

A Study To Evaluate The Effectiveness Of Foot Reflexology On Fatigue Among Patients Undergoing Hemodialysis In Selected Hospital Of Jaipur.

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Abstract

Chronic diseases present a significant challenge to 21st century global health policy. In developing nations, the growing prevalence of chronic diseases such as chronic kidney disease has severe implications on health and economic output. A study was conducted to evaluate the effectiveness of foot reflexology on fatigue among patients undergoing hemodialysis in selected hospital of Jaipur. The objective of the study was to evaluate the effectiveness of foot reflexology on the level of fatigue undergoing hemodialysis and to find the association between the post interventional level of fatigue among patients undergoing hemodialysis with the selected demographic and clinical variables. Total 60 patients with chronic kidney disease were selected using purposive sampling technique. The tool used was structured interview questionnaire to collect the demographic and clinical variables and numerical fatigue rating scale was used to assess the fatigue level. The findings revealed that the t-value calculated for day one (t value= 1.538) and day two (t value= 0.724) is not significant but significant on the third day (t value= 4.292) as the calculated t-value is more than tabulated value (2.045) at 0.05 level of significance. The p-value for the pre-test control group is 1, pre-test experimental group is 3.583, post-test control group is 0 and post-test experimental group is 0.00. Hence, the p-value is significant for the post-test experimental group at 0.05 level of significance. Significant association of post interventional fatigue level was found with the selected demographic variables i.e. age & personal habits and clinical variable i.e. duration of CKD (in years), duration of hemodialysis (in years), and number of hemodialysis already done. The study concluded that foot reflexology was an effective measure to reduce fatigue on patients undergoing hemodialysis.

Keywords: Chronic Kidney Disease, Foot Reflexology, Hemodialysis.

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I. Introduction

Chronic diseases present a significant challenge to 21st century global health policy. In developing nations, the growing prevalence of chronic diseases such as chronic kidney disease has severe implications on health and economic output. The rapid rise of common risk factors such as diabetes, hypertension, and obesity, especially among the poor, will result in even greater and more profound burdens that developing nations are not equipped to handle. Attention to chronic diseases, chronic kidney disease in particular, has been lacking, largely due to the global health community's focus on infectious diseases and lack of awareness.^[1]

The prevalence of kidney failure and its major risk factors (including chronic kidney disease [CKD] are increasing worldwide, and the most rapid growth is observed in low- and middle- income countries (LMICs).^[2] The corresponding increase in the burden of kidney failure is a major challenge for health systems, especially in LMICs, due to growing demand for expensive kidney replacement therapies such as dialysis.^[3]

Fatigue is prevalent in hemodialysis patients who for survival follow a strict dialysis treatment regimen – dialysis and non-dialysis days. As a result, the daily activities, symptom burden, and clinical outcomes of hemodialysis patients vary significantly between dialysis and non-dialysis days. Fatigue is one of the most reported debilitating symptoms experienced by hemodialysis patients with profound negative impact on their quality of life. Prior studies assessed fatigue during the preceding 7 or 30 days and did not discriminate fatigue characteristics between dialysis and non-dialysis days. We aimed to characterize and compare fatigue severity and fatigue interference with daily activities between dialysis and non-dialysis days.^[4]

Reflexology is a natural, holistic therapy based on the discovery that there are points on the feet and hands which correspond to organs and systems of the body. For thousands of years, techniques similar to reflexology have been used in Egypt and China. A technique called "zone therapy" was developed in the early 20th century by an American physician named William Fitzgerald. Dr. Fitzgerald suggested that maps of the foot could be used

to diagnose and treat medical conditions. He divided the body into 10 zones and labelled the corresponding parts of the foot. He proposed that gentle pressure on the foot could bring relief to the corresponding zone. ^[5]

Statement

“A study to evaluate the effectiveness of foot reflexology on fatigue among patients undergoing dialysis in selected hospital of Jaipur.”

Objectives:

- To evaluate the effectiveness of foot reflexology on the level of fatigue among patients undergoing dialysis.
- To find the association between the post interventional level of fatigue among patients undergoing dialysis with the selected demographic and clinical variables.

II. Methodology:

- Research Approach:** Quantitative Research Approach
- Research Design:** Quasi Experimental pre-test post-test control group design
- Sample:** Chronic Kidney Disease patients coming for dialysis in selected hospital of Jaipur.
- Sample Size:** 60
- Sampling Technique:** Non- Probability Purposive Sampling Technique
- Tool:** Demographic Variables, Clinical Variables, Numerical Fatigue Rating Scale
- Validation:** Tool validated by 08 experts

ETHICAL CLEARENCE: Head of the Medical Surgical Department of selected hospital of New Delhi and Jaipur.

Procedure Of Data Collection:

- Data was collected in the month of January i.e. 15/01/2024-31/01/2024.
- Data was collected by using a structured interview. A structured interview questionnaire was used to collect the demographic and clinical variables, and a standardized tool was used to assess the level of fatigue among the chronic kidney disease patients.
- Written consent was obtained from each participant. Purpose of the study was explained to the participants. Anonymity and confidentiality of the subject was maintained while carrying out the study.
- Fatigue assessment was done and then foot reflexology was given to the patients.
- Then post fatigue assessment was done after giving foot reflexology.

III. Major Findings:

Findings related to sample characteristics.

- Out of 60 samples majority of the samples belong to 51-60 years (10;33%), followed by 20-30 years (9;30%), 41-50 years (6;20%) least in 31-40 years (5;17%) in experimental group and 20-30 years (19;63%) majority, least in 41-50 years (1;3%), 31-40 years & 51-60 years (5;17%) in control group.
- Majority of the sample were females in both experimental group (17;57%) and control group (16;53%), and rest were males respectively in experimental group (13;43%) control group, (14;47%).
- Majority of the sample are married in both the groups (20;67%) and (22;73%) respectively in experimental and control group. Least in the group of divorced (3,10%; 0,0%) and widow/ widower (1,3%; 0,0%) respectively in experimental and control group. Unmarried in experimental (6;20%) and control (8;27).
- Majority of the sample were as self-employed in both the groups in experimental (9;30%) and control (16;53%). Followed by semi- private (11,37%; 4,13%), private (8,27%; 5,17%) and government (2,7%; 5,17%) for the experimental and control respectively.
- Majority had the income of 30,000-40,000 (15;50%) followed by 20,000- 30,000 (12;40%) with least in >40,000 (3;10%) in the experimental group and no one has income less than 20,000, followed by majority in 20,000-30,000 (15;50%), 30,000-40,000 (10;33%) and least in >40,000 (5;17%) in control group.
- Majority of the samples were having no habit of alcohol, smoking and chewing tobacco in both the groups experimental (22;73%) and control (15;50%). 4 (13%) samples are alcoholic and have chewing habit of tobacco. In control group, 5 (17%) are smokers, 10 (33%) are alcoholic, and none in the chewing tobacco.

Findings related to the pre-test and post-test scores regarding the effectiveness of foot reflexology on the level of fatigue.

- Majority of the sample belong to 3-5 years' duration of CKD for both experimental (11;37%) and control group (16; 53%) respectively followed by 9-11 years (10;33%), >12years (5;17%) and 6-8 years (4;13%) in the

- experimental group. In control group, 6-8 years (8;27%), >12 years (5,17%) and 9-11 years (1;3%).
- Majority in experimental group, belong to 1-3years and 7-9 years (11;37%) followed by 4 to 6 years and above 10 years (4;13%) in the experimental group. In control group, majority belong to 1-3 years (20;67%), and least in 4-6 years and above 10 years (5;17%) with no sample in the group of 7-9 years
 - Majority sample were in the number of hemodialysis done is more than 21 to 30 cycles (14;47%), followed by same in hemodialysis done for 11 to 20 cycles and more than 10 cycles (8;27%). In control group, majority in number of hemodialysis done is more than 10 cycles (19;63%), followed by 6 (20%) samples had hemodialysis done for 11 to 20 cycles and least in for more than 21 to 30 cycles (5;17%).
 - All the samples had hemodialysis done thrice a week 30 (100%) in both the groups.
 - All the samples had hemodialysis done for 4 hours 30 (100%) in both the groups.
 - Majority sample did not face any issues during dialysis in both the control and experimental group (24;80%). No one had any headache and dizziness. But, some had vomiting in both experimental (6;20%) and control group (7;23%).
 - Majority sample had no history any co-morbidity in both groups experimental (21;70%) and control (24;80%) and least with history of co-morbidity in experimental group (9;30%) and control group (21;70%).

Findings related to the effectiveness of foot reflexology

- The mean post-test score is for the experimental group is **2.6** and the mean pre-test score (**2.6**), mean post-test score for control group is **4.9** and mean pre-test score is **4.4** with a mean difference of 0.9. The computed mean difference (**2.2**) was not statistically significant as evident from the “t” value of (**1.583**), Since the paired “t” value is less than the table value (**2.045**) at 0.05 level of significance. This shows that the foot reflexology was not effective on reduction of fatigue level on day-1.
- The mean post-test score is higher for the experimental group (**6.5**) than the mean pre-test score (**6.4**), mean post-test score for control group is **5.8** and mean pre-test score is **5** with a mean difference of 0.9. The computed mean difference (**0.9**) was not statistically significant as evident from the “t” value of (**0.724**), Since the paired “t” value is less than the table value (**2.045**) at 0.05 level of significance. This shows that the foot reflexology was not effective on reduction of fatigue level on day-2
- The mean post-test score is higher for the experimental group (**5.9**) than the mean pre-test score (**4.8**), mean post-test score for control group is **5.3** and mean pre-test score is **4.3** with a mean difference of 1.1. The computed mean difference (**1.1**) was statistically significant as evident from the “t” value of (**4.292**), Since the paired “t” value is less than the table value (**2.045**) at 0.05 level of significance. This shows that the foot reflexology was effective on reduction of fatigue level on day-3.

Findings related to the association of post interventional fatigue scores with the selected demographic and clinical variables.

Table 1: Showing the effectiveness of foot reflexology on the level of fatigue among patients undergoing hemodialysis in post-test experimental group.

n=60

PRE TEST EXPERIMENTAL GROUP					
Source	DF	Sum of Square (SS)	Mean Square (MS)	F Statistic (df1,df2)	P-value
Factor A: Between Subjects (rows)	29	43.1556	1.4881	6.7902 (29,58)	3.583
Factor B: Between Treatments (columns)	2	19.2889	9.6444	44.007 (2,58)	2.355
Error	58	12.7111	0.2192		
Total	89	75.1556	0.8444		
PRE TEST CONTROL GROUP					
Source	DF	Sum of Square (SS)	Mean Square (MS)	F Statistic (df1,df2)	P-value
Factor A: Between Subjects (rows)	35	66.724	1.9064	0.03963 (35,1)	1
Factor B: Between Treatments (columns)	2	19.9733	9.9866	0.2076 (2,1)	0.8406

Error	1	48.1101	48.1101		
Total	108	134.8073	1.2482		
POST TEST CONTROL GROUP					
Source	DF	Sum of Square (SS)	Mean Square (MS)	F Statistic (df1,df2)	P-value
Factor A: Between Subjects (rows)	28	96.3448	3.4409	22.7154 (28,56)	0
Factor B: Between Treatments (columns)	2	15.5172	7.7586	51.2195 (2,56)	2.255
Error	56	8.4828	0.1515		
Total	86	120.3448	1.3994		
POST TEST EXPERIMENTAL GROUP					
Source	DF	Sum of Square (SS)	Mean Square (MS)	F Statistic (df1,df2)	P-value
Factor A: Between Subjects (rows)	29	40.9889	1.4134	3.73 (29,58)	0.000
Factor B: Between Treatments (columns)	2	225.3556	112.6778	297.36 (2,58)	0
Error	58	21.9778	0.3789		
Total	89	288.3222	3.2396		

*p value <0.05 = significant at the 0.05 level of significance.

- It was found that there was decrease in the level of fatigue among patients undergoing hemodialysis in the **post-test experimental group** which was **significant** with the p-value (**0.000**) and was not significant for the post-test control group. Thus, null hypothesis (H_{01}) was rejected and research hypothesis was accepted that there was significant decrease in the level of fatigue among the patients undergoing hemodialysis in the experimental group after foot reflexology.
- The computed chi-square value of **8.81** to establish the association between age of the samples with post interventional fatigue score was found statistically **significant** at 0.05 level of significant for degrees of freedom **3 (7.81)**.
- The computed chi-square value of **0.067** to establish the association between gender of the samples with post interventional fatigue score was found statistically **non-significant** at 0.05 level of significant for degrees of freedom **2 (5.99)**.
- The computed chi-square value of **7.205** to establish the association between marital status of the samples with post interventional fatigue score was found statistically **non-significant** at 0.05 level of significant for degrees of freedom **3 (7.81)**.
- The computed chi-square value of **7.205** to establish the association between type of occupation of the samples with post interventional fatigue score was found statistically **non-significant** at 0.05 level of significant for degrees of freedom **3 (7.81)**.
- The computed chi-square value of **1.833** to establish the association between income (per month) of the samples with post interventional fatigue score was found statistically **non-significant** at 0.05 level of significant for degrees of freedom **3 (7.81)**.
- The computed chi-square value of **12.896** to establish the association between personal habits of the samples with post interventional fatigue score was found statistically **significant** at 0.05 level of significant for degrees of freedom **3 (7.81)**.
- CKD (in years) of the samples with post interventional fatigue score was found statistically **significant** at 0.05 level of significant for degrees of freedom **3 (7.81)**.
- The computed chi-square value of **13.835** to establish the association between duration of dialysis (in years) of the samples with post interventional fatigue score was found statistically **significant** at 0.05 level of significant for degrees of freedom **3 (7.81)**.
- The computed chi-square value of **9.03** to establish the association between number of hemodialysis already done of the samples with post interventional fatigue score was found statistically **significant** at 0.05 level of significant for degrees of freedom **2 (5.88)**.
- The computed chi-square value of **0** to establish the association between cycles of hemodialysis of the samples with post interventional fatigue score was found statistically **non-significant** at 0.05 level of significant for

degrees of freedom **1 (3.84)**.

- The computed chi-square value of **0** to establish the association between duration of hemodialysis of the samples with post interventional fatigue score was found statistically **non-significant** at 0.05 level of significant for degrees of freedom **1 (3.84)**.
- The computed chi-square value of **0.098** to establish the association between experience of any untoward problems during dialysis of the samples with post interventional fatigue score was found statistically **non-significant** at 0.05 level of significant for degrees of freedom **3 (7.81)**.
- The computed chi-square value of **0.8** to establish the association between history of any co-morbidity of the samples with post interventional fatigue score was found statistically **non-significant** at 0.05 level of significant for degrees of freedom **1 (3.84)**.

Summary

The study was conducted in selected hospital of Jaipur. The populations of the study were selected from Hemodialysis unit. Purposive sampling technique was used to select the patient. There were 60 patients selected for the study with the predetermined inclusion criteria. The present study was aimed in evaluating the effectiveness of foot reflexology on level of fatigue among patients undergoing hemodialysis.

Implications Of The Study:

The findings of the study have implications in different aspects of nursing profession such as nursing practice, nursing education, nursing research and nursing administration.

Nursing Practice:

- Foot Reflexology can be incorporated in the daily nursing routine as it is a proven technique to reduce the fatigue.
- Awareness can be created in the general public through mass media campaign regarding the importance of foot reflexology as an adjuvant therapy for fatigue and prevent its complications.
- Encouraging the nursing personal to learn reflexology or any alternative therapy, to be certified to practice the same in clinical settings.
- Foot reflexology can be taught to family care givers of chronic renal failure patients; this may provide them with the means of providing tangible evidence of care and support of the dependent renal failure patients.

Nursing Education:

- To strengthen the non-pharmacological methods in managing fatigue and should be incorporated in nursing subjects.
- Nursing education should emphasize on preparing nurses to various treatment modalities and update their knowledge in all fields including complementary and alternative medicine.
- This study will enhance the nursing students to acquire knowledge about foot reflexology and its importance in maintaining and reduce fatigue.
- Student nurses can be trained in practicing foot reflexology so that they can inculcate it in nursing care activities.
- Nursing students should be trained in practicing foot reflexology.

Nursing Administration:

- Nurse administrators can organize various staff development programs to educate the nurses on importance of foot reflexology as an adjunct management to fatigue.
- Nurse administrators should motivate the nurses to gain knowledge regarding various alternative therapies for fatigue and implement while providing the care to the patients.
- As this study supports the foot reflexology, the nursing administrator must enforce the nurses to practice foot reflexology for the renal failure patients in the clinical settings.
- Nurse administrator can arrange for many in-service program for their staff and they can also undergo the training program for foot reflexology.

Nursing Research:

- This study can be a baseline for future studies to build upon and motivate the investigators to conduct further studies and provides scope for future research and utilization of findings.
- As an evidence based practice, the nursing personnel should involve in research activities to come out with successful remedies to reduce the burden of various diseases.
- Foot reflexology therapy can be studied more scientifically and used for specific nursing intervention.

- Further studies can be encouraged to assess the extent to which foot reflexology can control fatigue.

IV. Recommendation:

- The study can be conducted with large samples to generalize the findings.
- Comparative studies can be conducted between various alternative modalities like comparison of foot reflexology with reiki therapy.
- Study can be conducted in different clinical settings.
- Comparative study can be undertaken between the genders. Similar study can be conducted with increasing the duration of intervention, and along with other complementary therapy.
- A comparative study can be conducted with different group of population and different mode of non-pharmacological therapy.
- This study can be conducted on other areas of diseases like orthopedic problems, cardiac problems, and other medical area.
- This study can be conducted by using different research design like true experimental study.

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