavi raga and Choice music. It suggests that both types of music are equally effective in reducing the pre-procedural anxiety among the subjects.

DISCUSSION

In the present study, 93.3% of the subjects in Choice music experienced severe pre-procedural anxiety and 6.7% subjects experienced moderate level of pre-procedural anxiety. 96.7% subjects in Anandabhairavi raga group experienced severe pre-procedural anxiety and 3.3% subjects were experienced moderate pre-procedural anxiety. The mean pre-procedural

anxiety was 79.40±5.89 in Choice music group and 79.37±4.42 in Anandabhairavi raga group. This shows that the patients waiting for invasive procedures were experiencing equal level of anxiety. After music intervention, the mean pre-procedural anxiety was 47.93±5.61 in the Choice music group, whereas it was reported to be 48.67±4.53 in Anandabhairavi raga group. Hence, both types of music interventions were equally effective in reducing pre-procedural anxiety. These findings are congruent with the findings of the study by Ersoz et al. (2010) who reported that there was a significant increase in state of anxiety among subjects prior to upper gastrointestinal endoscopy and colonoscopy. In the present study there is no significant difference between the mean anxiety scores among adult patients receiving Anandabhairavi raga and Choice music intervention. This shows that both types of music interventions are equally effective in reducing pre-procedural anxiety. These findings of the study are consistent with the findings of the study which reported that music was effective in reducing of pre-operative anxiety (Yung et al., 2002).

Table 3: Difference in the pre- procedural anxiety scores in Anandabhairavi raga group and Choice music groups (n=60)

Areas	Groups	Mean reduction	Mean difference between groups	SD	Std error difference	t value	P value
State of mind	Choice music	12.07	0.567	2.303	0.634	0.894	0.375
	Anandabhairavi	11.50		2.596			
Spirituality	Choice music	0.47	0.067	1.279	0.301	0.222	0.825
	Anandabhairavi	0.40		1.037			
Cognitive	Choice music	5.53	0.133	1.634	0.363	0.367	0.715
	Anandabhairavi	5.40		1.133			
Procedural and environmental feelings	Choice music	13.40	0.000	3.307	0.760	0.000	1.000
	Anandabhairavi	13.40		2.527			

[t₍₅₈₎ =1.670; p<0.05]

CONCLUSION

It can be safely concluded that both the interventions, Choice music and Anandabhairavi *raga*, were equally effective in reducing pre-procedural anxiety. Music therapy may be easily integrated into bedside clinical nursing as well as to a wide range of possible clinical settings that include waiting rooms, critical care unit and various procedure rooms. In an era that is witnessing increased anxiety and stress in the healthcare delivery system, music therapy offers a low-cost method to alleviate psychological stress, both for the care providers and the care recipients. The same study can be conducted on a larger sample over a longer period of time, which might yield more reliable results.

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