

A STUDY TO ASSESS EFFECTIVENESS OF FOOT REFLEXOLOGY ON ANXIETY OF PATIENTS UNDERGOING HEMODIALYSIS IN TERTIARY CARE HOSPITAL, KARAD

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ABSTRACT

Objectives: (1) To assess the level of anxiety among experimental and control groups of patients undergoing hemodialysis. (2) To determine the effectiveness of foot reflexology on anxiety among experimental group of patients undergoing hemodialysis. (3) To find the association between level of anxiety and selected sociodemographical variables among experimental and control groups of patients undergoing hemodialysis.

Methods: The research approach adopted for this study was an evaluative approach, where the research design was a quasi-experimental design. The study was conducted in the dialysis unit in Krishna Hospital, Karad. The sample consists of 40 patients undergoing hemodialysis and further assigned to 20 in the experimental group and 20 in the control group. A convenient sampling technique was used to select the sample. The experimental group received foot reflexology twice in a week for 3 consecutive weeks and each session lasted for 20 minutes where a control group followed hospital routine management. The data were collected by structured questionnaire. The data were analyzed using descriptive and inferential statistics.

Results: The mean post-test anxiety score in the experimental group was 16.6, and in the control group, it was 22.55, which was significantly greater. The t-test value was 3.50 and was found significant at $p < 0.001$ level. The values revealed that there was a statistically significant difference in a level of anxiety between the experimental and control groups in the post-test.

Conclusion: The study results show that the foot reflexology was effective to reduce the level of anxiety.

Keywords: Foot reflexology, Hemodialysis, Anxiety and hemodialysis patients.

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INTRODUCTION

The kidney is an important organ of our body. The primary function of the kidney is to regulate the volume and composition of extracellular fluid and excrete waste products. It helps in maintaining the body in a healthy state [1]. Chronic kidney disease (CKD) is a term used to describe a permanent loss of kidney function. In renal failure, there is a decrease in glomerular filtration rate. The number of health problems and other diseases may cause either form of renal failure to occur. Due to the lack of specific symptoms, people with CKD are often not diagnosed or diagnosed late when CKD is at an advanced stage [2].

The prevalence of CKD in worldwide predicted to reach 8-16% of the populations. The incidence of CKD rises every year, especially in developing countries cause of increasing life expectation age, so that people have a longer age. CKD therapy needs special treatment such as dialysis or renal transplantation. Many people use dialysis to treat CKD [3]. CKD is a global threat to health in general and in developing countries in particular because the treatment is lifelong and expensive. Nearly 90% of patients in India cannot afford the cost [4].

Over 2 million people in the world receive treatment with dialysis or a kidney transplant to stay alive, and only 20% are treated in about 100 developing countries. Many people cannot afford treatment at all, resulting in the death of over 1 million people annually from untreated kidney failure [5].

Hemodialysis is used for patients who are acutely ill and require short-term dialysis and for patients with end-stage renal disease who require long-term or permanent therapy. For patients with CKD, hemodialysis prevents death although it does not cure renal disease and does not compensate for the loss of endocrine or metabolic activities of the

kidneys. Patients receiving hemodialysis must undergo treatment for the rest of their lives or until they undergo a successful kidney transplant [6].

The people who are undergoing hemodialysis develop anxiety. Anxiety is known to cause increased blood pressure, heart rate, and respiration rate, all of which lead to poor circulation and can cause fluctuations in body temperature, urinary urgency, enlarged pupils, and loss of appetite. Thus, it is always a challenge to care providers to keep anxiety at a minimum for the patient's comfort and safety [7].

The International Institute of Reflexology defines foot reflexology as a manual technique based on the theory that there are reflex areas in the feet that correspond to all glands, organs, and parts of the body. Using the thumb and fingers to apply pressure to reflex areas on the feet, practitioners can help restoring the body's balance and health in natural way – A type of preventative maintenance [8]. Foot reflexology is believed to not only maintain and promote health but also to cure a variety of ailments [9].

Although many research studies have been conducted in abroad to find the effect of foot reflexology on various physiological and psychological parameters of patients, in India, not much research studies have been done. Evidence suggests that foot reflexology relieves anxiety and promotes wellness and completely relaxes the patients, and it is also cost-effective. The researcher during clinical experiences observed that patients are very anxious during the hemodialysis procedure. Foot reflexology therapy is one of the non-invasive therapies, which has proved to reduce the anxiety. Hence, the aim of the study was to determine the effectiveness of foot reflexology on anxiety of patients undergoing hemodialysis.

Problem statement

"A study to assess effectiveness of foot reflexology on anxiety of patients undergoing hemodialysis in tertiary care hospital, Karad."

Objectives of the study

1. To assess the level of anxiety among experimental and control groups of patients undergoing hemodialysis.
2. To determine the effectiveness of foot reflexology on anxiety among experimental group of patients undergoing hemodialysis
3. To find the association between level of anxiety and selected sociodemographical variables among experimental and control groups of patients undergoing hemodialysis.

METHODS

The quasi-experimental design was used to conduct the study among hemodialysis patients in Krishna Hospital, Karad. Totally 40 hemodialysis patients were allotted 20 each in the experimental and control groups by convenient sampling. The samples included in this study were who fulfilled the inclusion criteria with the age of 18–65 years, speak Marathi or English language, and receive hemodialysis treatment twice in a week. Samples with seriously sick or unconscious, ulcers, or injury in the feet and who had peripheral neuropathy or vascular problems in lower limbs were excluded from the study.

Research Ethics Committee of the Krishna Institute of Medical Science Deemed University, Karad, had given permission before the data collection. After obtaining permission from the setting, the patients were asked their willingness to participate in the study and informed consent was obtained. After collecting the demographic data, the pre-test level of anxiety among hemodialysis patients in the experimental and control groups was assessed using a Hamilton anxiety rating scale. After the pre-test, the experimental group received foot reflexology twice in a week for 3 consecutive weeks and each session lasted for 20 minutes where a control group followed hospital routine management. At the end of the 3rd week, the post-test level of anxiety was assessed by the same tool.

Description of the tool

The structured questionnaire comprised two sections covering the following areas.

- Section A: This section consists of eight items seeking information on sociodemographic data which include age, gender, educational qualification, marital status, occupation, family income per month, residence, and duration of hemodialysis.
- Section B: Hamilton anxiety rating scale for anxiety assessment: There are total 14 items. Scoring has been categorized in the following manner: <17 indicates mild severity, 18-24 mild to moderate, and 25-30 moderate to severe [10].

RESULTS**Description of sample characteristics**

Among all the study participants, 60% of the experimental group and 80% of the control group were within the age group of 41-65 years, and most of them, i.e., 60% of the experimental group and 65% of the control group were male. Nearly 85% of the experimental group and 65% of the control group were having secondary education and above. The data concerning the economic status revealed that 55% in both groups were having income <5000 Rupees, and it was found that 55% in the experimental group was unemployed and retired and 65% in the control group were employed and homemaker. The majority of samples, i.e., 80% of the experimental group and 95% of the control group were married. In relation to the residence, it shows that the most (85%) in both groups were belonged to the rural area. The majority of samples (65%) in both groups were undergoing hemodialysis from <3 years (Table 1).

Level of anxiety among hemodialysis patients

Table 2 indicates that most of the samples, i.e., 10 (50%) in control group and 9 (45%) in experiment group were having severe anxiety

and 10 (50%) in experiment group and 7 (35%) in control group were having moderate anxiety in the pre-test.

Table 3 indicates that majority of samples, i.e., 12 (60%) were having mild anxiety in the experimental group, whereas in the control group, 8 (40%) were having moderate anxiety and 8 (40%) were having severe anxiety in the post-test.

Effect of foot reflexology on anxiety of patients undergoing hemodialysis

Table 4 shows that in experimental group, mean anxiety score was 24.5 and in control group, pre-test mean anxiety score was 23.45. The unpaired t-test value was 0.62 proved that there was no statistically significant difference in a level of anxiety between experimental and control groups in pre-test at <0.05.

Table 1: Frequency and percentage distribution of demographic variable in experimental and control groups (n=40)

S.No.	Variables	Frequency (%)	
		Experiment group	Control group
1	Age (years)		
	18-40 years	8 (40)	4 (20)
	41-65 years	12 (60)	16 (80)
2	Gender		
	Male	12 (60)	13 (65)
	Female	8 (40)	7 (35)
3	Educational qualification		
	No formal education/primary education	3 (15)	7 (35)
	Secondary education and above	17 (85)	13 (65)
4	Occupation		
	Employed/homemaker	9 (45)	13 (65)
	Unemployed/retired	11 (55)	7 (35)
5	Income of the family per month		
	Below 5000	11 (55)	11 (55)
	5000 and above	9 (45)	9 (45)
6	Marital status		
	Married	16 (80)	19 (95)
	Unmarried	4 (20)	1 (5)
7	Residence		
	Urban	3 (15)	3 (15)
	Rural	17 (85)	17 (85)
8	Duration of hemodialysis		
	Below 3 years	13 (65)	13 (65)
	3 years and above	7 (35)	7 (35)

Table 2: Score interpretation of pre-test score of experimental and control groups (n=40)

Grades	Score	Frequency (%)	
		Experiment group	Control group
Mild anxiety	<17	1 (5)	3 (15)
Moderate anxiety	18-24	10 (50)	7 (35)
Severe anxiety	25-30	9 (45)	10 (50)

Table 3: Score interpretation of post-test score of experimental and control groups (n=40)

Grades	Score	Frequency (%)	
		Experiment group	Control group
Mild anxiety	<17	12 (60)	4 (20)
Moderate anxiety	18-24	6 (30)	8 (40)
Severe anxiety	25-30	2 (10)	8 (40)

Whereas the post-test anxiety mean score was 16.6 in experiment group, in control group, post-test anxiety mean score was 22.55. The unpaired t-test value was 3.50 proved that there was a statistically significant difference in level of anxiety between experiment and control groups in post-test at <0.001.

The data presented in Table 5 show that in the experimental group, the mean difference between the pre- and post-test anxiety score was 7.9 and computed paired t-test value was t=18.43 was found significant at p<0.001 level. Hence, there was a significant reduction in level of anxiety among experimental group.

Association of pre-test level of anxiety with sociodemographic variables

Data presented in Table 6 revealed that there was no significant association between the level of anxiety and selected

Table 4: Comparison of pre- and post-test level of anxiety between experiment and control groups (n=40)

Phase	Mean±SD		Mean difference	Unpaired t-test
	Experiment group	Control group		
Pre-test	24.5±4.53	23.45±5.96	1.05	t=0.62, p<0.05 Not significant
Post-test	16.6±4.72	22.55±5.94	5.95	t=3.50, p<0.001 Significant

SD: Standard deviation

Table 5: Comparison of pre- and post-test level of anxiety in experimental group (n=40)

Group	Phase	Mean±SD	Mean difference	df	Paired t-test
Experiment group	Pre-test	24.5±4.536	7.9	19	t=18.433 p<0.001 Significant
	Post-test	16.6±4.728			

SD: Standard deviation

Table 6: Association of pre-test level of anxiety with sociodemographic variables

S.No.	Variables	Level of Anxiety			Mean	df	Chi-square value	Result
		Mild	Moderate	Severe				
1	Age (years)				4.794	2	0.0910	Not significant <0.05
	18-40	0	8	4				
	41-65	4	9	15				
2	Gender				3.538	2	0.1705	Not significant <0.05
	Male	3	13	9				
	Female	1	4	10				
3	Educational qualification				3.360	2	0.1864	Not significant <0.05
	No formal education/primary education	2	2	6				
	Secondary education and above	2	15	13				
4	Occupation				0.184	2	0.9122	Not significant <0.05
	Employed/homemaker	2	10	10				
	Unemployed/retired	2	7	9				
5	Income of the family per month				3.748	2	0.1534	Not significant <0.05
	Below 5000	4	9	9				
	5000 and above	0	8	10				
6	Marital status				1.051	2	0.5913	Not significant <0.05
	Married	4	14	17				
	Unmarried	0	3	2				
7	Residence				1.968	2	0.3738	Not significant <0.05
	Urban	1	1	4				
	Rural	3	16	15				
8	Duration of hemodialysis				2.576	2	0.2758	Not significant <0.05
	Below 3 years	4	11	11				
	3 years and above	0	6	8				

sociodemographic variables in the experimental and control groups at the level p<0.05.

DISCUSSION

The results of the present study show that there was a significant difference in the level of anxiety among the experiment group before and after intervention (p<0.001). There was no significant difference in the level of anxiety in two groups before the intervention, but there was a significant difference in the level of anxiety in the two groups after intervention (p<0.001).

The findings of different studies also show that foot reflexology decreases patients' anxiety in different conditions; for confirming the results of the present study, it can be pointed to the study of Mahmoudirad *et al.*, and the results of this study showed that there was a significant difference in the mean of anxiety score in intervention group before, immediately after, and ½ hr after intervention (p<0.001). There was no significant difference in the mean of anxiety score in two groups before the intervention, but there was a significant difference in the mean of anxiety score in the two groups immediately and ½ h after intervention (p<0.001) [11].

In the study of Mirzaee *et al.*, results show that anxiety level did not differ between the two groups at baseline (p<0.85). After the intervention, the mean of anxiety level was significantly lower in the reflexology group than in the control one (p<0.001) [12]. Results of the study of Visi *et al.* with the title of effects of foot reflexology on anxiety levels after coronary artery bypass graft indicate that patients' anxiety was decreased in the experimental group compared to control group [13].

In the study of Rasooli *et al.*, results indicate that in intervention group, anxiety levels in comparison before and after intervention were significantly reduced, but in the control group, there was no significant difference in the level of anxiety [14]. A study was conducted by Hanjan *et al.* with the title to determine the effect of foot reflexology on anxiety during labor in primiparous. The result of this study shows that there was a significant difference in anxiety score between two groups [15].

CONCLUSION

The aim of the study was to determine the effectiveness of foot reflexology on anxiety of patients undergoing hemodialysis. The results of this study indicate that foot reflexology is effective to reduce the level of anxiety among hemodialysis patients. It is suggested that more nursing studies should come up to find various non-pharmacological methods for reducing anxiety in patients undergoing hemodialysis.

RECOMMENDATIONS

On the basis of the study, the following recommendations are being made:

- The study can be replicated in a larger sample for generalizing the findings
- Qualitative research could be conducted on the same issue to explore the phenomenon of anxiety among patients undergoing hemodialysis
- The study can be repeated as true experimental study
- The study can be replicated in patients who are undergoing hemodialysis thrice a week
- The comparative study can be conducted with more than one intervention
- Non-pharmacological anxiety management should be emphasized in nursing curriculum
- Training program nurses can be given on complementary therapies.

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