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Assess The Effectiveness Of Kneading Technique On Joint Pain Among People Having Joint Pain (Age≥40 Yrs)

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Abstract

Joint pain is a common musculoskeletal problem among adults aged 40 years and above and significantly affects mobility, daily activities, and quality of life. Non-pharmacological interventions such as massage techniques are increasingly used for pain management due to their safety and cost-effectiveness. The present study was conducted to assess the effectiveness of the Kneading Technique on joint pain among people having joint pain (Age ≥40 years) in selected rural areas of Nerchowk, District Mandi, Himachal Pradesh. To assess the effectiveness of Kneading Technique on Joint pain among people having joint pain (Age≥40 years). A quantitative research approach with a quasi-experimental non-randomized pre-test post-test control group design was adopted. The study was conducted among 60 participants with joint pain, comprising 30 participants each in the experimental and control groups selected through non-probability purposive sampling. Data were collected by Interview method using a socio-demographic proforma and a self-structured Joint Pain Severity Scale validated by 13 experts. Pre-test assessment was conducted for both groups. The Kneading Technique was administered to the experimental group for 7–15 minutes on alternate days for 21 days (11 sessions), while the control group received no intervention. Post-test assessment was conducted after completion of the intervention. Data were analyzed using descriptive and inferential statistics. The findings showed a significant reduction in joint pain among the experimental group, with the mean pain score decreasing from 32.40±12.907 to 26.80±12.285 ($t=14.532$, $p<0.001$). No significant change was observed in the control group. The significant post-test difference between the groups ($t=3.149$, $p<0.01$) confirmed the effectiveness of the Kneading Technique in reducing joint pain and improving mobility and emotional well-being. The study concluded that the Kneading Technique is an effective, safe, economical, and non-pharmacological intervention for reducing joint pain among adults aged 40 years and above and can be effectively used in community settings for pain management.

Keywords: Kneading Technique, Joint Pain, Pain Management, Quasi-Experimental Study

1. Introduction

Joint pain is one of the most common musculoskeletal complaints affecting adults worldwide and is a major contributor to disability, reduced mobility, and impaired quality of life. According to the World Health Organization (WHO), approximately 1.71 billion people globally are affected by musculoskeletal conditions, making them one of the leading causes of disability. Among these conditions, joint disorders account for a substantial proportion of chronic pain and functional limitations, particularly among middle-aged and older adults.[1]

Joint diseases such as osteoarthritis, rheumatoid arthritis, gout, ankylosing spondylitis, and other degenerative or inflammatory disorders are characterized by pain, stiffness, swelling, and restricted joint movement. Osteoarthritis is the most prevalent joint disorder worldwide. According to the World Health Organization, more than 528 million people were living with osteoarthritis globally in 2019, and its prevalence continues to increase due to population ageing, obesity, and sedentary lifestyles.[2]

Kneading Technique is simple, inexpensive, non-invasive, and easy to administer without sophisticated equipment, making it suitable for both community and home-based practice. It can be performed with minimal training and may serve as an effective complementary nursing intervention for individuals experiencing chronic joint pain. Despite its potential benefits, limited evidence is available regarding its effectiveness among adults with joint pain residing in rural communities of Himachal Pradesh.

The present study was conducted to assess the effectiveness of Kneading Technique on joint pain among people aged 40 years and above in selected rural areas of Nerchowk, District Mandi, Himachal Pradesh.

2. Materials and Methods

Research Approach: The Quantitative research approach was used for the study. This approach was used to assess the effectiveness of Kneading Technique on joint pain among people having joint pain (≥ 40 years of age) in selected rural areas of Nerchowk district Mandi H.P.

Research Design: The Quasi-Experimental non randomised pre-test post- test control group design was adopted for the study.

Research Study Setting: Gram panchayat Kandhi and Gram panchayat Galma Distt. Mandi were selected to conduct the research study.

Sampling Technique & Sample Size: The samples were selected by non probability purposive sampling technique. The sample size was 60 samples (30 in the Experimental group and 30 in the control group).

Inclusion Criteria: Both male and female (≥ 40 years of age) having Joint Pain residing in selected rural areas of Nerchowk distt. Mandi (H.P.), consented to participate.

Exclusion Criteria: People who: Did not have any sensation of pain, Had injured joints and fractures, Had undergone any surgery, Were handicapped and bedridden, Were on medication for joint pain.

Tool for Data Collection:

It include:

SECTION A- It consists of Selected Socio- Demographic Data, which consists of 13 items, such as Age, Gender, Marital status, Educational status, occupational status, monthly family income, Dietary habits, BMI, Duration of disease, use of medications currently or in past, having any other joint related disease.

SECTION B –Self Structured Joint Pain Severity Scale to assess the joint pain among people having joint pain (≥ 40 years of age) in Rural areas of Nerchowk Mandi (H.P.)

This part consists 19 severity scale questions which was very helpful to assess the pain level in joints before and after the kneading technique. Pain of joints was measured in terms of pain score.

Table 1.1: Interpretation of Joint pain severity Scale.

Score Range	Level of Joint Pain	Description
0	No joint Pain	No pain, stiffness, or functional difficulty
1 – 19	Mild Joint Pain	Mild pain or stiffness with minimal interference in daily activities
20-38	Moderate Joint Pain	Noticeable pain and stiffness causing some difficulty in daily activities
39-57	Severe Joint Pain	Persistent or Severe pain and stiffness with marked functional limitation affecting daily activities and quality of life

Section C: Steps of Kneading Technique

Kneading technique is based on the principle of rhythmic compression and relaxation of soft tissues to improve blood circulation, reduce muscle tension, and promote relaxation. During kneading, the tissues are gently lifted, squeezed, compressed, and released using the fingers, thumbs, and palms in a smooth and controlled manner. The movements should be performed rhythmically, applying pressure according to the individual's comfort and tolerance level. The technique mainly involves lifting the soft tissues away from the underlying structures, rolling and squeezing them between the hands, and then gradually applying the pressure.

Description of Each Movement

1. Lifting

- Soft tissues are gently lifted away from underlying bone
- Done using fingers and palm
- Improves circulation and loosens tissues
- Time: 30–40% of total session.

2. Rolling

- Lifted tissues are rolled between fingers and thumb
- Slow, rhythmic movement
- Reduces stiffness.
- Time: 25–30% of total session

3. Squeezing

- Tissues are compressed and released
- Enhances venous and lymphatic return
- Time: 20% of total session.

4. Pressing

- Gentle pressure applied using thumb or palm
- Done at the end for relaxation
- Time: 10–15% of total session.

Ethical Considerations: Ethical approval obtained from the Institutional Ethics Committee. Written informed consent was taken. Confidentiality and anonymity were ensured.

3. Data Analysis

Data were analysed using descriptive (frequency, percentage, mean, SD) and inferential statistics (Chisquare test). Significance level set at $p < 0.05$.

Organisation Of Analysed Data: The analyzed data was organized according to the objectives and presented under the following sections:

SECTION A : Findings related to frequency & percentage distribution of selected sociodemographic variables.

SECTION B : Findings related to effectiveness of Kneading Technique in Experimental and Control Group.

SECTION C : Findings related to association of Joint Pain scores with socio demographic variables.

4. Findings Related To Frequency & Percentage Distribution Of Selected Sociodemographic Variables

Table No.4.1.A: Frequency & Percentage Distribution of Socio Demographic Variables.

N=60

Socio-Demographic Variables	Options	Experimental Group (n=30) f (%)	Control Group (n=30) f (%)
Age (in years)	40-49 years	3(10.0%)	4(13.3%)
	50-59 years	8(26.7%)	8(26.7%)
	60-69 years	9(30.0%)	5(16.7%)
	70 years and above	**10(33.3%)**	**13(43.3%)**
Gender	Male	5(16.7%)	5(16.7%)
	Female	**25(83.3%)**	**25(83.3%)**
	Other	0(0.0%)	0(0.0%)
Family Type	Nuclear	8(26.7%)	8(26.7%)
	Joint	**22(73.3%)**	**21(70.0%)**
	Extended	0(0.0%)	1(3.3%)
Educational Status	**No formal Education**	**17(56.7%)**	**17(56.7%)**
	Primary	6(20.0%)	4(13.3%)
	Senior Secondary	7(23.3%)	7(23.3%)
	Graduate & Above	0(0.0%)	2(6.7%)
	Unmarried	0(0.0%)	0(0.0%)

Marital Status	**Married**	**26(86.7%)**	**17(56.7%)**
	Widowed	4(13.3%)	13(43.3%)
	Divorced / Separated	0(0.0%)	0(0.0%)
Occupation	Self Employed	2(6.7%)	5(16.7%)
	Homemaker	**23(76.7%)**	**21(70.0%)**
	Govt. Employee	4(13.3%)	3(10.0%)
	Private Employee	0(0.0%)	1(3.3%)
	Other	1(3.3%)	0(0.0%)

This Table indicates the socio-demographic profile of the participants(N=30+30) shows the following:

- The majority of participants in Experimental Group were aged 70 years and above (33.3%), In the control group, the majority were 70 years and above (43.3%). (83.3%) were females in both the groups.
- Majority of participants belonged to joint families, with 73.3% in the experimental group and 70.0% in the control group.
- In terms of educational status, more than half of the participants in both groups had no formal education (56.7%).
- Majority of participants in the experimental group were married (86.7%), while 13.3% were widowed. In the control group 56.7% were married.
- The majority of participants in both groups were homemakers, accounting for 76.7% in the experimental group and 70.0% in the control group.
- In case of Monthly Family Income Class the majority of participants were in middle class, accounting for 46.7% in the experimental group and 60.0% in the control group.

Table No.4.1.B : Frequency & Percentage Distribution of Socio Demographic Variables.

Socio-Demographic Variables	**Options**	**Experimental Group (n=30) f (%)**	**Control Group (n=30) f (%)**
Monthly Family Income Class	Upper class	0(0.0%)	0(0.0%)
	Upper middle class	5(16.7%)	1(3.3%)
	Middle class	**14(46.7%)**	**18(60.0%)**
	Lower middle class	10(33.3%)	11(36.7%)
	Lower class	1(3.3%)	0(0.0%)
Dietary Habits	**Vegetarian**	**15(50.0%)**	**19(63.3%)**
	Non-Vegetarian	**15(50.0%)**	11(36.7%)
	Eggetarian	0(0.0%)	(0.0%)
	Vegan	0(0.0%)	(0.0%)
Duration of Joint Pain	Less than 2 year	8(26.7%)	9(30.0%)
	2-4 years	9(30.0%)	5(16.7%)
	4-6 years	2(6.7%)	2(6.7%)
	More than 6 years	**11(36.7%)**	**14(46.7%)**
	Underweight <18.5	1(3.3%)	2(6.7%)
	Normal weight 18.5-24.9	**17(56.7%)**	9(30.0%)

BMI	Overweight 25.0-29.9	9(30.0%)	**16(53.3%)**
	Obese >=30.0	3(10.0%)	3(10.0%)
Type of Work	Heavy	6(20.0%)	8(26.7%)
	Moderate	**17(56.7%)**	**17(56.7%)**
	Sedentary	7(23.3%)	5(16.7%)
Any Joint related disease	**No**	**28(93.3%)**	**30(100.0%)**
	Yes	2(6.7%)	0(0.0%)
Taken joint pain treatment in past or currently on medication	**No**	**21(70.0%)**	**27(90.0%)**
	Yes	9(30.0%)	3(10.0%)

This Table indicates the socio-demographic profile of the participants(N=30+30) shows the following:

- In terms of dietary habits, in the experimental group 50.0% were vegetarians and 50.0% were non-vegetarians. In the control group, 63.3% were vegetarians and 36.7% were non-vegetarians.
- The majority of participants in both groups had more than 6 years of joint pain, accounting for 36.7% in the experimental group and 46.7% in the control group.
- Incase Body Mass Index (BMI), in the experimental group the majority had normal weight (56.7%), In the control group, the majority were overweight (53.3%),
- With respect to type of work, the majority of participants in both groups performed moderate work (56.7%).
- About presence of joint-related disease, most participants did not have any joint-related disease, accounting for 93.3% in the experimental group and 100% in the control group.

The majority of participants had not taken treatment, accounting for 70.0% in the experimental group and 90.0% in the control group.

5. Findings Related To Effectiveness Of Kneading Technique In Experimental And Control Group

Table No.4.2: Frequency & Percentage Distribution of Joint Pain Scores in Experimental and Control Group.

N=60

Levels and Scores of Joint Pain	**Experimental Group (n=30)**		**Control Group (n=30)**	
	Pre Test	**Post Test**	**Pre Test**	**Post Test**
Severe Joint Pain(39-57)	14(46.7%)	4(13.3%)	16(53.3%)	16(53.3%)
Moderate Joint Pain(20-38)	8(26.7%)	18(60%)	12(40%)	12(40%)
Mild Joint Pain(1-19)	8(26.7%)	8(26.7%)	2(6.7%)	2(6.7%)
No joint Pain(0-0)	0(0%)	0(0%)	0(0%)	0(0%)

Maximum=57 Minimum=0

The table shows the comparison of joint pain severity levels in the pre-test and post-test for experimental and control groups. In the pre-test experimental group, 46.7% had severe pain, 26.7% had moderate pain, and 26.7% had mild pain. In the post-test, severe pain reduced to 13.3%, while 60% had moderate pain and 26.7% had mild pain. In the control group, 53.3% had severe pain, 40% had moderate pain, and 6.7% had mild pain in the pre-test, and the same distribution remained in the post-test. No subjects had no joint pain in either group.

Table No 4.4: Comparison of Statistical Parameters of Joint Pain Scores.

N=60

Groups		Pretest		Post test			Paired T Test	
		Mean	SD	Mean	SD	df	T	Result
Experimental Group (n=30)		32.40	12.907	26.80	12.285	29	14.532***	P value=< 0.001 ***
Control Group (n=30)		36.200	10.733	36.17	10.703	29	1.000	P value= 0.326
Unpaired T Test	df	58		df	58			
	T	1.240		T	3.149**			
	Result	P value= 0.220		Result	P value= < 0.01**			

Key= Highly Significant; <0.001= Very highly significant*****

The mean post-test pain score of the experimental group (26.80 ± 12.285) was lower than the pre-test score (32.40 ± 12.907), and the difference was highly significant ($t = 14.532$, $p < 0.001$). In contrast, the control group showed no significant change ($p = 0.326$). The post-test comparison between the groups was also statistically significant ($t = 3.149$, $p < 0.01$), indicating that the kneading technique was effective in reducing joint pain.

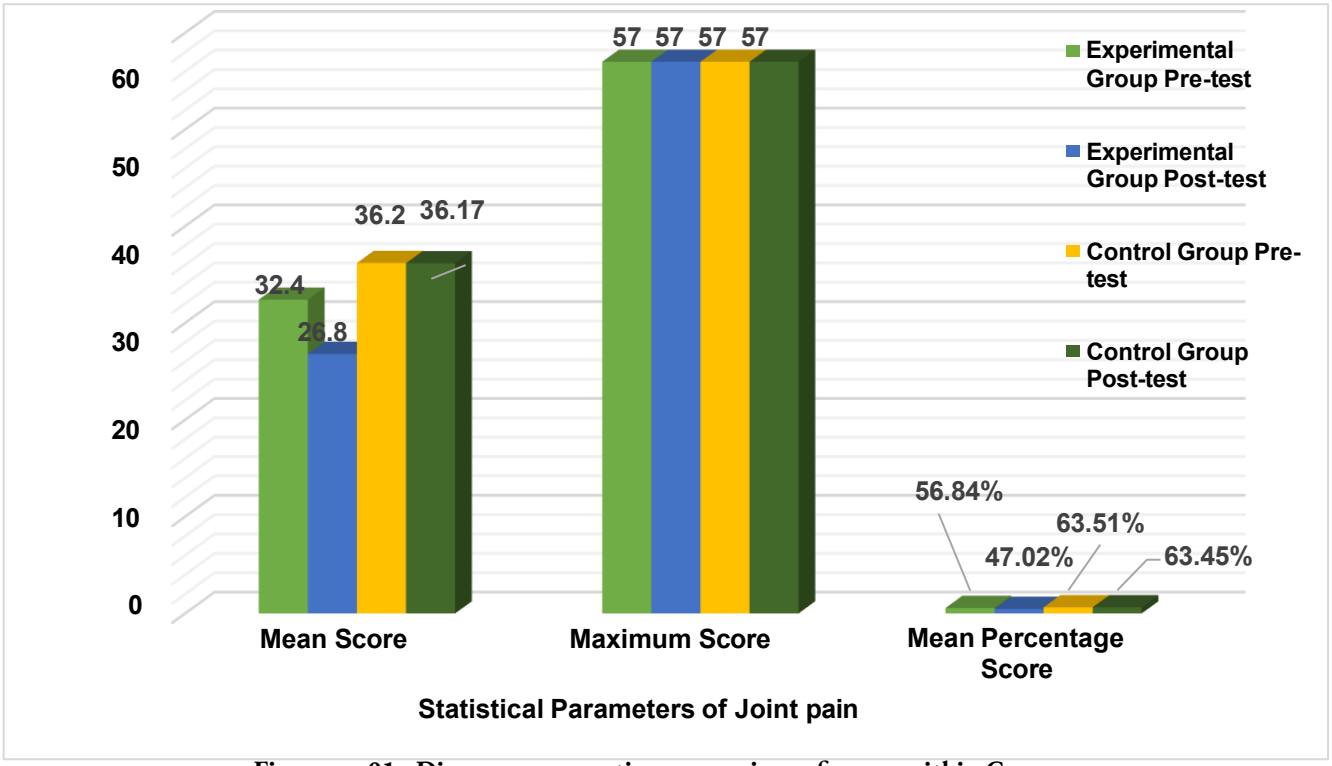


Figure no.01 : Diagram representing comparison of scores within Group.

The graph depicts, In the experimental group, the pre-test mean pain score was 32.40 (56.84%), which decreased to 26.80 (47.02%) in the post-test. This reduction in mean score indicates that the kneading technique was effective in reducing joint pain among the participants. In the control group, the pre-test mean pain score was 36.23 (63.51%), and the post-test mean score was 36.17 (63.45%). The difference is very minimal, showing that there was almost no improvement in pain level in the absence of intervention.

6. Discussion

The Study Reveals that, Pre-test showed joint pain levels: Experimental group had 46.7% severe, 26.7% moderate, 26.7% mild; Control group had 53.3% severe, 40% moderate, 6.7% mild; no one had no pain.

The Experimental group received kneading technique for 21 days on alternate days, with a total of 11 sessions lasting 7–15 minutes each.

After intervention, the Experimental group showed improvement with mean 32.40, median 36.5, SD 12.907, range 41, and mean percentage 56.84%.

Similar findings were reported by Adam (2018)[3] , Wu et al. (2022)[4] , and a report by the National Center for Complementary and Integrative Health (2018)[5] , who emphasized massage therapy was effective in improving joint pain and physical functioning.

7. Conclusion

The present study concluded that Kneading Technique is an effective, simple, economical and non-invasive nursing intervention for reducing joint pain and improving comfort among people having joint pain. After administration of Kneading Technique, the experimental group showed marked reduction in joint pain severity scores during post-test assessment whereas no significant improvement was observed in the control group.

8. Acknowledgement

The present study concluded that Kneading Technique is an effective, simple, economical and non-invasive nursing intervention for reducing joint pain and improving comfort among people having joint pain. After administration of Kneading Technique, the experimental group showed marked reduction in joint pain severity scores during post-test assessment whereas no significant improvement was observed in the control group.

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