



## Research Article

### DETERMINATION OF DIAGNOSTIC SIGNIFICANCE OF WRIST CIRCUMETRIC SIGN IN SIDDHA SYSTEM OF MEDICINE

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#### ABSTRACT

**Aim:** Determination of diagnostic significance of wrist circumetric sign in *Siddha* system of medicine.

**Materials and methods:** Patients are randomly selected between the age 13years to 70 years with selected diagnoses like *Madhumegam*, *Athikuruthiazhutham* (Hypertension), *Thamaraganoi*, *Putrunoi*, *Kalanjagapadai* (Psoriasis), *Moolam*, *Powthiram* (Perianal fistula), *Vali azhal keel vayu*, *Pakkavatham*, *Karupaisathaikatti* (Uterine fibroids).

**Results and observation:** Most of the patients' MKN values fell within the range of 9-9¾ fb. This range of 9-9¾ fb MKN, was observed in *Athikuruthiazhutham*, *Putrunoi*, *Moolam*, *Powthiram*, *Thamaraganoi*, *Madhumegam*, *Pakkavatham*, healthy volunteers. 8-8¾fb MKN range was observed in 41.5% of *Kalanjagapadai* and *Vali azhal keel vayu* cases. 10 - 10¾fb was observed in 43.1 % of patients with *Karupaisathaikattigal* (Uterine fibroids).

**Conclusion:** Since all other diseases had non-specific *Manikkadai nool* range except the condition *Karupaisathaikattigal* (uterine fibroid), *Manikkadai nool* can be used to assess screening test in detecting the presence of uterine fibroids and cardiac diseases according to this study.

**KEYWORDS:** *Manikkadai nool*, Siddha, Diagnosis, Prognosis.

#### INTRODUCTION

Siddha system of medicine is the most primitive medical system. According to Siddha medical science the universe consists of 5 elements. Earth, Water, Fire, Air and Ether which correspond to the five senses of the human body. The earth is the first element which gives fine shape to the body, including bones, tissues, muscles, skin, hair etc. Water is the second element representing blood, secretions of the glands, vital fluid etc. Fire the third element that gives emotion, vigour and vitality to the body. It also helps digestion, circulation and stimulation besides respiration and the nervous system. A suitable proportion of these five elements in combination with each other produce a healthy person. Siddha system consider the human body as a conglomeration of three humours and seven basic elements. The equilibrium of humours is consider as health and its disturbance or imbalance leads to disease. The diagnosis of diseases involves identifying its causes. Identification of causative factors is through the examination of pulse, urine, eyes, study of voice, colour of body, tongue and status of digestive system. This system not only tells diagnosis of diseases and shows prognosis condition also. Various diagnostic methods are followed in Siddha system. *Manikkadainool* is one of a unique diagnostic tool in Siddha system with the procedure of measuring the wrist girth of a patient with an inelastic thread and expressing it in patient's own finger breadth units and interpreting a prognosis/diagnosis of a disease. In this study *Manikkadainool* is measured for the patient's

with selected diseases like *Madhumegam*, *Athikuruthiazhutham*, *Thamaraganoi*, *Putrunoi*, *Kalanjagapadai*, *Moolam*, *Powthiram*, *Valiazhal keel vayu*, *Pakkavatham*, *Karupaisathaikatti*. This present study evaluates diagnostic and prognostic significance of *Manikkadainool* in Siddha system of medicine for above mentioned diseases.

#### MATERIALS AND METHODS

##### Study design

An Observational study, single centric study.

**Selection of patients:** Patients are randomly selected for this study with the help of inclusion and exclusion criteria, from the outpatient of Noinaadal Department of Ayothidoss Pandithar hospital of National Institute of Siddha, Tambaram Sanatorium, Chennai.

##### Study period

One year

##### Sample size

- *Kalanjagapadai* (Psoriasis) - 101
- *Athikuruthiazhutham* (Hypertension) - 357
- *Putrunoi* (Cancer) - 70
- *Moolam* (Heamorrhoids) - 145
- *Powthiram* (Anal Fistula) - 86
- *Thamaraganoi* (Cardiac diseases) - 76
- *Valiazhal keel vayu* (Rheumatoid arthritis) - 85

- Madhumegam (Diabetic mellitus) - 500
- Karupaisathaikatti (Uterine fibroid) - 58
- Pakkavatham (Hemiplegia) - 65
- Healthy volunteers - 50

**Criteria for Inclusion**

Age between 13years to 70 years. Patient's comes with selected diagnoses like *Madhumegam, Athikuruthiazhutham, Thamaragano, Putrunoi, Kalanjagapadai, Moolam, Powthiram, Valiazhal keel vayu, Pakkavatham, Karupaisathaikatti.*

**Criteria for Exclusion**

Age below 13years and above 70 years. Patients other than above mentioned diseases.

**Ethical Issues**

This study was approved by institutional ethical committee. F.No.NIS/IEC/10/2016-17/42 dated 20.05.2016.

**Wrist Circummetric Sign**

**Agathiyasoodamanikayarusootheram**

*"Kamalakkaimanikkaiyil kayaru sooththiram Vimalane nokkiye vedamaamuni Thimilaam piniyathu sera seppiye Amalanaamunikku munnaruli seithathe"*

*"Manikadai naalviral thalli vanmaiyaay Thanikkidaikkayaru pottalanthu paarkkaiyil Kaniththidum viralthanai kandu sollave Piniththidum noikalai pirththuraikkume"*

- Pathinen siddhar naadinool

According to the *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 a thread and then dividing the measured circumference with the patient's fingers. By this measurement the disease can be diagnosed



Figure-1 Measuring wrist circumference



Figure-2 Measuring twin finger length

Table - 1 Manikkadai nool inference

Manikkadai	Inference
10 fbs	Pricking pain in chest and limbs, gastritis and ulcer result.
9 ¾ fbs	Fissure, dryness and cough will be resulted.
9 ½ fbs	Odema, increased body heat, burning sensation of eye, fever, meganoi and anorexia.
9 ¼ fbs	Dysuria, insomnia, sinusitis and burning sensation of eye.
9 fbs	Impaired hearing, pain around waist, thigh pain, unable to walk.
8 ¾ fbs	Increased body heat, skin disease due to toxins, abdominal discomfort, cataract and sinusitis.
8 ½ fbs	Leucorrhoea, venereal disorder and Infertility will occur.
8 ¼ fbs	Stout and painful body, Headache, sinusitis and toxins induced cough.
8 fbs	Abdominal discomfort, gastritis, anorexia and venereal diseases.
7 ¾ fbs	Piles, burning sensation of limbs, headache and numbness occur. Within 2 years cervical adenitis and epistaxis results.
7 ½ fbs	Osteoporosis, abdominal discomfort, burning sensation of eyes, increased body temperature. Within 6 days all the joints of the limbs presents a swelling.
7 ¼ fbs	Lumbar pain, increased pitha in head, anemia, eye pain, odema and somnolence.
7 fbs	Pitham ascends to head, haemetemesis, phlegm, burning sensation of limbs and constipation.
6 ¾ fbs	Eye ache, dizziness, testis disorder. Within 3 years it causes anuria, pain and burning sensation over limbs, facial sweating results.
6 ½ fbs	Thirst, anorexia, increased body heat and Vatham results.
6 ¼ fbs	Diarrhoea, belching, vomiting and mucous dysentery.

6 fbs	Reduced weight, phlegm in chest. It results in death within 20 days.
5 ¾ fbs	Delirium, dizziness, loss of consciousness. It results in death even if the patient takes gruel diet.
5 ½ fbs	Severity of illness is increased. Toxins spread to the head. Tooth darkness. Patient will be die in 10 days.
5 ¼ fbs	Patients seems to be sleepy and death results on the next day.
5 fbs	Pallor and dryness of the body. Kabam engorges the throat and the person will die.
4 ¾ fbs	Dryness of tongue and tremor present. Patient will die in 7 days.
4 ½ fbs	Shrunken eyes, odema will present and death results in 9 days.
4 ¼ fbs	Tremor, weakness of limbs and darkening of face occurs. Finally death results in two days.
4 fbs	Pedal odema will be present. Patient will die in 5 days.

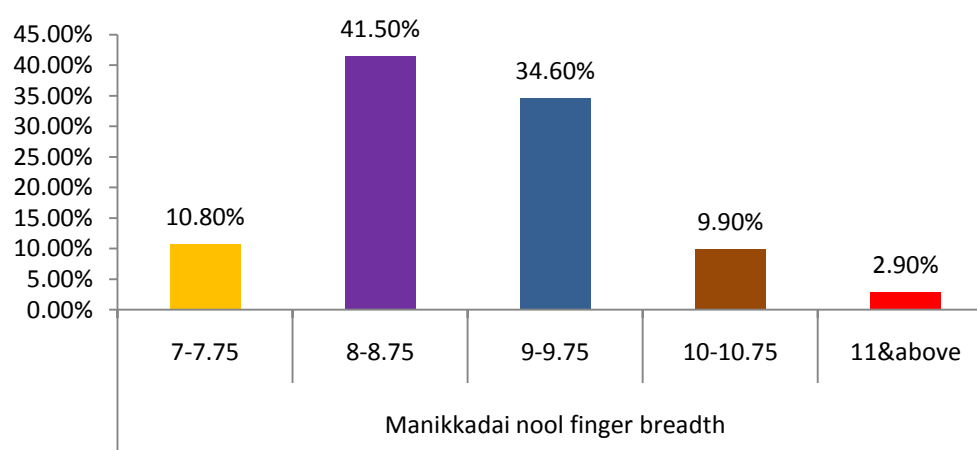
When the *Manikkadainool* is 11 fbs, the person will be stout and he will live a healthy life for many years. When the *Manikkadainool* measures between 4 to 6, it indicates poor prognosis of disease and the severity of the illness will be high and it leads to death.

## RESULTS & OBSERVATION

**Table -2 Manikkadainool measurements**

S.No	Diagnosis	Total no of cases	Manikkadainool Measurements					
			6-6.75	7-7.75	8-8.75	9-9.75	10-10.75	11&above
1	<i>Kalanjagapadai</i>	101	0	11 (10.8%)	42 (41.5%)	35 (34.6%)	10 (9.9%)	3 (2.9%)
2	<i>Athikuruthiazhutham</i>	357	0	0	105 (29.4%)	144 (40.3%)	74 (20.7%)	34 (9.5%)
3	<i>Putrunoi</i>	70	0	1 (1.4%)	20 (28.5%)	33 (47.1%)	11 (15.7%)	5 (7.1%)
4	<i>Moolam</i>	145	0	16 (11%)	51 (35.1%)	58 (40%)	14 (9.6%)	6 (4.1%)
5	<i>Powthiram</i>	86	0	3 (3.4%)	14 (16.2%)	52 (60.4%)	12 (13.9%)	5 (5.8%)
6	<i>Thamaraganoi</i>	76	0	3 (3.9%)	16 (21%)	31 (40.7%)	23 (30.2%)	3 (3.9%)
7	<i>Valiazhal keel vayu</i>	85	2 (2.3%)	4 (4.7%)	35 (41.1%)	25 (29.4%)	11 (12.9%)	8 (9.4%)
8	<i>Madhumegam</i>	500	0	3 (0.6%)	170 (34%)	232 (46.4%)	67 (13.4%)	28 (5.6%)
9	<i>Karupaisathaikatti</i>	58	0	0	5 (8.6%)	20 (34.4%)	25 (43.1%)	8 (13.7%)
10	<i>Pakkavatham</i>	65	0	4 (6.1%)	25 (38.4%)	25 (38.4%)	11 (16.9%)	0
11	Healthy volunteers	50	0	3 (6%)	10 (20%)	25 (50%)	8 (16%)	4 (8%)

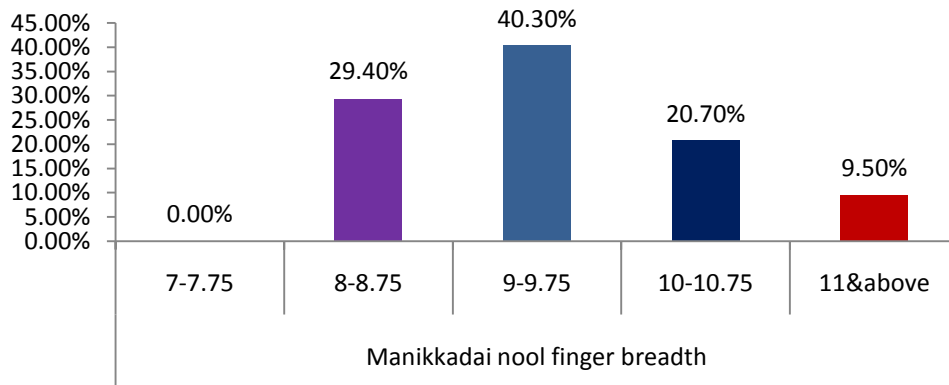
### Manikkadainool - Kalanjaga padai



**Figure-3: Kalanjaga padai finger breadth**

Among 101 cases, 42 (41.5%) cases were in the 8-8.75 finger breadth, 35 (34.6%) cases were between 9-9.75, 11 (10.8%) cases were between 7-7.75, 10 (9.9%) cases were between 10-10.75, 3 (2.9%) cases were 11& above.

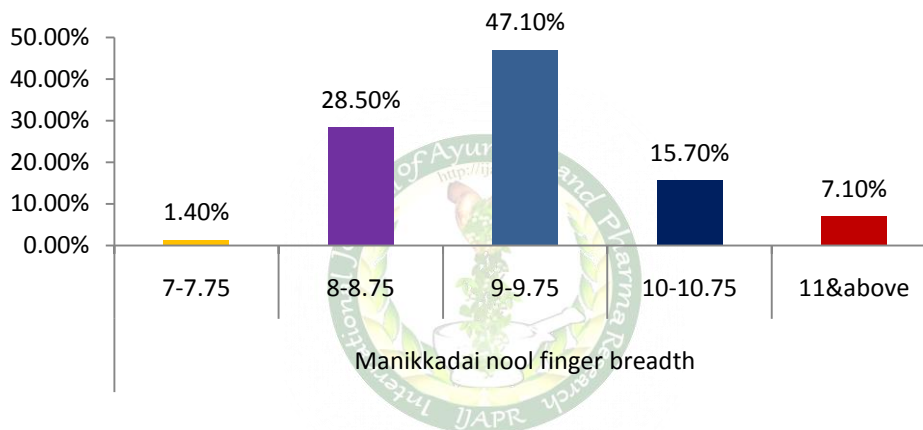
**Manikkadainool - Athikuruthi azhutham**



**Figure-4: Athikuruthiazhutham finger breadth**

Among 357 cases, 144 (40.3%) cases were in the 9-9.75 finger breadth, 105 (29.4%) cases were between 8-8.75, 74 (20.7%) cases were between 10-10.75, 34 (9.5%) cases were 11& above.

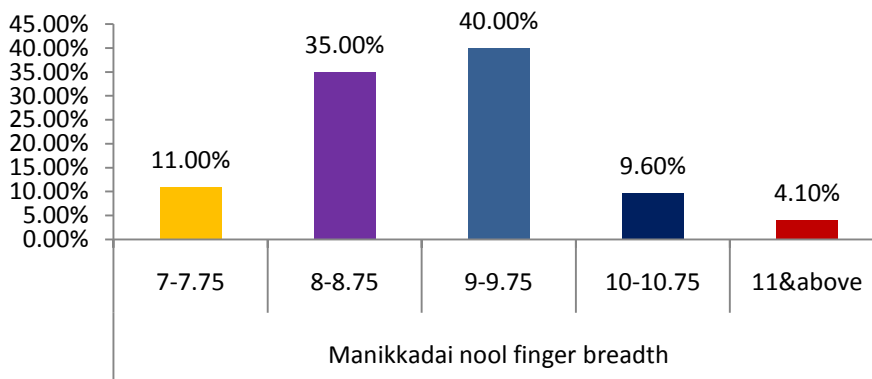
**Manikkadainool - Putrunoi**



**Figure-5: Putrunoi finger breadth**

Among 70 cases, 33(47.1%) cases were in the 9-9.75 finger breadth, 20(28.5%) cases were between 8-8.75, 11(15.7%) cases were between 10-10.75, 5(7.1%) cases were 11& above, 1(1.4%) cases were between 7-7.75.

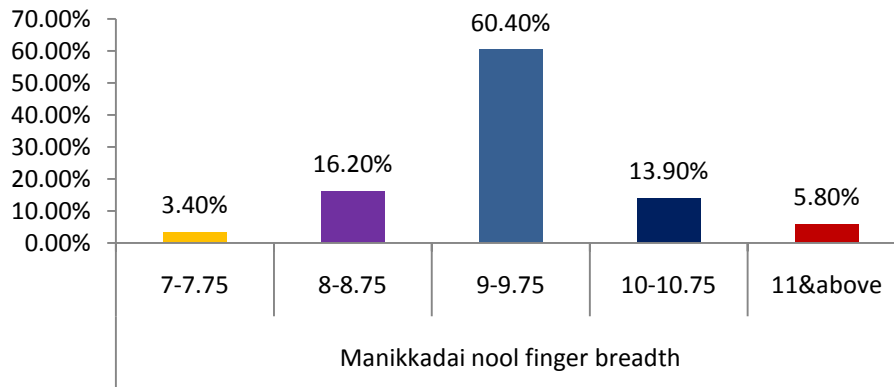
**Manikkadainool - Moolam**



**Figure-6 Moolam finger breadth**

Among 145 cases, 58 (40%) cases were in the 9-9.75 finger breadth, 51(35%) cases were between 8-8.75, 16 (11%) cases were between 7-7.75, 14 (9.6%) cases were between 10-10.75, 6 (4.1%) cases were 11& above

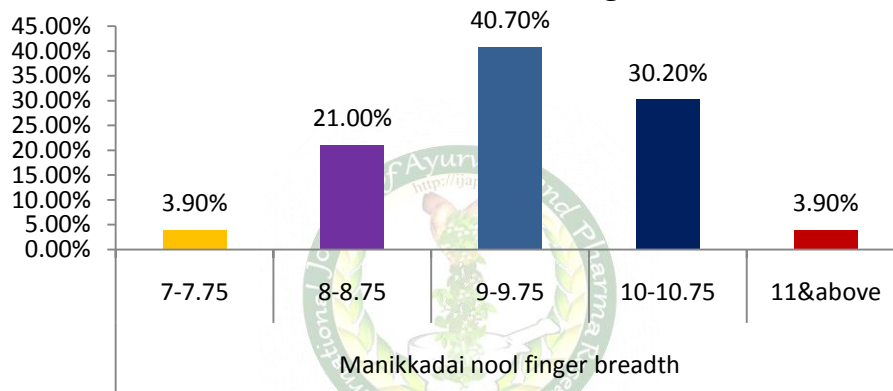
**Manikkadainool - Powthiram**



**Figure-7 Powthiram finger breadth**

Among 86 cases, 52 (60.4%) cases were in the 9-9.75 finger breadth, 14 (16.2%) cases were between 8-8.75, 12 (13.9%) cases were between 10-10.75, 5 (5.8%) cases were 11& above, 3 (3.4%) cases were between 7-7.75.

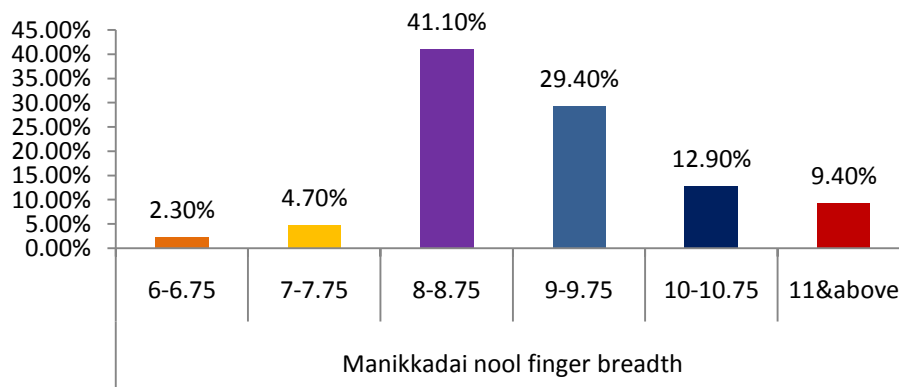
**Manikkadainool- Thamaraganoi**



**Figure-8 Thamaraganoi finger breadth**

Among 76 cases, 31(40.7%) cases were in the 9-9.75 finger breadth, 23(30.2%) cases were between 10-10.75, 16(21%) cases were between 8-8.75, 3(3.9%) cases were 11& above, 3(3.9%) cases were between 7-7.75.

**Manikkadainool - Valiazhal keel vayu**

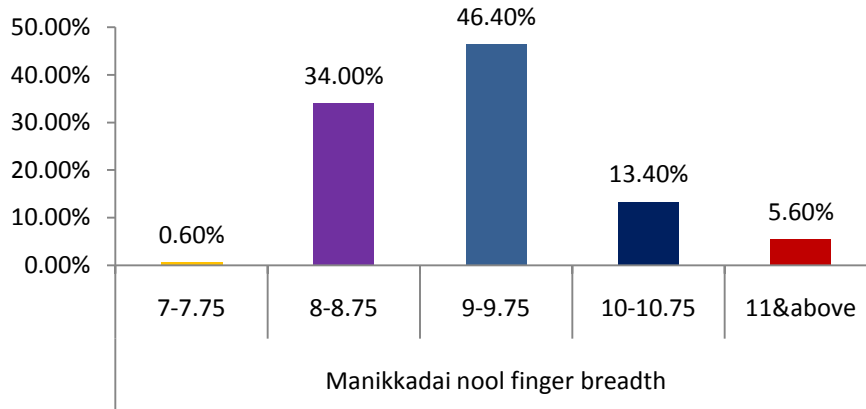


**Figure-9 Valiazhal keel vayu finger breadth**

Among 85 cases, 35(41.1%) cases were in the 8-8.75 finger breadth, 25(29.4%) cases were between 9-9.75, 11(12.9%) cases were between 10-10.75, 8(9.4%) cases were 11& above, 4(4.7%) cases were between 7-7.75, 2(2.3%) cases were between 6-6.75



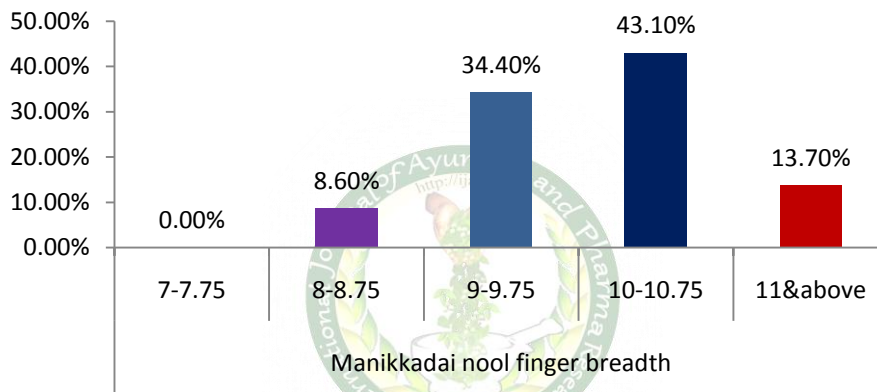
**Manikkadainool - Madhumegam**



**Figure-10 Madhumegam finger breadth**

Among 500 cases, 232(46.4%) cases were in the 9-9.75 finger breadth, 170(34%) cases were between 8-8.75, 67(13.4%) cases were between 10-10.75, 28(5.6%) cases were 11& above, 3(0.6%) cases were between 7-7.75

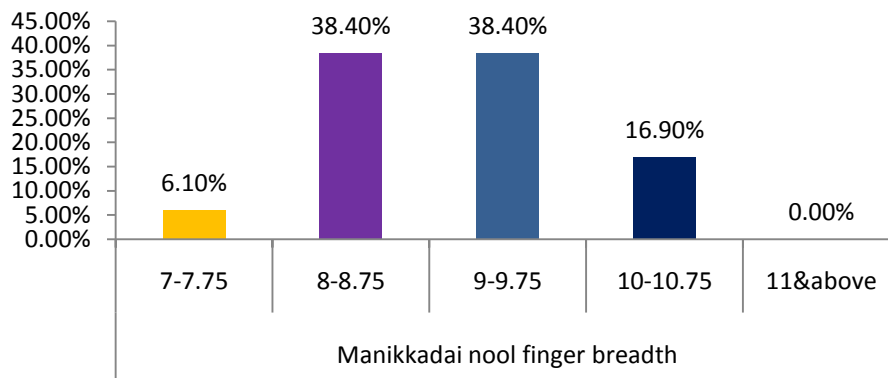
**Manikkadainool - Karupai sathai katti**



**Figure-11 Karupaisathai katti finger breadth**

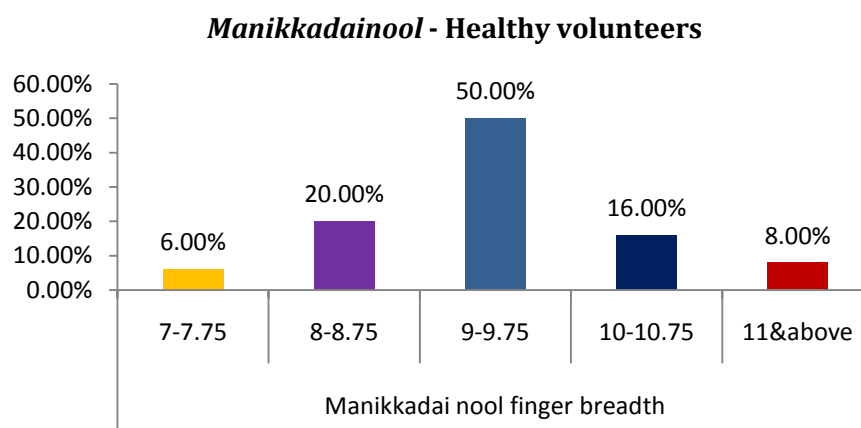
Among 58 cases, 25(43.1%) cases were in the 10-10.75 finger breadth, 20(34.4%) cases were between 9-9.75, 8(13.7%) cases were 11& above, 5(8.6%) cases were between 8-8.75.

**Manikkadainool - Pakkavatham**



**Figure-12 Pakkavatham finger breadth**

Among 65 cases, 25(38.4%) cases were in the 8-8.75 finger breadth, 25(38.4%) cases were between 9-9.75, 11(16.9%) cases were between 10-10.75, 4(6.1%) cases were between 7-7.75



**Figure-13 Healthy volunteers finger breadth**

Among 50 cases, 25(50%) cases were in the 9-9.75 finger breadth, 10(20%) cases were between 8-8.75, 8(16%) cases were between 10-10.75, 4(8%) cases were 11 & above, 3(6%) cases were between 7-7.75.

## DISCUSSION

In this study it was tried to determine the significance of *Manikkadainool* or Wrist Circumetric sign in Siddha disease diagnostics. Following the same methodology, the prognosis of disease was identified by the increase or decrease of no of finger breadths. Lower value in the range usually indicates poor prognosis, higher values of 11 fb and above indicates good one. These values start from four finger breadths and end with 11 finger breadths. In this study we observed the *Manikkadainool* value of ten diseases. There were no specific range of *Manikkadainool* values which could be attributable to a particular disease. Most of the patients' MKN values fell within the range of 9-9¾ fb. This range of 9-9¾ fb MKN, was observed in 40.3% of *Athikuruthiazhutham* (Hypertension) patients, 47.1% in *Putrunoi*, 40% in *Moolam*, 60.4% in *Powthiram*, 40.7% in *Thamaraganoi*, 46.4% in *Madhumegam*, 38.4% in *Pakkavatham*, 50% in healthy volunteers. 8-8¾fb MKN range was observed in 41.5% of *Kalanjagapadai* patients and 41.1% in *Valiazhal keel vayu* cases. 10 - 10¾fb was observed in 43.1 % of patients with *Karuppaisathakattigal* (Uterine fibroids) and this range was measured in 30.2% of patients with *Thamaraga noi* (Cardiac diseases). In normal healthy volunteers and patients with diseases other than the Uterine fibroids and Cardiac ailments, this MKN range (10-10¾fb) was not measured in more than 25% of patients. According to *Pathinen Siddhar Naadinool* 8½ finger breadth is a sign of '*Sori*' (Itchy skin disease), 7½ finger breadth is a sign of *Vippuruthi* (tumorous mass), 7¾ finger breadth is indicated for piles, 9¾fb for *Pilavai* (carbuncle) a possible complication of *Madhumegam* (Diabetes) and 10 fb indicated for chest pain.<sup>[1]</sup> Other diseases are not mentioned in the text. The recent researches show Wrist and arm circumferences and their derivations are good indicators of the individuals' nutritional state and composition. Mid arm circumference and wrist circumference are good markers of the nutritional status in ALS patients.<sup>[2]</sup> Wrist circumference could be considered as a new anthropometric assessment for prediction of type 2 diabetes and metabolic syndrome.<sup>[3]</sup> One study suggest

the presence of a close relationship among wrist circumference, Transversal wrist internal (TWI) bone tissue area, and insulin resistance in overweight/obese children and adolescents, open new perspectives in the prediction of cardiovascular disease.<sup>[4]</sup> Wrist circumference as a novel anthropometric parameter is positively associated with level of serum triglyceride and cholesterol and negatively associated with HDL-C level. However, it cannot directly predict increased risk of CVDs.<sup>[5]</sup> In this study it is found out that there are certain common ranges of *Manikkadainool* measures that are non-specific in character. But nearly 50% of patients with disease, Uterine fibroids and cardiac ailments had *Manikkadai* measures within the range of 10-10¾ fb, where other diseases had little representation (<25%).

## CONCLUSION

In this study of screening a selected set of 10 diseases for *Manikkadainool* along with Normal healthy volunteers, the cardiac diseases and uterine fibroids had a more predilection than other diseases of *Manikkadai* measure falling in the fringe range of 10-10.75fb finger breadths. But all other diseases had a non specific MKN measuring range. *Manikkadainool* as per this study will be helpful as a screening test to detect the probable uterine and cardiac diseases which may be ascertained or excluded with further investigations during the clinical work ups.

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