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Effectiveness of application of hot water with Epsom salt v/s plain hot water on knee joint pain among geriatric women

Jaya Deshmukh and Dr. Suresh Ray

Abstract

Introduction: Elderly population is over 82 million. A number of physiological changes occur when we grow older. It is of prime importance to distinguish the normal aging Vs the effect of disease. Disease condition if left untreated can result in “excess disability” and lessen the quality of life of an individual. Chronic rheumatic diseases, hip and knee osteoarthritis (OA) is leading cause of pain and disability in most countries worldwide and is most prevalent of all.

The present study title: “effectiveness of application of hot water with Epsom salt v/s plain hot water on Knee joint pain among geriatric women in selected urban areas. The objective of the study was to assess the level of Knee Joint Pain among geriatric women in both the experimental groups before and after the intervention, to assess the effectiveness of interventions in both the experimental groups, to compare the effectiveness of interventions between both the experimental groups and to determine the association between the level of Knee Joint Pain and Selected demographic Variables.

Material and Methods: In present study, researcher adopted pre-experimental two group pre-test post-test design. It was carried out on 60 samples. The Non-probability purposive sampling technique was used to select samples for geriatric women with the age 65 to 85 years. 2gm of Epsom salt with 100ml of water was administered in experimental group 1 and plain 100 ml hot water for group 2 for 15 days, with consensus of Ayurvedic doctors/experts. Ethical clearance was taken from Institutional ethics committee. Data analysis was done mainly using descriptive statistics test, T test.

Result: Majority (60%) of the geriatric women were from the age group between 65 to 70, 46.67% of them were Vegetarian & having body weight between 57 to 64 Kg, 63.33% of them were reported literate & suffering from pain since 4-6 years. Level of pain (19.58, 19.75) was almost same in both the experimental groups, the feelings related to pain was reported more in group 2 (15.57%), clinical outcome was almost same (15.52, 15.53) in both the groups and the level of activity was more in experimental group 1 as compared to other one. The total mean pain score of 58.67 was more in experimental group 2.

Conclusion: From the above findings, the researcher concluded that level of pain in both group was almost same but feeling related to pain was more in group with plain hot water.

Recommendation: It is suggested that the study may be replicated using a larger population of men and women having age related pain, A study can be carried out to assess the effects of application of hot water with Epsom salt, Similar study can be done to assess the effectiveness of Epsom salt.

Keywords: Effectiveness, plain hot water, Epsom salt, knee joint pain, geriatric women

Introduction

As age advances common complaints like blurred vision, joint pain, back pain, skin changes, low immunity are observed. Knee joint pain is very common in elderly person. According to WHO report (2010) Osteoarthritis is caused in 9.6% men and 18% of women at the age of 60 or above? By 2020 this condition will be 4th leading cause of disability worldwide. Osteoarthritis is 2nd most cause of knee joint pain with the prevalence of 22 to 39% in India [3]. Knee joint pain is typically observed with structural changes, morning stiffness, instability, unable to walk, bony enlargement, unable to use stairs and restricted movement.

According to Orthopedicians majority of such conditions can be prevented by a proper lifestyle and food habits. Apart from this strength training exercises helps to retain bone health. Around 80% of urban Indian population suffers from Vitamin D deficiency. This is the main cause behind decreasing bone mass density and increase in osteoporosis. World Health organization has estimated that in 2014, around 50 million populations across India will be suffer from osteoporosis or will carry low bone mass density. Joint and back pains are considered as part of the normal ageing process and currently treated with analgesics or some

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pain-relieving balms and not treated properly^[4]. Few treatment strategies are available to minimize and relief the pain in arthritis. Epsom salt baths is one such popular treatment that is practiced by people suffering from knee pain. It is cost effective method for treating the pain, swelling, inflammation, and uneasiness that caused by arthritis^[3]. Epsom salt with hot water application is quite an old remedy and is truly effective. A scientist Mr. Nehemiah Grew named "Epsom salt" because as it was discovered in English town named "Epsom" in England^[5].

Need for the Study

According to study report by Srivastava, 2007, 7.5% of India's population is above 60 years (elder). Making proper healthcare available to them is prior importance for the country.

Whether it is a temporary spasm or a debilitating pain in your knee joint, it is a constant reminder of the physical stress that you put your body through every day. Epsom salt bath in warm water can aid in relaxation of muscles and loosen the stiff joints. It has been widely used for treatment of Arthritis pain and swelling, Bruises and sprains at home. Fibromyalgia is a condition that makes your muscles, ligaments, and tendons sensitive and results in tender points in the body etc. Research has shown warm water therapy relieves different types of pain including arthritis. It causes relaxation in muscles reduces stiffness in painful joints^[6].

Joint diseases affect millions of people throughout the world, causing pain and disability. Osteoarthritis will be major cause of disability in men and women in near future. Men are more susceptible than women before they are of 50yrs. Women are affected twice as compared to men after the age of 50.

General or local application of heat will cause the physiological change in the body like vasodilatation and muscle relaxation and prove to be beneficial therapeutic option of relieving the pain.

During the clinical posting researcher observed that knee joint pain is commonly seen in elderly and they use various home remedies like hot water bag, massage on pain area and application of wet cloth soaked in hot water containing Epsom salt. Hence it was of interest to study most effective treatment option i.e. Epsom salt, hot water or combination of both. As per the above cited research studies researcher curious that Epsom salt and hot water both are effective home remedies for knee joint pain. Here researcher reviewed another literature to want to comparative study of application of Epsom salt and plain hot water on knee joint pain.

Objectives of this Study

1. To assess level of knee joint pain among geriatric women in both the experimental groups before the intervention.
2. To assess the level of Knee Joint Pain among geriatric women in both the experimental groups after the intervention
3. To assess the effectiveness of interventions in both the experimental groups
4. To compare the effectiveness of interventions between both the experimental groups
5. To find association between the level of knee joint pain and selected demographic variables.

Review of Literature

Many studies have been carried out on Epsom salt. Some of the studies carried out to assess the effect of Epsom salt on

knee joint pain. Review of the relevant studies was carried out from the textbooks, journals of preventive social medicine, Review of Litrare under following heading

1. literature regarding rheumatoid arthritis joint pain in old age
2. Review regarding effect of Epsom salt on knee joint pain
3. Review related to effectiveness of plain hot water on knee joint pain
4. Comparison between Epsom salt Vs plain hot water on knee joint pain

1) Review of literature related to rheumatoid arthritis joint pain in old age

Wrzosek Z. *et al.* (2012) conducted a preliminary study to estimate patient knowledge on rheumatoid arthritis. Study included 270 people with rheumatoid arthritis. A self-made questionnaire was addressed to the patients for obtaining basic data regarding rheumatoid arthritis. It was observed that men and women with higher education were having keen interest in obtaining information and knowledge about the disease. Obtaining information regarding disease was higher in people with higher education in men and women. primary source of knowledge regarding disease was doctors, physiotherapist and nurses. There is need of training and informative programmes so as to increase knowledge on rheumatoid arthritis in people^[9].

A comparative study was done by Yildirim *et al.* in 2010 on heat application effect on patient with knee osteoarthritis. Two groups were allotted intervention and control group (23patients each). In the control group the patient were treated with normal medication prescribed by physician. In this group routine medications were continue the pain level was measured in both group and compared later. For both score difference were found significant statistically and obtained the difference in both groups. Study concludes that heat application was effective in reducing pain^[10].

A cross-sectional study by Parag Sancheti in 2017 was done in patients with pain in knee at different hospitals. Questionnaire was designed to assess demographics, socioeconomic status, and knee pain level. 714 patients participated in study by fulfilling eligibility criteria. (64.8%) patients experienced pain less than one year History of previous prescribed medications was present in 91.6% of patients, supplements in 68.6% of patients, whereas non-pharmacological mode of treatment used to manage pain of OA were present in 81.9% of patients^[11].

Rheumatoid arthritis and osteoarthritis often emerges at age of 40 and at the age of 75 near to 85% of the population has indications of OA (Sack, 1995). Prevalence of Rheumatoid arthritis in adults in Sweden is 0.51% (Simons son 1999) 1% worldwide. Rheumatic arthritis and osteoarthritis affects connective tissue and joints. Thus when studying Rheumatoid arthritis and OA, the risk of being affected and its severity that can increase with age should be considered. The symptoms in Rheumatoid arthritis and osteoarthritis often appear similar but the degree of intensity and appearance may vary. It is necessary to identify the disease condition properly because different treatments options vary in both cases.

2) Review regarding effectiveness of Epsom salt on knee joint pain

A study by Shilpa *et al.* in 2016 on Effectiveness of Application of Warm Compress with Epsom Salt to Reduce Knee Joint Pain among Women. Study was aimed to assess the pain score in both experimental and control group before

and after application of warm compress with Epsom salt. By non-probability purposive sampling technique 60 samples were selected consist two group, warm Epsom salt application group and control group. The quasi-experimental two group pre posttest 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. Finding shows that 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 posttest the samples with mild and moderate pain with mean of 1.03 had excellent reduction in pain. The finding of posttest experimental group (1.03) than that in per test 8.22. It was also evident that mean +SD post-test pain score was (1.48+0.93) was low than that per test pain score was (1.25+1.70) study Conclude that warm Epsom salt application is highly effective in reduction knee joint pain in arthritis patient [13].

An experimental study in 2015 by Anitha Ruby *et al* on effectiveness of Epsom salt fomentation on knee swelling, knee joint pain, and activities of daily living among elderly. Knee joint pain the most common in worldwide. Majority of the older people are affected by this progressive disease that affects the synovial joints and enables the elderly both psychologically and physically. This was a study to assess the knee joint pain, swelling and activities of Daily Living among elder generation. It was one group pretest posttest pre experimental design with 30 samples. Results reveals with significant improvement ($p < 0.01$) in pain, swelling and Activities of Daily Living after 5 days of therapy. Study conclude that Epsom Salt is effective on knee joint pain [14].

3) Review related to effectiveness of plain hot water on knee joint pain

A quasi experimental study was conducted by Parminder Kaur at Daddu Majra colony, U.T.Chandigarh. Out of the total geriatric population surveyed in the present research 48% had knee joint pain. Every 3rd individual was selected as a study sample by using a systematic random sampling technique. The sample size consisted of 87 subjects. The experimental and the control groups were similar in respect to age, marital status, intensity of knee joint pain, intake of pain killer, duration and experience of knee joint pain. Intensity of knee joint pain was assessed on the 1st and 8th day of intervention among both experimental and control group. 'Application of moist heat was done at knee joint two times a day for one week. The results show that intensity of knee joint pain and intake of painkiller was reduced significantly in the experimental group as compared to the control group as indicated by chi-square test. Result shows mean age \pm S.D of the subject was 66.65 \pm 6.86 yrs. and 66.19 \pm 17.24yrs in experimental and control groups, ranging between 60-83 & 60-95 yrs. respectively. Hence, the use of moist heat application is recommended for home base management of knee joint pain [15].

Aksan A, McGrath JJ, 2013 a study was conducted on heat-induced thermo mechanical response characteristics of collagenous tissues at medical engineering department. The response was assessed. Various heat-induced thermo-mechanical response regimes identified by degree of deformation and material properties were done. Heated

collagenous tissue exhibited improved kinematical stability but compromised mechanical stability which was major hindrance in sub ablative thermotherapies [16].

4) Comparison between Epsom salt Vs plain hot water on knee joint pain

According to Adam Ramsay, (2014) Epsom salts high in magnesium, can help to relieve joint pain. It is suggested that application of compress with Epsom salt dissolved in hot water for 10 to 15 min before going to bed can help relieve joint pain. Exercise in adjunct to this may prove beneficial. According to Lawson Michelle (2010) arthritis is a chronic inflammatory disorder affecting commonly smaller joints feet and hands. It occurs more commonly in age group of 40-60 years [17].

A article states that 30 grams of Epsom salts added to one liter of boiling water (The temperature of the boiling water is as tolerated by the client) creating a hot compress by dipping a clean washcloth in the boiling water, wringing it out, and applying for 20 minutes, twice a day for 7 days to 10 days will relieve the leg pain, joint pain and other pain in body. It can also be used to relieve, burning feet [18].

Experimental Section

Material and Method

Researcher adopted pre-experimental two group pre-test post-test design. It was carried out on 60samples. The Non-probability purposive sampling technique was used to select samples for geriatric women with the age 65 to 85 years. 2gm of Epsom salt with 100ml of water was administered in experimental group 1and plain 100 ml hot water for group 2 for 15 days, with consensus of Ayurvedic doctors/experts. Ethical clearance was taken from Institutional ethics committee. Data analysis was done mainly using descriptive statistics test, T test.

Description of Tool

Section I: Demographic variables such as Age, body weight, Diet, Literacy, Duration of pain

Section II: Global pain scale

Scoring was grade as

Mild	0-33
Moderate	34-66
Severe	67-100

Plan for Data Analysis

Analysis of data was done using inferential and descriptive statistics based on objectives of study.

Descriptive statistics was used for assessing level of pain

T test was used for the effectiveness of application of hot water with Epsom salt v/s plain hot water on Knee joint pain among geriatric women.

Inferential statistics: Chi-square used to find the association.

Result and Discussion

Analysis and interpretation of the data are based on data collected from 60 geriatric women (30 in Group 1 received plain hot water application and 30 in group 2 received hot water with Epsom salt application) through structured global pain scale.

Section I: Analysis of demographic characteristics

Table 1: Description of the geriatric women according to their demographic characteristics (n=30,30)

S. No.	Characteristics	Experimental Group 1		Experimental Group 2	
		F	%	f	%
1	Age				
	65-70	18	60	19	63.33
	71-75	12	40	11	36.67
2	Type of Diet				
	Vegetarian	14	46.67	13	43.33
	Non-Vegetarian	16	53.33	17	56.67
3	Body Weight				
	49-56	11	36.67	5	16.67
	57-64	14	46.67	7	23.33
	65-72	5	16.66	13	43.33
	73-80	0	0	5	16.67
4	Literacy				
	Literate	19	63.33	8	26.67
	Illiterate	11	36.67	22	73.33
5	Duration of Pain				
	Up to 3 Years	11	36.67	5	16.67
	4-6 Years	19	63.33	25	83.33

Table No.1 Shows the demographic characteristics of geriatric women of both the experimental groups: These are as follows

Experimental Group 1: Majority (60%) of the geriatric women were from the age group between 65 to 70, 46.67% of them were Vegetarian & having body weight between 57 to 64 Kgs, 63.33% of them were reported literate & suffering from pain since 4-6 years.

Experimental Group 2: Majority (63.33%) of the geriatric women were from the age group between 65-70. 56.67% of them were Vegetarian & 43.33% of geriatric women having body weight between 57-64 Kgs. 73.33% of them were reported literate & 83.33% of them suffering from pain since 4-6 years.

Section II: Findings related to level of Knee joint Pain before the intervention in both the groups

Table 2: Pre- interventional findings of Knee Joint Pain on Global Plain Scale in both the groups (n=30, 30)

S. No.	Component of Global Plain Scale	Experimental Group – 1 (n ₁ =30) plain hot water application		Experimental Group – 2 (n ₂ =30) hot water with Epsom salt application	
		Mean Pre-Interventional Scores (out of 25)	Standard Deviation (S.D)	Mean Pre-Interventional Scores (out of 25)	Standard Deviation (S.D)
1	Pain	19.58	3.009	19.75	3.053
2	Feelings	11.52	6.248	15.57	5.049
3	Clinical Outcome	15.52	5.383	15.53	4.271
4	Activity	8.55	4.820	7.85	5.239
	Total Pain Score (out of 100)	55.13	12.722	58.67	8.846

Table No.2 depicts the analysis of 04 components on a global pain scale, which reflects that the level of pain (19.58, 19.75) was almost same in both the experimental groups, the feelings related to pain was reported more in group 2 (15.57%), clinical outcome was almost same (15.52, 15.53) in both the groups and the level of activity was more in experimental

group 1 as compared to other one. The total mean pain score of 58.67 was more in experimental group 2.

Section III: Findings related to level of Knee joint pain after the intervention in both groups.

Table 3: Post- interventional findings of Knee Joint Pain on Global Plain Scale in both the groups (n=30, 30)

S. No.	Component of Global Plain Scale	Experimental Group – 1 (n ₁ =30)		Experimental Group – 2 (n ₂ =30)	
		Mean Pre-Interventional Scores (out of 25)	Standard Deviation (S.D)	Mean Pre-Interventional Scores (out of 25)	Standard Deviation (S.D)
1	Pain	16.45	3.009	15.80	2.635
2	Feelings	6.83	6.248	10.88	5.095
3	Clinical Outcome	15.52	5.383	15.53	4.271
4	Activity	6.65	4.820	6.20	2.772
	Total Pain Score (out of 100)	42.42	15.719	49.83	11.322

Table No.3 depicts the analysis of 04 components on a global pain scale, which reflects that the level of pain (16.45, 15.80) was almost same in both the experimental groups, the feelings related to pain was reported more in group 2 (10.88%), clinical outcome was almost same (15.52, 15.53) in both the groups and the level of activity was more (6.65) in

experimental group 1 as compared to other one. The total mean pain score of 49.83 was more in experimental Group 2. The total Pain score was reduced to 42.42 after the intervention from the pre interventional score of 55.13 in experimental group 1. Similarly, the total pain score was also reduced in experimental group 2 from 58.67 of pre

interventional to 49.83 in the post intervention assessment. But the reduction in the level of pain was more observed in experimental group 1.

Section IV: Findings related to effectiveness of intervention in both the groups

Table 4(A): Analysis of Effectiveness of Intervention in Experimental Group 1 (Pain Hot Water) (n =30)

Test	Assessment	Mean	SD	t value	P value
Pair 1	Pain: Pre Interventional Score (Out of 25)	19.58	3.009	9.244	<0.001*
	Pain: Post Interventional Score (Out of 25)	16.45	3.231		
Pair 2	Feeling: Pre Interventional Score (Out of 25)	11.52	6.248	7.435	<0.001*
	Feeling: Post Interventional Score (out of 25)	6.83	5.055		
Pair 3	Clinical Outcome: Pre Interventional Score (out of 25)	15.52 ^a	5.383	No Change	No Change
	Clinical Outcome: Post Interventional Score (out of 25)	15.52 ^a	5.383		
Pair 4	Activity: Pre Interventional Score (out of 25)	8.55	4.820	2.887	<0.001*
	Activity: Post Interventional Score (out of 25)	6.65	2.835		
Pair 5	Total Pain: Pre Interventional Score (out of 100)	55.13	12.72	13.181	<0.001*
	Total Pain: Post Interventional Score (Out of 100)	42.42	15.71		

Table No.4 (A) shows that the significant change was observed in pain, feeling and activity parameters of global pain scale as evident from the calculated 't' value of 9.244, 7.435 and 2.887 respectively and p value was less than 0.01 in all the areas in experimental group 1 who received plain hot

water therapy. This was also evident by significant change was observed in total pain score from 55.13 to 42.42 (p value was less than 0.001). Hence H₀ was rejected. Therefore, the plain hot water was effective in reducing the Knee joint pain among geriatric women.

Table 4(B): Analysis of Effectiveness of Intervention in Experimental Group 2 (Hot Water with Epsom salt) (n =30, 30)

Test	Assessment	Mean	SD	t value	P value
Pair 1	Pain: Pre Interventional Score (Out of 25)	19.75	3.053	8.765	<0.001
	Pain: Post Interventional Score (Out of 25)	15.80	2.635		
Pair 2	Feeling: Pre Interventional Score (Out of 25)	15.57	5.049	9.874	<0.001
	Feeling: Post Interventional Score (out of 25)	10.88	5.095		
Pair 3	Clinical Outcome: Pre Interventional Score (out of 25)	15.53 ^a	4.271	No Change	No Change
	Clinical Outcome: Post Interventional Score (out of 25)	15.53 ^a	4.271		
Pair 4	Activity: Pre Interventional Score (out of 25)	7.85	5.329	2.626	<0.001
	Activity: Post Interventional Score (out of 25)	6.20	2.772		
Pair 5	Total Pain: Pre Interventional Score (out of 100)	58.67	8.846	9.733	<0.001
	Total Pain: Post Interventional Score (Out of 100)	49.83	11.322		

Table No.4 (B) shows that the significant change was observed in all the four parameters of global pain scale as p value was less than 0.01 in experimental group 2. This was also evident by significant change was observed in total pain score from 58.67 to 49.83 (p value was less than 0.01). Hence H₀ was rejected. Therefore, it is said that the hot water with

Epsom salt was effective in reducing the Knee joint pain among geriatric women.

Section V: Findings related to comparison of effectiveness of intervention between the groups

Table 5: Analysis of effectiveness of Intervention between the Experimental Group 1 & 2 (n =30, 30)

Assessment	group	mean	SD	T value	P value
Pre Interventional Pain Score	1	19.58	3.009	0.213	0.832
	2	19.75	3.053		
Post Interventional Pain Score	1	16.45	3.231	0.854	0.397
	2	15.80	2.635		
Pre Interventional Feeling Score	1	11.52	6.248	2.761	0.008
	2	15.57	5.049		
Post Interventional Feeling Score	1	6.83	5.055	3.091	0.003
	2	10.88	5.095		
Pre Interventional Clinical Outcome Score	1	15.52	5.383	0.013	0.989
	2	15.53	4.271		
Post Interventional Clinical Outcome Score	1	15.52	5.383	0.013	0.989
	2	15.53	4.271		
Pre Interventional Activity Score	1	8.55	4.820	0.534	0.596
	2	7.85	5.329		
Post Interventional Activity Score	1	6.65	2.835	0.622	0.537
	2	6.20	2.772		
Pre Interventional Total Pain Score	1	55.13	12.722	1.249	0.217
	2	58.67	8.846		
Post Interventional Total Pain Score	1	42.42	15.719	2.097	0.041
	2	49.83	11.322		

Table No.5 shows no significant difference in pain level in both groups after intervention as p value was more than 0.005, except feeling where p value was less than 0.05. Hence H₀ was accepted except for the feeling component of global pain

scale.

Section VI: Findings related to association of level of knee joint pain with selected demographic variables.

Table 6: Analysis of association between level of Pain before intervention & selected demographic variables (n =30, 30)

S. No.	Characteristics	Experimental Group1 (n=30)				Experimental Group 2 (n=30)				
		f	Degree of Freedom	Chi square CV	P value	f	Degree of Freedom	Chi square CV	P value	
1	Age		2	1.208	0.047*	Age		2	4.852	0.457 ^{NS}
	65-70	18				19				
	71-75	12				11				
2	Type of Diet		2	2.237	0.628 ^{NS}	Type of Diet		2	0.679	0.327 ^{NS}
	Vegetarian	14				13				
	Non Vegetarian	16				17				
3	Body Weight		6	0.842	0.12 ^{NS}	Body Weight		6	5.829	0.842 ^{NS}
	49-56	11				5				
	57-64	14				7				
	65-72	5				13				
	73-80	0				5				
4	Duration of Pain		2	3.474	0.556 ^{NS}	Duration of Pain		2	1.2	0.176 ^{NS}
	Up to 3 Years	11				5				
	4-6 Years	19				25				

*level of significance at 0.05 for association
NS- not associated at 0.05 level of significance

Table no.6 depicts no association between with level of pain in both the experimental groups except age with level of pain in the experimental group 1, where p value is less than 0.05. Hence H₀ was accepted, except age with level of pain in experimental group 1.

Discussion

The present study was undertaken to assess effectiveness of application of hot water with Epsom salt v/s plain hot water on Knee joint pain among geriatric women.

A study by Shilpa *et al.* in 2016 on Effectiveness of Application of Warm Compress with Epsom Salt to Reduce Knee Joint Pain among Women. Study was aimed to assess the pain score in both experimental and control group before and after application of warm compress with Epsom salt. Using non-probability purposive sampling technique 60 samples were selected consisting two group, warm Epsom salt application group and control group. The quasi-experimental two group pre posttest 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. Finding shows that 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 posttest the samples with mild and moderate pain with mean of 1.03 had excellent reduction in pain. The finding of posttest experimental group (1.03) than that in per test 8.22. It was also evident that mean +SD post-test pain score was (1.48+0.93) was low than that per test pain score was (1.25+1.70) study Conclude that warm Epsom salt application is highly effective in reduction knee joint pain in arthritis patient [13].

Conclusion

The present study to assess effectiveness of application of hot water with Epsom salt v/s plain hot water on Knee joint pain among geriatric women in selected urban areas of Pune city.” The t-test was done to assess effectiveness of application of hot water with Epsom salt v/s plain hot water on Knee joint

pain among geriatric women.

Findings related to the level of Knee joint Pain before the intervention in both the groups show that level of pain (19.58, 19.75) was almost same in both the experimental groups.

The total Pain score was reduced to 42.42 after the intervention from the pre interventional score of 55.13 in experimental group 1. Similarly, the total pain score was also reduced in experimental group 2 from 58.67 of pre interventional to 49.83 in the post intervention assessment. But the reduction in the level of pain was more observed in experimental group 1.

Significant change was observed in all the four parameters of global pain scale as p value was less than 0.01 in experimental group 2. This was also evident by significant change was observed in total pain score from 58.67 to 49.83 (p value was less than 0.01). Hence H₀ was rejected. Therefore, it is said that the hot water with Epsom salt was effective in reducing the Knee joint pain among geriatric women.

There is no association in level of pain in both the experimental groups except age with level of pain in the experimental group 1, where p value is less than 0.05. Hence H₀ was accepted, except age with level of pain in experimental group 1.

Implications

The finding of this study is implicated in following headings.

Nursing Practice

Health is a state of complete physical, mental, social and spiritual wellbeing and not merely an absence of disease or infirmity. (W.H.O. Definition)It has been emphasized that health is treated as a whole and not as a fragmented element. Hence, for health of every individual as nurse needs to pay attention to all the comprehensive aspects of health. Nurse can assess the effectiveness of application of hot water with Epsom salt v/s plain hot water on Knee joint pain among geriatric women and can used the effective method.

Epsom salt is effective treatment for pain in knee joint pain and we can't deny the effect of plain hot water on knee joint pain.

Traditional remedy centers can be establish For old age

population for that nurses should organize such seminars on traditional remedies. The nurses need to educate themselves with the holistic approach of health care and guide the senior citizens and the families to adopt the complementary therapies to support their physical, emotional, spiritual and psychological aspects of health and to change the perception for healthy coping.

At a time of change and growth for nursing, it is important that nurses be open to new ways, and even new roles, in order to improve and enhance the care provided. Yet it is necessary that nurses subject all new trends, practices or theories, to a careful analysis and evaluation.

Nursing education

Education curriculum must include all traditional treatment of knee joint pain. The importance of nursing institutes is given to awareness and promotion of in all traditional method. The role of nurse teachers implementing traditional method Epsom salt technique in the education setting involves all aspects of teaching.

Additional advantages could be the narrowing of the theory, practice, gap and research involvement within the clinical field. If implemented correctly such a specialist nurse teacher will be seen as a crucial member in meeting the public demands for a safe and caring profession. Hence, traditional methods can be included in the nursing education curriculum.

Nursing administration

In-service education or continuing nursing education should be emphasized more and more. As an administrator, the nurse should motivate her staff to participate in learning new trend in nursing field. Learning to communicate, develop new traditional method and their practice the new trends in the nursing field. Nurse administrator should convey the traditional way of use of Epsom salt.

Nursing research

In the current scenario, various nursing researches have been conducted on different traditional method for treatment of physical and psychological problems. Epsom salt can be effectively use for knee joint pain.

These all researches are showing that how we can discover the new traditional method and use it as a effective way to upgrade our professional knowledge.

Limitations

Study is limited to the women of age group between 65-85 years only.

Sample size is limited and not covering to the entire city.

Analysis of the study will based purely on the basis of responses given by the subjects.

The study was limited to the experience level of the researches.

Data collection period was only for 4weeks.

Recommendations

Following recommendations are made keeping in view the finding of study-

It is suggested that study may be done using larger population.

A study can be carried out to assess the effects of application of hot water with Epsom salt.

Similar study can be done to assess the effectiveness of application of hot water with Epsom salt on Knee joint pain

among men and women having arthritis.

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