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EFFECTS OF SUJOK THERAPY IN KNEE PAIN: AN EXPERIMENTAL STUDY

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Abstract : Sujok is a simple, easy and effective way to heal oneself. In Sujok therapy, the palms and feet represent all of the organs and meridians in the body. Sujok can be done in addition to other therapies and it has no side effects. By stimulating points on the hands and feet, this therapy can help cure various ailments throughout the body. Physiotherapists help people with injuries, illnesses or disabilities by providing movement and exercise, manual therapy, education and advice. They provide health care for people of all ages, helping patients manage pain and prevent disease. Physiotherapy is a science-based profession that takes a holistic approach to health and wellbeing, including considering a patient's overall lifestyle. An experimental study was conducted using convenient sampling from the physiotherapy clinics situated in the area of Gandhinagar and Ahmedabad of Gujarat state among 90 adult patients of knee OA aged between 18 to 60 years. Data was collected in the period of April and May 2022. There is a significant difference before and after physiotherapy, Sujok and Sujok + Physiotherapy sessions on all 7 consecutive days. There was a significant decrease in the pains of the patients after 3rd day, irrespective of treatment taken by patient. Significant difference was found between physiotherapy and Sujok treatments after day 5. Physiotherapy and Sujok treatments do differ significantly. But there is no benefit

I. INTRODUCTION

Pain disrupts people's lives, and the ability to recognize and understand pain is an early sign of disease states (1), illness, bodily injury (2), and serious or minor health problems (3). One definition of pain is: An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage (4). Several literature reviews indicate that there are two types of pain management strategies: multimodal or multidisciplinary (5) and non-multidisciplinary. Multimodal strategies are commonly referred to as "programs". The non-multidisciplinary program is his second strategy for pain relief. This method includes medical treatment and alternative therapy, usually applied in one treatment. Several studies have shown that Su Jok can be used to treat fatigue and weakness (6), elbow eczema (7), migraines (8), asthma (9), and stroke rehabilitation (10). Su Jok for pain relief can also be used for heel spur pain (11). Su Jok Therapy is a complementary and alternative therapy developed in 1987 by his Professor Park Jae Woo in South Korea. Su Jok can provide fast and meaningful results (12). The term Su Jok is of Korean origin. Su means hand, Jok means foot, and Su Jok functions as a therapeutic group for managing health (12). The Su Jok method of treatment is done by stimulating the hands and feet (13). Because they have many similarities with the human body (12). Stimulate the limbs by massaging, applying paint to the skin, moxibustion, placing seeds, magnets, needles, etc. in specific locations. Su-Jok therapy is considered an easier and cheaper treatment than most alternative therapies, and results are generally quicker.

Su Jok Therapy's view of the healing process is based on the concept that the human body is a living organism subject to various factors and has causal relationships with all the energies of the universe. All changes in the human body must obey universal laws of interaction, so that a person's health is determined not only by individual characteristics, but also by environmental forces (14). The aim of this current study was to assess the effects of Sujok therapy, physiotherapy and Sujok + physiotherapy on patients with knee OA.

II. MATERIALS AND METHODOLOGY

An experimental study was conducted using convenient sampling from the physiotherapy clinics situated in the area of Gandhinagar and Ahmedabad of Gujarat state among 90 adult patients of knee OA aged between 18 to 60years. Data was collected in the period of April and May 2022.

Data was collected for the pain and its intensity. Then the patients were divided in to 3 groups -Group A: Patients will be treated by physiotherapy treatment and Sujok therapy. Group B: Patients will be only treated by Sujok therapy. Group C: Patients will be only treated by physiotherapy. In Sujok therapy patients will be diagnosed by probe and then after finding point on hand. Using Su Jok theory, the first thing to do is to find the corresponding areas of the knee on the hand, and then stimulate those points. The most painful points were found on one or several of the areas on Middle or on ring finger and then massaging those areas. Next stage is to massage areas on the fingers (phalanxes of fingers) corresponding to your knee using a Sujok ring or massage ring. The next step

is heating up these areas with Moxa. After that we will apply seeds to the area corresponding to the knee either on the left or right hand. Patients will be examined by VAS (Visual Analog Scale). The visual analog scale (VAS) is a validated, subjective measure for acute and chronic pain. Scores are recorded by making a handwritten mark on a 10-cm line that represents a continuum between "no pain" and "worst pain." for checking the effect of Sujok therapy. Physiotherapy treatment will include the following: - 1. Quadriceps setting, 2. Quadriceps Strengthening, 3. Hamstring Stretch.

The Study was approved by Institutional Ethical Committee, on 25th February 2021 with the outward number VIP/2021/EC/95.

III. RESULTS AND DISCUSSION

Table I: Descriptive Statistics

		Frequency	Percentage
Gender	**Female**	44	48.9%
	Male	46	51.1%
Treatment Given	**Physiotherapy**	30	33.3%
	Sujok + Physiotherapy	30	33.3%
	Sujok Therapy	30	33.3%

In this study, a total of 90 respondents in this study comprised of 46 males and 44 females. All the 90 respondents were divided equally among all the three treatments. The type of therapy can be seen from Table I.

Table II: Statistical Significant difference between pains in patients before and after physiotherapy sessions

Paired Samples Test							
		Paired Differences			t statistic	df	P-Value
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	**b_day 1 - a_day 1**	0.567	0.568	0.104	5.461	29	0.000
Pair 2	**b_day 2 - a_day 2**	0.567	0.568	0.104	5.461	29	0.000
Pair 3	**b_day 3 - a_day 3**	0.667	0.547	0.100	6.679	29	0.000
Pair 4	**b_day 4 - a_day 4**	0.833	0.461	0.084	9.898	29	0.000
Pair 5	**b_day 5 - a_day 5**	0.833	0.379	0.069	12.042	29	0.000
Pair 6	**b_day 6 - a_day 6**	0.900	0.403	0.074	12.245	29	0.000
Pair 7	**b_day 7 - a_day 7**	0.833	0.379	0.069	12.042	29	0.000

Significant differences before and after Physiotherapy, Sujok and Sujok + Physiotherapy sessions were calculated using t-test on SPSS 20.0 software at 5% level of significance. From the table II it can be concluded that there is a significant difference before and after physiotherapy treatment on day 1, 2, 3, 4, 5, 6, 7 as p-value was found to be 0.000 < 0.05 at 5 % level of significance.

Table III: Statistical Significant difference between pains in patients before and after Sujok sessions + Physiotherapy

Paired Samples Test							
		Paired Differences			t statistic	df	P-value
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	b_day 1 - a_day 1	0.933	0.691	0.126	7.393	29	0.000
Pair 2	b_day 2 - a_day 2	0.867	0.434	0.079	10.933	29	0.000
Pair 3	b_day 3 - a_day 3	0.833	0.379	0.069	12.042	29	0.000
Pair 4	b_day 4 - a_day 4	0.833	0.648	0.118	7.047	29	0.000
Pair 5	b_day 5 - a_day 5	0.767	0.568	0.104	7.389	29	0.000
Pair 6	b_day 6 - a_day 6	0.900	0.548	0.100	9.000	29	0.000
Pair 7	b_day 7 - a_day 7	0.833	0.531	0.097	8.601	29	0.000

From the table III it can be concluded that there is a significant difference before and after Sujok + physiotherapy treatment on day 1, 2, 3, 4, 5, 6, 7 as p-value was found to be 0.000 < 0.05 at 5 % level of significance.

Table IV: Statistical Significant difference between pains in patients before and after Sujok sessions

Paired Samples Test							
		Paired Differences			t statistic	Df	P-Value
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	b_day 1 - a_day 1	1.033	0.183	0.033	31.000	29	0.000
Pair 2	b_day 2 - a_day 2	1.067	0.583	0.106	10.016	29	0.000
Pair 3	b_day 3 - a_day 3	1.100	0.712	0.130	8.462	29	0.000
Pair 4	b_day 4 - a_day 4	1.067	0.691	0.126	8.449	29	0.000
Pair 5	b_day 5 - a_day 5	1.233	0.504	0.092	13.403	29	0.000
Pair 6	b_day 6 - a_day 6	1.067	0.521	0.095	11.217	29	0.000
Pair 7	b_day 7 - a_day 7	0.933	0.450	0.082	11.366	29	0.000

From the table IV it can be concluded that there is a significant difference before and after Sujok treatment on day 1, 2, 3, 4, 5, 6, 7 as p-value was found to be 0.000 < 0.05 at 5 % level of significance in Table IV.

Table V: Significant difference between the pains of patients after physiotherapy session, Sujok session and Sujok + physiotherapy session.

		N	Mean	Std. Deviation	F Statistic	P-Value
Pain after _day 1	Physiotherapy	30	5.43	1.073	0.385	0.682
	Sujok	30	5.27	0.868		
	Sujok + Physiotherapy	30	5.20	1.215		
	Total	90	5.30	1.054		
Pain after _day 2	Physiotherapy	30	5.43	1.073	1.123	0.33
	Sujok	30	5.13	0.860		
	Sujok + Physiotherapy	30	5.07	1.081		
	Total	90	5.21	1.011		
Pain after _day 3	Physiotherapy	30	5.30	1.149	2.239	0.003
	Sujok	30	4.73	0.944		
	Sujok + Physiotherapy	30	4.90	1.094		
	Total	90	4.98	1.081		
Pain after _day 4	Physiotherapy	30	4.97	1.066	2.453	0.092
	Sujok	30	4.43	0.858		
	Sujok + Physiotherapy	30	4.50	1.106		
	Total	90	4.63	1.033		
Pain after _day 5	Physiotherapy	30	4.70	1.119	4.2	0.018
	Sujok	30	3.90	0.803		
	Sujok + Physiotherapy	30	4.33	1.241		
	Total	90	4.31	1.108		
Pain after _day 6	Physiotherapy	30	4.47	1.042	4.698	0.012
	Sujok	30	3.67	0.758		
	Sujok + Physiotherapy	30	4.03	1.189		
	Total	90	4.06	1.053		
Pain after_day 7	Physiotherapy	30	4.37	1.033	5.676	0.005
	Sujok	30	3.57	0.774		
	Sujok + Physiotherapy	30	3.77	1.040		
	Total	90	3.90	1.006		

To test the significant difference between the pains pertaining to patients after giving physiotherapy session, Sujok session and Sujok + physiotherapy session, ANOVA test was applied at 5% level of significance using SPSS 20.0 software. Following results were concluded from Table V:

After applying all the sessions to respective patients, the significant difference between the after therapy, pain of all the three groups on day 1 and day 2, was not found significant, with P-value > 0.05 at 5% level of significance. In other words, there is no significant difference in therapies after day 1 and day 2.

The significant difference between the after therapy, pain of all the three groups on day 3 was found significant, with P-value 0.003 > 0.05 at 5% level of significance. In other words, there is a significant difference in therapies after day 3. Physiotherapy was found least effective with average VAS for pain (5.30), Sujok + Physiotherapy was found second highest with average VAS for pain (4.90) after Sujok and Sujok was highest effective among all the three with average VAS for pain (4.73).

The significant difference between the after therapy pain of all the three groups on day 4 was not found significant, with P-value 0.092 > 0.05 at 5% level of significance. In other words, there is no significant difference in therapies after day 4, though the effectiveness of the therapies remained same as that on day 3 i.e. Physiotherapy was least effective with average VAS for pain (4.97), Sujok + Physiotherapy less than only Sujok with average VAS for pain (4.50) and Sujok was found highest effective with average VAS for pain (4.43).

The significant difference between the after therapy pain of all the three groups on day 5 was found significant, with P-value 0.018 < 0.05 at 5% level of significance. In other words, there is a significant difference in therapies after day 5. Physiotherapy was found least effective with average VAS for pain (4.70), Sujok + Physiotherapy was found second highest with with average VAS for pain (4.33) after Sujok and Sujok was highest effective among all the three with with average VAS for pain (3.90).

The significant difference between the after therapy pain of all the three groups on day 6 was found significant, with P-value 0.012 < 0.05 at 5% level of significance. In other words, there is a significant difference in therapies after day 6. Physiotherapy was found least effective with average VAS for pain (4.47), Sujok + Physiotherapy was found second highest with average VAS for pain (4.03) after Sujok and Sujok was highest effective among all the three with with average VAS for pain (3.67).

The significant difference between the after therapy pain of all the three groups on day 7 was found significant, with P-value 0.005 < 0.05 at 5% level of significance. In other words, there is a significant difference in therapies after day 7.

In two pooled studies (15), (16), the reduction in the VAS pain score from treatment with physiotherapeutic modalities in combination with stretching exercises was statistically superior to treatment with physiotherapeutic modalities alone. (WMD 0.56; 95% CI 0.20 to 0.92; $I^2 = 0\%$; $P < 0.05$; n = 102 pooled sample size). A similar result was obtained from studies (17), (15), using the KOOS pain scale. (WMD 7.52; 95% CI 4.05 to 10.98; $I^2 = 0\%$; $P < 0.05$; n = 76 pooled sample size).

Fitzgerald et al. (18) evaluated these techniques separately, and found no significant evidence that these exercises improve pain and muscle strength in OA patients. This finding does not corroborate the study by Diracoglu et al., (19) who compared kinesthesia and balance exercises or only strengthening exercises in women with knee OA, obtaining positive outcomes on muscle strength, quality of life, and the physical function scale, according to the WOMAC questionnaire.

In the Chen, HL. Et. al (2022)'s study, functional status was primarily assessed using the WOMAC scale, and significant improvements with the implementation of IFC were observed in short-term assessment but not in long-term follow-up. We also discovered that the results for walk tests (short- and long-term) and stiffness scores (short-term) did not favor IFC use over control treatment. The WOMAC scale evaluates activities of daily living, functional mobility, gait, general health, and quality of life in knee osteoarthritis patients (21). It consists of 24 questions that can be divided into the subscales of pain, physical function, and stiffness. The outlier data of one study were removed in sensitivity testing because we observed high heterogeneity, which could be attributed to the study's inadequate blinding of participants and its small sample size (22). The significance of our meta-analysis findings persisted after sensitivity testing, indicating that the outcomes were reliable.

We found many studies pertaining to knee pain treatments, but no study came to our knowledge in regard to Sujok therapy on knee osteoarthritis patients. In our study overall, Physiotherapy was found least effective with average VAS for pain (4.37), Sujok + Physiotherapy was found second highest with average VAS for pain (3.77) after Sujok and Sujok was highest effective (pain relieving technique) among all the three with average VAS for pain (3.57).

IV. CONCLUSION

There are many ways to manage pain, including traditional and unconventional treatments. The development of pain management research continues, and easier, less expensive therapeutic approaches that produce quicker pain relief are still being sought after. In this retrospective study, Su Jok is one of the complementary therapies for pain, offers a successful method of pain relief and highest effective when compared to that of physiotherapy for patients with Knee osteoarthritis. However, future studies must be conducted using stricter procedures, large sample and with more precise standards for pain management.

V. LIMITATIONS OF THE STUDY

Due to low sample size, Su Jok treatment in combination with Physiotherapy doesn't show more effectiveness compared to solely Physiotherapy treatment. So, further research must be conducted using large sample size.

VI. DECLARATION OF COMPETING INTEREST

There is no conflict of interest in this publication.

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