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A Study to Assess the Effectiveness of Kneading Technique on Joint Pain among Oldage People with Arthritis in Selected Oldage Homes at Kanyakumari District

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Abstract: ***The study was undertaken to evaluate the effectiveness of Kneading technique on joint pain among oldage people with Arthritis in selected oldage homes at Kanyakumari District. The overall aim of the research was to assess the effect of Kneading technique in reducing level of joint pain among oldage people with Arthritis. The researcher adopted a Quasi - Experimental with pre test post test control group design was adopted in this study. The study was conducted among the oldage people at Trinity oldage home, Tirutuvapuram for experimental group and Home for the aged, Pilankalai for control group.30 samples for each group was selected using convenience sampling technique. Data collection was done by using Modified Extremities Functional Scale. Kneading technique was administered for experimental group. The data gathered were analyzed by descriptive, inferential statistical method and interpretation was done on the basis of the objectives of the study. The result shows the mean post test score in experimental group was 25.10 whereas in the control group, the mean post test score is 52.48. The mean difference was 27.38. The obtained independent 't' value was 13.89 which is more than the table value (p=2.00) with the degree of freedom 58 at 0.05 level of significance. Hence the Research Hypothesis (H_1) is accepted. From the results of the study, it is concluded that rendering Kneading technique to the old age people with Arthritis was effective in reducing the joint pain.***

Keywords: kneading therapy, arthritis pain, elderly care, quasi-experimental study, joint mobility

1. Introduction

"For all the happiness mankind can gain not in pleasure but relief from pain"

- John Dryden

Aging is the natural process of becoming older. Aging has been defined as the collection of changes that render human beings progressively more likely to die. It is an inevitable, irreversible process but it is not necessarily negative (**Joao Pedro de Megalhaes., 2014).**

Arthritis is a joint disorder featuring inflammation. Arthritis is frequently accompanied by joint pain which is referred to as arthralgia (**MedicineNet., 2015).**

Kneading technique have been used in the conservative management of arthritis. It increases blood flow and lymph drainage reducing the accumulation of metabolites in the tissues, relax muscle through the manual release of muscle tension, release of increased serotonin that decreases the noxious pain impulses to the brain. It increases release of somatostatin to promote restorative sleep (**Smith., 2010).** The world wide estimation of incidence and prevalence of arthritis is 9.6% of men and 18% of women in the age of 60 years and above. It is estimated in Tamilnadu prevalence of arthritis in the rural 17% in adult, 54.1% in elderly compared with the urban 5.6% in adult and 16.4% in elderly. The prevalence of arthritis high among older people in both rural and urban areas (**Nisha Elizabeth Ajit., 2012).** In Kanyakumari, about 1 in 5 patient over the age of 60 has some form of arthritis The prevalence of arthritis in Kanyakumari District is 1, 15, 000 adult population (**Dr. Issac Sunder Sen., 2013).**

During the clinical practice in the field of nursing, the researcher found that many clients attending orthopedic outpatient department and inpatient clients had various degrees of arthritis with severe joint pain and limitations in mobility. The clients expressed that they need on intervention to relieve joint pain and improve their mobility status. Based on the review of literature various therapies like kneading technique have beneficial effect in reducing joint pain and improving the mobility status.

2. Statement of the problem

A study to assess the effectiveness of kneading technique on joint pain among old age people with arthritis in selected old age homes at Kanyakumari district.

3. Objectives

- To assess the level of joint pain among old age people with arthritis before kneading technique in experimental and control group.
- To assess the effectiveness of kneading technique on level of joint pain among old age people with arthritis in experimental group.
- To compare the post test score of joint pain among old age people with arthritis between experimental group and control group.
- To find out the association between the level of joint pain among old age people with arthritis and their selected demographic variables.

4. Hypotheses

H_1 There will be a significant difference in the level of joint pain after kneading technique among old age people with arthritis in experimental group than the control group.
H_2 There will be a significant association between the level of joint pain among old age people with their selected demographic variables.

Operational Definitions

Effectiveness
It refers to the outcome of kneading technique in relieving joint pain among old age people with arthritis which can be measured by Modified extremities functional scale.

Kneading Technique
It refers to affected muscles and subcutaneous tissues are alternatively compressed and released in a circular motion for every 3 - 4 seconds during the one half circle in a pressure phase. After this phase, pressure is released and the hand glides smoothly over the another half circle in a release phase. The pressure over the tissues are applied by the pad of thumb finger for ankle, elbow and shoulder joints as well as the pad of tip of fingers for knee joint, 20 minutes for 5 days to relieve joint pain.

Arthritis
It refers to trouble in moving the major joints, pain and stiffness around the knee, ankle, shoulder and elbow joints which is measured by Modified Extremities Functional Scale.

Joint Pain
It refers to an aching pain in affected major joints (knee, ankle, elbow and shoulder), which disturb the activities of daily living for the oldage people.

Old age
It refers to people above the age of 60 years of both gender.

5. Methodology

5.1 Research Design

Quasi – experimental with pre test post test control group design was adopted to this study.

Group	Pre test	Intervention	Post test
Experimental group	O_1	X	O_2
Control group	O_1	-	O_2

O_1 - pre test
X - intervention (kneading technique 20 minutes for 5 consecutive days)
O_2 - post test

5.2 Variables

Independent variable: Kneading technique
Dependent variable: Level of Joint pain.

5.3 Population

The population of the study was Old people with arthritis residing in oldage homes.

5.4 Sample Size

The sample size constitutes 60 old age people with arthritis who had been identified with joint pain. Among these 30 old age people were taken for experimental group and 30 old age people were in control group.

5.5 Sampling Technique

Convenience sampling technique was used to select the samples for the study.

5.6 Sample Selection Criteria

Samples were selected based on the following criteria.

Inclusion Criteria
- Old age people who have arthritis of joints such as knee, ankle, elbow and shoulder
- Both male and female old age people with arthritis
- Old age people with arthritis who are willing to participate
- Old age people above the age of 60 years
- Old age people whose screening score is below 75 by using Modified Extremities Functional Scale

Exclusion Criteria
- Old age people who have no sensation of pain
- Old age people with injured joint and fracture
- Old age people who had undergone surgery
- Old age people who are handicapped and bedridden

5.7 Description of the Tool

The tool comprises of three sections.

Section - A: **Demographic Variables**
Demographic variables are age, sex, educational status, religion, marital status, dietary pattern, duration of pain, taking drugs to relieve pain.

Section - B: Modified Extremities Functional Scale
Modified Extremities Functional Scale is designed to quantify a patient's joint pain. There are 25 items. All items were scored from 0 to 4 and each score was calculated as the sum of items included with score calculations of Modified Extremities Functional Scale.

Scoring and Interpretation:
0 - None
1 - 25 - Mild pain
26 - 50 - Moderate pain
51 - 75 - Severe pain
76 - 100 - Extreme pain

6. Data Analysis

The study was conducted to determine the effectiveness of Kneading technique on level of joint pain among oldage people with arthritis in selected oldage homes at Kanyakumari District. The obtained data were analyzed by

both descriptive and inferential statistics. The test score were analyzed by statistical mean and standard deviation. The significance of the difference of mean score were interpreted by student paired 't' test and independent 't' test with the application of statistical package "SPSS" version (13.0) with the level of significance at 5% (P = 0.05%). The relationship and association were studied by chi - square test.

6.1 Organization of the Data

The data collected were tabulated and presented as follows:

Section - A: Distribution of demographic variables of old age people with Arthritis selected for the study.
Section - B: This section deals with the effect of kneading technique on reducing the level of joint pain among the selected old age people with Arthritis.

a) Assessment of joint pain in the both experimental and control group
b) Comparison of the effectiveness of kneading technique on level of joint pain among old age people with arthritis in experimental group
c) Comparison of pre test and post test score on level of joint pain among old age people with arthritis in control group
d) Comparison of the post test score of joint pain among old age people with arthritis between experimental group and control group.

Section - C: Association of the post test scores of joint pain among the experimental group and control group with their selected demographic variables.

Section: A

Table 1: Percentage Distribution of Samples According to Their Selected Demographic Variables N =60

Sl. No.	Demographic Variables	Experimental Group (N=30)		Control Group (N=30)	
		F	%	F	%
1	**Age**				
	a) 60 - 69 years	6	20	10	33.33
	b) 70 - 79 years	15	50	11	36.67
	c) 80 years and above	9	30	9	30
2	**Sex**				
	a) Male	9	30	10	33.33
	b) Female	21	70	20	66.67
3	**Educational Status**				
	a) Illiterate	9	30	9	30
	b) Primary	10	33.33	13	43.33
	c) High school	5	16.67	4	13.33
	d) Higher Secondary	3	10	2	6.67
	e) Graduates	3	10	2	6.67
4	**Religion**				
	a) Hindu	6	20	11	36.67
	b) Christian	21	70	16	53.33
	c) Muslim	3	10	3	10
5	**Marital status**				
	a) Married	11	36.67	10	33.33
	b) Unmarried	7	23.33	3	10
	c) Widow / Widower	12	40	17	56.67
6	**Dietary habits**				
	a) Vegetarian	0	0	0	0
	b) Non - vegetarian	30	100	30	100
7	**Duration of pain**				
	a) Below 2 years	9	30	11	36.67
	b) 2 - 4 years	13	43.33	11	36.67
	c) Above 4 years	8	26.67	8	26.66
8	**Taking drugs to relieve pain**				
	a) Yes	9	30	5	16.67
	b) No	21	70	25	83.33

Table 1 shows the samples according distribution of 30 old age people with arthritis according to the demographic variables. Distribution of 30 oldage people with arthritis according to the age, in the experimental group 6 (20%) old age people belonged to the age between 60 - 69 years, 15 (50%) old age people were in the age group of 70 - 79 years, 9 (30%) old age people were in the age of 80 and above, whereas in the control group out of 30 old age people with arthritis 10 (33.33%) old age people belonged to the age between 60 - 69 years, 11 (36.67%) old age people were in the age group of 70 - 79 years and 9 (30%) old age people were in the age of 80 and above.
Scattering of old age people with arthritis according to the sex was done. In the experimental group, out of 30 old age people with arthritis 9 (30%) were male and 21 (70%) were female. In the control group, out of 30 old age people with arthritis, 10 (33.33%) were male and 20 (66.67%) were female. Allocation of old age people with arthritis according to the educational status was done. In the experimental group, out of 30 old age people with arthritis 9 (30%) ere illiterate, 10 (33.33%) had primary level schooling, 5 (16.67%) had high level schooling, 3 (10%)

had higher secondary level schooling and 3 (10%) were graduates. In the control group, out of 30 old age people with arthritis 9 (30%) were illiterate, 13 (43.33%) had primary level schooling, 4 (13.33%) had high level schooling, 2 (6.67%) had higher secondary level schooling and 2 (6.67%) were graduates.

Dispersion of old age people with arthritis according to the religion was done. In the experimental group, out of 30 old age people with arthritis, 6 (20%) were Hindus, 21 (70%) were Christians and 3 (10%) were Muslim. In the control group, out of 30 old age people with arthritis, 11 (36.67%) were Hindus, 16 (53.33%) were Christians and 3 (10%) were Muslim. Distribution of old age people with arthritis according to the marital status was done. In the experimental group, out of 30 old age people with arthritis 11 (36.67%) were married, 7 (23.33%) were unmarried and 12 (40%) were widow/widowers. In control group, out of 30 old age people with arthritis, 10 (33.33%) were married, 3 (10%) were unmarried and 17 (56.67%) were widow /widowers.

Allocation of old age people with arthritis according to the dietary habits was done. In the experimental group out of 30 old age people with arthritis, 30 (100%) were non vegetarian and none of them was a vegetarian. In control group, out of 30 old age people with arthritis, 30 (100%) were non vegetarian and none of them was a vegetarian. Distribution of old age people with osteoarthritis according to the duration of pain was done, in the experimental group out of 30 old age people with arthritis, 9 (30%) had below 2 years of duration, 13 (43.33%) had 2 - 4 years of duration and 8 (26.67%) had above 4 years of duration. In control group, out of 30 old age people with arthritis, 11 (36.67%) had below 2 years of duration, 11 (36.67%) had 2 - 4 years of duration and 8 (26.66%) had above 4 years of duration.

Allocation of old age people with taking drugs to relieve pain was done. In the experimental group, out of 30 old age people with arthritis, 9 (30%) were taking drugs to relieve pain and 21 (70%) were not taking drugs to relieve pain. In the control group out of 30 old age people with arthritis, 5 (16.67%) were taking drugs to relieve pain and 25 (83.33%) were not taking drugs to relieve pain.

Section: B

Table 2: Assessment of Joint Pain in Both Experimental and Control Group, (N =60)

S. No.		Scores	Experimental Group (N =30)		Control Group (N =30)	
			F	%	F	%
1	Pretest score	No pain	0	0	0	0
		Mild pain	0	0	0	0
		Moderate pain	12	40	14	46.67
		Severe pain	18	60	16	53.33
		Extreme pain	0	0	0	0
		No pain	0	0	0	0
2	Posttest score	Mild pain	18	60	0	0
		Moderate pain	12	40	17	56.67
		Severe pain	0	0	13	43.33
		Extreme pain	0	0	0	0
		No pain	0	0	0	0

Table 2 shows that the pretest scores of joint Pain, in the experimental group, out of 30 samples, 12 (40%) had moderate joint pain and 18 (60%) had severe joint pain. With regard to the pretest scores of joint pain, in Control group, out of 30 old age people with arthritis 14 (46.67%) had moderate joint pain and 16 (53.33%) had severe joint pain. With regard to the post test scores of joint pain, in the experimental group, out of 30 old age people with arthritis, 18 (60%) had mild joint pain and 12 (40%) had moderate joint pain. With regard to the post test scores of joint pain, in control group, out of 30 old age people with arthritis 17 (56.67%) had moderate joint pain and 13 (43.33%) had severe joint pain.

Table 3: Comparison of the Effectiveness of Kneading Technique on Level of Joint Pain Among Oldage People With Arthritis in Experimental Group (N = 30)

S. No.	Test	Mean	SD	MD	t - value	P - value
1.	Pre Test	52.56	7.1	27.46	16.74*	2.042
2.	Post Test	25.1	6.95			

***Significant at 0.05% (df=29)**

Table 3 represents, the mean score on level of joint pain among old age people with arthritis in the experimental group was 52.56 in pretest and 25.10 in posttest. The paired 't' value was 16.74 which is significant at $p < 0.05$. It shows that kneading technique was effective in reduction of joint pain among old age people with arthritis in the experimental group. Hence the research hypothesis is accepted.

Table 4: Comparison of Pre - test and Post - test Score on Level of Joint Pain Among Oldage People With Arthritis in Control Group (N = 30)

S. No.	Test	Mean	SD	MD	t - value	P - value
1.	Pre Test	51.63	7.71	0.85	1.31	2.042
2.	Post Test	52.48	8.05			

Table 4 represents, the mean score on level of joint pain among old age people with arthritis in control group was 51.63 in pre test and 52.48 in post test. The paired 't' value was 1.31 which is not significant at $P < 0.05$.

Table 5: Comparison of the Post - test Score of the Joint Pain Among Oldage People With Arthritis Between Experimental and Control Group (N = 60)

S. No.	Group	Mean	SD	MD	t - value	P - value
1.	Experimental	25.10	6.95	27.38	13.89*	2.00
2.	Control	52.48	8.05			

***Significant at 0.05% (df=58)**

Table 5 revealed that, the mean post test score in the experimental group was 25.10 with standard deviation of 6.95 whereas in the control group, the mean post test score was 52.48 with standard deviation of 8.05. The mean difference was 27.38. The obtained independent 't' test value was 13.89 which is more than the table value (P = 2.00) with the degree of freedom 58 at 0.05 level of significance. Hence the Research Hypothesis (H_1) is accepted and it is inferred that kneading technique is effective in reducing the level of joint pain among the old age people with arthritis in the experimental group than in the control group.

Section: C

Table 6: Association of the Post - test Scores of Joint Pain Among the Experimental Group and Control Group With Their Selected Demographic Variables (N=60)

Sl. No	Demographic Variables	Experimental group (n=30)			Control group (n=30)		
		χ^2	df	Significance	χ^2	df	Significance
1.	Age	6.88*	2	P < 0.05	8.97*	2	P < 0.05
2.	Sex	0.22	1	P > 0.05	0.043	1	P > 0.05
3.	Educational Status	4.18	4	P> 0.05	5.16	4	P > 0.05
4.	Religion	2.31	2	P > 0.05	1.78	2	P > 0.05
5.	Marital Status	2.78	2	P > 0.05	1.52	2	P > 0.05
6.	Duration of Pain	6.26*	2	P < 0.05	7.03*	2	P < 0.05
7.	Taking drugs to relieve pain	4.47*	1	P < 0.05	1.33	1	P > 0.05

Table 6 shows that in the experimental group, with regard to age, duration of pain the chi - square value was 6.88 and 6.26. The table value at 2 degrees of freedom was 5.99 which was significant at 0.05 level. Regarding taking drugs to relieve pain the chi - square value was 4.47. The table value at 1 degree of freedom was 3.84 which was significant at 0.05 level. There was no significant association between the level of joint pain among the old age people with Arthritis and the other demographic variables. In the control group, on considering the age, duration of pain the chi - square was 8.97 and 7.03. The table value at 2 degrees of freedom was 5.99 which was significant at 0.05 level. There was no significant association between the level of joint pain among the oldage people with Arthritis and the other demographic variables.

7. Discussion

The First Objective of the Study was to Assess the Level of Joint Pain Among Oldage People With Arthritis Before Kneading Technique in Experimental and Control Group.

The analysis of pre - test reveals the assessment of level of joint pain of selected oldage people with arthritis before providing kneading technique. There was no mild and extreme pain among old age people with arthritis. In the experimental group, 12 (40%) had moderate pain and 18 (60%) had severe pain and the mean score was 52.56 with the standard deviation 7.10 and in the control group, 14 (46.67%) had moderate pain and 16 (53.33%) had severe pain and mean pain score was 51.63 with the standard deviation 7.71. The findings of the study was supported by Deborah Osbourn‟s, (2009) study to assess the level of joint pain among arthritis patients.60 adult subjects were selected using convenience sampling technique for this study. Self - administration of the extremities functional scale was used to measure the level of joint pain. The study reported that 48.2% of subjects had severe joint pain, 30.5% had moderate joint pain, and 21.3% had mild joint pain. Hence it is concluded that most of the patients had severe joint pain.

J. W. Kenny‟s open system model helping art of clinical nursing theory based on the first step was to identify the prevalence of joint pain among old age people with arthritis by doing the pretest assessment. Here, the investigator identified that in the experimental group out of 30 samples, 12 (40%) had moderate joint pain and 18 (60%) had severe joint pain and in control group, out of 30 old age people with arthritis, 14 (46.67%) had moderate joint pain and 16 (53.33%) had severe joint pain.

The Second Objective was to Assess the Effectiveness of Kneading Technique on Level of Joint Pain among Oldage People with Arthritis in Experimental Group.

The mean score on level of joint pain among old age people with arthritis in the experimental group was 52.56 in pre test and 25.10 in post test. The paired „t „ value was 16.74 which was significant at $p < 0.05$. It shows that kneading technique was effective in reduction of joint pain among oldage people with arthritis in the experimental group. Hence the research hypothesis was accepted.

The hypothesis was supported by Shreej Maharajan's (2013) study to check the effectiveness of kneading technique in knee arthritis in Bangalore.60 symptomatic subjects of both sexes were randomly taken and divided into two groups of 30 in each (experimental and control) group. Kneading technique was given to experimental group for 2 weeks. The tools used were Western Ontario and McMaster Universities Osteoarthritis Score (WOMAC) and Visual Analog Scale (VAS). The findings of the study showed that in experimental group, the mean post test score was 11.8 with the standard deviation 7.5. The calculated independent 't' test value was 13.9 which showed a significant difference in the experimental and control group.

Based on this theory, the second step was providing intervention to experimental group. Here the investigator gave intervention to experimental group. Then compared the pre test and post test level of joint pain among old age people with arthritis in experimental group. Based on the calculation the result showed that kneading technique was effective in experimental group.

The Third Objective was to Compare the Post - test Level of Joint Pain Among Oldage People With Arthritis Between Experimental Group and Control Group.

Comparing the post test score of level of joint pain among old age people with arthritis between experimental and control group. The mean post test score in experimental group was 25.10 with standard deviation of 6.95 whereas in the control group, the mean post test score was 52.48 with standard deviation of 8.05. The mean difference was 27.38.

The obtained independent „t" test value was 13.89 which was more than the table value (P=2.00) with the degree of freedom 58 at 0.05 level of significance. Hence the Research Hypothesis (H_1) was accepted and it was inferred that kneading technique was effective in reducing the level of joint pain among old age people with arthritis in experimental group than the control group.

The hypothesis was supported by Skoog, (2010) to examine the effects of kneading technique on joint pain, at the Karolinska Hospital, Stockholm, Sweden. Treatment was given over a 5 days period divided into two parts which contains kneading technique on back, neck, chest, leg, arm and face. Joint pain was assessed by using Numerical Pain Intensity Scale after and before intervention. They analyzed the data using 't' test result revealed that there was a significant reduction on joint pain after kneading technique.

Based on the theory, third step was evaluating the effectiveness of intervention. Here in the experimental group there was reduction in the level of joint pain and in the control group there was no reduction in the level of joint pain.

The Fourth Objective was to Find out the Association Between the Level of Joint Pain Among Oldage People With Arthritis with Their Selected Demographic Variables.

The significant reduction was made by the effectiveness of kneading technique in relieving joint pain among old age people with arthritis with the influence of demographic variables like age, duration of pain and taking drugs to relieve pain in the experimental group and demographic variables like age and duration of pain in the control group. There was an association between the age, duration of pain and taking drugs to relieve pain in the experimental group and there was an association between age and duration of pain in the control group for the post test score ($p < 0.05$).

The significant reduction was made by the effectiveness of kneading technique in relieving joint pain among old age people with arthritis without the influence of demographic variables such as sex, educational status, religion, marital status in the experimental and control group, taking drugs to relieve pain in the control group. There was no association between the demographic variables and the level of joint pain in the post test score ($p< 0.05$).

From the above results and discussion clearly stated that there was a significant association of level of joint pain with the demographic variables like age, duration of pain and taking drugs to relieve pain. Hence the researcher accepted the research hypothesis and there was no significant association of level of joint pain with the demographic variables such as sex, educational status, religion and marital status. Hence the researcher rejected the research hypothesis.

8. Study Findings

The data was collected and analyzed by using descriptive and inferential statistics. The findings revealed that there was highly significant difference in level of joint pain among old age people with arthritis after the administration of kneading technique. In the post test the result shows that, the mean post test score in experimental group was 25.10 with standard deviation of 6.95 whereas in control group, the mean post test score was 52.48 with standard deviation of 8.05. The mean difference was 27.38. The obtained independent "t" test value is 13.89 which is more than the table value (P=2.00) with the degree of freedom 58 at 0.05 level of significance. Hence the Research Hypothesis (H_1) was accepted and it was inferred that kneading technique is effective in reducing the level of joint pain among old age people with arthritis in experimental group than the control group.

9. Conclusion

From the results of the study, it is concluded that rendering kneading technique to the oldage people with arthritis was effective in reducing the joint pain. This alternative therapy was not only cost effective but also easy to follow. The old age people with arthritis can include this therapy in their routine activities. The oldage people's leisure time may be enough and utilized for doing these kneading technique

10. Nursing Implications

The researcher has derived the following implication from the study results which are of vital concern to the field of nursing service, nursing administration, nursing education and nursing research. By assessing the effectiveness of Kneading technique to reduce the level of joint pain among old age people with arthritis, we got a clear picture regarding different steps to be taken in all fields, to improve the standard of nursing profession and implement evidence based practice in health set up.

10.1 Nursing Practice

Professionally accountable nurses should base many of the nursing intervention as possible on research findings. Kneading technique can be used as a nursing intervention in reducing the level of joint pain among old age people with arthritis.

- Nurses should be knowledgeable regarding the benefits of Kneading technique in reducing the level of joint pain
- Nurse can implement the Kneading technique to improve patient quality of life in aspects of pain reduction as a complimentary therapy for old age people
- Kneading technique is an effective measure to reduce the level of joint pain. Nurse can make this therapy as an effective measure to enhance the coping strategies of old age people

10.2 Nursing Education

- A Nurse educator is not primarily to teach, but to promote learning and provide the environment conducive to learning and create the teacheable moment rather than first waiting for it to happen.
- The nurse educators need to be equipped with adequate knowledge regarding Kneading technique
- Nursing students should receive adequate training regarding Kneading technique

- Conduct workshops or conferences for students regarding the use of Kneading technique, in day today nursing practice
- Strengthen the curriculum for nurses to excel them in knowledge and skill in areas of various complimentary therapy modalities.

10.3 Nursing Administration

A Nurse administrator manages the client care and the delivery of specific nursing services within a health care agency.

- Kneading technique can be recommended in hospital along with routine management of reducing the level of joint pain to the old age people with arthritis.
- Nurse administrator can recognize Kneading technique as a cheap, cost effective method in the management of reducing the level of joint pain to the old age people with arthritis.
- Public information programmes and information education communication package may be designed by nurses to encourage Kneading technique

10.4 Nursing Research

The research implication of the study lies in the scope for expanding the quality of nursing service. In the era of evidence based practice, publication of these studies will take nursing to new horizon.

- Nurses should conduct research for further clarifications of the benefits and optimal association of Kneading technique
- Encouragement should be fostered among various research institutions, health associations to conduct further research on the effect of Kneading technique
- Disseminate the findings of research through conferences, seminars and publishing in journals
- Teachers can direct and motivate the nursing researchers. So that they can conduct research in the same, different specialties and thereby professional independence can be achieved.

11. Limitations

- There were very few studies done on the effectiveness in national level, the investigator had a lot of difficulties in collecting the study materials for the review.
- The sampling size was limited to 60 (30 in experimental group and 30 in control group)
- The data collection period was limited to one month

12. Recommendations

The following steps can be undertaken to strengthen the study

- The study can be conducted among larger sample for the better generalization.
- The study can be conducted in different settings.
- Comparison between kneading technique and other non – pharmacological methods can be done.
- Kneading technique can be included in the hospital policy.

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