

Effectiveness of Application of Warm Compress with Epsom Salt to Reduce Knee Joint Pain among Women

Shilpa Parag Satralkar¹, Basvant Dhudum²

¹Final Year M.Sc. Nursing, B.V.D.U. College of Nursing Sangli

²Assistant Professor, B.V.D.U. College of Nursing Sangli

Abstract: The purpose of the study is to assess the effectiveness of Epsom salt on knee joint pain. As prevalence is increasing in India regarding knee pain in arthritis patients, and medicine are getting costlier and effectiveness is less seen. objectives was aimed to assess the pain score in both experimental and control group before and after application of warm compress with Epsom salt. **Methods:** The sample was selected by non-probability purposive sampling technique. On total 60 sample; consist of two group, warm Epsom salt application group and control group. Each group consisted of 30 samples. The quasi-experimental two group pre post test research design was used. Everyday knee joint pain is assessed for signs of side effects or rash. Finally the result was compared with each other by analysis of the data. **Result:** Majority i.e. 46% of them were between the age group 50-54 years. Majority i.e. 100% were married. Majority i.e. 36% had income 5000-10000/- In pre-test score, 2% were having mild knee joint pain 10% had moderate pain 18% severe pain in experimental group. Where as in post test the samples with mild and moderate pain with mean of 1.03 had excellent reduction in pain. The finding of post test experimental group (1.03) than that in pre test 8.22. It was also evident that mean \pm SD post-test pain score was (1.48 \pm 0.93) was low than that pre test pain score was (1.25 \pm 1.70) **Conclusion:** warm Epsom salt application is highly effective in reduction knee joint pain in arthritis patient.

Keywords: Warm Compress, Epsom Salt, Knee Joint Pain, Women.

1. Introduction

Applying the heat by general or local which produce the physiological change in the body such as vasodilatation and relaxation of muscles which produce the beneficial therapeutic effect of relieving the pain[1] [2].

High prevalence of knee joint pain was reported by various authors, i.e., 46.7% among 60 years and above population and 40.7% among 40 years and above. Under treated or poorly managed knee joint pain can affect their physical, psychological, social, and emotional life. These real life consequences of knee joint pain need to be given adequate attention in the home care settings. So, there is a need to have home based management. Many researchers have studied and recommended the moist heat application for helping the people suffering from knee joint pain. Moist heat application is non-pharmacological, inexpensive and simplest approach which has a beneficial effect on knee joint pain. It causes vasodilatation and it penetrates deeper into the muscle and hence reduces the muscle spasm and pain[3].

Researchers believe that female hormones have an effect on the cartilage that sits between the bones of the joints and cushions the bones to prevent pain and allow the joints to move, experts have found that the female hormone estrogen protects cartilage from inflammation. Inflammation can lead to osteoarthritis. But after menopause, when women estrogen levels go down, they lose that protection and have a higher risk of developing osteoarthritis[14].

In the hot water application for the joint pain is Epsom salt hot water bath very effective in the treatment of joint pain. Epsom salt can act topically and immediately reduce the pain

in joint. The 200 mg of Epsom salt mixed in hot water the painful joints can be bathed for 20 mins. It can be used for thrice a week. It is very effective to relieve morning stiffness in joints (html- Cached- Sim updated 2006) [4].

The researcher found that the hot water application is very effective in relieving pain in the joints. Very few studies supporting the benefit of Epsom salt hot water application. In this study the investigators plan to conduct the study to evaluate the effectiveness of Epsom salt hot water application and plain hot water application for joint pain[1] [2].

Soaking in warm water is one of the oldest forms of alternative therapy, and there's good reason why this practice has stood the test of time. Research has shown warm water therapy works wonders for all kinds of musculoskeletal conditions, including fibromyalgia, arthritis and low back pain[5].

There are many reasons soaking in warm water works. It reduces the force of gravity that's compressing the joint, offers 360-degree support for sore limbs, can decrease swelling and inflammation and increase circulation.

Aging is a lifelong process that begins at conception and is experienced by all living organisms. Healthy geriatric population makes major contribution to the health and development of the country. According to the healthy people 2000, the most important aspect of health promotion for the older people is to maintain health and functional independence. It was noted that a significant number of the health problems evidenced with aging are either preventable or can be controlled by preventive activities and the strong

social support which is important in promoting the health of elderly[6][13].

Some complications of arthritis include joint stiffness, social complications, reduced physical activity, reduced leisure activity etc. Joint pain due to arthritis can limit sexual activity. Rheumatoid arthritis affects the quality of the life. The complications of Rheumatoid arthritis include joint distraction, heart failure, lung disease, low or high platelets, spine instability etc. Affected joints may worsen the ordinary tasks of the day to day life. Rheumatoid arthritis complications of this disease may shorten survival in some individuals[7].

Although there is no known cure for most forms of arthritis, treatment designed for individual patient can reduce/eliminate symptoms and limit functional impairment. The goals of contemporary management of arthritis extend beyond pain control to the enhancement of patients' functional status and health-related quality of life. Patient education regarding joint protection and avoidance of excessive joint loading is important for this patient. Physical measures like hot pack, paraffin bath or occupational therapies may be helpful[1].

Application of moist heat on knee had significantly helped in reducing the intensity of pain, instead of the intake of pain-killers[8]. The real life consequences of knee joint pain need to be given adequate attention in the home care settings. So, there is a need to have home based management[9]. Many researchers have studied and recommended the moist heat application for helping the people suffering from knee joint pain. Moist heat application is non-pharmacological, inexpensive and simplest approach which has a beneficial effect on knee joint pain. It causes vasodilatation and it penetrates deeper into the muscle and hence reduces the muscle spasm and pain.¹⁷ moist heat include a hot water bottle with a damp towel underneath, a hot tub, hot shower, hot bath, etc[10].

Several complementary therapies may play a useful role in the treatment of RA, although the safety and effectiveness of most of these therapies are still uncertain. Thus, people with RA who are considering complementary therapies should discuss these therapies with their healthcare provider first. Furthermore, therapies that have proven benefits should only be used to complement, not to replace, conventional medical treatment[11].

Problem Statement

A study to assess the effectiveness of application of warm compress with Epsom salt to reduce knee joint pain among women in selected areas of Sangli, Miraj, and Kupwad Corporation.

Research Objectives

- 1) To assess the pain score in both experimental and control group before application of warm compress with Epsom salt.
- 2) To assess the pain score in both experimental and control group after application of warm compress with Epsom salt.

Hypothesis

H0- There will be no effect of warm compress with Epsom salt on reduction of knee joint pain.

Operational Definitions

- 1) **Assess:** Refers to estimate the quality or estimate the value of property. Assessment is information related condition of the knee joint through observation and pain score.
- 2) **Effect:** Refers to the evaluation of result produced or outcome or consequences of an action of Epsom salt on knee joint pain.
- 3) **Knee pain:** Refers to the joint pain between thigh and lower leg which become tender irritating, hurting.
- 4) **Epsom salt:** Refers to crystals of hydrated magnesium sulphate. A water soluble chemical with other medicinal use.

2. Research Methodology

It includes the description of the research approach, The research design, setting of the study, sample and sampling technique, development of data collection tool, reliability and validity of the tool and, procedure for data collection and plan for data analysis[12].

Research Approaches

Experimentally design is the blue print of the procedure that enables the researcher to test the hypotheses by reaching valid conclusion about relationship between dependent variable and independent variable in order to achieve the desired objective of the study a quantitative quasi experimental research approach was adopted[12].

Research Design

Keeping in view the objective of the study the researcher selected the pre test post test quasi experimental research design.

Variables

Independent variable:

In this study the independent variable is application of warm Epsom Salt.

Dependent variable: In this study the dependent variable is knee joint pain among women.

Setting: The study was conducted in the areas of Miraj Gandhi Chowk, Sangli Ram Mandir & Kupwad Ves.

Population: The population for the present study comprises, arthritis women from age 40 – 60. From sangli miraj and Kupwad corporation.

Sample

In the present study, the sample selected for data collection were women having arthritis from age 40 – 60 years those who fulfilled the criteria, and who were available during the period of data collection. They were selected by non probability purposive sampling method.

Sampling Criteria

Inclusion criteria

- 1) Women who are on treatment for knee joint pain or arthritis.
- 2) Women between 40 to 60 years of age.

Exclusion criteria

- 1) Women who are sick, unstable, critically ill.
- 2) Women who have congenital abnormality.
- 3) Women who have polio
- 4) Women who have mental illness
- 5) Women who have allergies of Epsom salt on knee joint pain.

Sampling Size

Sample size consisted of 60 women who fulfilled the inclusion criteria of the study. Out of 60 samples 30 were selected for experimental group and 30 were selected for control group.

Sampling Technique

In this study non probability purposive sampling technique was used. This was the most suitable technique which can be applied to the study.

Data Collection Tool

This is a standardised numeric pain rating scale which used to assess to pain. In present study researcher has used this tool to assess knee joint pain.

Description and Scoring System of the Tool

Standardised numeric pain rating scale was used. This scale shows reading from 0 to 10. From 0 to 2 there is no pain from reading 3 to 6 moderate pain and reading from 7 to 10 worst possible pain.

Validity

20 experts did the content validity of the tool. The experts were selected from various fields based on the topic. 6 from Medical Surgical Nursing, 4 M.S. Ortho, 1 Prof. Anatomy and Physiology, 4 M.D. Homeopathy, 1 Paed., 1 CHN, 1 Gyn., 1 Psy. 1 Statistics. These expertise gave some corrections which were made and the final tool.

Reliability

The reliability of measuring instrument is a major criterion for assessing its quality and adequacy. The reliability of the tool was done by t-statistic test.

Ethical Consideration

Permission was obtained from the research committee of Bharati Vidyapeeth Deemed University College of Nursing, Pune and authorities of health sector from Sangli-Miraj-Kupwad health department. Informed consent was obtained from subjects who are selected for the study.

Procedure of Data Collection

A formal permission was obtained from the Govt. Health Officer Sangli Miraj Kupwad Corporation, Sangli. The investigator discussed the study with Orthopedic Surgeon, Physician, Homoeopathic Physician, Ayurvedic and Lecturers in Medical Surgical Nursing. A total 60 samples were collected for the study as per the criteria of selection.

30 were selected for experiment and 30 were selected for control group.

Pilot Study

Pilot study was conducted at Miraj Mangalwar Peth, Miraj from 01/09/2016 to 11/09/2016. Prior permission was obtained from the Govt. District Health Officer, Sangli Miraj Kupwad Corporation, Sangli. After the pilot study, tool was found feasible, and gave better insight to the investigator.

3. Discussion of the Findings

The findings of present study have been discussed as per the objectives of the study. A findings of study shows that intervention of warm epsom salt application was significantly effective for early recovery of knee joint pain among woman with arthritis. And when compared it was statistically found that there is highly significant difference among the experimental group and control group. It was found that in the demographic dates of age of women 46% of women belong to age group 50-54 years, 40% of women belong to age more than 55 years in Experimental group. In control group 50% of women belong to age group more than 55 years, 33% women belong to age group 50-54 years. In marital status all the women i.e 100% of women were married in experimental and control group. In Distribution of family income 36% of women had income 5000-10000 Rs and 33% of women had income 10000 -20000 in 30% less than 5000 Rs in control group. In experimental group 40% had less than 5000 Rs, 30% of women had income 5000-10000 and 30% had 10001-20000. In the present study. Assessment was done on knee joint pain and data was collected by a standardized tool. In pretest control group the Mean pain score on 7th day was 7.8 and standard deviation score was 2.05. In pre-test Exp group the Mean on 7th day was 2.75 and standard deviation was 1.70. The Mean of post test control group on 7th day was 8.1 and standard deviation score was 1.18. The Mean of Post test of Experimental group on 7th day was 1.03 and standard deviation was 0.93. This results shows that there is effect of epsom salt on application of Knee joint pain as Mean in the Experimental group has reduced from 6.06 to 1.03 and standard deviation from 1.48 to 0.96. The 'z' value was computed to find out effectiveness of application of warm Epsom salt on knee joint pain in women. The calculated value of $Z = 5.872169$ which is more than table value of Z at 5% I.o.s. is 1.96 and the result calculated Z greater than table Z . This show there will be effect of warm compress with Epsom salt on reduction of knee joint pain.

4. Conclusion

Epsom salt with its anti-inflammatory, and analgesic properties acts as a pain killing agent and does not have any side effects in addition to this Epsom salt has very less side effects this can be used as complementary alternative medicine and has better effect than hormonal therapy and steroidal therapy also it is inexpensive and easily available and can be used as a home remedy in patients with arthritis. The purpose of this study was to assess the effectiveness of warm Epsom salt application early reduction of knee joint pain.

5. Implications

The findings of the present study have implication for nursing practices, nursing administration, nursing education, nursing research and medical surgical nursing.

Nursing Practice

The findings of the study regarding effectiveness of warm Epsom salt application to the knee joint pain can make the health care workers, specially nurses and doctors aware of it and implement this method as a protocol and should be used by all for the benefit of socio economical class people as it is cost effective but gives good results in reducing knee joint pain in arthritis patient.

Nursing Education

The nursing curriculum can include the utilization of different modalities for early reduction of knee joint pain with the help of warm application of epsom salt which is easily available cheap, free and contains anti-analgesic and anti-inflammatory action.

Nursing Service

As a medical nursing staff she gets a best opportunity to care and render nursing care and give the best service to the community. She uses her skills and talents and her experience to the highest potential to uplift the society within the available resources.

6. Recommendation

- 1) Study can be replicated on large sample size with longer duration in different settings so that findings can be generalized to large population.
- 2) A similar study can be performed to assess the effect on various conditions like rash, boils, edema, Hyperglycemia.
- 3) A comparative study can be done to access the effectiveness of epsom salt on knee joint pain in women with varicose veins.
- 4) A comparative study can be done to compare knee joint pain between men and women suffering from arthritis.

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Author Profile

Mrs. Shilpa Parag Satralkar, Final Year M.Sc. Nursing, B.V.D.U. College Of Nursing Sangli

Mr. Basvant Dhudum, Assistant Professor, B.V.D.U. College Of Nursing Sangli