



Anthropometric Measurement on Wrist and *Manikkadai Alavu* (Forearm Circumference) in *Gunmam* (Gastric Ulcer) Patients – A Comparative Study

Sugeevan R.^{1*}

^{1*} Senior Lecturer Gr II, Faculty of Siddha Medicine, University of Jaffna

*Corresponding author: r.rakulini@gmail.com

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ABSTRACT

Siddha Medicine is a system of traditional medicine originating in ancient Tamil Nadu in South India and Sri Lanka. Traditionally, it is taught that the *Siddhars* laid the foundation for this system of medicine. Siddha system has a unique diagnostic method to identify the diseases and their causes. *Manikkadai Nool* is one of the diagnostic tools. It is explained in the *Agasthiyar Soodamani Kajiru Soothiram* by Saint *Vedammamuni* in *Pathinen Siddhar Naadi Nool*. The aim of this study was to compare the wrist circumference and *Manikkadai alavu* (cm) in *gunmam* patients. It is an observational study. After identifying the eligible subjects, Data was collected by using the interview administrated questionnaire & relevant data was collected by measurement. Collected data were processed and statistically analyzed by a SPSS. The mean age of the subjects was 46.06 (SD±13.833). Majority of subjects in 14 (28%) were between 51 – 60 years of age. The majority of subjects in 30 (60%) were female. The average wrist circumference of the subjects was 16.3cm (SD ± 1.34) and 16.616cm (SD ± 1.24) and *Manikkadai alavu* was 18.10cm (SD ± 1.81) and 17.97cm (SD ± 1.82) in right and left hand. In group I, II and III, the mean value of right and left wrist circumferences was almost same. On the other hand, right and left *Manikkadai alavu* in cm was increase slightly. In the present study revealed that In Group I, II and III, the mean value of right and left wrist circumference.

was almost same. On the other hand, right and left *Manikkadai alavu* in cm was increase slightly. These slight differences may influence in the disease diagnosis by *Manikkadai Nool*.

Keywords: Diagnostic methods, *Gunmam*, *Manikkadai Nool*, Peptic ulcer, Siddha, Traditional Medicine.

INTRODUCTION

Gunmam is a gastrointestinal disorder. It is characterized by indigestion, epigastric pain, heartburn, nausea, vomiting, eructation, belching, body weakness, loss of body weight, flatulence and mental disturbances. Commonly it is classified into eight types. Various Siddha diagnostic methods are followed in Siddha system. *Manikkadai Nool* is one of the diagnostic tools. It is explained in the *Agasthiyar Soodamani Kajiru Soothiram* by Saint *Veadammamuni* in *Pathinen Siddhar Naadi Nool*. *Manikkadai Nool* measurement is the circumference of wrist which is measured four-finger breadth (fb) from the wrist. Wrist girth of the *Gunmam* is measuring by inelastic thread and expressing it in patient's own finger breadth units and interpreting a prognosis or diagnosis of diseases [3]. *Manikkadai Nool* measurement is a continuous ranging value from 4 to 11 fb with an interval of 0.25 fb between each value [3]. The method of measuring wrist circumference and the interpretation of different measurements are clearly mentioned in the text of *Pathinen Siddhar Naadi Nool*. So, I study, why measure the *Manikkadai alavu* four finger breath from the wrist which was studied in *gunmam* patients.

The aim of the study was to compare the wrist circumference and *Manikkadai alavu* among patients diagnosed with *Gunmam*. The objectives of this study were to assess the socio-demographic pattern of the subjects and to study the wrist circumference and *Manikkadai alavu* among patients with *Gunmam*.

MATERIALS AND METHODS

Study design: This was an observational study.

Study setting: This study was carried out in OPD (Out Patient Department) & IP at Government Siddha Medical College, Palayamkottai.

Study duration: This study was carried out from April – August 2019

Study population

Inclusion criteria

Age above 20 and below 65

Both sexes

Loss of appetite

Nausea / Vomiting

Belching

Eructation

Pain in the abdomen

Flatulence

Abdominal distension

Indigestion

Generalized weakness

Exclusion criteria

Age below 19 to above 80

GIT disorders other than *Gunmam*

Sample size: According to the inclusion & exclusion criteria, 50 *Gunmam* subjects were selected for this study.

Data collection

Selection of the subjects: The selection was made for all suitable *Gunmam* subjects who was come to the OPD & IPD in the study period.

Sampling techniques and randomization process: The subjects were selected by simple random method.

Study instrument

Questionnaire: Questionnaire was prepared based on the specific objectives

Informed consent form: Informed concerned form was prepared by the researcher and written consent was obtained from selected subjects before the commencement of the study.

Study procedure

Subjects who were diagnosed as *Gunmam* was examined by researcher in the OPD & IPD. All relevant information was collected by interrogation & clinical examinations. In addition, diagnostic cards or earlier medical records was looked to get more information.

After identifying the eligible subjects, relevant information was collected by using the interview administrated questionnaire & relevant data was collected by measurement.

***Manikkadai alavu* (which are mentioned in Siddha literature) (Forearm Circumference)**

To measure the wrist circumference in finger breadth, the patient was asked to keep his left hand's four fingers on the wrist, then the doctor measured the circumference of the right wrist just below index fingers of the left hand of the patient using a inelastic twine, then the twine was removed from the wrist and placed on the patient's finger (above the metacarpal phalangeal joint on the palmar surface) and the measure the twine in finger breadth. Measure the wrist circumference of other hand likewise.

Anthropometric parameters

Wrist Circumference - Measure the wrist circumference with the help of measuring tape.

***Manikkadai alavu* in cm** - Measure the *Manikkadai alavu* in cm, four finger breath from the wrist by measuring tape.

Data analysis - Data was entered and *analyzed* with the usage of Microsoft Excel and SPSS. Collected literature review information also was compare with the results.

Quality assurance - The quality of the study was assured as the protocol of the study was submitted in peer review board and expert's opinions are taken. The whole study was done in supervision of faculties of the department and guide of the study.

RESULTS AND DISCUSSION

Distribution of Demographic Characteristics of study population

The mean age of the subjects was 46.06 (SD±13.833). Majority of subjects in 14 (28%) were between 51 – 60 years of age. The majority of subjects in 30 (60%) were female.

Table 1: Demographic characteristic of the study population

Characteristics	η = 50	
Gender	η	%
Male	20	40
Female	30	60
Age (Years):	η	%
21 - 30	13	26
31 - 40	3	6
41 - 50	13	26
51- 60	14	28
61 - 70	7	14
Mean age:	(Mean $\pm$ SD)	
Total	46.06 $\pm$ 13.833	
Male	45.50 $\pm$ 13.276	
Female	46.43 $\pm$ 14.405	

η : Frequency; %: Percentage; SD: Std. deviation

Table 2: Description of measurement of wrist circumference (WRC) and *Manikkadai alavu* (MA) (cm) in *gunmam* patients

	Mean
Rt WRC	16.300 ± 1.3439
Lt WRC	16.616 ± 1.2443
Rt MA (cm)	18.108 ± 1.8100
Lt MA (cm)	17.978 ± 1.82592

The mean Wrist circumference of the subjects was 16.3 (SD ± 1.3439) and *Manikkadai alavu* (cm) of the subjects was 18.108 (SD ± 1.8100) in right hand. The mean Wrist circumference of the subjects was 16.616 (SD ± 1.2443) and *Manikkadai alavu* (cm) of the subjects was 17.978 (SD ± 1.82592) in left hand.

Table 3: Description of measurement of *manikkadai alavu* by using traditional method in *gunmam* patients

		Mean
Rt Hand	Rt MA	9.3950 ± 0.7777
	Lt MA	9.3950 ± 0.7777
Lt Hand	Rt MA	9.3150 ± 0.77230
	Lt MA	9.3150 ± 0.77230

The mean Right *Manikkadai Alavu* of the subjects was 9.3950 (SD ± 0.7777) and Left *Manikkadai Alavu* of the subjects was 9.3950 (SD ± 0.7777) in right hand. The mean Right *Manikkadai Alavu* of the subjects was 9.3150 (SD ± 0.77230) and Left *Manikkadai Alavu* of the subjects was 9.3150 (SD ± 0.77230) for Left hand.

Table 4: Description of compare the measurement of right *Manikkadai alavu* with right and left *manikkadi alavu* and left *Manikkadai alavu* with right and left *manikkadi alavu* in *gunmam* patients

	Mean	t	Sig. (2-tailed)
Rt MA (cm)	18.108 ± 1.8100	68.787	0.000
Rt Hand/ Rt MA	9.3950 ± 0.7777	80.876	0.000
Lt Hand/ Lt MA	9.3950 ± 0.7777	80.876	0.000
Lt MA (cm)	17.9780 ± 1.82592	67.685	0.000
Rt Hand/ Rt MA	9.3150 ± 0.7723	80.708	0.000
Lt Hand/ Lt MA	9.3150 ± 0.7723	80.708	0.000

There were no significant differences observed between the measurement of right *Manikkadai alavu* (cm) with right and left *manikkadi alavu* and left *Manikkadai alavu* (cm) with right and left *manikkadi alavu* in *gunmam* patients.

Table 5: Description of compare the measurement of right wrist circumference with right *Manikkadai alavu* (cm) and Left wrist circumference with left *Manikkadai alavu* (cm) in *gunmam* patients

	Mean	t	Sig. (2-tailed)
Rt WRC	16.300 ± 1.3439	83.132	0.000
Rt MA (cm)	18.108 ± 1.8100	68.787	0.000
Lt WRC	16.616 ± 1.2443	91.583	0.000
Lt MA (cm)	17.9780 ± 1.82592	67.685	0.000

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There were no significant differences observed between measurement of right wrist circumference with right *Manikkadai alavu* (cm) and Left wrist circumference with left *Manikkadai alavu* (cm) in *gunmam* patients.

Table 6: Description of measurement of wrist circumference and *Manikkadai alavu* in Group I, II & III subjects in *gunmam* patients

Group I : *Manikkadai Alavu* : 8 – 8.75

Group II : *Manikkadai Alavu* : 9 – 9.75

Group III: *Manikkadai Alavu*: 10 – 10.75

	Mean		
	Group I	Group II	Group III
Rt WRC	15.8500 ± .66858	16.173 ± .9377	16.575 ± 1.6697
Lt WRC	15.9167 ± .69402	16.060 ± .9797	16.362 ± 1.6053
Rt MA	16.0167 ± .62423	17.6733 ± 1.42902	18.5125 ± 1.73406
Lt MA	15.9000 ± .70427	17.587 ± 1.4870	18.238 ± 1.7695

The mean Right Wrist circumference of the subjects was 15.85 (SD ± 0.66858), Left Wrist circumference of the subjects was 15.9167 (SD ± 0.69402), Right *Manikkadai alavu* of the subjects was 16.0167 (SD ± 0.62423), Left *Manikkadai alavu* of the subjects was 15.9 (SD ± 0.70427) in Group I.

The mean Right Wrist circumference of the subjects was 16.173 (SD ± 0.9377), Left Wrist circumference of the subjects was 16.060 (SD ± 0.9797), Right *Manikkadai alavu* of the subjects was 17.6733 (SD ± 1.42902), Left *Manikkadai alavu* of the subjects was 17.587 (SD ± 1.4870) in Group II.

The mean Right Wrist circumference of the subjects was 16.575 (SD ± 1.6697), Left Wrist circumference of the subjects was 16.362 (SD ± 1.6053), Right *Manikkadai alavu* of the

subjects was 18.5125 (SD $\pm$ 1.73406), Left *Manikkadai alavu* of the subjects was 18.238 (SD $\pm$ 1.7695) in Group III.

In Group I, II and III, the mean value of Right and Left wrist circumferences was almost same. On the other hand, Right and Left *Manikkadai alavu* in cm was increase slightly.

CONCLUSION

In the present study revealed that Majority of subjects in 14 (28%) were between 51 – 60 years of age and the majority of subjects in 30 (60%) were female. The average Wrist circumference of the subjects was 16.3cm (SD $\pm$ 1.34) and *Manikkadai alavu* of the subjects was 18.108cm (SD $\pm$ 1.81) in right hand. The average Wrist circumference of the subjects was 16.616cm (SD $\pm$ 1.24) and *Manikkadai alavu* of the subjects was 17.978cm (SD $\pm$ 1.82) in left hand. The average *Manikkadai alavu* of the *gunmam* subjects was 9 ¼. In Group I, II and III, the mean value of Right and Left wrist circumferences was almost same. On the other hand, Right and Left *Manikkadai alavu* in cm was increase slightly. These slight differences may influence in the disease diagnosis by *Manikkadai Nool*. There were no significant differences observed between *Manikkadai alavu* (cm) in right and left hands.

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