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"A COMPARATIVE STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD OIL MASSAGE AND HOT APPLICATION ON JOINT PAIN AMONG OLD AGE PEOPLE AT SELECTED OLD AGE HOMES OF THE CITY".

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ABSTRACT OF THE STUDY

INTRODUCTION OF THE STUDY- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. First, aging leads to a reduced ability to detect harmful signals related to loss in the structure and function of peripheral and central nervous system pathways implicated in processing painful stimuli. Heat can be applied in several ways, including electric pads, hot water bottles, hot gel packs, or via a warm bath. Mustard is an easily available and comparatively cheap material. Mustard is well known for its counter irritant, and anti-contestant property. **OBJECTIVES OF THE STUDY 1.** To assess the level of joint pain among old age people at selected old age home of the city. 2. To evaluate the effectiveness of Mustard oil massage on joint pain among old age people at selected old age home of the city. 3. To evaluate the effectiveness of Hot application on joint pain among old age people at selected old age home of the city .4. To compare the effectiveness of Mustard oil massage Verses hot application on joint pain among old age people at selected old age home of the city 5. To find out the association of pre-test level of joint pain score with selected demographic variable. **HYPOTHESIS H_0: -** There will be no significant difference between pre and post-test scores for joint pain among old age people after applying mustard oil massage. **H_{01}:** - There will be no significant difference between pre and post-test scores for joint pain among old age people after applying hot application. **H_{02}:** - There will be no significant difference between the effectiveness of

mustard oil massage and hot application for joint pain among old age people. **H_{03}**:- There will be no significant association between the pre-test level of pain score with selected demographic variables. **METHODOLOGY:** For this research, true experimental pre-test post-test research design has been adopted. The study was conducted in selected old age home of the city. Simple random sampling technique was used to select 100 participants and 50 were recruited for each group. To evaluate joint pain, the tool used for data collection was a scale of (0-10 scale of pain severity) pain scale. Both each groups were given mustard oil massage and hot application for seven days for twice a day **RESULT**: The 12% of old age people of mustard oil and 4% of hot application had mild pain, 36% of mustard oil and 38% of hot application had moderate pain and 52% of old age people of mustard oil and 58% of hot application had severe pain. before providing intervention and after providing intervention 42% of old age people of mustard oil and 16% of hot application had mild pain, 50% of mustard oil and 70% of hot application had moderate pain and 2% of old age people of mustard oil and 14% of hot application had severe pain. After the Mean, standard deviation and mean difference values are compared and student's paired 't' test is applied at 5% level of significance. The tabulated value for n=50-1 i.e. 49 degrees of freedom was 2.00. The calculated 't' value i.e. 16.22 are much higher than the tabulated value at 5% level of significance for overall joint pain score of old age people which is statistically acceptable level of significance. Hence it is statistically interpreted that the Mustard Oil Massage on joint pain among old age people from selected old age home of the city was effective. **Conclusion:** The study proved that Mustard Oil Massage on joint pain was effective than the hot application on joint pain for reduction of joint pain among old age people. I hope this knowledge will be used in daily life in preventing the development of good health by taking such preventive measures at the earliest.

Keywords: Old age, Mustered oil, Hot water application

RESEARCH METHODOLOGY

Research approach- A Quantitative research approach was used for this present study. **Research design:-** In the present study true experimental pre-test post-test design was used for the study.

POPULATION AND SAMPLES

Target population:- The target population selected for study was old age people in selected old age homes of the city. **Accessible population :-** The accessible population for this study was the old age people having joint pain in selected old age homes of the city. **Sampling technique:-** The sample for the present study was selected using simple random sampling. **Sample size:-** In this study sample size is 100 was selected to suit the study.

DATA AND SOURCES OF DATA :-

Setting of the study:- This study is conducted in selected old age homes of the city. ***Conceptual frame work :-*** The study's conceptual framework was drawn from the supporting arts of clinical nursing theory of the modified Weidenbach [1964]. The nursing is involved in three components, according to the

concept. 1. Identifying need for help 2.Ministering the need for help. 3.Validating that need for help was met.

Step-I Identifying need for help- General information

The researcher collects information by demographic variables.

The central purpose -The central purpose, according to the concept, relates to what the researcher to achieve The central purpose of this study was to reduce joint pain.

The prescription -The prescription, according to the theory, refers to joint pain patients for reduction of join pain.

Step-II-Ministering the need for help- The researcher is formulating a strategy based on available resources to fulfil the patients' need for help. The researcher must present the plan to the patients and respond to it by the patients.

Realities-It refers to the physical, emotional, physiological, and spiritual factors that come into play in a research study.

Step-III validates that need for help was met- This phase includes the analysis and interpretation of the scores obtained to conclude the outcome after the intervention. In this study, the after-intervention assessment was done through (0-10 scale of pain severity) pain scale.

STATISTICAL TOOL AND ECONOMETRIC MODEL:-

Development of research tool :- The investigator developed the tool after updating the knowledge regarding joint pain. The researchers ' expertise, theoretical knowledge and expert advice, along with the literature review, helped to develop the method required for the analysis.

Presentation of tool :- The following steps were carried out in preparing the tool 1) Literature review 2)Validity of tool 3)Pre-Testing 4)Reliability. D**escription of the tool-** After considering the suggestion and modification of the tool by the experts; the final tool consists of two parts structured questionnaire.

RESULT AND DISCUSSION

This chapter deals with analysis and interpretation of the data collected from 100 samples who were old age people. The present comparative study to assess the effectiveness of mustard oil massage and hot application on joint pain among old age people at selected old age homes of the city. Analysis and interpretation is based on the objectives of the study.

Section A : Distribution of old age people with regards to demographic variables. **Section B :** Assessment of level of pre-test and post test level of joint pain score among old age people at selected old age home of the city in mustard oil massage and Hot Application. **Section C:** Assessment of effectiveness of mustard oil massage and Hot Application on joint pain among old age people at selected old age home of the city. **Section D (I):** Association of pre-test level of joint pain score among old age people at selected old age home of the city in mustard oil massage with their demographic variables. **Section D (II)**

:Association of pre-test level of joint pain score among old age people at selected old age home of the city in hot application with their demographic variables.

Section A : This section deals with percentage wise distribution of old age people with regards to their demographic characteristics. A convenient sample of 100 subjects was drawn from the study population, who were from selected old age homes of the city. The data obtained to describe the sample characteristics including age, gender, previous occupation, weight in kg, duration of joint pain and type of joint pain respectively.

TABLE 1: PERCENTAGE WISE DISTRIBUTION OF OLD AGE PEOPLE ACCORDING TO THEIR DEMOGRAPHIC CHARACTERISTICS.

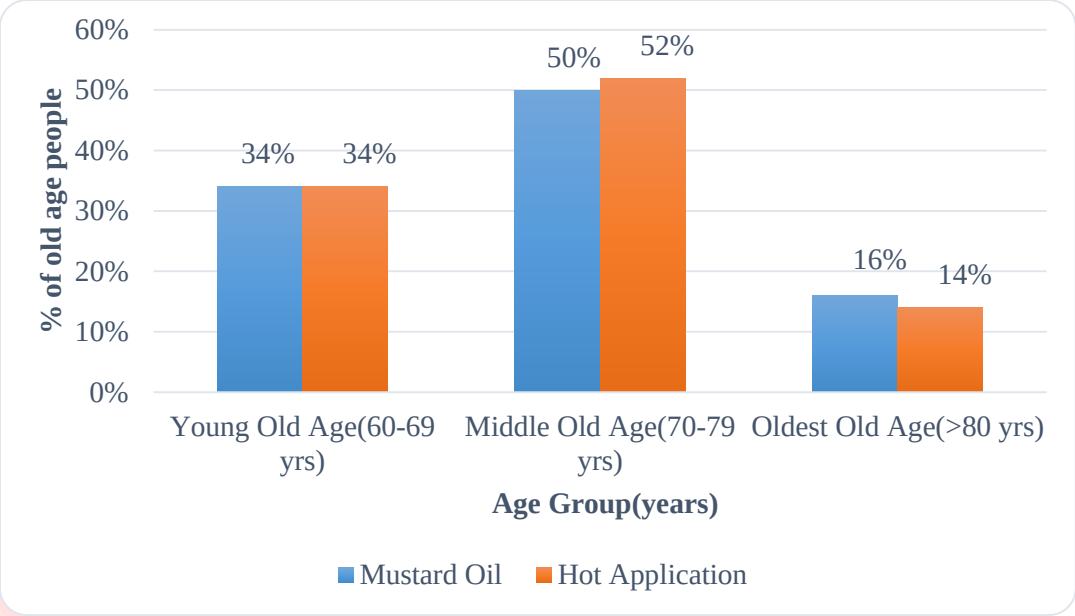
n=100

Demographic Variables	**Mustard Oil (n=50)**	**Hot Application (n=50)**
Age(years)		
Young Old Age(60-69 yrs)	17(34%)	17(34%)
Middle Old Age(70-79 yrs)	25(50%)	26(52%)
Oldest Old Age(>80 yrs)	8(16%)	7(14%)
Gender		
Male	20(40%)	22(44%)
Female	30(60%)	28(56%)
Previous Occupation		
Industrial Worker	17(34%)	14(28%)
Farmer	21(42%)	11(22%)
Civil Servant	3(6%)	14(28%)
Others	9(18%)	11(22%)
Weight in kg		
Below 54 kg	12(24%)	12(24%)
55-65 kg	10(20%)	12(24%)
66-75 kg	18(36%)	19(38%)
>76 kg	10(20%)	7(14%)
Duration of joint pain		
0-1 yrs	5(10%)	3(6%)
1-2 yrs	18(36%)	12(24%)
2-3 yrs	12(24%)	22(44%)

>4 yrs	15(30%)	13(26%)
Type of joint pain		
Knee Joint Pain	39(78%)	38(76%)
Wrist Joint Pain	4(8%)	3(6%)
Shoulder Joint Pain	3(6%)	3(6%)
Ankle Joint Pain	4(8%)	6(12%)

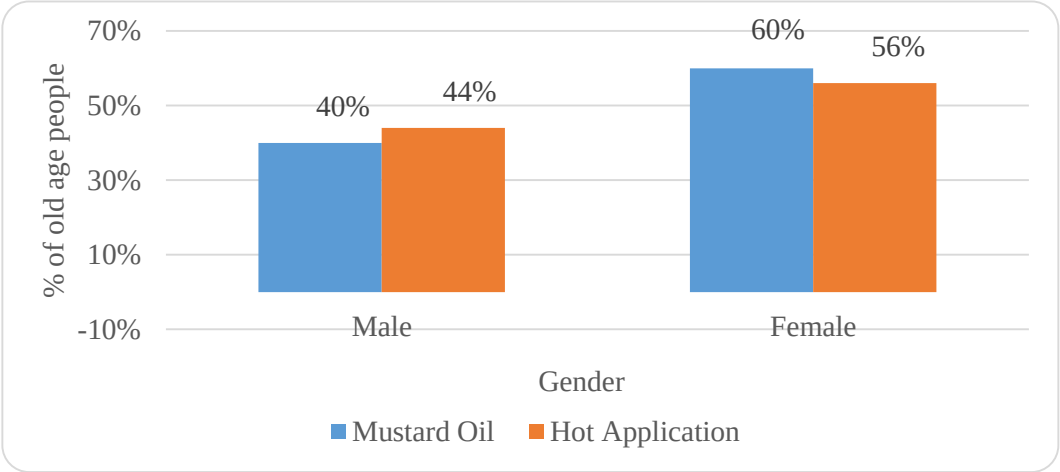
Table No, 1 Shows that percentage of distribution according to demographic variable like age, gender, previous occupation, weight in kg, duration of joint pain and type of joint pain respectively.

GRAPH 1: PERCENTAGE WISE DISTRIBUTION OF OLD AGE PEOPLE ACCORDING TO THEIR AGE GROUP(YRS)



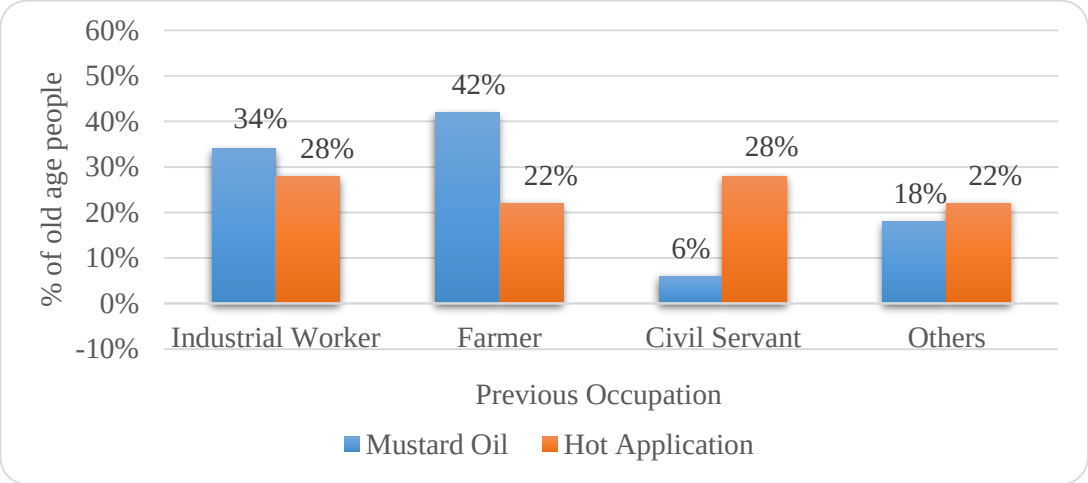
Each 34% of old age people in Mustard Oil massage and hot application were young old age, 50% in Mustard Oil massage and 52% in hot application were middle old age and 16% in Mustard Oil massage and 14% in hot application were oldest old age.

GRAPH 2: PERCENTAGE WISE DISTRIBUTION OF OLD AGE PEOPLE ACCORDING TO THEIR GENDER



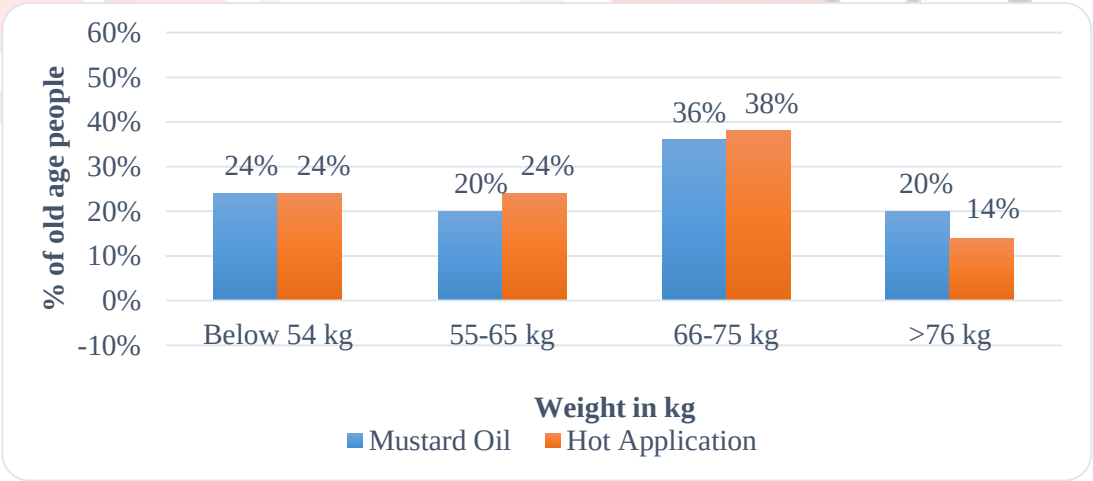
40% of old age people in Mustard Oil massage and 44% in hot application were male and 60% of old age people in Mustard Oil massage and 56% in hot application were females.

GRAPH 3: PERCENTAGE WISE DISTRIBUTION OF OLD AGE PEOPLE ACCORDING TO THEIR PREVIOUS OCCUPATION



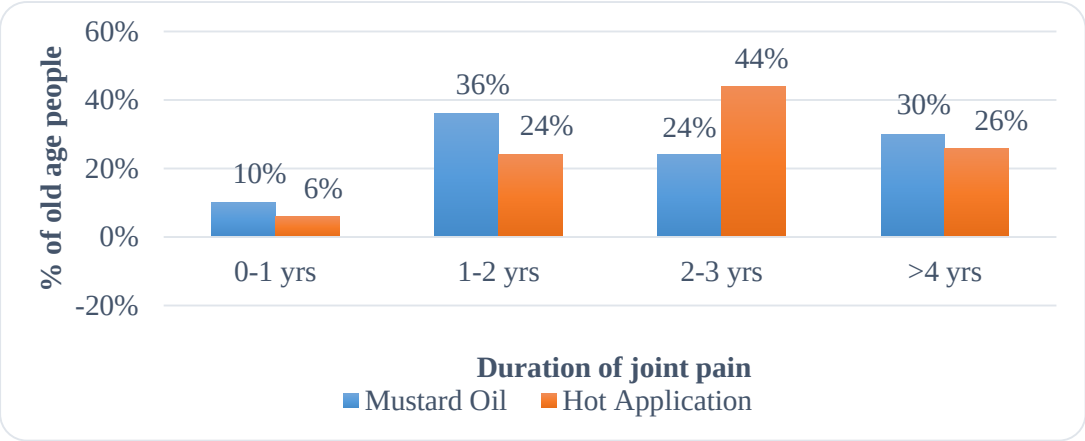
34% of old age people in Mustard Oil massage and 28% in hot application were industrial worker, 42% in Mustard Oil massage and 22% in hot application were farmer, 6% in Mustard Oil massage and 28% in hot application were civil servant and 18% of old age people in Mustard Oil massage and 22% in hot application were doing other profession.

GRAPH 4: PERCENTAGE WISE DISTRIBUTION OF OLD AGE PEOPLE ACCORDING TO WEIGHT IN KG



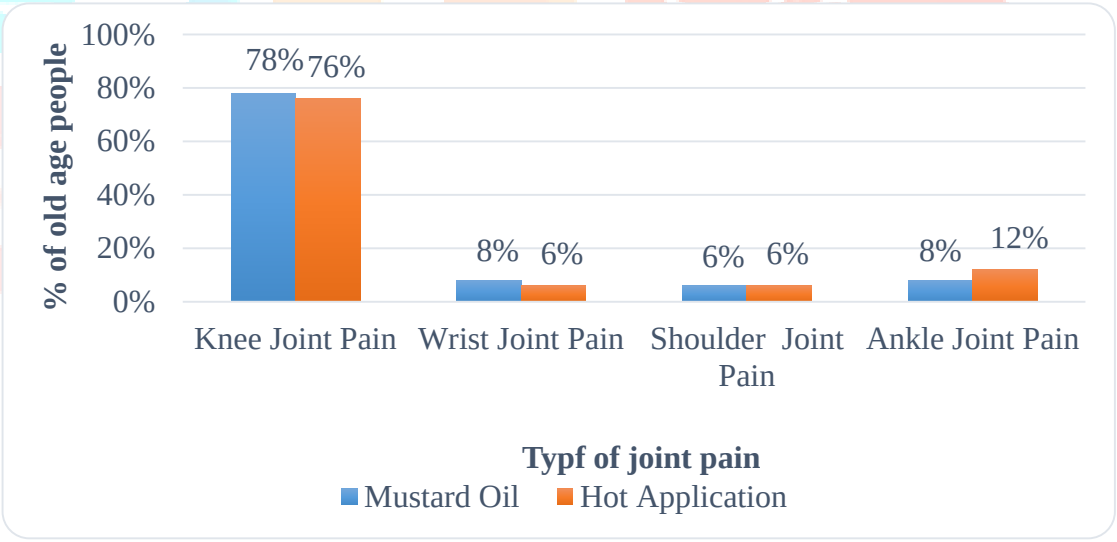
Each 24% of old age people in mustard oil massage and in hot application were having weight of below 54 kg, 20% in mustard oil massage and 24% in hot application were having weight of 55-65 kg, 36% in mustard oil massage and 38% in hot application were having weight of 66-75 kg and 20% of old age people in mustard oil massage and 14% in hot application were having weight of more than 76 kg.

GRAPH 4.5: PERCENTAGE-WISE DISTRIBUTION OF OLD AGE PEOPLE ACCORDING TO DURATION OF JOINT PAIN



10% of old age people in mustard oil massage and 6% in hot application were having duration of joint pain from 0-1 yrs, 36% in mustard oil massage and 24% in hot application had 1-2 years, 24% in mustard oil massage and 44% in hot application had duration of 2-3 years and 30% of old age people in mustard oil massage and 26% in hot application had duration of joint pain more than 4 years.

GRAPH 4.6: PERCENTAGE WISE DISTRIBUTION OF OLD AGE PEOPLE ACCORDING TO TYPE OF JOINT PAIN



78% of old age people in mustard oil massage and 76% in hot application had knee joint pain, 8% in mustard oil massage and 6% in hot application had wrist joint pain, each 6% in both application had shoulder joint pain and 8% of old age people in Mustard Oil massage and 12% in hot application had ankle joint pain.

SECTION B:- Assessment of level of joint pain among old age people at selected old age home of the city of mustard oil massage and hot application

This section deals with the assessment of level of joint pain among old age people at selected old age home of the city of mustard oil massage and hot application. The level of joint pain score is divided under following heading of no pain, mild pain, moderate pain and severe pain respectively.

TABLE 4.2: ASSESSMENT WITH LEVEL OF PRE TEST JOINT PAIN

n= 100

Level of pre test joint pain score	Score Range	Level of Pre test Joint Pain Score	
		Mustard Oil	Hot Application
No Pain	0	0(0%)	0(0%)
Mild Pain	1-3	6(12%)	2(4%)
Moderate Pain	4-6	18(36%)	19(38%)
Severe Pain	7-9	26(52%)	29(58%)

The above table shows that 12% of old age people of mustard oil massage and 4% of hot application had mild pain, 36% of mustard oil massage and 38% of hot application had moderate pain and 52% of old age people of mustard oil massage and 58% of hot application had severe pain. Minimum joint pain score in mustard oil massage was 2 and in hot application it was 2 and in maximum joint pain score in mustard oil massage was 9 and in hot application it was 9. Mean joint pain score in mustard oil massage was 6.04 ± 1.81 and in hot application it was 6.42±1.53.

GRAPH 4.7: ASSESSMENT WITH PRE TEST JOINT PAIN SCORE

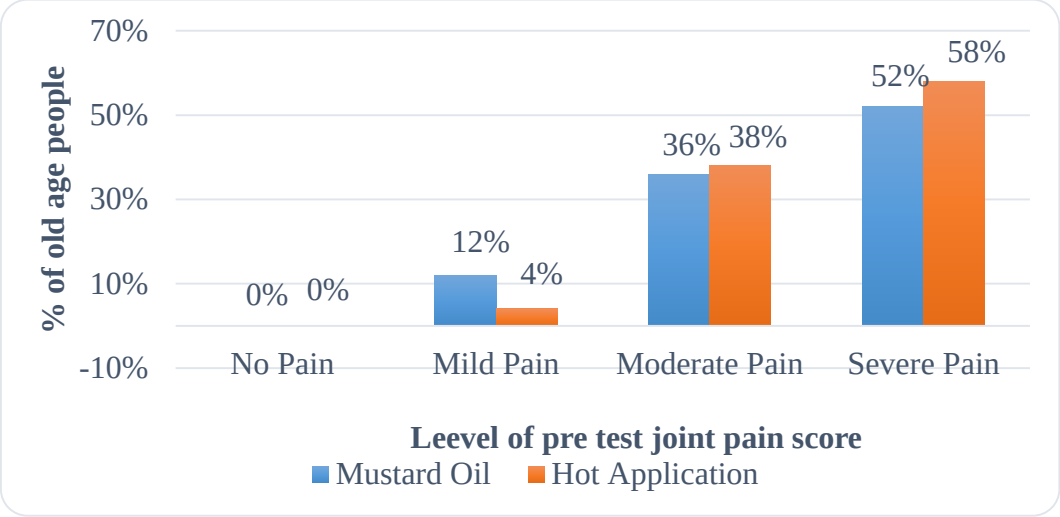


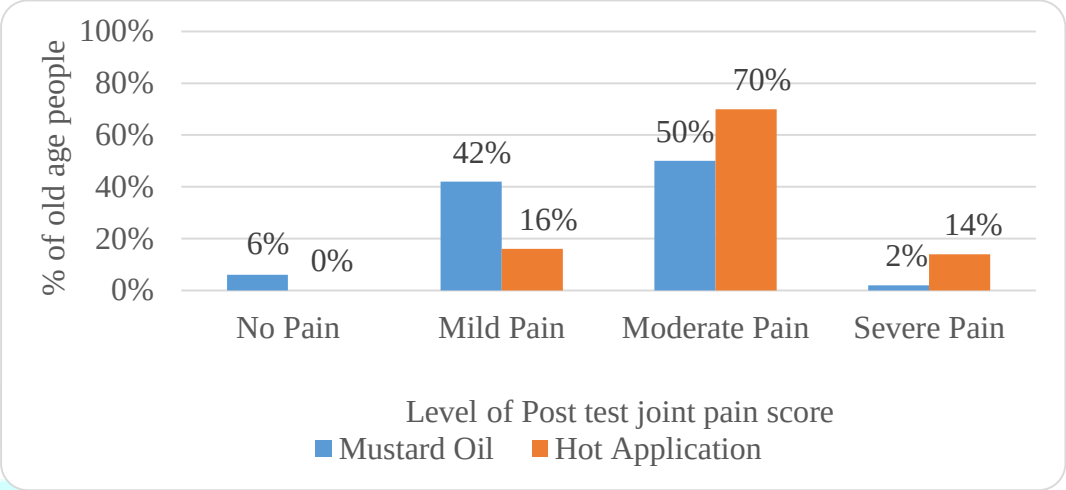
TABLE 4.3: ASSESSMENT WITH LEVEL OF POST TEST JOINT PAIN

n= 100

Level of post-test joint pain score	Score Range	Level of Post test Joint Pain Score	
		Mustard Oil	Hot Application
No Pain	0	3(6%)	0(0%)
Mild Pain	1-3	21(42%)	8(16%)
Moderate Pain	4-6	25(50%)	35(70%)
Severe Pain	7-9	1(2%)	7(14%)

The above table shows that 42% of old age people of mustard oil massage and 16% of hot application had mild pain, 50% of mustard oil massage and 70% of hot application had moderate pain and 2% of old age people of mustard oil and 14% of hot application had severe pain. Minimum joint pain score in mustard oil massage was 0 and in hot application it was 2 and in maximum joint pain score in mustard oil massage was 7 and in hot application it was 8. Mean joint pain score in mustard oil was 3.36 ± 1.66 and in hot application it was 5.06±1.48.

GRAPH 4.8: ASSESSMENT WITH POST TEST JOINT PAIN SCORE



SECTION C :- Evaluation of the effectiveness of mustard oil massage and hot application on joint pain among old age people at selected old age homes of the city

This section deals with the effectiveness of mustard oil massage and Hot Application on joint pain among old age people at selected old age homes of the city. The hypothesis is tested statistically with distribution of pretest and post-test mean, standard deviation and mean percentage joint pain score.

TABLE 4.4 : SIGNIFICANCE OF DIFFERENCE BETWEEN JOINT PAIN SCORE IN PRE AND POST TEST OF OLD AGE PEOPLE OF MUSTARD OIL

n=50

Test	Mean	SD	Mean Difference	t-value	p-value
Pre Test	6.04	1.81	2.68±1.16	16.22	0.0001 S,p<0.05
Post Test	3.36	1.66			

This table shows the comparison of pretest and post-test joint pain score of old age people from selected old age home of the city. The calculated 't' value i.e. 16.22 are much higher than the tabulated value at 5% level of significance for overall joint pain score of old age people which is statistically acceptable level of significance. Hence it is statistically interpreted that the mustard oil massage on joint pain among old age people from selected old age home of the city was effective. Thus the H_0 is rejected.

GRAPH 9: SIGNIFICANCE OF DIFFERENCE BETWEEN JOINT PAIN SCORE IN PRE AND POST TEST OF OLD AGE PEOPLE OF MUSTARD OIL

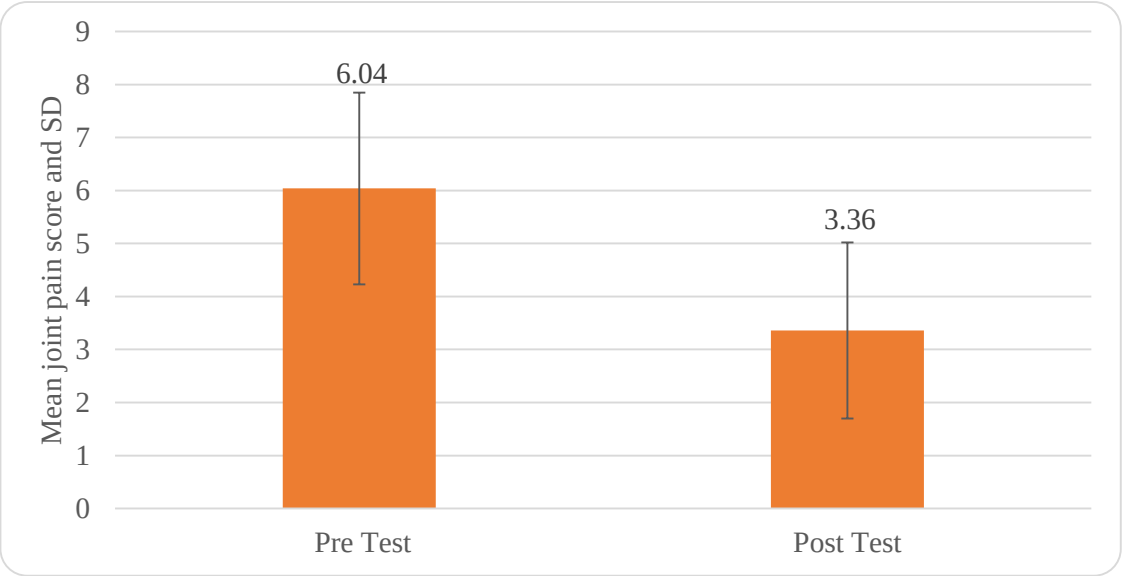


TABLE 5 : SIGNIFICANCE OF DIFFERENCE BETWEEN JOINT PAIN SCORE IN PRE AND POST TEST OF OLD AGE PEOPLE OF HOT APPLICATION

n=50

Test	Mean	SD	Mean Difference	t-value	p-value
Pre Test	6.42	1.53	1.36±0.80	11.99	0.0001 S,p<0.05
Post Test	5.06	1.49			

This table shows the comparison of pretest and post test joint pain score of old age people from selected old age home of the city. The calculated 't' value i.e. 11.99 are much higher than the tabulated value at 5% level of significance for overall joint pain score of old age people which is statistically acceptable level of significance. Hence it is statistically interpreted that the hot application on joint pain among old age people from selected old age home of the city was effective. Thus the H_{01} is rejected.

GAPH 10: SIGNIFICANCE OF DIFFERENCE BETWEEN JOINT PAIN SCORE IN PRE AND POST TEST OF OLD AGE PEOPLE OF HOT APPLICATION

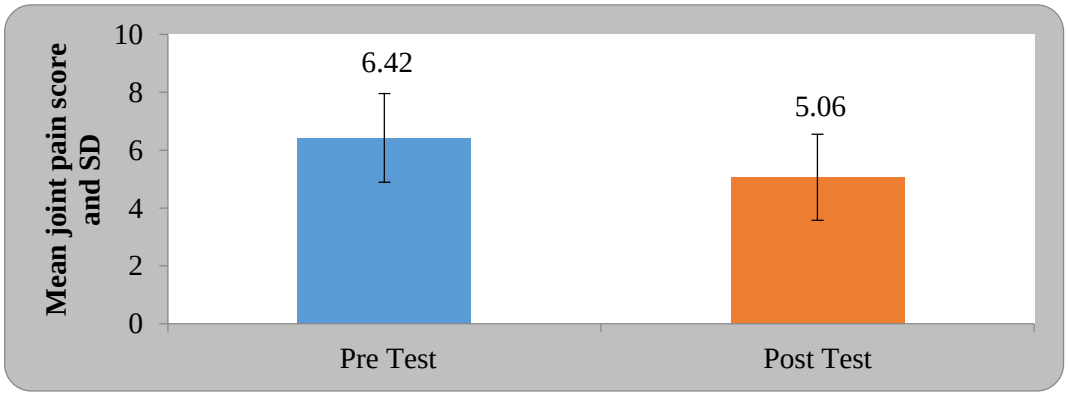


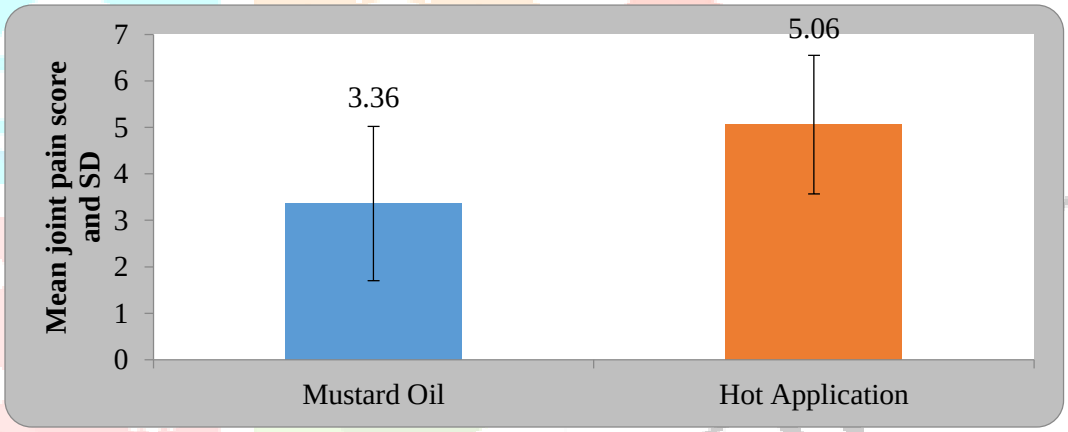
TABLE 6 : COMPARISON OF EFFECTIVENESS OF JOINT PAIN SCORE IN POST TEST OF OLD AGE PEOPLE OF MUSTARD OIL AND HOT APPLICATION

n=50

Group	Mean	SD	Mean Difference	t-value	p-value
Mustard Oil	3.36	1.66	1.70±0.31	5.38	0.0001 S,p<0.05
Hot Application	5.06	1.49			

This table shows the comparison of post-test joint pain score of old age people from selected old age home of the city of mustard oil massage and hot application. The calculated 't' value i.e. 5.38 are much higher than the tabulated value at 5% level of significance for overall joint pain score of old age people which is statistically acceptable level of significance. Hence it is statistically interpreted that the mustard oil massage on joint pain among old age people from selected old age home of the city was effective. Thus the H_{02} is rejected.

GRAPH 11 : COMPARISON OF EFFECTIVENESS OF JOINT PAIN SCORE IN POST-TEST OF OLD AGE PEOPLE OF MUSTARD OIL MASSAGE AND HOT APPLICATION



SECTION D (I)

Table 4.7: Association of pre-test joint pain score among old age people residing in old age home of the city in relation to their age in years.

N=50

Age (yrs)	No. of old age people	No Pain	Mild Pain	Moderate Pain	Severe Pain	χ^2-value	p-value
Young Old Age(60-69 yrs)	17(34%)	0	4	13	0	29.87	0.0001 S, p<0.05
Middle Old Age(70-79 yrs)	25(50%)	0	2	5	18		
Oldest Old Age(>80 yrs)	8(16%)	0	0	0	8		
Gender							

Male	20(40%)	0	1	9	10	2.13	0.34 NS,p>0.06
Female	30(60%)	0	5	9	16		
Previous Occupation							
Industrial Worker	17(34%)	0	1	5	11	10.47	0.10 NS,p>0.06
Farmer	21(42%)	0	2	11	8		
Civil Servant	3(6%)	0	0	0	3		
Others	9(18%)	0	3	2	4		
Weight in kg							
Below 54 kg	12(24%)	0	0	1	11	13.48	0.036 S,p<0.06
55-65 kg	10(20%)	0	3	5	2		
66-75 kg	18(36%)	0	2	8	8		
>76 kg	10(20%)	0	1	4	5		
Duration of joint pain							
0-1 yrs	5(10%)	0	1	3	1	8.19	0.22 NS,p>0.06
1-2 yrs	18(36%)	0	3	7	8		
2-3 yrs	12(24%)	0	0	6	6		
>4 yrs	15(30%)	0	2	2	11		
Type of joint pain							
Knee Joint Pain	39(78%)	0	6	11	22	10.65	0.10 NS,p>0.06
Wrist Joint Pain	4(8%)	0	0	4	0		
Shoulder Joint Pain	3(6%)	0	0	2	1		
Ankle Joint Pain	4(8%)	0	0	1	3		

SECTION D (II)

Association of pre-test level of joint pain score among old age people at selected old age home of the city in hot application with their demographic variables.

Age (yrs)	No. of old age people	No Pain	Mild Pain	Moderate Pain	Severe Pain	χ^2-value	p-value
Young Old Age (60-69 yrs)	17(34%)	0	0	15	2	29.29	0.0001 S,p<0.05
Middle Old Age (70-79 yrs)	26(52%)	0	2	4	20		
Oldest Old Age (>80 yrs)	7(14%)	0	0	0	7		
Gender							
Male	22(44%)	0	1	9	12	0.19	0.90 NS,p>0.05
Female	28(56%)	0	1	10	17		
Previous Occupation							
Industrial Worker	14(28%)	0	0	5	9	9.08	0.16 NS,p>0.05
Farmer	11(22%)	0	2	5	4		
Civil Servant	14(28%)	0	0	6	8		
Others	11(22%)	0	0	3	8		
Weight in kg							
Below 54 kg	12(24%)	0	0	6	6	4.93	0.55 NS,p>0.05
55-65 kg	12(24%)	0	0	3	9		
66-75 kg	19(38%)	0	1	7	11		
>76 kg	7(14%)	0	1	3	3		
Duration of joint pain							
0-1 yrs	3(6%)	0	1	0	2	14.13	0.028 S,p<0.05
1-2 yrs	12(24%)	0	0	2	10		
2-3 yrs	22(44%)	0	1	12	9		
>4 yrs	13(26%)	0	0	5	8		
Type of joint pain							
Knee Joint Pain	38(76%)	0	1	14	23	11.35	0.078 NS,p>0.05
Wrist Joint Pain	3(6%)	0	1	1	1		
Shoulder Joint Pain	3(6%)	0	0	0	3		
Ankle Joint Pain	6(12%)	0	0	4	2		

RESULT

The comparison of post-test joint pain score of old age people from selected old age home of the city of Mustard Oil and Hot Application. Mean, standard deviation and mean difference values are compared and student's unpaired 't' test is applied at 5% level of significance. The tabulated value for n=50+50-2 i.e. 98 degrees of freedom was 1.98. The calculated 't' value i.e. 5.38 are much higher than the tabulated value at 5% level of significance for overall joint pain score of old age people which is statistically acceptable level of significance.

Hence it is statistically interpreted that the Mustard Oil on joint pain among old age people from selected old age home of the city was effective.

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Mr. Sopan Purushottam Shinde

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