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Outcome of Thermotherapy on Pain and Range of Motion among Elderly Clients with Arthritis

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ABSTRACT

Osteoarthritis is a degenerative joint condition that primarily affects the knees and hips because they bear weight. Pain and movement restrictions frequently happen when the degenerating joint becomes more damaged. With OA, inflammation can occasionally develop and lead to joint oedema. Pain relief and mobility enhancement are the main goals of treatment. The aim of the study is to evaluate the effectiveness of thermotherapy on pain and range of motion among elderly clients with arthritis.Quantitative design was implemented for this study. 60 elderly clients with arthritis, 30 experimental and 30control who satisfied the inclusion criteria were selected by convenience sampling method at Koyambedu area. Data were collected using Semi structured questionnaire and Modified arthritis impact scale was used to assess the pain and range of motion among elderly clients with arthritis. The study samples were exposed to thermotherapy for 5 days and control group received no treatment Collected data were analyzed using descriptive and inferential statistics. The results after the treatment reveals that 14(46.7%) had mild pain, 13(43.3%) had moderate pain, 2(6.67%) had severe pain and 1(3.33%) had no pain. whereas in range of motion 27(90%) had lowest level of function and 3(10%) had moderate level of function. After thermotherapy, the client's pain level was lower and his range of motion was greater. The investigator used thermotherapy for senior people with arthritis since it is simple and affordable compared to alternative treatment choices.

KEYWORDS; Elderly clients, Range of motion, Thermotherapy and arthritis

I. INTRODUCTION

Osteoarthritis is a degenerative joint condition that primarily affects the knees and hips because they bear weight. Pain and movement restrictions frequently happen when the degenerating joint becomes more damaged. With OA, inflammation can occasionally develop and lead to joint oedema. Pain relief and mobility enhancement are the main goals of treatment.¹

An exceedingly serious and crippling condition, arthritis can be. Despite the misconception that arthritis exclusively affects elderly people, it can affect anyone at any age. Since there are more than 100 different types of arthritis, accurately identifying the type that is present is one of the most important aspects of treatment.²

An arthritic patient is constantly in pain, which has an impact on his or her personality. Arthritis may be a chronic illness as opposed to an acute illness, and because of this, it is a very trying condition for everyone involved, including the patient, his or her family, and the medical professionals caring for the patient.³

A person's independence or personality are unavoidably hampered by arthritis. For the fortunate individual who has arthritis, the condition may only cause a mild stiffness in the morning.⁴ For millions of people, however, arthritis can develop into a debilitating illness. It may become severe enough to make it challenging to dress, use the stairs, get out of bed, or walk. Our society's most pervasive social issue today is old age. The elderly are viewed as an economic liability and a social burden in our contemporary culture, where money is the measure of everything.⁵ The prevalence of arthritis is anticipated to climb sharply as the population of elderly persons increases in many nations.⁶ Due to this expanding disease, it is crucial to comprehend and keep track of how arthritis affects health outcomes.⁷ Because arthritis doesn't



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cause death, it is a truth that "people neglect arthritis both as a public and personal health problem." Life quality can be impacted by arthritis, which can eventually cause disability and increase the degree of suffering.⁸

The Arthritis Foundation and the American College of Rheumatology agree that preventing arthritis from taking over your life requires awareness, early diagnosis, and an aggressive treatment plan.⁹ When compared to other treatment options, thermotherapy is the easiest and least expensive treatment modality.¹⁰ To alleviate the signs of arthritis, thermotherapy includes applying cold to the affected joints. It is believed that increasing circulation and relaxing muscles are how thermotherapy works. The application of ice lowers joint swelling, inhibits nerve impulses that travel to the injured joints and numbs pain. It also constricts blood vessels. According to the Cochrane Collaboration, applying ice for 20 minutes per day, five days a week for two weeks improves knee range of motion, leg muscle strength, and the amount of time needed to walk 50 feet.¹¹

The objectives of the study are to assess the level of pain and range of motion among elderly clients with arthritis, to evaluate the effectiveness of thermotherapy on pain and range of motion among elderly clients with arthritis in experimental group, to compare the pretest and posttest level of pain and range of motion among elderly clients with arthritis in experiment and control group and to associate pain and range of motion among elderly clients with arthritis in experimental and control group with selected demographic variables.

II. MATERIALS AND METHODS

Quantitative design was implemented for this study. 60 elderly clients with arthritis, 30 experimental and 30 control who satisfied the inclusion criteria were selected by convenience sampling method at Koyambedu area. The inclusion criteria are Elderly clients residing at Koyambedu, aged 60 years and above, both men and women and who can speak and understand Tamil. The Exclusion Criteria Elderly clients who are not willing to participate, clients with any physical deformities and vascular disorders. The data collection period was done with prior permission from the Village head of Koyambedu and ethical clearance was obtained from the institution. The purpose of the study was explained to the samples and written informed consent was obtained from them. Data were collected using Semi structured questionnaire and Modified arthritis impact scale was used to assess the pain and range of motion among elderly clients with arthritis. The study samples were exposed to thermotherapy for 5 days and control group received no treatment. Collected data were analyzed using descriptive and inferential statistics.

III. RESULTS AND DISCUSSIONS

Section A: Sample Characteristics

The sample characteristics are in the experimental group, 14(46.7%) were aged between 60 - 65 years, 19(63.3%) were male, 16(53.3%) were Hindus, 17(56.7%) had higher secondary education, 23(76.7%) belonged to joint family, 15(50%) had an income of <5000, 10(33.4%) were doing exercises, 11(36.7%) had illness for <1 year and 1 - 5 years and 13(43.3%) were non-vegetarian.

Whereas in the control group, 12(40%) were aged between 66 - 70 years, 16(53.3%) were male, 20(66.7%) were Christians, 16(53.3%) had primary education, 13(43.3%) belonged to joint and nuclear family, 15(50%) had an income of 5001-10000, 13(43.3%) were doing exercises, 12(40%) had illness for 1 - 5 years and 11(36.7%) were vegetarian.

SECTION B: Assessment of level of pain and range of motion among elderly clients with Arthritis Table 1: Percentage distribution of level of pain among elderly clients in the experimental and control group in the protect

the pretest					
LevelOfPain	Experi	ment	Control		
	Ν	%	Ν	%	
Mild	4	13.3	4	13.3	
Moderate	8	26.7	2	6.7	
Severe	16	53.3	22	73.3	
Worst Possible Pain	2	6.7	2	6.7	

The pretest of experimental group, 4(13.3%) had mild pain, 8(26.7%) had moderate pain, 16(53.3%) had severe pain and 2(6.7%) had worst possible pain. Whereas in the control group, 4(13.3%) had mild pain, 2(6.7%) had moderate pain, 22(73.3%) had severe pain and 2(6.7%) had worst possible pain. (Table 1)



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Table 2: Percentage distribution of level of pain among elderly clients in the experimental and control group in the posttest

LevelOfPain	Experiment		Control	
	Ν	%	Ν	%
Mild	8	26.7	2	6.7
Moderate	10	33.3	8	26.7
Severe	10	33.3	18	60.0
Worst Possible Pain	2	6.7	2	6.7

The posttest of experimental group, 8(26.7%) had mild pain, 10(33.3%) had moderate pain, 10(33.3%) had severe pain and 2(6.7%) had worst possible pain. Whereas in the control group, 2(6.7%) had mild pain, 8(26.7%) had moderate pain, 18(60%) had severe pain and 2(6.7%) had worst possible pain. (Table 2)

Table 3: Percentage distribution of range of motion among elderly clients in the experimental and control group in the pretest

	Experiment		Control	
Rangeofmotion	n	%	n	%
Highestleveloffunction	0	(0.0%)	0	(0.0%)
Moderateleveloffunction	14	47%	12	40%
Lowestleveloffunction	16	53%	18	60%

The above table 3 reveals that 14(47%) of elderly clients had Moderate level of function and 1 6 (53%) had Lowest level of function in the experiment group and in control group 12(40%) of elderly clients had Moderate level of function and 1 8 (60%) had Lowest level of function.

Hakkinen and Krishnan et al., (2007) supported the current study by conducting a study in Finland to predict the morbidity of patients with arthritis among 1095 patients with rheumatoid arthritis in the experimental group and 1490 community controls. The study discovered 404 patients with arthritis who had difficulty with daily activities in the experimental group. There were 147 samples with daily living difficulties in the community controls. In terms of morbidity, the findings revealed that there was no statistically significant difference between the experimental and control groups.¹²

Section B: Evaluate the effectiveness of thermotherapy in reducing pain and range of motion among elderly clients with arthritis in experiment and control group.

Table 4: Effectiveness of thermotherapy in reducing pain and range of motion among elderly clients with arthritis

Thermotherapy	Group	Pretest	Posttest	%Of
				Difference
	Experiment	62.10%	43.00%	↓19.10%
Rom	Control	71.00%	67.10%	↓3.90%
	Experiment	69.00%	51.70%	↓17.30%
Pain	Control	70.30%	69.10%	↓1.20%

The above table 4 depicts that experiment group client's improved 19.1% range of motion and 17.3% reduced pain after thermotherapy. This percentage shows the advantage of this study, which indicates the effectiveness of thermotherapy.

Brosseau backs up the current study. L.et al. (2002) conducted a study on the efficacy of thermotherapy. Over 170 people with osteoarthritis continued to take their medications while using hot, cold, or ice packs/towels, with or without massage, or no treatment at all. The study found that massaging with ice for 20 minutes five days a week for two weeks improved leg muscle strength, knee range of motion, and time to walk 50 feet compared to no treatment. It was discovered that ice massage significantly improved range of motion) time to walk 50 feet when compared to the control.¹³



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Section C: Compare the pretest and posttest level of pain and range of motion among elderly clients with arthritis in experiment and control group.

 Table- 5 Comparison between pre and posttest level of pain among elderly clients with arthritis in experiment and control group

PainSco	Experiment		Controlgroup		Student'sIndependentt-
re	group				test
	Mean	SD	Mean	SD	
Pretest	17.17	1.40	18.73	1.44	t=1.00P=0.32DF=58
					notsignificant
					t=13.84P=0.001***DF=58
Posttest	12.47	1.32	16.53	1.36	significant
StudentDepe	t=21.66P=0.00		t=1.61P=0.10		t=22.76P=0.001***
ndent	1***		notsigr	nificant	significant
test	signifi	cant			

The above table 5 depicts there is no significance difference between experiment and control group in the pretest, but in posttest it is observed significant difference between experiment and control group.

Welch raised funds for this study. V.et al. (2011) conducted a study on the use of thermotherapy to treat arthritis. Rehabilitation specialists frequently use heat and cold therapy as adjuncts in the treatment of arthritis. Two reviewers used a 5-point scale to evaluate the quality of randomization, double-blinding, and withdrawal descriptions. The inclusion criteria were met by three studies (79 subjects). Because patients preferred thermotherapy to no therapy, it can be used as a palliative therapy that can be used at home to relieve pain as needed.

The study shows that in association mobility level walking and pending self caretask, house hold task is improved in the post test in the experimental group than control group which is significant.

IV. CONCLUSION

After thermotherapy, the client's pain level was lower and his range of motion was greater. The investigator used thermotherapy for senior people with arthritis since it is simple and affordable compared to alternative treatment choices.

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Author's contribution

All the authors actively participated in the work of the study. All authors read and approved the final manuscript.

Conflict of interest

The authors declare no conflicts of interest.

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