



AMERICAN JOURNAL OF ADVANCES IN NURSING RESEARCH

Journal homepage: www.mcmed.us/journal/ajanr



A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF HOT WATER FOOT BATH THERAPY IN REDUCING BODY TEMPERATURE AMONG ELDERLY PATIENTS WITH FEVER RESIDING IN SELECTED RURAL COMMUNITY AREAS, KRISHNAGIRI

Malathi Gunasekaran*

Assistant Professor, Department of Medical Surgical Nursing, Jeeva College of Nursing, Krishnagiri, Tamilnadu.

Article Info

Received 25/11/2019

Revised 15/12/2019

Accepted 17/01/2020

Key word:.

ABSTRACT

Fever is a natural response of the body that helps in fighting off foreign substances such as microorganisms and toxins. Thermoregulatory centre in the hypothalamus regulates the body temperature. Once the temperature goes up the person often feels warm. The symptom of sweating and vasodilation resets the altered set point to normal level. Hot water foot bath therapy causes blood vessels to dilate and improve blood circulation, which releases heat in the form of sweat and supply of oxygen to brain cell which aids in the elimination of toxins. The immersion of the body or part of the body in a water bath stimulates circulation. Water being good thermal conductor, can influence temperature regulation mechanism of the body through circulation. The body's normal temperature is around 98.6 degrees F (as measured in the mouth). During fever dilation of internal blood vessels and constriction of peripheral blood vessels occurs. It weakens the patient and makes him/her uncomfortable and anxious. Therefore fever as a symptom and its management is a concern to both healthcare professionals as well as patients. Providing comfort to patient is a basic and most important nursing intervention. Quantitative research approach design was considered. After getting permission from the concerned authority the researcher started data collection. 60 samples were selected by adopting Non probability purposive sampling technique experimental group 30 were using hot water foot bath therapy with routine care and control group 30 receiving routine care only. Pre test and post test was conducted in both groups. Hot water foot bath therapy was provided to experimental group for 1 week. It was proven that the hot water foot bath therapy is effective for reducing the body temperature in elderly people.

INTRODUCTION

The human organisms consists of trillions of cells all working together for the maintenance of the

entire organism. While cells may perform very different function, at the cells are quite similar in their metabolic requirements. Maintaining a constant internal environment with all that the cells need to survive (oxygen, glucose, mineral, ions, waste removal and so forth) is necessary for the wellbeing of individual cells

Corresponding Author

Malathi Gunasekaran

Email:- malathiganapathi16@gmail.com

Research Article



and the well being of the entire body. The varied processes by which the body regulates its internal environment are collections referred to as homeostasis. The living bodies have been characterized with a number of automated processes, which make them self-sustainable in the natural environment. Among these many process are that of reproduction and instinct to live, which are gifted by nature to living beings. The survival of living beings greatly depends on their capability to maintain a stable body temperature irrespective of temperature of surrounding environment. This capability of maintaining body temperature is called thermoregulation. Heat is lost by radiation, convection and conduction, but the net loss by all three processes depends on a gradient between the body and the outside. Thus, when the external temperature is low, radiation is the most important form of heat loss. When there is a high external temperature, evaporation is the most important form of heat loss. The balance of heat produced and heat lost maintains a constant body temperature. However, temperature does vary during the day, and this set point is controlled by the hypothalamus. Fever, also known as pyrexia is one of the most common medical signs and is characterized by an elevation of body temperature above 98.6 °F (37.2 °C) due to an increase in the temperature regulatory set-point [1-3].

This increase in set-point triggers increased muscle tone and chills. *Febricula* is an old term for a low-grade fever, especially if the cause is unknown, no other symptoms are present, and the patient recovers fully in less than a week. As a person's temperature increases, there is, in general, a feeling of cold despite an increase in body temperature. Once the new temperature is reached, there is a feeling of warmth.

A fever can be caused by many different conditions ranging from benign to potentially serious. Some studies suggest that fever is useful as a defense mechanism as the body's immune response can be strengthened at higher temperatures, however there are arguments for and against the usefulness of fever, and the issue is controversial. With the exception of very high temperatures, treatment to reduce fever is often not necessary; however, antipyretic medications can be effective at lowering the temperature, which may improve the affected person's comfort. Fever differs from uncontrolled hyperthermia, in that hyperthermia is an increase in body temperature over the body's thermoregulatory set-point, due to excessive heat production or insufficient thermoregulation.

A wide range for normal temperatures has been found. Fever is generally agreed to be present if the elevated temperature is caused by a raised set point and: If Temperature in the anus (rectum/rectal) is at or over 37.7°C (99.9°F); If Temperature in the mouth (oral) is at

or over 37.1°C (98.6°F); If Temperature under the arm (axillary) or in the ear (otic) is at or over 36.7°C (98.6°F).

METHODOLOGY

A quantitative research approach with pre experimental research design was considered. The study was conducted at rural community area in Krishnagiri. After getting permission from the concerned authority the researcher started data collection 60 samples were selected by adopting non probability purposive sampling and obtained written consent from each sample. On day – 1 pre test was conducted by using medical related information questionnaires. On day – 2 teaching about the hot water foot bath therapy was performed in community area people. After care followed that doubts were clarified. The post test was conducted on day – 5 by using medical related information.

Modified Orlando's Theory of Deliberative Nursing Process

Orlando was one of the earliest nurse theorist and one of the first person to develop nursing theory inductively from the empirical study of nursing practice. Orlando's theory has radically shifted the nurse's focus from the medical diagnosis to the nursing diagnosis, that is finding and meeting the client's immediate needs.

Orlando's nursing process is composed of the following basic elements:

- 1) Client's behavior
- 2) Reaction of the Nurse.
- 3) The Nursing activities which are designed for the client's benefit.

Orlando says that nurses should help in relieving the physical and mental discomfort and should not add to the client's distress. In this theory, Nursing process is used by nurses to meet the client's needs. Meeting the needs improves the client's behavior. Client's behavior can be increased body temperature, rigor, vomiting, body pain, fatigue. Nurse reacts to the client's behavior and act accordingly. After completion, the nursing action is evaluated for its effectiveness.

Development and Description of The Tool

Section – A: Demographic variables

It includes 10 demographic variables such as age, education, occupational status, monthly income, religion, marital status, type of the family, nutritional status, duration of fever[4,5].

Section – B: Medical related information

Medical related information such as temperature, duration, previous history of hospitalization, associated illness & measurement of body temperature using clinical thermometer.



Table 1. Temperature Classification:

| | |
|--------------|---|
| Hypothermia | <35.0 ⁰ C (95.0 ⁰ F) |
| Normal | 36.5 ⁰ C –37 ⁰ C (97.7 ⁰ F–98.6 ⁰ F) |
| Fever | 37.0 ⁰ C –38.3 ⁰ C (98.7 ⁰ F–100.9 ⁰ F) |
| Hyperthermia | 38.5 ⁰ C –39.9 ⁰ C (101 ⁰ F–103.9 ⁰ F) |
| Hyperpyrexia | 40.0 ⁰ C –41.5 ⁰ C (104 ⁰ F–106.7 ⁰ F) |

Source: Global Burden of Disease, 2008.

Table 2. Scoring procedure

(n=60)

| S.No | Level of Temperature | Grade | Score |
|------|----------------------|--|-------|
| 1 | Normal | 98.6 ⁰ F to 99 ⁰ F | 1 |
| 2 | Low pyrexia | 99 ⁰ F to 100 ⁰ F | 2 |
| 3 | Moderate pyrexia | 100 ⁰ F to 103 ⁰ F | 3 |
| 4 | High pyrexia | Above 103 ⁰ F | 4 |

RESULTS AND DISCUSSION**Table 3. Comparison of Pre-test and Post Test of Body Temperature**

(n = 60)

| Group | No. of subjects | Pre assessment | Post assessment | Paired t-test |
|--------------------|-----------------|----------------|-----------------|-------------------|
| | | Mean+_SD | Mean+_SD | |
| Experimental group | 30 | 102.2+_0.085 | 100.2+_0.26 | t=10.27 P<0.05 |
| Control group | 30 | 102.4+_0.083 | 100.8+_0.59 | t=0.111 P<0.05 |

Table 4. Frequency and percentage distribution of pre-test level of body temperature

(n = 60)

| Level of body temperature | Experimental group | | Control group | |
|---------------------------|--------------------|-------|---------------|-------|
| | N | % | N | % |
| Normal (1) | - | - | - | - |
| Low pyrexia (2) | 4 | 13.3% | 6 | 20.0% |
| Moderate pyrexia(3) | 12 | 40.0% | 12 | 40.0% |
| High pyrexia (4) | 14 | 46.7% | 12 | 40.0% |

Table 5. Frequency and percentage distribution of post test level of body temperature

(n = 60)

| Level of body temperature | Experimental group | | Control group | |
|---------------------------|--------------------|-------|---------------|-------|
| | N | % | N | % |
| Normal (1) | - | - | - | - |
| Low pyrexia (2) | 6 | 20.0% | 8 | 26.7% |
| Moderate pyrexia (3) | 18 | 60.0% | 17 | 56.7% |
| High pyrexia (4) | 6 | 20.0% | 5 | 16.6% |

Table 6. Effectiveness of hot water foot bath therapy in reducing body temperature in mean, standard deviation and 't' value according to the post level of body temperature.

(n = 60)

| Group | Mean | Standard deviation | t value |
|--------------------|---------|--------------------|------------------|
| Experimental group | 102.244 | 0.085 | T=0.61 P<0.05 |
| Control group | 102.04 | 0.85 | |



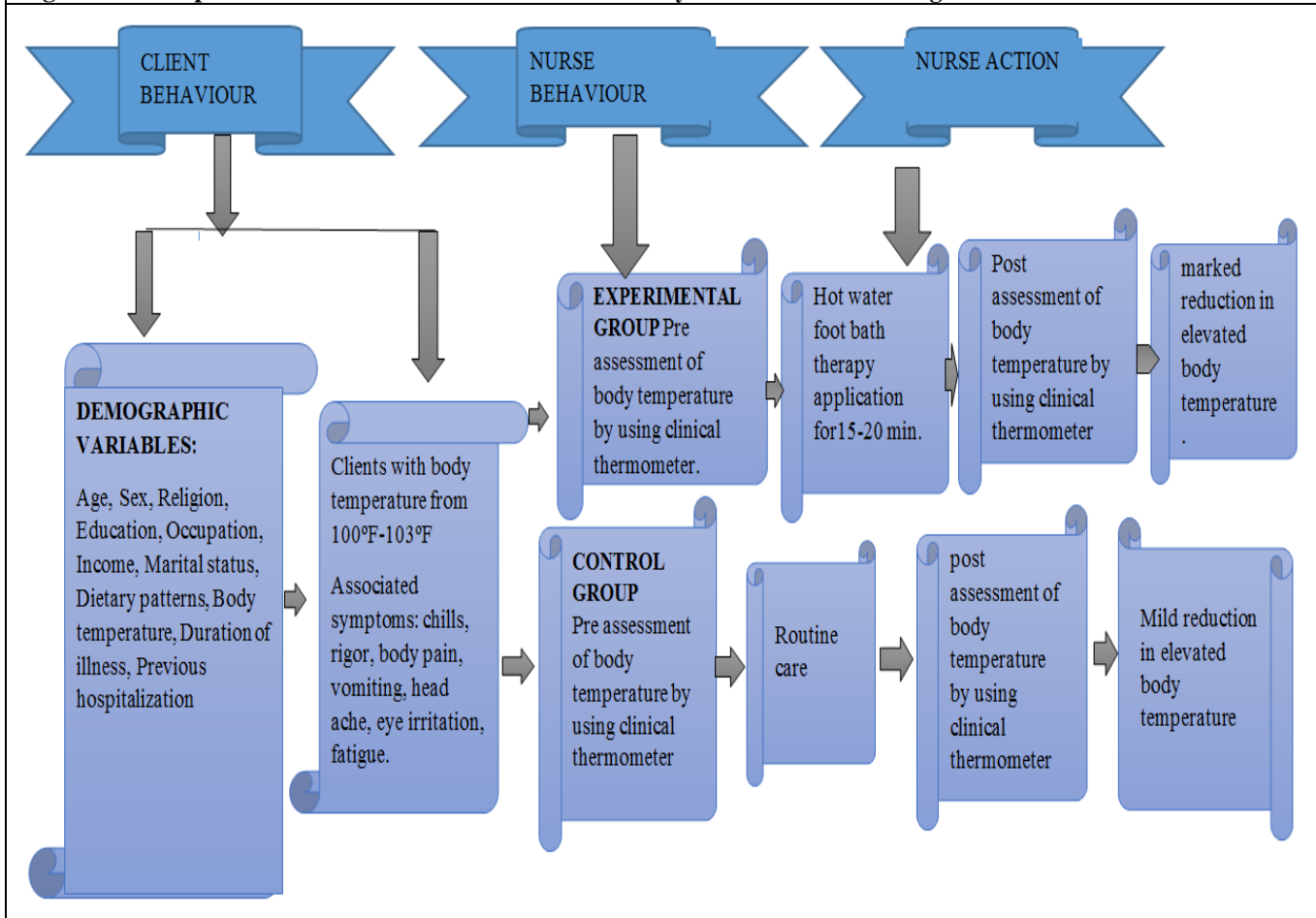
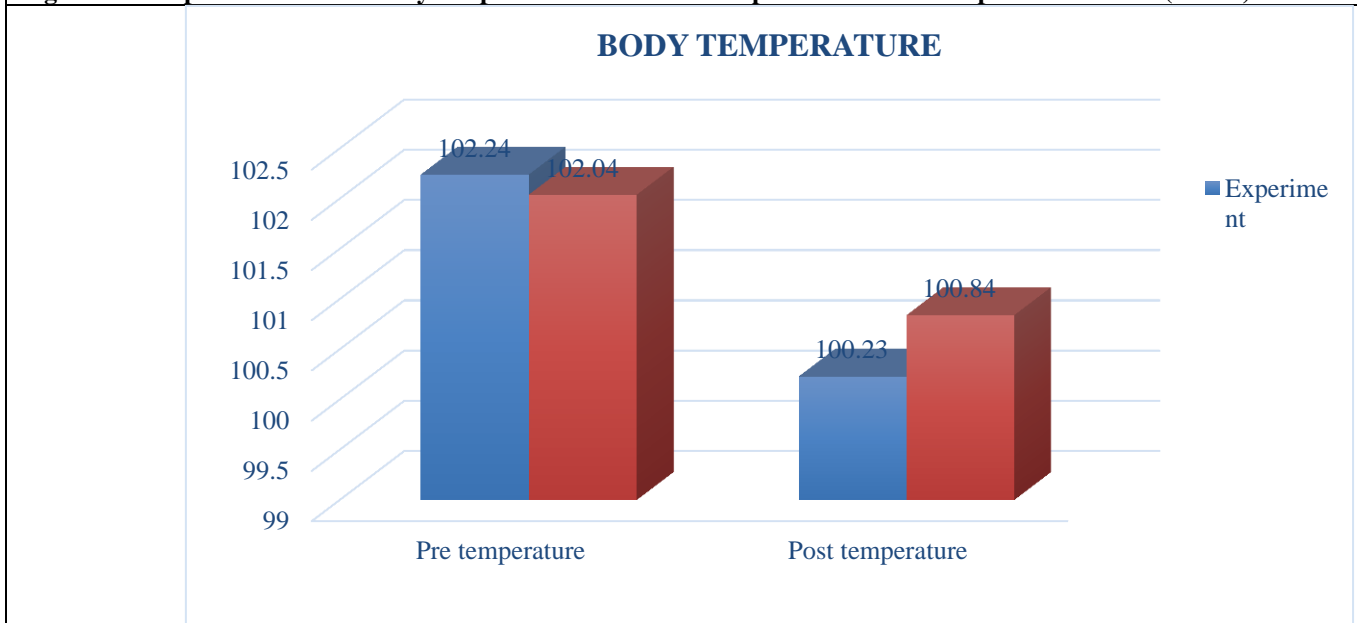
Figure 1. Conceptual Framework Modified Orland's Theory of Deliberativenursing**Figure 2. Comparison of mean body temperature score between pre assessment and post assessment (n = 60)**

Table 3 shows the comparison of pre assessment and post assessment temperature.

On an average, in experiment group, in pre assessment, subjects are having 102.2°F and in post assessment subjects are having 100.2°F. Difference is 2.0°F. The difference between pre assessment and post assessment temperature is large and it is statistically significant. Differences between pre assessment and post assessment temperature was analysed using paired t-test.

On an average, in control group, in pre assessment, subjects are having 102.4°F and in post assessment subjects are having 100.8°F. Difference is 1.6°F. The difference between pre assessment and post assessment temperature is large and it is statistically significant. Differences between pre assessment and post assessment temperature was analysed using paired t-test.

Table 4 shows the comparison of pre assessment and post assessment temperature.

On an average, in pre test, experiment group subjects are having 102.2°F and control group subjects are having 102.4°F. Difference is 0.2°F. The difference between experiment and control temperature is small and it is not statistically significant [6-8].

On an average, in post test, experiment group subjects are having 100.2°F and control group subjects are having 100.8°F. Difference is 0.6°F. The difference between experiment and control temperature is small and it is not statistically significant (Table 5).

The overall mean pre test and post test score on hot water foot bath therapy paired test 't' value was experimental group $t=10.27$ which was significant at $P<0.05$ level. The overall mean pre test and post test score on hot water foot bath therapy paired test 't' value was control group $t=0.111$ which was significant at $P<0.05$ level.

CONCLUSION

A quasi experimental study was conducted to assess the effectiveness of hot water foot bath therapy in reducing body temperature among elderly people with fever residing in selected rural community area Krishnagiri. The result of this study showed that hot water foot bath therapy was effective in reducing body temperature among elderly people with fever. As by conclude that, the stated research hypothesis was accepted.

REFERENCES

1. Augnestine.(2004) Clinical Nursing Procedure Manual . (2nd edition) Chennai : BI Publications.
2. Bhaskara Rao.T.(2005). Methods of Biostatistics, (2nd edition) Andhra Pradesh: Paras Publishers.
3. Black M Joyce.(2005).Medical Surgical Nursing Clinical Management for positive outcomes. Saint Louis. Elsevier.
4. Brunner and Suddarth(2001). Medical and Surgical Nursing. (8th edition). Philadelphia. J.B.Lippincott.
5. Carol Taylor et.al(2008)Fundamentals of Nursing(1st edition).Newdelhi: Wolters Kluwer,
6. Elakkuvana D.(2010). Textbook of Nursing Research and Statistics.(1st edition) Bangalore: EMMESS publication.
7. Julia M . Leaky, Practicia, K. Kililay(1998). Fundamentals of nursing practice(1st edition).
8. Lewis et al(2007),Text book of Medical surgical nursing(5th and 8th ediyion).Mosby publications.



This work is licensed under a Creative Commons Attribution-NonCommercial 3.0 Unported License.

