

An Observational Study On The Significance Of *Manikadai Nool* -A Siddha Diagnostic Tool

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ABSTRACT

The Siddha system has a unique way of disease diagnosis and the eight fold examination (*Envagai thervugal*) play a significant role as a diagnostic and prognostic measure. The aim of this study is to do an observational study to validate the diagnostic significance of one such tool *Manikadai Nool* that is exclusively discussed in Tamil Siddha medical text '*Agasthiyar Sūdamanikkayaru Sūtram*'. *Manikadai Nool* is the measure of wrist circumference using the subject's finger units by an inelastic twine. The present study included 20 people aged 30-70 years. The measurement of the *Manikkadai nool* was measured and also the Pulse diagnosis (*Naadi*) was felt and recorded through the pulsations felt from 3 precise locations on the wrist at the radial artery. Through this study, the co-relation between the *Manikkadai nool* and with patient's symptoms were assessed. The analysis showed that the inference obtained through *manikadai nool* values were in chime with the symptoms indicated in the literature inferences on *Manikadai Nool*. The results show that most of the subject's *Manikkadai nool* values fell within the range of 8- 11 s will be helpful to develop a non-invasive diagnostic and screening tool for the lifestyle disorders referred in the classical Siddha text.

Key words: *Manikkadai nool*, diagnostic tool, Siddha, Wrist circumference

Introduction:

Among the various traditional systems of medicines practiced around the world the traditional Indian medicine is an antique system that considers the human body as a collection of tri-humors and seven basic elements. Siddha system *Vatham, Pitham and Kapham* are the tri-humors which are the life constituents of the human body. The equilibrium of humors is consider as health and its disturbance or imbalance leads to disease. As per Siddha literature, the diagnosis is based upon three main principles - *Poriylarithal* (Diagnosis based on the touch, taste, sense, smell and hearing senses of the patients), *Pulanarithal* (Diagnosis based on the senses of the physician) and *Vinaathal (Reasoning)*. [1] Siddha system has a unique diagnostic method to identify the diseases and their causes. Diagnosis of disease made by the system's own perspective is considered to be more appropriate for an effective traditional way of treatment. According to the Saint *Theraiyar*, there are eight tools of diagnosis: symptoms of the body, the colour, the voice, the eyes, the tongue, stools, urine and the pulse. Siddha system not only portrays the diagnosis of diseases it also depicts the prognosis of the condition as well as the future predilection of possible risk. One such diagnostic tool among the various Siddha diagnostic methods is *Manikkadainool* (MN) an anthropometric measure of wrist circumference (*Manikadai*) using *Nool* (Thread). [2]

Wrist Circummetric Sign (*Manikadainool* examination)

According to the Classical Siddha text, *Pathinen Siddhar Naadinool*, *Manikkadainool* is also helpful in diagnosis. This *Manikkadainool* is a parameter to diagnose the disease by measuring the circumference of the wrist by means of an inelastic thread and then dividing the measured circumference with the patient's finger breadth (*Virarkadai*). By this measurement the disease can be diagnosed and disease risks of an individual can be predicted. The following table is an inference of *Manikadai Nool* which is a continuous variable ranging

from 4 to 11 fb with an interval of 0.25 fb between each value. It provides a catalog of the corresponding disease condition associated with each value as an allusion to an existing disease and/or a risk factor identifier.

Table - 1 Manikkadainool measurement textual inference

<i>Manikkadai Nool Measurement</i>	<i>Inference</i>
(Fbs)	
4	Giddiness, pedal edema, patient may expire within 5 days
4 ¼	Tremor, weakness present in the both upper and lower limbs, face becomes dark, prolong breath, patient may expire within 2 days
4 ½	Odema, shrunken the eyes, patient may expire within 9 days
4 ¾	Dryness of the tongue, tremor,
5	Chills and pallor, patient may expire due to <i>Kapham</i> accumulated in neck region
5 ¼	Patient seems to be sleepy and may expire the next day
5 ½	Worsening of disease, accumulation of toxins in brain, darkening of teeth, patient may expire within 10 days.
5 ¾	Delirium, giddiness, breathlessness, death may occur on consumption of food/ drink liquid
6	Tuberculosis, phlegm in the chest, this patient will be died within 20 days.
6 ¼	<i>Moolakkirani</i> , Eructation, Diarrhoea, belching, vomiting and mucous dysentery.
6 ½	Thirst, anorexia, increased body heat and <i>Vatham</i> .
6 ¾	Orchitis, Eye ache, dizziness, testis disorder, Within 3 years it may cause anuria, renal stone, pain and burning sensation in both upper and lower limbs, excessive facial sweating.
7	<i>Pitham</i> ascends to head, haemetemesis, phlegm, burning sensation of limbs and constipation.
7 ¼	Lumbar pain, increased <i>pitham</i> in head, anemia, eye pain, edema, burning sensation in the upper and lower limbs and somnolence.
7 ½	Osteoporosis, abdominal discomfort, burning sensation of eyes, increased body temperature, within 6 days all the joints of the limbs may present a swelling and pain, <i>megam</i> , <i>vippuruthi</i> .
7 ¾	Piles, burning sensation in both upper and lower limbs, headache and numbness . within 2 years cervical adenitis and epistaxis may occur
8	<i>Megakangai</i> , indigestion, Abdominal discomfort, gastritis, anorexia and venereal diseases.
8 ¼	Excessive sweating, diseases occur in the head after one year, Stout and painful body, Headache, sinusitis and toxins induced cough.
8 ½	Increased body heat, skin diseases, Leucorrhoea, venereal disorder and Infertility
8 ¾	Increased body heat, dryness of the body, skin disease due to toxins, abdominal pain & discomfort due to <i>Moolavaivu</i> (Haemorrhoids), cataract and sinusitis.
9	Impaired hearing, pain around waist, thigh pain, weakness in both thighs, back pain, <i>kan pukaichchal</i> (Diminished eyesight), unable to walk.
9 ¼	Dysuria, insomnia, sinusitis and burning sensation and dryness of eye.
9 ½	Edema, increased body heat, burning sensation and dryness of eye, fever, <i>meganoi</i> and anorexia.
9 ¾	<i>Araiappu</i> , Fissure, dryness, cough, splenomegaly may occur after one year
10	Heat body, Pricking pain in chest and limbs, gastritis and ulcer result.
11	Good body built, healthy individual

MATERIALS AND METHODS

The present study was done during December 2019 - February 2019 at the Outpatient Department (OPD) of Sri Sairam siddha medical college.

The inclusion criteria included both sexes and transgender population of Sri Sairam siddha medical college in the outpatient department who were willing to participate with minor illness like cold cough, body pain, indigestion, diabetes mellitus etc. The exclusion criteria included below 30 years and above 70 years of age,

subjects who are not willing to give an informed consent and those with serious complications associated with any other systemic diseases.

Study Samples

The study samples were selected from the OPD patients of an undergraduate college Sri Sairam siddha medical college and research Centre, west Tambaram, chennai. Permissions were collected in the form of written informed consent from all subjects who participated in the study

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Data collection tools and methods

The unit of MN measurement is *Virarkadai* as indicated in for body measurements traditionally. This can be correlated with modern terminology as fingerbreadth (*fb*). In the study, each individual's fb is used as a standard to measure his / her own. The Index finger, middle, ring and little fingers contribute to measure fb's and the more distally placed thumb is excluded in fb measurement. Therefore one fb means the cross measure of the index finger, similarly the combination of index and middle finger for measuring two fb, the index, middle and ring finger for measuring three fb and index, middle, ring and little finger for measuring four fb.

An inelastic starch thread is chosen for assessing *Manikadai Nool* measurement. As per the principle indicated in traditional texts, Right hand for males and left hand for females were used to assess MN measurement. There was no uniformity in time was followed during the measurement as it would have no significance in wrist circumference.

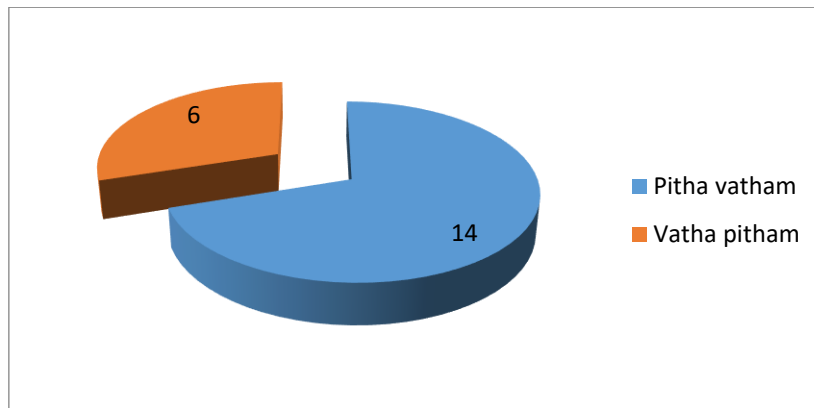
The measurement of wrist circumference is sought by identifying a point four fb away from the flexor retinaculum of wrist At the identified point, the circumference of the forearm is measured with), and then the circumference measured in the thread is converted into number of fb of the subject's fb. The palmar aspect of the four fb (combination of index, middle, ring and little fingers) of each individuals own hand is used for conversion. [3]

Table - 2. Correlation of complaints of the subject with *Manikkadainool* measure (*fb*) and inference

S.No	Age/sex	Presenting complaints	<i>Manikkadai nool</i> measure	Symptoms co relating with <i>Manikkadainool</i>
			(Fbs)	
1	40/F	Cold, cough	9 ¾	Dryness cough
2	45/F	Body pain, shoulder Pain indigestion, constipation, Dryness of the eye, dysuria, insomnia and sinusitis	9 ¼	Dryness of the eye, dysuria, insomnia and sinusitis
3	60/M	Joint pain, burning sensation in stomach	8	<i>Megakangai</i> , abdominal discomfort
4	60/M	Pain in both upper and lower limbs	10	Aching pain in the chest and both upper and lower limbs

5	49/F	burning sensation in eyes and feet	8	<i>Mega Kangai</i>
6	60/ F	Body pain, burning sensation in stomach	8	<i>Megakangai</i> , Indigestion, abdominal
7	70/ F	Indigestion, hip joint pain,	9	Back pain, weakness in the both thighs, unable to walk
8	65/M	Diabetes mellitus	9 ½	<i>mega noi</i>
9	52/ M	Rhinitis, headache, sinusitis	8 ¼	headache, sinusitis
10	60/M	Visual impairment, cataract, Dryness of Body	8 ¾	Dryness of Body, cataract,
11	65/F	Joint pain, burning sensation in eyes and feet	9 ½	<i>mega noi</i>
12	69/M	Skin allergy, Rashes, itching	8 ½	Increased body heat, skin diseases
13	51/M	Diabetes mellitus, hypertension	9 ½	<i>mega noi</i>
14	31/F	Sinusitis, Body pain	8 ¼	Stout and painful body, headache, sinusitis
15	65/F	Skin infection	8 ½	Increase body heat ,skin diseases
16	64/M	Diabetes mellitus	9 ½	<i>mega noi</i>
17	67/M	Body pain, constipation	8 ¼	Stout and painful body, headache
18	40/M	Cold, cough, Throat pain	9 ¾	Cough
19	41/M	Skin allergy, dryness, itching	9 ¾	Fissure, dryness
20	32/M	Body heat, sleeplessness	9 ¼	Dryness of the eye, insomnia

Fig.1 Determination of ManiKadai Nool Measurement with Nadi (Pulse Diagnosis)



DISCUSSION

The study was conducted among the outpatient of sri Sairam siddha medical college Using the *Manikkadai nool* measurements as a diagnostic tool and screening tool with reference to classical text, patients symptoms/ complaints was correlate with *Manikadai Nool* measurements given in the classical text. It is difficult to draw a parallel line between the diagnostic approach of Indian system and western system of medicine as both are based on different sets of logical axioms. The Siddha diagnosis is not generalized but person centred and individualized based on patient’s symptomatology and its bio type of body based on Tridhoshas.

Table - 3. Determination of frequency of Manikadai Nool measure

MN Measure	Frequency	Cumulative frequency
8	3	3
8.25	3	6
8.50	2	8
8.75	1	9
9	1	10
9.25	2	12
9.50	4	16
9.75	3	19
10	1	20

Table -4. Determination of Descriptive statistical measures of *Manikadai Nool* measure

Mean MN	Median	Mode	Minimum MN	Maximum MN	Range	Total Count
8.9625	9.125	9.50	8	10	2	20

The measurement of wrist circumference in *Manikadai Nool* can be well correlated with Anthropometric measurements which are now regarded as important indicators and predictors of an individual's nutritional status. [5] Recent research studies confirm that wrist circumference is a predictor of cardio metabolic risk factors, [6] insulin resistance and chronic kidney diseases, [7] diabetes and pre-diabetes stage [8]. These values as predictors of diseases can be used to describe the association between the values and the certain pathological and physiological conditions.

Upon descriptively analyzing the obtained *Manikadai Nool* values as shown in Table 3 &4, 9.50 (9 ½ fbs) is the most occurred value for 4 among 20 participants with a mean value of 8.96. Also, Table-2 shows the correlation of obtained MN Values with that of the subject's presenting complaints and the symptoms mentioned in the classical text reference to establish the accuracy of values and associated disease conditions. While observing the *Nadi* of the subjects, 14 among the 20 patients had *Pitha Vatha Nadi* and 6 among them had *Vatha Pitha Nadi* as shown in Figure-1. The changes in *Nadi* may be contributed by the time of Pulse diagnosis, season, condition of patient, age etc. As most of the observation was made during the mid day, the *Pitha Nadi* dominance could have been observed. However the exact correlation of *Nadi* and the corresponding MN measurements could not be obtained which may be due to the limited number of subjects. This is a preliminary study which may be a base to lay foundation for future validity and reliability studies with considerably larger number of cases to develop a non-invasive diagnostic and screening tool for detecting the disease may be beneficial to the Siddha physicians in disease prevention and treatment.

CONCLUSIONS

This observational study provides a preliminary evidence of correlating features of *Manikadai Nool* measurements in Siddha text with that of presenting complaints of patients. However its correlation with height, weight, body mass index, waist hip ratio, waist circumference and associated disease conditions with more number of subjects at large scale studies will be helpful to explore the develop a non-invasive diagnostic and screening Siddha tool.

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