

Effectiveness of Epsom Salt with Glycerin Application vs Plain Hot Water Bag Application on Joint Pain among Elderly Women

¹A Padmavathy, ²S Vijayalakshmi, ³V Poovaragavan

How to cite this article:

A Padmavathy, S Vijayalakshmi, V Poovaragavan, Effectiveness of Epsom Salt with Glycerin Application vs Plain Hot Water Bag Application on Joint Pain among Elderly Women, Indian J Surg Nurs. 2021;10(1):19-22.

Author's Affiliations: ¹Associate Professor, ²Principal, ³Professor cum Vice principal, Vignesh Nursing College, Tiruvannamalai 606603, Tamil Nadu, India.

Corresponding Author: A Padmavathy, Associate Professor, Vignesh Nursing College, Tiruvannamalai 606603, Tamil Nadu, India.

E-mail: apadm.84senthil@rediffmail.com

Abstract

A study was conducted to assess the effectiveness of Epsom salt with glycerin application versus Plain hot water bag application to reduce knee joint pain among elderly women. The objectives of the study were 1) To assess the pre and post test level of knee joint pain among elderly women in experimental group 1 and experimental group 2. 2) To compare the level of knee joint pain among elderly women between experimental group 1 and experimental group 2. 3) To associate the post test mean score with selected demographic variable among elderly women in experimental group 1 and experimental group 2. The conceptual framework of the study was based on Orlando's theory of the deliberating nursing model. The study was conducted on a sample of 60 elderly women at government Tiruvannamalai medical college & hospital, Tiruvannamalai, using purposive sampling technique. In the present study Quasi experimental design- pre-test and post- test non equivalent control group design was adopted. Data were collected by using structured knowledge questionnaire. The obtained data were analyzed by using descriptive and inferential statistics like frequency, percentage, mean, standard deviation and chi square.

Keywords: Osteoarthritis; Epsom Salt; Plain Hot Water Bag; Joint Pain.

Introduction

Elderly in humans refers to a multidimensional process of physical, psychological and social changes. Clinical and functional changes caused by Osteoarthritis (OA) can influence the knowledge and physical activities of people with this disease. Osteoarthritis (OA) is the most common age related joint disease affecting more than 80% of people older than the age of 55 and one of the leading causes of elderly women. OA Nearly, 45% of women over the age of 60 years have symptoms while 70% of those over 65 years show radiological evidence of OA. India May Have 60 Million Osteoarthritis Cases by 2025. (NHP - National Health Portal, India-2017).

WHO (2017) 9.6% of men and 18.0% women aged over 60yrs have symptomatic osteoarthritis. 80% of those with OA have limitations in movement, and 25% cannot perform their major daily activities of life. India May Have 60 Million Osteoarthritis Cases by 2025. (NHP - National Health Portal, India-2017).

In Indian impact, nearly 80% of population shows OA among the patient who claimed for knee pain, out of which approximately 20% reported incapability in daily activities and around 11% need peculiar care. In Tamil Nadu 43.4% (139 in 320) of elderly study population commonly complaint for joint pains and stiffness. Nearly 60% of population with symptomatic of OA.

Indian Journal of Surgical Nursing / Volume 10 Number 1, January - April 2021

A rural study of Tamil Nadu shows 39% cases of OA, out of which 38% had OA of right knee and 35.5% had OA of left knee. Sexual distribution represents 40.8% prevalence in male and 59.2% in female. (Osteoarthritis in India: An epidemiological aspect 2017)

Women are more vulnerable than men to the condition, female and old age are the common risk factors. Other factors include excess body mass, specific occupations, repetitive knee bending or lifting heavy weights and a strong family history.

Many researchers have studied and recommended the hot water bag application for helping the people suffering from knee joint pain. Epsom salt is the one of the best home remedy which is rich in magnesium. This is very helpful for relieving the joint pain.

Statement of Problem

A comparative study to assess the effectiveness of Epsom salt with glycerin application versus plain hot water bag application on knee joint pain among elderly women at selected hospital.

Objectives

- To assess the pre and post test level of knee joint pain among elderly women in experimental group 1 and experimental group 2.
- To compare the level of knee joint pain among elderly women between experimental group 1 and experimental group 2.
- To associate the post test mean score with selected demographic variables among elderly women in experimental group 1 and experimental group 2.

Hypotheses

NH₁: There is no significant difference in pre and post test level of knee joint pain among elderly women between experimental group 1 and experimental group 2.

NH₂: There is no significant association between post test mean score with selected demographic variable among elderly women in experimental group 1 and experimental group 2.

Materials and Methods

A Quantitative research approach was considered to carry out the study. The main focus of the study was to assess the effectiveness of Epsom salt with glycerin Vs hot water bag application in order to reduce pain. The samples were elder women between the age group 60-80 years admitted in female medical ward. 60 samples were taken by purposive sampling technique for data collection. The data was collected by structured knowledge questionnaire. The collected data were analyzed by using descriptive (mean, Standard Deviation) and inferential statistics (Unpaired' test and Chi square test).

Data Collection Methods

The formal permission for conducting study was obtained from competent authorities. Reliability was established by using Split Half technique ($r = 0.82$). The investigator collected the data relative to demographic variables and conducted the pre-test to assess the level of knee joint pain by using numerical pain intensity scale for experimental group 1 and experimental group 2. On 2nd day for experimental group 1 Plain hot water (100 degree Fahrenheit) bag applied over the knee with raping sheet by the interval of 15 mins for 15 days every 6 hourly using supine position. For the experimental group 2 Epsom salt (1 table spoon) mixed with glycerin (½ table spoons) and applied over the knee joint for 15 mins for 15 days every 6 hours using supine position. Post test was conducted on the 16th day for the experimental and control group 1 & 2.

Data Analysis

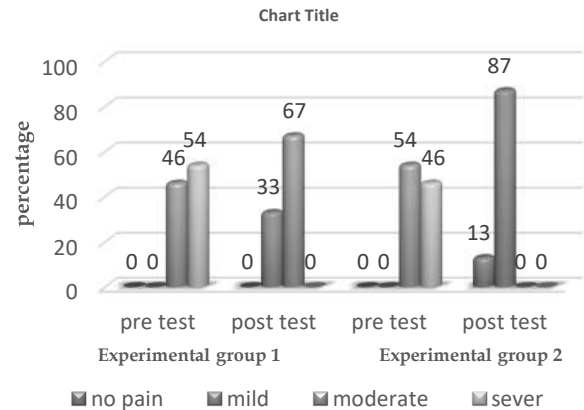
Both descriptive and inferential statistics were used to analyze the data.

Results

Findings Related to Assessment of knowledge regarding knee pain among elderly women.

The analysis on pre test level of knee joint pain in experimental group 1 revealed that 8(54%) of subjects had severe pain and 7(46%) subjects had moderate pain. The analysis on post test level of knee joint pain in experimental group 1 revealed that 10(67%) of subjects had moderate pain and 5(33%) subjects had mild pain.

The analysis on pre test level of knee joint pain in experimental group 2 revealed that 8(54%) subjects had moderate pain and 7(46%) subjects had severe pain. The analysis on post test level of knee joint pain in experimental group 2 revealed that 13(87%) subjects had mild pain and 2(13%) subjects had no pain.



Graph 1: Distribution of Samples by Level of Knowledge.

Findings Related to Demographic variables of samples

In experimental group 1 with regard to Age in year, majority of the subject 10 (67%) were between the age group of 66-70 years and 4(27%) were between 60-65 years of age, and 1(7%) were between 71-75 years of age. In experimental group 2 with regard to the age in year, majority of the subject 9(60%) were between 61-70years, and 5(33%) were between 50-60 years of age, and 1(7%) were between 71-80 years of age. In experimental group 1 with regard to education 7(47%) majority of the illiterate, 4(27%) were primary level, 4(27%) were higher secondary level. In experimental group 2 with regard to education 8(53%) majority of primary level, 6(40%) were illiterate, 1(7%) were higher study level. In experimental group 1 with regard occupation status majority of subject 6(40%) were coli and 5(33%) were house wife, and 4(27%) were farmer. In experimental group 2 with regard occupational status majority of subject 7(47%) were house wife, and 7(47%) were coli, 1(7%) were farmer. In experimental group 1 with regard to income 15(100%) were less than 3000. In experimental group 2 with regard to income 15(100%) were less than 3000.

In experimental group 1 with regard to marital status, majority of subject 15 (100%) were married. In experimental group 2 with regard marital status Majority of subject 15 (100%) were married. In experimental group 1 with regard religion majority of subject 14 (94%) were Hindu, and 1 (7%) were christen. In experimental group 2 with regard religion majority of the subjects 13 (87%) were Hindu, and 2 (14%) were christen. In experimental group 1 with regard types of family majority of the subject 8 (54%) were joint family and 7 (47%) were nuclear family. In experimental group 2 with regard types of family majority of the subject 9 (60%) were joint family, and 6 (40%) were nuclear family. In experimental group 1 with regard number of children majority of subject 8 (54%) were more than 2, and 6(40%) were 2 children, and 1 (7%) were one child. In experimental group 2 with regard number of children majority of subject 8 (54%) were more than 2 child, and 5(34%) were 2 child, 2 (14%) were one child.

Table 2: Comparison of pre and post test level of (hot water application and Epsom salt with glycerin application) knee joint pain among elderly women experimental group 1 and 2.

Assessment	Group	Mean	SD	Unpaired "T" test
Pretest	Experimental group 1	7.2	1.1	T -1
	Experimental group 2	7.3	0.7	
Posttest	Experimental group 1	4.1	0.9	T 20
	Experimental group 2	2.1	0.9	

The analysis of the pretest level of knee joint pain mean score was 7.2 with SD 1.1 in experimental group 1. The pretest mean score was 7.3 with SD 0.7 in experimental group 2. The calculated

unpaired 't' value was $t = -1$ which was found to be non-significant at $p > 0.05$.

The analysis of the posttest level of knee joint pain revealed that the mean score was 4.1 with SD 0.9 in experimental group 1. The analysis of the posttest level of knee joint pain revealed that the posttest mean score was 2.1 with SD 0.9 in experimental group 2. The calculated unpaired 't' value $t = 20$ was significant at $p < 0.05$ level, which indicates that there was significant difference in the posttest level of knee joint pain between the experimental group 1 and 2.

This clearly shows that the practice of Epsom salt with glycerin application reduces the level of knee joint pain in experimental group 2. With regard to the association of mean difference level of knee joint pain and selected demographic variables, There was significant association between age in years with chi - square value is 14.73, which showed high statistical significant at $p < 0.05$ in experimental group 2.

Table 1: Association of posttest level of knee joint pain among elderly women with their selected demographic variable in experimental group 1 and experimental group 2.

Demographic variable	Experimental group 1				DF	Chi square value
	No pain	Mild pain	Moderate pain	Severe pain		
Age						
60-65 years	0	2	2	0	6	0.94 N.S $P < 0.05$
66-70 years	0	3	7	0		
70-75 years	0	0	1	0		
Education						
Illiterate	0	2	5	0	9	0.58 N.S $P < 0.05$
Primary level	0	1	3	0		
Secondary level	0	2	2	0		
Degree	0	0	0	0		
Occupation						
House wife	0	2	3	0	12	1.27 N.S $P < 0.05$
Coli	0	1	5	0		
Farmer	0	2	2	0		
Industrial worker	0	0	0	0		
Business	0	0	0	0		
No. of children						
None	0	0	0	0	9	2.39 N.S $P < 0.05$
One	0	1	0	0		
Two	0	2	4	0		
More than 2	0	2	6	0		

Demographic Variable	Experimental group 2				DF	Chi square value
	No pain	Mild pain	Moderate pain	Severe pain		
Age						
60-65 years	0	5	0	0	6	14.73 S* $P > 0.05$
65-70 years	1	8	0	0		
71-75 years	1	0	0	0		
Education						
Illiterate	1	5	0	0	9	12.68 S* $P < 0.05$
Primary level	1	7	0	0		
Secondary level	0	1	0	0		
Degree	0	0	0	0		
Occupation						
House wife	1	6	0	0	12	1.17 N.S $P < 0.05$
Coli	1	6	0	0		
Farmer	0	1	0	0		
Industrial worker	0	0	0	0		
Business	0	0	0	0		

No. of children						
None	0	0	0	0	9	2.05 N.S $P < 0.05$
One	0	2	0	0		
Two	0	5	0	0		
More than 2	2	6	0	0		

S* significant at $p < 0.05$ level, NS - Non significant

The findings related to association of post test level of knowledge regarding knee joint pain among elderly women with their selected demographic variables of experimental group 1. (table 1)

The demographic variables of age, education occupation, no of children were independent of each other.

The findings related to association of post test level of knowledge regarding knee joint pain among elderly women with their selected demographic variables of experimental group 2. (table 1)

The demographic variables occupation, no of children was independent of each other. The other demographic variable i.e age, education showed an association with knowledge scores at $p < 0.05$ level of significance.

Discussion

Findings related to Epsom salt with glycerin Vs hot water bag application on with knee joint pain among elderly women in experimental group 1 and 2.

The analysis on pretest level of knee joint pain in experimental group 1 revealed that 8(54%) of subjects had severe pain and 7(46%) subjects had moderate pain. The analysis on posttest level of knee joint pain in experimental group 1 revealed that 10(67%) of subjects had moderate pain and 5(33%) subjects had mild pain.

The analysis on pretest level of knee joint pain in experimental group 2 revealed that 8(54%) subjects had moderate pain and 7(46%) subjects had severe pain. The analysis on posttest level of knee joint pain in experimental group 2 revealed that 13(87%) subjects had mild pain and 2(13%) subjects had no pain.

The analysis of the pretest level of knee joint pain mean score was 7.2 with SD 1.1 in experimental group 1. The pretest mean score was 7.3 with SD 0.7 in experimental group 2. The calculated unpaired 't' value was $t = -1$ which was found to be non-significant at $p > 0.05$.

The analysis of the posttest level of knee joint pain revealed that the mean score was 4.1 with SD 0.9 in experimental group 1. The analysis of the posttest level of knee joint pain revealed that the posttest mean score was 2.1 with SD 0.9 in experimental group 2. The calculated unpaired 't' value $t = 20$ was significant at $p < 0.05$ level, which indicates that there was significant difference in the posttest level of knee joint pain between the experimental group 1 and 2.

Jomon joy (2009) In this study evaluated among 60 samples above 60 years with knee joint pain by two groups. Each group randomly assigned to either group having 30 samples. One group received plain hot water application and another group received hot water application with Epsom salt. Assessment tools were numerical pain scale. The study results shows both of them reduce the pain level, but Epsom salt with hot water application is more effective than plain hot application in reduction of pain.

This clearly shows that the practice of Epsom salt with glycerin application reduces the level of knee joint pain in experimental group 2. With regard to the association of mean difference level of knee joint pain and selected demographic variables, There was significant association between age in years with chi - square value is 14.73, which showed high statistical significant at $p < 0.05$ in experimental group 2.

Conclusion

Epsom Salt with Glycerin Application to knee joint pain among elderly women in experimental group 2 had significant improvement in their post test. Where as Experimental group1 received hot water application to knee joint pain had less improvement in post test. Hence Epsom Salt with Glycerin Application is very effective alternative therapy for reducing knee joint pain among elderly women.

References

1. Janice Chaim Alves and Debora Pastore Bassitt. Quality of life and functional capacity of elderly women with knee osteoarthritis, 2013.
2. National Health Port of India (2017).
3. Pervaind Kumar. Department of orthopedics, Prevalence of Osteoarthritis among elderly patients, varun Arjun Medical college, U.P, India - 2017.
4. Chandra Shekhar Azad., et al.,(2017). Osteoarthritis in India: An epidemiologic aspects, Banaras Hindu University, Varanasi, International journal of research scientific Research, India.
5. London: National Institute for Health and Care Excellence (UK); 2014 Feb.) National Clinical Guideline Centre (UK).
6. Pal CP, Singh P, Chaturvedi S, Pruthi KK, Vij A, (2016) Epidemiology of knee osteoarthritis in India and related factors. Indian J Orthop: accessed from www.ncbi.nlm.nih.gov/pmc/articles/PMC5017174/.
7. Beth W. Orenstein Medically Reviewed by Judy Moucha - war, MD, MSPH February 26, 2016, Natural Arthritis Remedies
8. www.mayoclinic.org › Feb 22, 2020
9. <https://www.jointhehealthmagazine.com/>