

## Efficacy of Classical Siddha External Therapy “Suttigai” (Thermal Cauterization) On Azal Keel Vaatham

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**Abstract:** India is one of the very few countries in the world known for its rich heritage of local health traditions. With such a vast knowledge in Ethno Medicine it should be a dynamic approach to use the knowledge base of Traditional healers in the discovery of newer treatment methods for lifestyle diseases affecting the community. Much of the knowledge was built up by the traditional healers through generations of practical experience by trial and error method long before written records were maintained.

The civilization in the Southern Indian peninsula had a unique Medical System called “Siddha System” which is found to be earlier than other Medicinal Systems of that age. Siddha Medicine is classified as Internal Medicines (Aga Marundu 32) and External medicines (Pura marundu 32).

‘Suttigai (Thermal Cauterization) is a special type of external therapy in Siddha medicine.’ Suttigai is one among the Puramarundu (para-surgical technique) mentioned in classical Siddha texts. It is achieved by application of a heat source to and over a Varma point. Such mild heat stimulation of the varma point induces a little skin damage, in effect of the burning effect of Suttigai, but does provoke mild oxidative stress in the viscera. It is explained to provide relief in certain chronic diseases which are not cured by Internal medicine. Based on the specific heat retention and transmission capacity of different materials, the ancient Indian Siddhars had prescribed different materials like Tippili (Piper longum), Manjal (Turmeric), Mara Suttigai (wood), Uloga salagai (metal Rods) etc. for cauterizing specific body parts like skin, muscle, ligaments etc. According to the logic of the healer, appropriate material should be selected for specific disease conditions. The Traditional healers of Tamilnadu, have been practicing “Suttigai therapy” since time immemorial. They have inherited the methodology hereditarily from their parents and grandparents.

A study was conducted to identify their distribution and settlements. Attempts were made for establishment of field rapport with their folk healers association for easy data collection. In the present pilot study, an attempt was made to document and validate the knowledge base and methods employed by traditional healers in treatment of Vaatha Diseases (Polyarthrititis, Musculo skeletal disorders) using Suttigai therapy.

**Key words:** Traditional healers; Ethnomedicine; Thermal Cauterization; Traditional Knowledge; Suttigai therapy; Siddha medicine; Vaatha diseases

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### I. Introduction

It is a known fact that several million people in India with limited access to organized modern health care centers depend on traditional systems of medicine to cater their primary health care needs. Traditional systems of medicine (Ayurveda, Siddha and Unani) are well established in India and are widely acknowledged to be effective and safe without any side effects (Farnsworth, 1998). India is rich in ethnic diversity and traditional knowledge (TK) that has resulted in a considerable body of ethnobotanical research. Traditional system of medicines has been in use over thousands of years in India. Significant contributions have been made by its practitioners particularly the primary health care providers at the community level. (Jain, 1967).

Folk healers (*Nattu Vaidhiyars*) with their traditional knowledge of Siddha medicine based in remote places use local flora for treating and preventing ailments and are generally considered as healthcare resource in rural places inaccessible to modern health care services. It has been estimated by WHO that at least 80% of the population globally relies on traditional medicine to meet their primary health care needs. (Bannerman, 1982; WHO, 2000).

Traditional Siddha medicine uses the knowledge, skills and practices based on theories, beliefs and experiences indigenous to its people and culture, for maintenance of health. It holds a heritage of communal acceptance and is solely based on the expertise gained by healers over a period of time (Ayensu, 1986; Ved and Goraya, 2008).

### **Traditional Medical systems - an Overview.**

Every culture of the world has developed a unique system of Medicine of their own which certainly is an aspect of the history of that culture. In many parts of the world these indigenous system of medicines have almost completely broken down and disappeared. In some other places the system is fragmented with the use of Indigenous materials being limited to a small geographical area. (Biswas 1956). In anthropological terms these are called "Little traditions". The Indian system and Chinese system are called "Great traditions" because they are practiced over a vast geographical area.

### **Ethno medicine - its relevance to Modern Scientific Scenario**

History of traditional medicine goes back practically to the existence of Human beings. The ancient wisdom has been the basis of Modern medicine and remain as one important source of future medicine and therapeutics.(Fellows 1992). It has been estimated that nearly 25% of all prescriptions in allopathic system are drugs that contain compounds originally derived from traditional medicine systems. (Binu et al,1992). India is one among the 12-mega biodiversity centres having about 10% of the world's biodiversity wealth, which is distributed across 16 agro-climatic zones.

The vibrant repository of medicinal knowledge is perhaps the base for the sophisticated indigenous medical heritages, with an unbroken tradition coming down across millennia. The wealth is not only in terms of the number of unique species documented so far for their medicinal use but also the depth of the traditional knowledge base about the uses for human, veterinary health care and crop protection (Ved and Goraya, 2008).

### **Evolution of Siddha System of Medicine**

Each country's traditional health practices or local health traditions are taken as a true reflection of the crude drug resources of that country. The use of traditional medicines could be traced back to the beginning of Civilization itself.

The Dravidian civilization in the Southern Indian peninsula had a unique medical system called "Siddha System" which is found to be earlier than other medical systems of that age. The Saiva Sages who contributed to the growth of the Siddha system of Medicine were known as 'Siddhars'. The therapeutics in Siddha Medicine is classified in to two types (i.e) internal medicines (Aga Marundu 32) and external medicines (Pura Marundu 32).

### **Siddha External therapies and its relevance in Modern World**

The Siddha system of Medicine has a vast repository of External applications. Even though other traditional systems of medicine have external applications, it is the Siddhar's who laid great stress in external procedures in prevention and cure of diseases. There are thirty two External therapies mentioned in the texts by the Siddhar Theraiyar. They are

1. Kattu - Bandage
2. Pattru - Poultice
3. Ottradam - Fomentation
4. Poochu - Thin application
5. Vedhu - Steam Therapy
6. Pottanam - Medicated packet
7. Thokkanam - Physical Massage
8. Pugai - Fumigation
9. Mai - Collyrium
10. Podithimirdhal- Powder application
11. Kalikkam - Eye drops
12. Nasiyam - Nasal drops
13. Oodhal - Blowing
14. Naasigabaranam- Nasal snuff
15. Kalimbu - Ointment
16. Seelai - Medicated cloth
17. Neer - Medicated fluid
18. Varthy - Medicated wick

### **19. Suttigai – Thermal Cauterization**

20. Salaagai - Probe
21. Pasai - Paste
22. Kali - Cream
23. Podi - Powder
24. Murichal - Bone setting
25. Keeral - Incision
26. Kaaram - Acidic Cauterization
27. Attai - Leech therapy
28. Aruvai - Excision
29. Kombu Kattal- Fracture re structuring
30. Kombu Urinchal- Suction through Horn
31. Kuruthi Vaangal- Vene-suction
32. Peechu – Douche

### **Current need on the study of Suttigai practiced by local Health traditions.**

Every society has its own indigenous medicines to cure common ailments. These semi literate groups of people who have inherited their knowledge from their forefathers are regarded as major ware-houses of ethno medical knowledge. It is needless to mention that these traditional medical claims led to startling discoveries of novel treatments that are widely used in modern times.

SUTIGAI (Thermal cauterization) is a special type of external medicine formulated by Siddhars. It is our duty to re-examine and re-evaluate the old principles and facts handed over traditionally by the local health tradition

practitioners and those theories shall be explained and supported with new comments and fresh examples of present day contexts.



**Plate -1.** Suttigai Salaagai prepared according to Siddha texts

## **II. Aim And Objectives Of The Present Study**

- To develop evidence based support on the efficacy of AYUSH therapies in Suttigai method and develop a First line therapy to meet unmet medical needs of current relevance.
- The objective of this proposal is to analyze a specialized method of Siddha External therapy called "Suttigai"(Thermal cauterization) followed by the vaidyas of Tamilnadu, and find a good treatment for Polyarthritis and other Musculo skeletal disorders so that the community gets benefited.

### **Worldwide interest in this subject**

A lot of interest is now being shown by various foreign Universities about External therapies found in Siddha literature. The Tribal people and Siddha traditional vaidyas of Tamilnadu, Puducherry and Kerala ,were previously well versed in this subject and they were practically applying this Siddha Suttigai treatment to prevent and treat a lot of diseases including Polyarthritis and other Musculo skeletal disorders. Studies in this subject is the need of the hour and the main objective of our organization is to promote and revitalize the method Siddha Suttigai therapy in local health tradition.

### **Research methodology in documentation of Local health traditions**

The present documentation of local health traditions is confined to Western Tamilnadu, Puducherry and border districts of Kerala. The vaidyars (or) Traditional healers are found throughout the length and breadth of the area. A pilot study was conducted to identify their distribution and settlements. Attempts were made for establishment of field rapport with their folk healers association for easy data collection.



**Plate-2.** Photos of discussion of the Investigator with folk Healers Association

## **III. Method Of Data Collection**

With the primary objective of gathering information about the traditional methodology of Suttigai therapy used by traditional healers were surveyed in a pilot scale. Local traditional healers having practical knowledge of Suttigai therapy were interviewed. Ethnomedical data were collected according to the methodology suggested by Jain and Goel (1995).

Preliminary Ethnomedical data were collected using questionnaire, interviews and discussions in their local dialect. Information was considered only after confirmation through two or more informants. Based on the information provided by the traditional vaidyars, methods of Suttigai therapy was documented in pilot scale.

The results are briefly summarized below to draw wide range of conclusions.

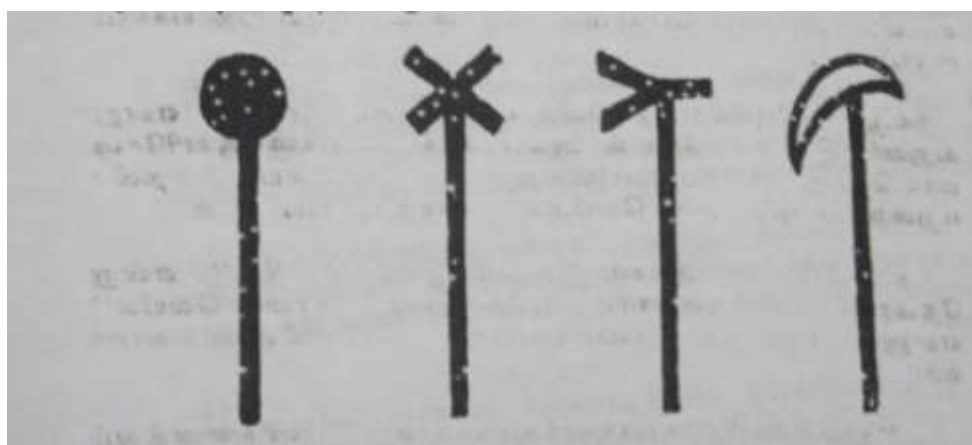
Suttigai (Thermal cauterization) treatment is still in practice by some vaidyars for a wide range of Diseases. Traditional healers use these methods to promote healing of ailments only after they obtain unsatisfactory results in internal medication.

The main diseases for which Suttigai (Thermal cauterization) treatment is followed are Musculoskeletal diseases, Neuro muscular diseases, Osteo arthritis, Tennis elbow, Frozen shoulder, Carpal tunnel syndrome, Sciatica, Spondylitis, Piles, Fistula, Inguinal hernia, Scrotal hernia, Corn, Calcaneal spur, Moles, Warts etc.

Suttigai is one of the 32 external therapies found in Siddha literature under the topic, Pura marundugal. The synonyms found in Siddha texts for suttigai are Sudugai, Chittigai, Rakshasha Chikitchai .

The types of Suttigai chigichai according to Siddha texts are Ulogam – Metals , Maram – Roots , Mann – Sand/Earthenware, Kaal – Steam, Kaanthi - Sunlight .

The frequently used metals for suttigai are Panchalogam – Iron, Copper , Tin ,Silver , Gold. The different shapes if Suttigai salaagai for different areas of the skin surface are given below.



The areas to apply Mara suttigai (with manjal sticks) is mentioned in siddha texts for the following diseases.

Sl No.	Place	Disease
1	Base of the Nasal Bridge	Seizures
2	Philtrum	Tetany
3	Lower lip	Kaba diseases
4	Above the Eyebrows	Kaba diseases with Oozing nature
5	Leg – Lateral aspect	Anda vaayu
6	Upper part of the Penis	Orchitis
7	Below the Chest	Gunmam (APD)
8	Ankle	Anaemia

### **Suttigai – in other Indian systems of Medicine**

Suttigai sigichai also mentioned in Ayurveda texts as Agnikarma under the topic Salyatantra. In modern medicine, this therapy can be related to Intentional therapeutic heat burns. This therapy is more effective in Polyarthritis, Musculo skeletal diseases, Neuro muscular diseases, Sciatica, skin diseases, Provides Haemostatic action in piles, fistula etc.

### **Probable Mode of Action of Suttigai according to Siddha traditional science**

Suttigai is a Veppa chigichai, which pacifies the Vaadham and removes the kabha blockages from the affected region. Mainly it is indicated in the disease caused by vaadham and kabham because of its tikshnam (quick action), ushnam (Hotness), sookshmam (works without being metabolised) properties . In Classical

Siddha terms the analgesic action of Suttigai therapy can be explained as follows. Pain is caused anywhere in the body is due to the imbalance of vadhama .

Skin is one of the seat of vayu boothama. Suttigai is performed to release the agni maandham (obstruction) of vayu. Being an Ushna chikitsai it pacifies vadhama, and thus the pain is relieved immediately. According to Siddha science, every dhatu ( tissue) has its own dhatu agni (tissue Agni) which is responsible for the nourishment , Increase & decrease of dhatu. When this dhatu agni becomes maandham, diseases begin to manifest. Thus in this condition Suttigai works by giving external heat thereby increasing the dhatu agni which helps to digest the aggravated doshas and hence cures the disease.

### **Probable Mode of Action according to Modern science**

Several theories can be adopted to explain these mechanisms but their action varies according to the condition.

#### **1. The Theory of Heat Shock Proteins**

The thermal effect of Suttigai is to induce heat shock proteins (HSPs) or Stress proteins called "Chaperones" in local tissues. HSPs are a class of functionally related proteins involved in the folding and unfolding of other proteins. As an endogenous protective mechanism, HSPs can be synthesized in cells in response to hyperthermia and other environmental stresses. The HSPs induced by Suttigai may be an important factor of its mechanism of action and helps to reduce inflammation, subdues pain and stiffness in the musculature of the region.

#### **2. The theory of pro-inflammation**

According to which the induction of an acute inflammation will gather more amount of lymphocytes, neutrophils, histamines and prostaglandins to the site and rectifies the chronic inflammation present at the site. The theory of thermodynamics applied upon a biological system- suggests that when thermal energy is transferred from an instrument to a tissue its internal energy increases and the heat energy gets transferred to the cells. The thermostatic centre of the body immediately gets activated to distribute this localized rise in temperature throughout the body. As a result vasodilatation occurs and blood flow increases.

According to Vant Hoff's principle the basal metabolism of the body increases by certain percentage for every 1° rise in body temperature ([https://en.m.wikipedia.org/wiki/Van't Hoff Equation](https://en.m.wikipedia.org/wiki/Van't_Hoff_Equation)). Rise in temperature induces relaxation of muscles & hence muscles spasm with inflammation and pain gets reduced. Muscles relaxes most readily when tissues are warm which in turn reduces the spasm, inflammation and pain .

#### **3. Superficial nerve ending theory**

Free nerve endings can detect temperature, mechanical stimuli (touch, pressure, stretch) or pain. Thermal nociceptors are activated by noxious heat or cold at various temperatures. There are specific nociceptor transducers that are responsible for response to the thermal stimulus. The first to be discovered was TRP V1, and it has a threshold that coincides with the heat pain temperature of 42 °C.

### **Key findings of the present study**

Around 35 Special Suttigai references for Arthritis and other diseases which were found in classical Siddha texts were documented. Suttigai equipments which are mentioned in Siddha traditional texts were found with folklore vaidyas who are practicing suttigai treatment .

### **CLINICAL ASSESMENT OF SUTTIGAI THERAPY**

To validate the data collected during field studies, a clinical assessment was conducted. The type of study was Phase-II-A, Single center, Open label, Therapeutic exploratory clinical trials, which was conducted at Ashram Siddha Research Institute, Salem.

The study protocol was approved by the Institutional Ethics Committee of Clinical Research (IEC) of the organization constituted as per Ethical guidelines for Biomedical Research on Human subjects 2006 issued by ICMR.

The Clinical Trial Registry of India (CTRI) which is a publically accessible primary register that participates in the WHO International Clinical Trial Registry Platform checked our trial after we submitted all research data and retrospectively registered with No.REF/2016/09/012207. The authors confirm that all ongoing and related trials for this intervention are registered. Supporting checklists are available as supplementary materials. Participants are provided with written informed consent.

From April 1, 2014 to March 31, 2017, we used recruitment notices to recruit participants with Azal keelvaayu (Symptoms can be correlated with Osteo Arthritis of the Knee). Around 300 patients with symptoms were screened and only 30 patients who fit into the criteria fixed by the medical team were selected for Suttigai Treatment and all reports were documented.

The trial included patients that were 40 to 65 years old, who met the diagnostic criteria that were published in the Classical Siddha texts and had no skin injuries at the Varma points around the knee. Every participant received 4 sessions of treatment course, which were administered for every fifteen days totaling for two months.



**PLATE -3.** Area of survey to document folk healers doing Suttigai

### **Siddha Interventions**

Two qualified Siddha doctors, who had at least 10 years of experience, participated in the trial. Both of the Siddha doctors were graduated from the Government Siddha Medical college and were registered as medical practitioner by the State Medical Council for Siddha Medicine.

The site of suttigai sigichai should be cleaned with Triphala kashayam. Mark the point with maximum tenderness with a marker. The suttigai salaagai is made red hot and tolerable red hot tips touch is given for a second to finish the sufferings for years. Apply Kungilia vennai to reduce the burning sensation. Then a poultice of anti-inflammatory medicine is applied on the area.



**Plate - 4.** Photos of clinical trials in patients with azal keel vayu

### **Primary outcome measurement**

a) The primary outcome with respect to the effectiveness of Suttigai treatment was measured by the mean change in the global scale value of the Western Ontario and McMaster Osteoarthritis Index (WOMAC).

### **Secondary outcome measurement**

b) Secondary outcome measurement; Knee circumference was measured with a measuring tape during baseline and 8 th week of treatment. The measurements were tabulated.

### **Success indicators**

Reduction of minimum 10 percent in WOMAC score in the participant at baseline and at the completion of treatment and reduction in the knee circumference of 2 cm at baseline and at the completion of treatment were taken as Success indicators.

### **Contraindications according to Siddha classical texts**

As suttigai is a veppa sigichai, it should not be given directly to people with Pittha prakruthi. Pittha samana drugs should be given first and then Suttigai should be done.

It should not be used in Garbhinis, paandu, very young children, very old people, and to those suffering from side effects of Uncontrolled Diabetes like polyphagia, polydipsia and polyurea.

#### IV. Statistical Analysis

Analysis was performed by blinded biostatisticians using SPSS software. The correlation between FAI scores and HRV parameters was analyzed by Pearson Correlation Coefficient (PCC). FAI scores assessed before and after the Baseline and Suttigai treatment on the 8 th week.

#### V. Discussion

A systematic review of Suttigai treatment for Musculo skeletal diseases in Siddha classical texts and Folklore treatment claimed that Suttigai treatment were effective in treating Azal keel vaayu, .

Our outcomes were based on a study design that was randomized and controlled, and the Siddha doctors and biostatisticians were separated to avoid bias. In this trial, the Siddha doctors and patients with Azal keel vaayu could not be blinded because of the characteristics of Suttigai therapy. Therefore, we designed a strict procedure and required the Siddha doctor to perform it precisely.

The results of FAI scores showed that Suttigai therapy could improve symptoms like pain and swelling of the knee in all age groups. There were 30 subjects have been enrolled into this study, to validate the efficacy of classical siddha external therapy “SUTTIGAI” for subjects suffering from Azhal Keel Vayu.

The primary outcome is to assess the efficacy of mean change in WOMAC score post treatment. Also reduction in mean knee circumference from baseline is the secondary outcome to validate the efficacy of “SUTTIGAI”.

This is the open label, pilot study which will provide the effect estimates to validate the study therapy (SUTTIGAI) that can be used to inform the design of future, larger trials.

The paired t-test has been used to compare the mean change in WOMAC score at 5% level of significance.

**Table-1: Distribution of reduction in knee circumference after the treatment (i.e reduction in swelling)**

Reduction in cm	No.of patients
0	2
0.1 to 0.5	2
0.51-1.00	8
1.01-1.50	2
1.51-2.00	11
2.01-2.50	2
2.51-3.00	3

This table reveals that except 2 cases, Knee swelling reduced in all patients(28=94%). A good number of patients have shown (16=54%) more than 1.50 cm reduction. The reduction is observed irrespective of the side of leg and duration of disease in the study.

**Table-2: Distribution of age**

Age (Banded) * Sex Crosstabulation					
			Sex		Total
			Male	Female	
Age (Banded)	41 - 45	Count	2	0	2
		% within Sex	14.3%	.0%	6.7%
		% of Total	6.7%	.0%	6.7%
	46 - 50	Count	2	5	7
		% within Sex	14.3%	31.3%	23.3%
		% of Total	6.7%	16.7%	23.3%
	51 - 55	Count	2	4	6
		% within Sex	14.3%	25.0%	20.0%
		% of Total	6.7%	13.3%	20.0%
	56 - 60	Count	3	4	7
		% within Sex	21.4%	25.0%	23.3%
		% of Total	10.0%	13.3%	23.3%
61 - 65	Count	5	3	8	
	% within Sex	35.7%	18.8%	26.7%	
	% of Total	16.7%	10.0%	26.7%	
Total	Count	14	16	30	
	% within Sex	100.0%	100.0%	100.0%	

Table-3: Sex ratio

	Sex	
	Count	%
<b>Male</b>	14	46.7%
<b>Female</b>	16	53.3%
<b>Total</b>	30	100.0%

Table-4: Occupation

	Occupation	
	Count	%
<b>Sedentary</b>	5	16.7%
<b>Marketing</b>	1	3.3%
<b>Weaver</b>	4	13.3%
<b>Teacher</b>	5	16.7%
<b>Farmer</b>	7	23.3%
<b>Police Man</b>	2	6.7%
<b>Home Maker</b>	6	20.0%
<b>Total</b>	30	100.0%

Table-5: Joints affected

	Knee Affected	
	Count	%
<b>Left Knee</b>	15	50.0%
<b>Right Knee</b>	15	50.0%
<b>Total</b>	30	100.0%

BASELINE SUBJECT DEMOGRAPHY

Table 1 Subject Demography and Baseline Characteristics

Variable	N	Mean	Median	Minimum	Maximum	Std Dev
Age	30	55.43	56.50	42.00	65.00	6.48
BMI	30	29.45	28.92	25.85	34.41	2.29
Disease Duration	30	4.77	4.500	2.00	9.00	1.76



Outcome analysis

Table 2 Primary and Secondary Outcome Summary statistics

Variable	N	Mean	Median	Minimum	Maximum	Std Dev
Baseline Circumference (cm)	30	34.13	34.00	32.00	39.40	1.96
Post Baseline Circumference (cm)	30	32.55	32.00	30.00	37.00	2.20
Baseline WOMAC score	30	48.10	49.00	34.00	67.00	7.20
Post Baseline WOMAC score	30	39.37	38.00	25.00	63.00	8.08

Paired T-test for Womac score

Table 3 Efficacy Analysis of Difference from Baseline to Post Baseline WOMAC Score

N	WOMAC Score Mean Difference	Std Dev	Std Err	Minimum	Maximum	95% CL for Mean Difference		DF	t-value	p-value
30	8.7333	4.1351	0.7550	0	21.00	7.19	10.28	29	11.57	<0.0001

Paired T-test for joint circumference

Table 4 Efficacy Analysis of Difference from Baseline to Post Baseline Knee Circumference Reduction

N	Circumference Mean Difference	Std Dev	Std Err	Minimum	Maximum	95% CL for Mean Difference		DF	t-value	p-value
30	1.5767	0.8312	0.1517	0	3.0	1.27	1.89	29	10.39	<0.0001

Subgroup Analysis

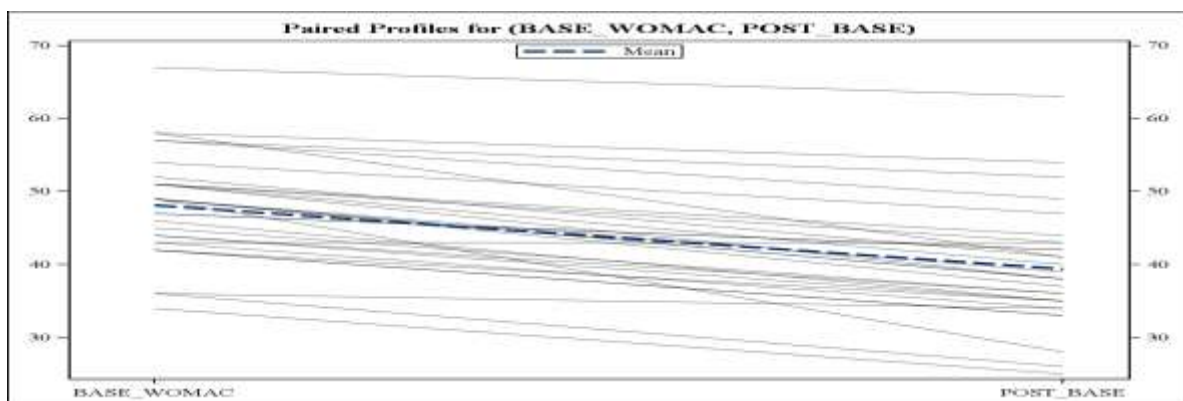
WOMAC Score Analysis by Gender:

Male:

N	Male WOMAC Score Mean Difference	Std Dev	Std Err	Minimum	Maximum	95% CL for Mean Difference		DF	t-value	p-value
30	8.7714	5.6120	1.4999	0	21.00	5.33	11.81	13	5.71	<0.0001

Female:

N	Female WOMAC Score Mean Difference	Std Dev	Std Err	Minimum	Maximum	95% CL for Mean Difference		DF	t-value	p-value
30	8.8750	2.3910	0.5977	4.00	13.00	7.60	10.15	15	14.85	<0.0001



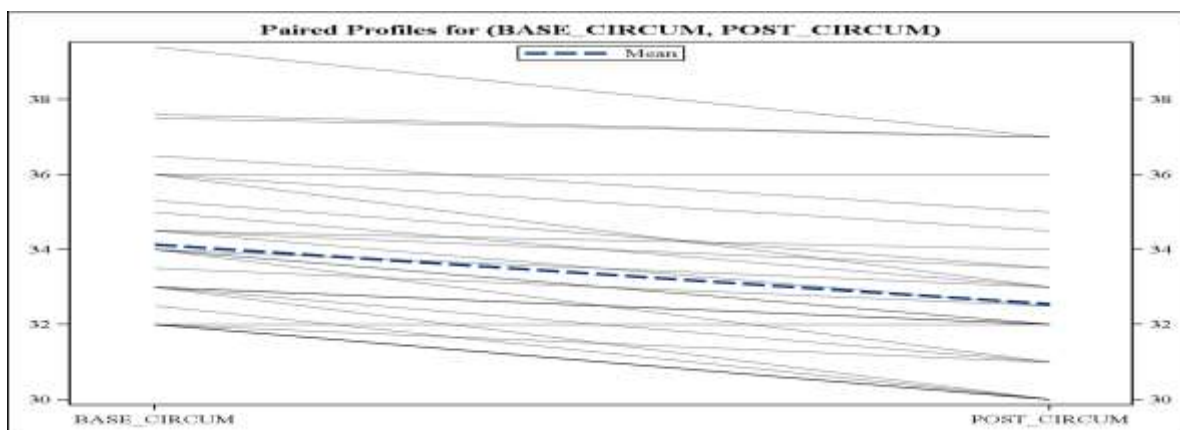
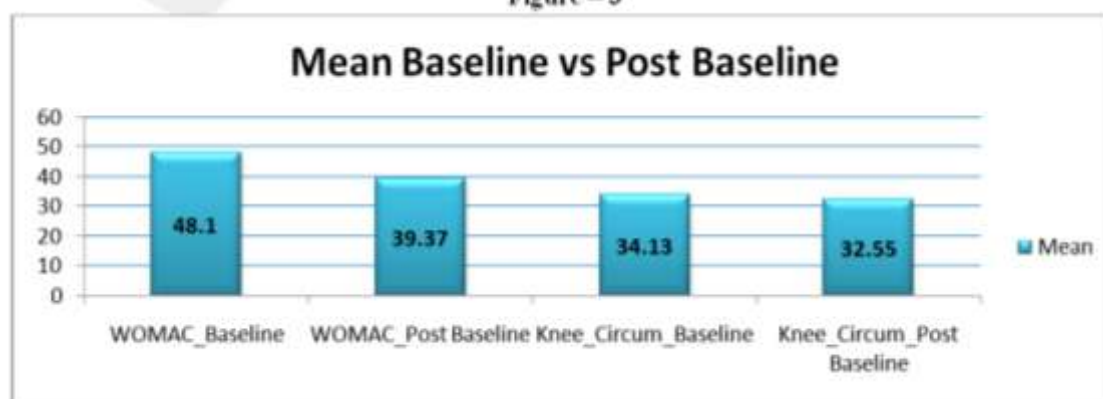


Figure – 3



## VI. Conclusion

Whenever modern science faces trouble in finding a cure for any disease, it turns towards alternative system of medicines to understand their capabilities. The survey indicates that, the study area has plenty of treatments to alleviate a wide spectrum of human ailments. Further, the information gathered depicts that people of this area prefer Siddha medicine due to their socio economical status, lack of modern health care facilities, transportation and believe that Siddha vaidyars are intricate aspect of their culture and tradition.

It is also clearly evident from the study that the Suttigai therapy shows highly significant results in nearly all signs & symptoms, especially in case of joint pain as it is one of the most uncomfortable factors for patient. The entire patient tolerated the treatment modality well & there were no side effect noticed in any of the patient. The procedure was simple, economical & can be done in OPD level gives instant relief to most of the patient.

### Suggestions for further studies in this subject

Although few research works have been carried out and made some progress, there is still a great distance from fully understanding the mechanism of Suttigai. Therefore, we will propose the following views on the study of mechanism of Suttigai in the future.

It is necessary to introduce more new technologies and disciplines into the mechanism research of Suttigai effect, such as bioheat transfer theory, the interdisciplinary focus heat transfer phenomena in living organisms; its purpose is to reveal the rules of energy transport in the organisms by introducing the basic theory and research methods of the heat transfer into the field of biology and medicine. The application of the interdisciplinary approach will undoubtedly promote a deeper research of Suttigai.

Further study on the mechanism of Suttigai should be oriented to promote its clinical application. There are enough reasons to believe that, with the progress of mechanism research, the new achievements will surely provide a larger space to improve the patient experience and the curative effect of Suttigai.

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