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A STUDY ON THE EFFECTS OF MUSIC THERAPY IN PATIENTS POSTED FOR UPPER GASTROINTESTINAL ENDOSCOPY.

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ABSTRACT

60 subjects of age 30 to50 years posted for Upper GI endoscopy were divided into two groups GI and GII of 30 each.Group I heard music which they selected through headphones for 10 minutes and Group II calmly rested before the diagnostic procedure. Physiological parameters (Blood pressure, Heart rate, Respiratory rate) and Psychological parameters (Speilbergers State Anxiety Inventory STAI) were assessed before and after music therapy .The behavioural parameter (Cooperation level to the procedure) was recorded after the endoscopy procedure. Statistically significant reduction in Systolic Blood Pressure, Respiratory Rate was observed in the Group I in the post music therapy interventional recording compared to pre music therapy readings. Diastolic pressure did not show significant change whereas Heart Rate mildly raised. STAI scores markedly reduced in Group I indicating they have calmed down. The cooperation level was substantially better in Group I where 60% were highly cooperative compared to 20% of the control group. We can conclude from our study results that music therapy could be employed as a mode of Complementary & Alternate Medicine (CAM) in alleviating the preoperative anxiety and musical preference of the subject has to be considered to obtain better responses.

KEYWORDS: Anxiety, Endoscopy, Music therapy

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INTRODUCTION

Apprehension of undergoing an interventional procedure such as endoscopy makes the patient anxious and hampers their cooperation to the procedure. This pronounced preprocedural anxiety is observed and documented by monitoring various parameters by researchers. An elaborate study conducted in department of Medicine in Ferrara, Italy proved that there is anxiety in the patients who are posted for all the three types of endoscopy wiz 163 consecutive outpatients undergoing endoscopy (75 gastroscopy, 51 colonoscopy and 37 bronchoscopy) [1]. Dr .Jones MP et. al., (2004) rated anxiety at baseline and immediately before the procedure using the State-Trait Anxiety Index (STAI-Y) proved that diagnostic outpatient endoscopy is associated with modest increase in state anxiety that are not significantly altered by age, gender, type of procedure, indication or referral source [2]. Feyzullah Ersos *et. al.,* (2012) further specifies that there is significant increase in state anxiety prior to upper gastrointestinal endoscopy and colonoscopy but no change was detected in trait anxiety [3].Attempts were made to reduce the anxiety pharmacologically and wide trails were made in search of a suitable Complementary and Alternate Medicine (CAM), wherein the role of music therapy was extensively studied [4].A randomized controlled trial at San Francisco, USAby researchers Hayes, A., Buffum, M., Lanier, E., Rodahl, E., & Sasso, C. (2003) on 198 patients tested effectiveness of self-selected versus investigator-selected music in reducing anxiety and observed patient selected music was more effective than therapist selected music [5]. Ardebil Z Tawakoni *et. al.* studied the effect of Music Therapy on patients blood pressure during endoscopy procedure concluded that music therapy is useful in improving tolerance of patients during the procedure by regulating blood pressure and oxygen saturation of blood thereby reducing the duration of the procedure [6].Though there are many researches in the field of anxiety prior to endoscopy procedure and music therapy, there are no studies which took both physiological and psychological parameters collectively to work on the behavioural response (the level of cooperation). Moreover studies on the effect of subject selected music on their own preference are absent in this demographic area whereas few on the western genre are only available. So, we have decided to study the effect of music therapy to patients posted for Upper GI Endoscopy based on their preferences in the physiological, psychological and behavioural parameters as well as cooperation level to the invasive diagnostic procedure.

MATERIALS AND METHODS

It is a Randomized Control study conducted by the Music therapy department in a Medical University at south India with the approval of the Institutional Ethics Committee. 60 subjects in the age group of 30 to 50 years posted for Upper GI endoscopy were chosen by randomization on the day of procedure in the waiting hall and divided into two groups of 30 each. Patients with acute emergencies, with hearing disorder and patients on anxiolytic drugs were excluded.

MUSIC THERAPY INTERVENTIONS

A survey was made in the hospital by the Music therapy department of the institution with the patients and care takers in the waiting room on their music preferences from which a list of songs under different genres were catalogued. Though the study followed client preferred music, a broad variety of music was already equipped by the researcher. The lists of songs were film music, folk music, devotional music, carnatic music, instrumental music and western music

EVALUATING TOOLS

1. Physiological parameters

Heart rate, Blood pressure (Systolic & Diastolic Blood pressure) Respiratory rate were recorded before and after interventions.

2. Psychological parameter

Spielberg's State Trait Anxiety Inventory (STAI)

It is a validated scale to assess the anxiety level widely used in clinical settings [7].

3. Behavioural parameter

A five point co-operation scale (0 to 5) of the patient to the procedure was obtained from the assisting staff nurse to the procedure.

METHODOLOGY

Patients posted for Upper GI Endoscopy held in the waiting room, who volunteered to be the part of study, were recruited after explaining the procedure and written consent was obtained. These subjects were randomly assigned to control group and music therapy group. Music therapy intervention was given in a sound proof area separately set for the study with a bed inside the Endoscopy room. A catalogue of songs was given to the subjects to choose their preference of song and later played using Mp3 player for 10 minutes. The response to music was assessed by the music therapist and graded. The subjects in the control group were advised to take rest of the period of 10 minutes. Blood pressure and heart rate were recorded using the digital display monitor. Respiratory rate was recorded by the staff nurse manually. Shortened version of Spielberg's STAI Inventory was administered before the intervention for both groups. All the above parameters were again recorded 10 minutes after music intervention. On completion of Endoscopy, the assisting staff nurse marked the scores of a five point cooperation scale to understand the cooperation levels to the surgeon of both music therapy intervention group and control group.

RESULTS

Table 1
Genre of Music selected by Music Therapy group

Genre Of Music	Count	% Within Group
Devotional	5	16.7%
Folk Music	0	0.0%
Film Music	24	80.0%
Relaxation Music	1	3.3%
Western Music	0	0.0%
Carnatic Music	0	0.0%
Total	30	100.%

From the above table it is evident that musical preferences varies amongst people even though they belong to same demographic area and their preferences has to be taken care before starting music therapy.

Table 2
Independent Paired Samples Statistics for Systolic BP, Diastolic BP, Respiratory Rate and Heart Rate

	Group Type	N	Mean ± SD
Systolic BP Difference	Group I	30	9.77 ± 19.78
	Group II	30	0.57 ± 8.88
Diastolic BP Difference	Group I	30	4.13 ± 6.04
	Group II	30	2.73 ± 4.26
Respiratory Rate Difference	Group I	30	1.7 ± 2.09
	Group II	30	-0.033 ± 1.52
Heart Rate Difference	Group I	30	0.1 6.29
	Group II	30	-2.4 ± 3.97

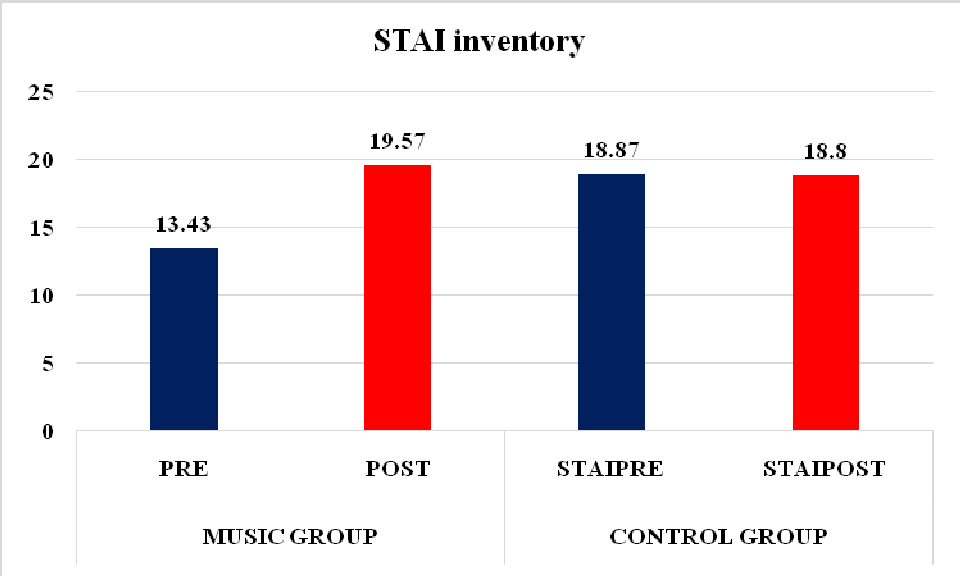
Amongst the physiological parameters Systolic Blood Pressure (significance 2 tailed 0.011) and respiratory rate (significance 2 tailed 0.00) shows a marked reduction in the Music therapy group

after intervention. Diastolic Blood Pressure is not much altered whereas Heart rate is moderately reduced after music therapy in the Group I (significance 2 tailed 0.913).

Table 3
Paired Sample Test For Stai Inventory For Both Groups

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval		t	Df	
					Lower	Upper			Significance (2-tailed)
Music Group	Pre-Post	-6.133	4.191	.765	-7.698	-4.568	-8.015	29	0.000*
Control roup	Pre-Post	.067	1.202	.219	-.382	.515	.304	29	0.763

Figure 1
Paired Sample Test For Stai Inventory For Both Groups

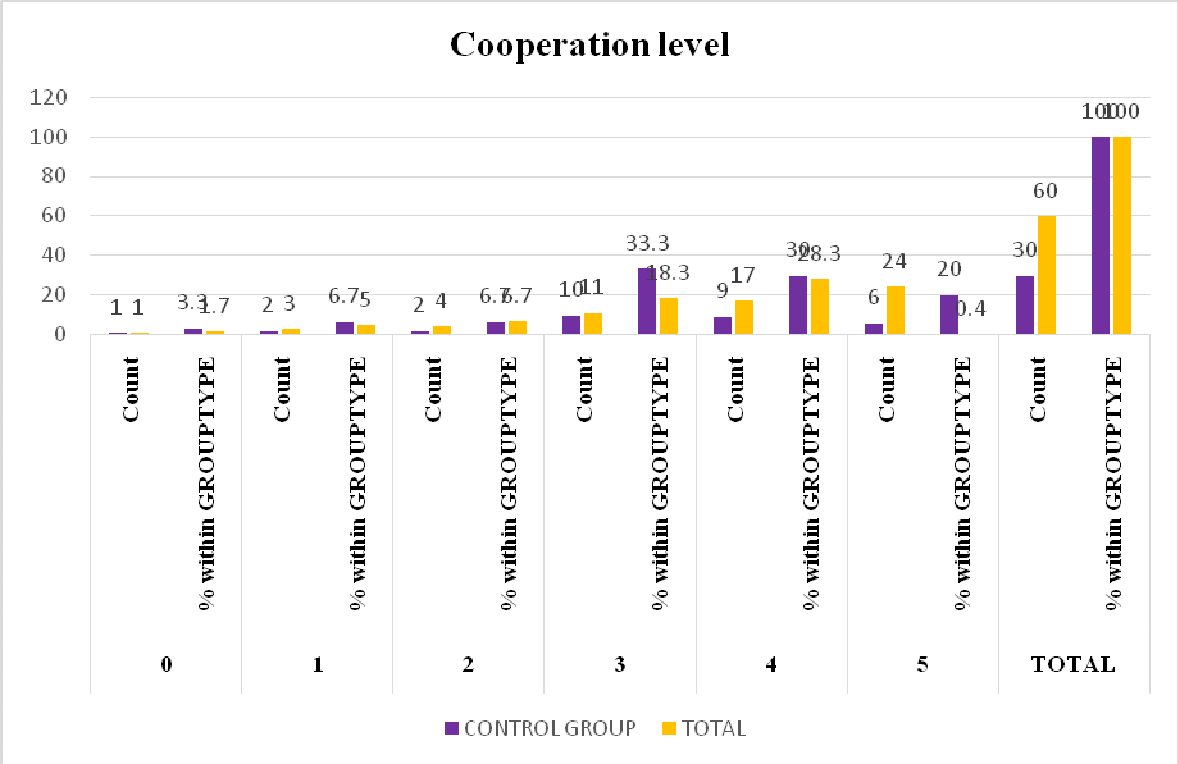


STAI scores reveal significant reduction in Group 1 with a value of 0.00 and value of 0.763 for Group 2 after music intervention.

Table 4
The Cooperation Level Of Both The Groups

Cooperation Level		Music Group	Control Group	Total
0 Not At All Cooperative	Count	0	1	1
	% Within Grouptype	.0%	3.3%	1.7%
1 Not Cooperative	Count	1	2	3
	% Within Grouptype	3.3%	6.7%	5.0%
2 Slightly Cooperative	Count	2	2	4
	% Within Grouptype	6.7%	6.7%	6.7%
3 Cooperative	Count	1	10	11
	% Within Grouptype	3.3%	33.3%	18.3%
4 Mostly Cooperative	Count	8	9	17
	% Within Grouptype	26.7%	30.0%	28.3%
5 Very Cooperative	Count	18	6	24
	% Within Grouptype	60.0%	20.0%	40.0%

Figure 2
The Cooperation Level Of Both The Groups



It is evident that the subjects of Group I are more cooperative as 60% are very cooperative compared to 20% of control group.

DISCUSSION

Results of study the show marked alteration in the physiological parameters wiz reduced systolic blood pressure and respiratory rate, reduced STAI scores and better cooperation to performing surgeon by patients exposed to the music therapy based on their own preference compared to the control group who calmly rested for the same period of time. As music has been imbued with therapeutic value Musicians, therapist [8] and scholars have documented its physical, mental and social effects as early as 4000 BC to the present (Spintge and Droh, 1992) [9].In the recent years there have been an increasing number of studies that investigate the relationship between music, wellbeing, health and this heightened interest is influenced by developments in research methodologies (quantitative and qualitative) in many contexts including laboratory, clinical, educational, and community settings [10].The Cochrane review2009 [11] evaluated 23 randomized control trails concluded music therapy has beneficial impact on the physiological parameters such as Systolic Blood Pressure, Heart Rate, Respiratory Rate and anxiety in patients with Coronary Heart Disease. This review states very few studies are done utilizing patient selected music and recommends the use of such specific music. So we have builta music repertoire gathered from the same population and the patients selected music on their own preferences was utilized which is a unique feature of our study. Our study results are consistent with few earlier studies like Janek Bineketal who from the study on" The Effect of Music Therapy on Patients Blood Pressure in Endoscopy "concluded that background music is useful in improving cooperation of patients during the procedure [12] Dr. Rudin D et al reported in his Music in the endoscopy suite: a meta-analysis of randomized controlled studies" of 641 patients receiving music therapy exhibited lower anxiety levels (8.6% reduction, P = 0.004) and statistically significant reductions in analgesia requirements proving the research successful [5,13].When we tend to explore the modalities by which music brings about the anxiolytic effect a substantial studies

on evidence based medicine could be acquired [14].Cooke D et al on their study on physiological connectivity of music found that MRI imaging of cortical and subcortical areas namely Nucleus Accumbens, Amygdala, Hippocampus and Ventral Tegmentum involved in music listening show augmented changes upon music listening [15]. Aldridge David et al postulates that as these areas control various bodily functions via activation of Hypothalamo Pituitary Axis (HPA) to bring about beneficial anxiolytic effect [16].The cooperation level of music Intervention group was much better than the control group, after listening to music of their choice. They became relaxed, calmed down and were prepared mentally to take up the endoscopy procedure and cooperated well with the surgeon. There were no earlier studies reported on the effect of music listening on the cooperation levels of the subjects during the endoscopy procedure. The main problem the control group reported was that they could not divert their thoughts and it obsessed to result in anxiety.

CONCLUSION

We can conclude from our study results that, music therapy could be employed as a mode of CAM in alleviating the preoperative anxiety of patients. It could also be recommended that music has to be in the genre of subject's choice to obtain profound effect. As the cooperation level increase with such intervention the outcome of the diagnostic procedure is also augmented by the music therapy. More studies can be taken up on the impact of music therapy in other similar arena such as dental, radiological procedures and more objective biochemical, molecular markers can be evaluated.

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