

Effectiveness of contrast bath on level of neuropathy pain



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DISCUSSION

The study was conducted to evaluate the effectiveness of contrast bath on level of neuropathy pain among clients with diabetes mellitus attending diabetic outpatient department.

This chapter discusses in detail the finding of the analysis in relation to the objectives and hypotheses of the study. The following were the objectives of the study and further discussion will exemplify how these objectives were satisfied and how the hypotheses was rejected based on the result of the study.

5. 1 Description of the demographic variables of the patients in experimental and control group.

In experimental group and control group, with regard to the age in years, 11(36. 67%) were in the age group of 50 to 59 years, 19(63. 33%) were female and 25 (83. 33%) belongs to Hindu religion. With regard to the educational status, 13(43. 33%) were non literate, 21(70%) were unemployed and 15 (50%) had family income of Rs. 2, 000-Rs. 5, 000 per month . With regard to the duration of diabetes mellitus , 14(46. 67%) belongs to more than 5 years, 13(43. 33%) had neuropathy pain with the duration of < 6 months , 23(76. 67%) were under the treatment of oral hypoglycemic agents and 26 (86. 67%) were not suffering from any co morbid illness .

5. 2 The first objective was to assess and compare the pre and post test level of neuropathy

pain among the experimental and control group.

The analysis in figure 4. 2. 1 showed the pretest level of neuropathy pain, in experimental group , 22 (73. 33%) had severe level of neuropathy pain , 8 (26. 67%) had moderate level of neuropathy pain and none of them had mild level of neuropathy pain. Whereas in the control group, 18 (60%) had moderate level of neuropathy pain, 12 (40%) had severe level of neuropathy pain and none of them had mild neuropathy pain.

The analysis in the figure 4. 2. 2 shows the post test level of neuropathy pain, in

experimental group 30 (100%) had mild level of neuropathy pain , and none of them

had moderate and severe level of neuropathy pain. Whereas in the control group, 18

(60%) had moderate level of neuropathy pain, 12 (40%) had severe level of neuropathy pain and

none of them had mild neuropathy pain.

The analysis in table. 4. 3. 1 findings inferred that when comparing the pre test and post

test level of neuropathy pain within the experimental group the pre-test mean value was 81. 20

with SD 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 experimental

group at $p < 0. 001$ level. This finding was suggestive of effectiveness of contrast bath in reducing

the level of neuropathy pain.

The analysis in table 4. 3. 2 findings inferred that comparing the pre test and post test level of neuropathy pain within the control group, the pre-test mean value was 74. 67 with SD of 6. 79 and the post test mean value was 72. 73 with SD of 7. 15. The calculated ' t' value 2. 001 was higher than the table value which indicated that there was a low statistical significant difference in the pre test and post test level of neuropathy pain among control group at $p < 0. 05$.

The above findings were consistent with the experimental study conducted by Jessica Marsh, (2014) to know the effectiveness of contrast bath among clients with sprains and strains in the ankle and foot at a massage centre, Halifax, Canada. Investigator did contrast bath alternatively using hot water

with 36-38 degrees C(3minutes) and cold water with 4-21 degrees C(10 seconds to 1 minute) for 3 cycles, always ending with cold. The study result reported that there was a reduction in the level of pain in the ankle and foot.

The above study findings were consistent with the quasi experimental study conducted by Gormans JM et al (2011) to assess the effectiveness of hydrotherapy among 20 diabetes mellitus clients with foot pain who were admitted in a medical ward were randomly selected. Foot immersion was done in hot water for 3 minutes and cold water for 30 seconds, alternating for 3 cycles. The study finding revealed that there was reduction in foot pain which was noticed by using numerical pain scale.

Hence the null hypotheses H_0 stated earlier that " there is no significant difference between the pre-test and post-test level of neuropathy pain among the experimental and control group" at $p < 0.05$ level was rejected.

5.3 The second objective was to compare the pre-test and post test level of neuropathy

pain between the experimental and control group

The analysis in table 4.3.3 findings inferred that in the pre test, the level of neuropathy pain for the experimental group the mean value was 81.20 with SD of 7.54 and mean value for control group was 74.67 with SD of 6.79. The calculated unpaired 't' value 3.526 at $p < 0.001$ which indicated that there was a high statistical significant difference in the pre test level of neuropathy pain score among clients with diabetes mellitus between the

experimental and control group. This finding was suggestive of effectiveness of contrast bath in reducing the level of neuropathy pain.

The analysis in table 4. 3. 4 findings inferred that in 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 was supported by, Donna E. Breger Stanton et al(2012) conducted a systematic review among 28 clinical research articles on contrast bath from 1938 onwards in which 10 met the inclusive criteria set by the authors to know the effectiveness of contrast bath on diagnosis of rheumatoid arthritis and diabetes , to address the physiological changes of hot and cold on blood flow, intramuscular temperature, subcutaneous temperature, the influence of room temperature , pain and age. The definitive conclusions was made that the contrast bath increases superficial blood flow and skin temperature in foot which relieves pain.

The above study findings were consistent with an experimental study conducted by Nick grantham (2008) to know the effectiveness of contrast bath among 60 clients with diabetes foot attending foot clinic at china. They took 30 minutes for each client to provide the intervention. The temperature of the hot water was 35-40 degree C for 3-4 minutes and cold water was 10-15 degree C for 3-4 times. they concluded the study as contrast bath

stimulates the nervous system because brain has to receive and recognise two different types of information(hot and cold), the changes in temperature may also help in reducing pain.

The conceptual framework based on Wiedenbach's Helping Art of Clinical Nursing Theory guided the researcher to accomplish the study. The investigator perceived the need of implementing the contrast bath on level of neuropathy pain among clients with diabetes mellitus. The intervention which includes immersion of lower extremities in warm and cold bath for a duration of 20 minutes(5 cycles).

The clients with diabetes mellitus attending diabetic outpatient department were the recipient in the study, the investigator identified the need by assessing the pretest level of neuropathy pain using Galer Neuropathy Pain Scale and prescribed contrast bath to minister the need of the clients with diabetes mellitus. The goal was to reduce the level of neuropathy pain through the means of contrast bath for 20 minutes(5 cycles). The investigator validated the need by assessing the post test level of neuropathy pain using Galer Neuropathy Pain Scale which revealed that there was reduction in the level of neuropathy pain among clients with diabetes mellitus. The researcher enhanced the contrast bath for those who revealed significant improvement and gave reinforcement for those with insignificant improvement of level of neuropathy pain.

Hence the null hypotheses NH_2 stated earlier that " there is no significant difference in the pre-test and post-test level of neuropathy pain between the experimental and control group" at $p < 0.05$ level was rejected.

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5. 4 The third objective was to associate the selected demographic variables with the

mean differed level of neuropathy pain among clients with diabetes mellitus in

the experimental and control group.

The analysis in table 4. 4. 1 findings inferred that in the experimental group the analysis using ANOVA revealed a low statistical significance with regard to family income at $p < 0.010$ level, and no statistical significance for any of the other selected demographic variables such as age, gender, occupation, religion, educational status, duration of diabetes mellitus and neuropathy pain, treatment for diabetes mellitus, suffering from any co morbid illness. In control group the analysis using ANOVA revealed no statistical significance for all the selected demographic variables.

Hence the null hypotheses H_3 stated earlier that “ there is no significant association of selected demographic variables with the mean differed level of neuropathy pain among clients with diabetes mellitus in experimental and control group” at $p < 0.010$ level was rejected for family income per month and accepted for all other selected demographic variables such as age, gender, occupation, religion, educational status, duration of diabetes mellitus and neuropathy pain, treatment for diabetes mellitus and suffering from any co morbid illness in the experimental group. The null hypotheses H_3 was accepted for all the selected demographic variables in the control group.

The above discussions clearly represent that there has been a statistically significant impact of contrast bath on level of neuropathy pain among clients with diabetes mellitus. This draws conclusion for the study that contrast bath can be used as an effective intervention by the neuro nurses, community health nurse, nurse educator, nurse administrator, nurse researcher and health care professionals in reducing the level of neuropathy pain among clients with diabetes mellitus.