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A STUDY TO ASSESS THE EFFECTIVENESS OF CONTRAST BATH ON LEVEL OF NEUROPATHY PAIN AMONG CLIENTS WITH TYPE 2 DIABETES MELLITUS AT SELECTED RURAL AREA IN TIRUPPATTUR DISTRICT.

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ABSTRACT:

The clients who were diagnosed to have diabetic neuropathy pain were gathered and seated in mallapalli village in Tiruppattur distict. A brief introduction of self and explanation of the purpose of the study was given. The clients were allotted into experimental and control group using simple random sampling technique by lottery method. At first demographic details were obtained through questionnaire for 5 minutes. It took10 minutes to assess the pretest level of neuropathy pain using Galer neuropathy pain scale. The researcher faced difficulty in explaining the components of the pain scale in the regional language. The control group were underwent the hospital routine whereas the experimental group were subjected to the contrast bath in addition to hospital routine. Clients in the experimental group were taken into the intervention in one by one for the contrast bath. The investigator used 2 basins with water (one for hot water and one for cold water). The temperature of hot water was 100-105 degree F and for cold water 60-70 degree F. the clients foot was immersed fully in hot water basin for 3 minutes followed by cold water basin for 1 minute. Then it was repeated for 5 times with the total duration of 20 minutes. The temperature of the water was maintained constant throughout the procedure by frequently adding hot or cold water. Immediately after the intervention, within 5-10 minutes, post test level of neuropathy pain was

assessed using Galer neuropathy pain scale which took 5 minutes. The clients in the control group were asked to report to the diabetic outpatient department after hospital routine for assessing post test level of neuropathy pain using Galer neuropathy pain scale. It took 5 minutes for each person. Then the clients were taught about contrast bath and were encouraged to practice it frequently at home.

INTRODUCTION:

Diabetes mellitus, commonly known as **diabetes**, is a metabolic disease that causes high blood sugar. The hormone insulin moves sugar from the blood into your cells to be stored or used for energy. With **diabetes**, your body either doesn't make enough insulin or can't effectively use the insulin it does make. Depending on the affected nerves, **Neuropathic pain** is often described as a shooting or burning **pain**. It can go away on its own but is often chronic. Sometimes it is unrelenting severe and sometimes it comes and goes. It often is the result of **nerve** damage or a malfunctioning nervous system. **Diabetic neuropathy symptoms** can range from **pain** and numbness in your legs and feet to problems with your endocrine system, digestive system, urinary tract, blood vessels and heart. Some people have mild **symptoms**. But for others, **diabetic neuropathy** can be quite **painful** and disabling. **Contrast bath**, also known as alternate **bath** allegedly promotes the cyclic vasoconstriction and vasodilatation and enhances the reduction of **neuropathy pain** in clients with **diabetes mellitus**. Protocols may involve alternate immersion of feet in warm water and cold water.

OBJECTIVES:

- To assess the level of neuropathy pain among the clients with type 2 diabetes mellitus
- To evaluate the effectiveness of contrast bath reducing in the level of neuropathy pain the clients with type 2 diabetes mellitus.
- To find out the association between the level of neuropathy pain with the selected demographic variables among the clients with type 2 diabetes mellitus.

HYPOTHESES:

- H_1-There will be a significant difference in the level of neuropathy pain among clients with type 2 diabetes mellitus.
- H_2-There will be a significant association between the level of neuropathy pain among clients with type 2 diabetes mellitus and their selected demographic variables.
- H_3-There is significant association between the level of neuropathy pain among clients with type 2 diabetes mellitus and their selected demographic variables at $P< 0.05$ level

ASSUMPTIONS:

1. Clients with diabetes mellitus may have neuropathy pain may differ from one individual to another.
2. Contrast bath may reduce the level of neuropathy pain in clients with diabetes mellitus.

REVIEW OF LITERATURE:

Section I: Review related to modalities for Neuropathy pain management.

Section II: Review related to effect of diabetes mellitus and neuropathy pain.

Section III: Review related to effects of Contrast bath on neuropathy pain with diabetes mellitus clients attending diabetic outpatient department.

RESEARCH DESIGN:

True experimental design (pretest – posttest design) was used for this study.

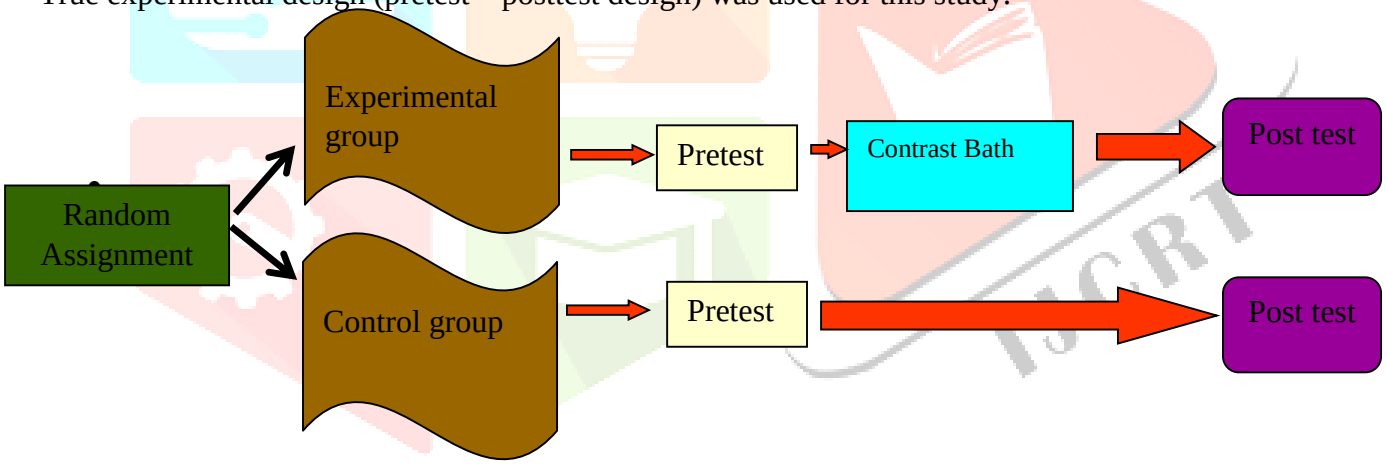


FIGURE 1.1: SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

METHODOLOGY:

The research approach selected for the study is quantitative approach with true experimental pretest - post test design. 60 patients were selected through simple Random Sampling Technique (lottery method). In that 30 were assigned as experimental and 30 were assigned as control group. Demographic variables, contrast bath and pre-post level of neuropathy pain was assessed by Galer neuropathy pain Scale. Experimental group received contrast bath and control group with receiving routine treatment. The collected data were analysed based on the above mentioned objectives using descriptive and inferential statistics.

RESEARCH VARIABLES:

1. **Independent Variable:**
   Contrast bath (warm and cold bath).
2. **Dependent Variable:**
   Level of neuropathy pain.
3. **Extraneous Variable:**
   Age, gender, religion, education, occupation, income, type of family, extent of family support, duration of illness, level of pain tolerance, treatment for diabetes mellitus, co morbid illness.

DEVELOPMENT AND DESCRIPTION OF THE TOOL:

The research instrument is developed in English after extensive review of literature and experts' opinion. The structured demographic questionnaire and Galer Neuropathy Pain Scale was used as an instrument to assess the level of neuropathy pain.

It Consists of the Following 2 Sections:

Section A: Demographic Variables

Demographic variables include age in years, gender, religion, educational status, occupation, family income, duration of diabetes mellitus and neuropathy pain, treatment for diabetes mellitus, suffering from any co morbid illness.

Section B: Assessment of neuropathy pain by Galer Neuropathy Pain Scale

Neuropathy pain was measured by using Galer Neuropathy Pain Scale and asking clients to verbalize the severity of the pain on the scale. As per the clients response the grading was done by the researcher.

Table 1: Assessment of neuropathy pain by Galer Neuropathy Pain Scale

S.NO	ITEMS	COMPONENTS	SCORE
1.	Intensity of pain	No pain to the most intense pain sensation imaginable	0 to 10
2.	Sharpness of pain	Not sharp To The most sharp sensation imaginable (like a knife)	0 to 10
3.	Level of heat	Not hot To The most hot sensation imaginable (on fire)	0 to 10
4.	Dullness	Not dull To The most dull sensation imaginable	0 to 10
5.	Coldness	Not cold To The most cold sensation imaginable (freezing)	0 to 10
6.	Skin integrity	Not sensitive To The most sensitive sensation imaginable (raw skin)	0 to 10
7.	Level of itching	Not itchy To The most itch sensation imaginable (mosquito bite)	0 to 10
8.	Quality of pain	Background pain To Single type pain all the time or only sometimes	0 to 10
9.	Over all unpleasantness	Not unpleasant To The most unpleasant sensation imaginable (intolerable)	0 to 10
10.	Intensity of deep and surface	No intensity of deep and surface To The most intense deep and surface pain sensation imaginable	0 to 10
			Total score : 100

GRADING OF SCORES:

The obtained scores were to be computed for the intensity of the level of neuropathy pain will be graded as follows:

Table 2: Grading Of Scores

LEVEL OF PAIN	SCORE
Mild neuropathy pain	≤ 50
Moderate neuropathy pain	51-75
Severe neuropathy pain	>76

INTERVENTION PROTOCOL:

CONTRAST BATH:

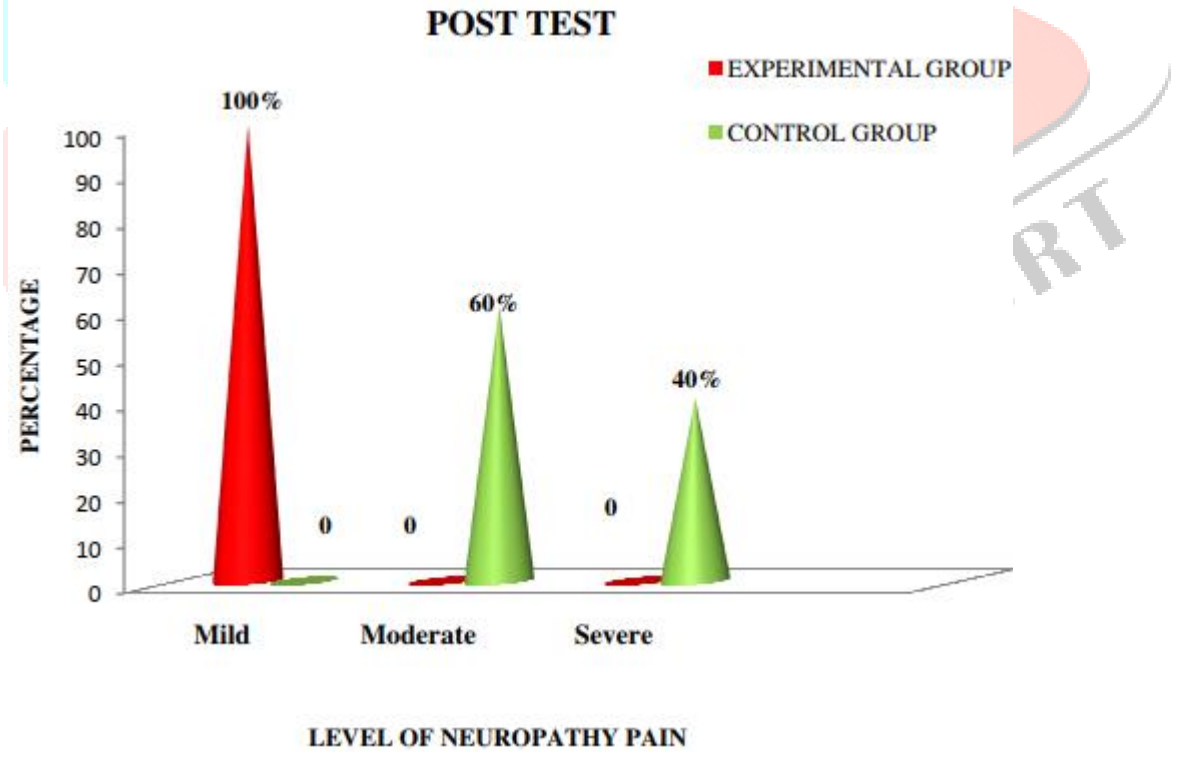
It refers to an alternate immersion of the feet in warm water and cold water.

A) **WARM BATH:** The feet is immersed in warm water for 3 minutes at a temperature of 100^0-105^0F.

B) **COLD BATH:** Feet is immersed in cold water for 1 minute at a temperature of 60^0 70^0F.The investigator did contrast bath by alternate immersion of client's feet in warm water for 3minutes followed by cold water for 1 minute and repeated this for 5 cycles with a total duration of 20 minutes**.**

Figure 1 : Frequency and percentage distribution of post test level of neuropathy pain among clients with type 2 diabetes mellitus in the experimental group and control group.

(n=60)



The above figure s**h**ows the post test level of neuropathy pain, in experimental group 30(100%) had mild l**e**vel of neuropathy pain, and none of them had moderate and severe level of neuropath**y** pain. Whereas in the control group 18(60%) **h**ad moderate level of neuropathy pain, 1**2**(40%) had severe level of neuropathy pain and none of them had mild neuropathy pain.

Table 3: Comparison of pre-test and post-test level of neuropathy pain in the experimental group (n=60)

Neuropathy Pain	Mean	S.D	Paired 't' value
Pre Test	81.20	7.54	t = 41.671*** p = 0.001(S)
Post Test	21.93	5.44	

***P<0.001, S-Significant

The comparison reveals that the pre-test mean score was 81.20 with a standard deviation of 7.54 and the post test mean value was 21.93 with SD of 5.44. The calculated 't' value 41.671 was higher than the table value which indicated that there was a high statistical significant difference in the pre and post test level of neuropathy pain among clients with diabetes mellitus in experimental group at p<0.001 level. This finding of the study revealed that the contrast bath had an effective in reducing the level of neuropathy pain.

Hence the mean differed score 59.27 and 't' 41.671 value showed high level of significance.

RESULTS AND DISCUSSION:

In the experimental group the post test level of neuropathy pain 30(100%) had mild l**e**vel of neuropathy pain, and none of them had moderate and severe level of neuropath**y** pain. Whereas in the control group 18(60%) **h**ad moderate level of neuropathy pain, 1**2**(40%) had severe level of neuropathy pain and none of them had mild neuropathy pain. In the post test, the level of neuropathy pain for the experimental group the mean value was 21.93 with SD of 5.44 and mean value for control group was 72.73 with SD of 7.15. The calculated unpaired 't' value was 30.964 at p<0.001 which indicated that there was a high statistical significant difference in the post test level of neuropathy pain score among clients with diabetes mellitus between the experimental and control group. The findings of the study proved that the contrast bath is an effective intervention protocol to reduce the level of neuropathy pain among clients with diabetes mellitus. The calculated F value 2.751 indicated that there was a significant association at p<0.010 level with the demographic variable of family income per month and no significant association with the other demographic variables. The variable which influences the reduction in level of neuropathy pain among clients with diabetes mellitus was family income per month.

In the experimental group, the family income per month has significance this may be unable to spend money for taking treatment.

In the control group none of the demographic variables showed any statistically significant association.

CONCLUSION:

The study concluded that the Contrast bath had significant effect by reducing the level of neuropathy pain. As by concluding that, the stated research hypothesis was accepted.

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