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Effect of Music Therapy on Anxiety in Hemodialysis Patients

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Abstract:

Background: Variation in anxiety due to renal disorder and dialysis procedure is common.

Aims: Study aimed at assessing the Effect of Music Therapy on Anxiety in Hemodialysis Patients.

Settings and Design: study conducted at renal unit of the Krishna hospital karad, Maharashtra with True experimental design.

Methods and Material: Two group pretest posttest design was selected, 42 Patients who are hypertensive and anxious during the procedure of Hemodialysis were selected by Simple random sampling, and then samples were divided into two control and experimental group. After determining the level of anxiety with the formulated tool, on 4th and 5th Hemodialysis days after the samples were selected for the study, Raga Neelambari in the classical Indian classical of music was administered. Post test was conducted to assess the variation after music intervention.

Statistical analysis used: Descriptive statistics and inferential statistic was used to assess the effectiveness of music therapy.

Results: Effectiveness of music was seen by in experimental group where mean score was 5.2 with standard deviation 1.96 and t test score was 3.01 and when it is compared to the table value, was high. In the experimental group Mean anxiety score was 2.4 (9.230%) with standard deviation 1.64 with t test score 2.14. it proves that music is effective in reducing the anxiety level.

Conclusions: Music therapy would be considered as effective measure to reduce anxiety.

Key-words: Music Therapy, Anxiety, Hemodialysis

Introduction:

Many studies among Hemodialysis patients have stated that hypertension during dialysis is associated with adverse consequences in term of mortality and morbidity. Mental health aspect and psychological point of understanding the patients is underestimated in clinical course of treatment which is true for dialysis patients too. Anxiety disorders are less studied among the patients suffering from kidney disorders. Anxiety is a common psychological problem during the initial course of dialysis can continue throughout, affecting the compliance and hence the survival. . The prevalence of anxiety among hemodialysis patients is most common due to uncertainty regarding the future and fear of losing control in life, which adversely affect emotional stability. The exact prevalence of anxiety disorders in HD patients is unclear, but estimates have ranged from approximately 12% to 52% in various studies[3]. Other study shows that the prevalence of anxiety, depression, and insomnia in India was found to be 71%, 69%, and 86.5%, respectively. These factors were found to be significantly correlated with unemployment, low income, low education, urban residence, and presence of co morbidities[4]. Anxiety disorders can

coexist or be present with another psychiatric or medical disorder can result in a complex interaction which may threaten medical outcomes, perception of quality of life, and behavioral adherence.

According to the scientists, the effect of relaxing music is due to complex Neuro-physiological phenomenon which affects the entire nervous system and stress hormones. Thus, the heart beats in response to the tempo of the music[5]. Listening to music stimulates the parasympathetic nervous system[6]. Listening to relaxing music would be more acceptable to dialysis patient as an interventional method of reducing anxiety. Music has been considered as non pharmacological way reduce anxiety before, during, and after surgery[7] and has many advantages including its low cost, high feasibility, and low risk of adverse effects.

Subjects and Methods:

The study objectives were to assess the level of Anxiety in Hemodialysis Patients prior to intervention. True experimental study was used in this study. 58 samples Patients who were anxious during the procedure of Hemodialysis were selected by Simple random sampling (21 in experimental and 21 in control group) dialysis unit of at Krishna hospital karad. Data collection tool consisted of three sections.

Section 1: Socio Demographic Variables, such as age, gender, educational status, occupation, economic status and previous experience of music therapy.

Section 2: Anxiety Level Assessment: Included, Hamilton Anxiety Rating Scale, used to measure the anxiety. Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where 0-17 mild anxiety, 18–24 moderate and 25–30 severe anxiety.

Prior to the data collection permission was obtained from research ethics committee of KIM. A total of 42 samples were selected from the accessible population as study subjects through simple random sampling (lottery method), subjects were assigned to experimental (21) and control group (21) by randomization. The music intervention consisted of raga Neelambari in the classical Indian Karnatic system of music. It is said to be able to induce sleep and also have some sleep promoting qualities[9]. Hence it is proved that this music has calming effect and tested for anxiety. Using Mobile head phone or small speaker patients were asked to listen music.

Data collection procedure:

Before intervention pretest anxiety score was obtained on the 1st and 2nd haemodialysis days to mark the baseline values of level of anxiety on haemodialysis and average of the 1st and 2nd d day were taken as pretest score. After determining the level of anxiety with the formulated tool, Raga Neelambari in the classical Indian classical system of music was administered to the experimental group of patients. Complete music was made to listen by patients during procedure. Subjects in the control group were asked to continue with routine care. The intervention was done on 4th and 5th haemodialysis days after the samples were selected for the study.

Results: **Section I**

TABLE 1: SOCIO DEMOGRAPHIC VARIABLES

SR NO	SOCIO DEMOGRAPHIC VARIABLES	EXPERIENTAL GROUP		CONTROL GROUP	
		F	%	F	%
1	**AGE (YEARS)**				
	30 – 39	1	5	0	0
	40 – 49	2	10	4	19
	50 – 59	4	19	10	48
	60 – 69	5	23	4	19
	70 & Above	9	42	3	14
2	**GENDER**				
	Male	11	52	11	52
	Female	10	48	10	48
3	**EDUCATIONAL STATUS**				
	Primary school	6	29	3	14
	High school	4	19	5	24
	Higher secondary	8	38	7	33

	Graduate	2	10	4	19
	Post Graduate and above	1	5	2	10
4	**OCCUPATION**				
	Unemployed house wife	6	29	5	24
	Semi skilled worker	4	19	6	29
	Skilled workers	3	14	4	19
	Clerical shop owner	7	33	4	19
	Professionals	1	5	2	10
5	**RESIDENTIAL BACKGROUND**				
	Urban	9	42	8	38
	Rural	12	58	13	62
6	**TYPE OF FAMILY**				
	Nuclear	6	29	9	42
	Joint	15	71	12	58
7	**INCOME**				
	Less than 10000	1	5	2	10
	10000 to 20000	8	38	6	29
	20000 to 30000	10	48	9	43
	Above 30000	2	10	4	19
8	**PREVIOUS EXPIRIENCE WITH MUSIC**				
	Yes	2	10	4	20
	No	19	90	17	80

Socio demographic variables shows that in Experimental Group maximum 5 (23%) samples belongs to group of 60 – 69 followed by 4 (19%) between 50 to 59 age. Regarding gender of the patients almost half of male 11 (52%), and female 10 (48%) were selected. 12 (58%) were from rural background for residency. Half of the samples 10 (48%) were having income of 20000 to 30000 where as 8 (38%) were getting income between 10000 to 20000. Only 2(10%) patients were exposed to music therapy previously.

Considering the control group, maximum 10 (48%) samples belong to group between 50 to 59 ages. Regarding gender of the patients almost half of male 11 (52%), and female 10 (48%) were selected. 12 (58%) were belongs to joint family. Half of the samples 9 (43%) were having income of 20000 to 30000 where as 6 (29%) were getting income of between 10000 to 20000. Only 4 (20%) patients were exposed to music therapy previously.

Section II:

A. anxiety level assessment

Level of anxiety	Score	**Experimental group**		**Control group**	
		Pretest	Post test	Pretest	Post test
Mild	< 17	2 (10%)	11 (52%)	1 (5%)	3 (14%)
Moderate	18-24	7 (33%)	7 (33%)	9 (43%)	8 (38%)
Severe	25-30	12 (58%)	3 (14%)	11 (52%)	10 (48%)

Before intervention, in the experimental group 12 (58%) of the subjects Severe anxiety, 7 (33%) experienced moderate anxiety and 2 (10%) experienced mild anxiety. In the control group Majority 11 (52%) of the subjects Severe anxiety, 9 (43%) experienced moderate anxiety and 1 (5%) experienced mild anxiety.

Where as in the post test, in the experimental group 3 (14%) of the subjects Severe anxiety, 7 (33%) experienced moderate anxiety and 11 (52%) experienced mild anxiety. In the control group Majority 10 (48%) of the subjects Severe anxiety, 8 (38%) experienced moderate anxiety and 3 (14%) experienced mild anxiety.

B. Effectiveness of music on anxiety

Group	Mean	SD	Mean difference	Unpaired 't' value
Experimental group	2.4	1.64	1.2	2.14
Control group	3.6	2.37		

In the experimental group Mean score was 2.4 (9.230%) with standard deviation 1.64 where as in control group, it was found to be 3.6(13.846%) with standard deviation 2.37. In order to calculate and analyze an unpaired t test with a view to the effectiveness of music therapy in experimental group and viewed that the t'test score was 2.14 and when it is compared to the table value, was high. It indicates that the listening to music was effectives in reducing the anxiety level.

Section 4: Association of results with selected socio demographic variables:

One of the objectives of the study was to associate the results with selected socio demographic variables. Chi-square analysis was used to bring out the association between the post-test anxiety score and the selected socio demographic variables in the experimental group. The computed t value 17.12 at df 29 with SD pre test- 2.341, post test- 2. 547 indicate that there was significant difference between pre-test and post-test score of level of anxiety in experimental group at the level of $p < 0.001$. Hence there was a significant reduction in level of anxiety among experimental group.

Discussion:

In the present study we found that in pre test, in the experimental group 12 (58%) of the subjects Severe anxiety, 7 (33%) with Mean of 2.4 (9.230%). Where as in control group Majority 11 (52%) of the subject's severe anxiety, with mean 3.6 (13.846%). Tanvir S et al[10] reported a higher prevalence of anxiety among patients on hemodialysis with statistics of 42.69%. This was similar to lower than the present study. In Turkey, Cantekin I [11], found prevalence of anxiety to be 53.4%, where as in united states it was recorded by Cukor D (2008)[12] was 27 % and Cukor D (2007)[13] found 45.7 %. In China and Saudi Arabia, anxiety was found in 36.9%[14] and 21.1%[15], in Pakistan it was 34.9%[16] and 42.7%[17]. All these studies results were lower than our study results.

When analyzing the effect of music therapy on anxiety, in the experimental group Mean was 2.4 (9.230%) with standard deviation 1.64 where as in control group, it was found to be 3.6(13.846%) with standard deviation 2.37, with t'test score 2.14 and when it is compared to the table value, was high. It indicates that the listening to music was effectives in reducing the anxiety level. Other studies where music therapy was shown effectives were Cantekin, I., Tan M. (2013)[22], Lin, Y.J et al (2013)[23], Salehi, B (2016)[24], Kim K.B.(2006)[25], Pothoulaki (2008)[26], Lai, H. L. (2004)[27] and Chung, Y. (2004)[28].

Conclusion:

The findings reveal that the music therapy is effective in reducing anxiety among patients with haemodialysis. Hence it could be effective non pharmacological methods for reducing anxiety in patients with Hemodialysis.

Implications:

Music therapy could be used as a alternative therapy for maintaining equilibrium of both psychological as well as physiological parameters. Especially it works both hospital as well as home setting. There are no side effect of music has been recorded in previous research. There is no specific music which implies effect on anxiety but any type of music could be used according to patient's selection to minimize anxiety and hypertension. If possible it is preferred to use head phone in hospital setting or same music can be played for all patient in speaker for effective use. As per curriculum is concerned there is very limited content is mentioned in any medical and paramedical syllabus regarding use of music as a alternative therapy, which should be provided with effects so that it is widely accepted.

Scope of study: In the present study Raga Neelambari in the classical Indian Karnatic system of music was administered to the experimental group of patients. Choice of music is another concern for selection, hence further research can be considered with application of different types of music according to interest of the patients with respect to that geographical variation. As there are limited numbers of patients available in this tertiary care centre, this study can be replicated with large samples.

Limitations: Generalization of study findings could not be made because of small sample size of sample and the limited area of settings.

Conflict of interest: Authors do not have any conflict of interest.

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