

AN OBSERVATIONAL STUDY OF RELATION BETWEEN JATHARAGNI AND SAHAJABALA WITH SPECIAL REFERENCE TO SHARIRA AND MANOBALA.

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ABSTRACT

Agni in *Ayurveda* is considered as a biochemical substance which is responsible for bringing about *parinama*(transformation) of the food we consume. The *Jatharagni*(core digestive fire) is considered as the chief since the *Bhutagni* and *Dhatwagni* are dependent upon it. The complex form of food consumed is broken down into simpler and absorbable form by the *Jatharagni*. In this way the consumed food is made more homologous to our body components. *Jatharagni* is a contributing factor for various components of our body. *Bala*(strength) is one of them. In *Ayurveda Trivida Bala* is mentioned. *Sahaja Bala* is the natural strength of the body and mind. The present study was carried out to see the relation between *Jatharagni* and *Sahaja Bala*.

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INTRODUCTION

Our body is *panchabhautik* and so is the food we consume.^[1] Vision, *chaksurendriya*, colour, temperature, lustre, digestion, anger, quick action and bravery are the actions brought about

by *Agni mahabhuta* in the body.^[2] *Agni* is described as *Pittoshma rupa* in the body and is responsible for digestion.^[3] The main site of *Jatharagni* is the *Grahani*(duodenum) which brings about the transformation of the complex food consumed into the simpler form. The *amsha* of *Jatharagni* is present in the *Bhutagni* and *Dhatwagni* which converts the *aahara rasa* formed by the action of *Jatharagni* into homologous components of our body. The *aahara*(food) we consume is also *panchabhautik* and it is the fuel for the *Jatharagni* when consumed in proper *matra*(quantity) and at proper *kala* (appropriate time).^[4] The *doshas* give rise to four types of *Jatharagni* and depending upon their strength of digestion they are classified into *Tikshnagni*, *Samagni*, *Vishmagni* and *Mandagni*. The *Agni* is an important factor contributing to various components of our body like the life span, complexion, physical strength, health, enthusiasm to perform work, nourishment of the body, lustre, *Ojas* (essence of the *sapta dhatus*), body heat, *Shukra dhatu* and *Prana vayu*.^[5] *Sahaja bala* is the natural strength of body and mind in a person. In modern science the insights of the gut-brain axis have opened a new dimension. A healthy gut function of an individual has been linked to normal function of central nervous system. The food we eat when processed by *Jatharagni* in its normal functional state not only contributes to good physical strength but also contributes to a good mental strength. A person with a healthy mental state, delighted soul with proper functioning of the sense organs, well balanced state of the *doshas*, proper digestion and metabolism, proportionate body organs and tissues, proper physiology can be considered perfectly healthy. In *Charaka Samhita* the *acharya* mentions *Ashta Aahara Vidhi Vishesha Aayatana* which are known as the rule of dietetics mentioned in *Ayurveda*. It comprises of *prakriti* (kind of food), *karana* (processing of food), *samyoga* (combination of food), *rashi* (quantity of food), *desha*(place), *kala*(season), *upyoga samstha* (method of eating), *upyokta* (person consuming food). Lastly it is said that the *upyokta*(person) should consume food depending upon his *Agnibala*.^[6] The main aim of *Ayurveda* is to safeguard the health of a healthy person and to cure the illness in a diseased person. Hence for this *Jatharagni* assessment of an individual is very necessary. Both food and medicine should be consumed depending upon an individual's *Agnibala* (strength of digestion). The *karana*(cause) of all *dosha prakopa* and *dosha shamana* is *Agni*.^[7] Hence it is very essential to safeguard it. In *Ayurveda* it is mentioned that cause of all disease is *agnimandya* (diminished agni). *Kaya chikitsa* is the treatment of this *Antaragni*. To make the food we consume useful to the body it needs to be transformed and made homologous to the body which is brought about by the *Agni*. The person with good *bala*(strength) has a firm and wellnourished body, good musculature, able to perform all *cheshta*(activities) without any hinderence, clearness of

voice, good complexion, proper functioning of the *karmendriyas* (motor organs), *jnanendriyas* (sense organs), *manas*(mind), *buddhi* and *ahamkara*.^[8] A person with good *Sharira bala* (physical strength) is able to perform his daily activities properly. A person with good *Manobala* (mental strength) is able to stand unshaken even in difficult situations and able to take firm decisions in his life.

AIM

An observational study of relation between *Jatharagni* and *Sahajabala* with special reference to *Sharira* and *Manobala*.

OBJECTIVES

1. Primary Objective

To study the relation between *Jatharagni* and *Sahajabala* of the *Sharira* and *Manas*.

2. Secondary Objective

- To study the four types of *Jatharagni* in different individuals by a developed and validated *Agni* Assessment Tool.
- To study *Sahaja Sharirabala* in different individuals using Harvard Step Test.
- To study the *Sahaja Manobala* in different individuals using Questionnaires prepared on the basis of *Satva Sara lakshanas*.

3. Other Objective

- To develop questionnaires for assessing *Manobala* on the basis of various lakshanas of *Satva Sara* mentioned in *Charaka Samhita* and *Sushruta Samhita*.

REVIEW OF LITERATURE

1. Definition of Agni

भुक्तस्य परिणामहेतुः औदर्यम् ।

(त. सं.)

The factor which brings about transformation in the consumed food is known as *Audarya tejas*. It is used as a synonym of *Jatharagni*.^[9]

2. Classification of Agni depending upon strength of digestion

अग्निषु तु शारीरेषु चतुर्विधो विशेषो बलभेदेन भवति ।

तध्यता – तीक्ष्णो, मन्दः, समो, विषमश्चेति ।

तत्र तीक्ष्णो अग्निः सर्वापचारसहः, तद्विपरीतलक्षणस्तु मन्दः,

समस्तु खल्वपचारतो विकृतिमापद्यते अनपचारतस्तु प्रकृताववतिष्ठते,

समलक्षणविपरीतलक्षणस्तु विषम इति।

एते चतुर्विधा भवन्त्यग्नयश्चतुर्विधानामेव पुरुषाणाम् ।

तत्र समवातपित्तश्लेष्माणं प्रकृतिस्थानं समा भवन्त्यग्नयः,

वातलानां तु वाताभिभूते अग्न्यधिष्ठाने विषमा भवन्त्यग्नयः,

पित्तलानां तु पित्ताभिभूते ह्यग्न्यधिष्ठाने तीक्ष्णा भवन्त्यग्नयः,

श्लेष्मलानां तु श्लेष्माभिभूते अग्न्यधिष्ठाने मन्दा भवन्त्यग्नयः ॥

(च. वि. 6/12)

The *Tikshnagni* person can tolerate incompatible *aahara* and *vihara*. They can easily digest all sort of foods and also digest heavy and excess food without much complications.

The *Mandagni* person's digestion gets easily disturbed by improper *aahara* and *vihara*.

The *Samagni* person if resorts to proper *aahara* and *vihara* has no disturbances in digestion.

The *Vishamagni* person sometimes digests food very easily whereas sometimes causes various disturbances in the body in the process of digestion.

In *Pitta prakriti* persons there is predominance of *Pitta* in *Agni adishthana* hence *Tikshnagni* is obtained.

In *Kapha prakriti* persons there is predominance of *Kapha* in *Agni adishthana* hence *Mandagni* is obtained.

In *Vata prakriti* persons there is predominance of *Vata* in *Agni adishthana* hence *Vishamagni* is obtained.

In *Sama prakriti* persons all the *tridoshas* are present in equilibrium in the *Agni adishthana* hence *Samagni* is obtained.^[10]

3. Types of Bala

त्रिविधं बलमिति- सहजं, कालजं, युक्तिकृतं च।

सहजं यच्छरीरसत्त्वयोः प्राकृतं, कालकृतमृतुविभागजं वयःकृतं च, युक्तिकृतं

पुनस्तद्यदाहारचेष्टायोगजम् ॥

(च. सू. 11/36)

Bala is classified into three types namely:

- *Sahaja Bala* (natural strength).
- *Kalaja Bala* (according to season and age).
- *Yuktikruta Bala* (acquired strength).

Sahaja Bala is the natural strength of the body and mind of a person present right since birth.

Kalaja Bala is the strength according to season that is in *Adana kala* the *bala* gradually reduces and in *Visarga kala* the *bala* gradually increases.

Yuktikruta Bala is the acquired strength of a person obtained by following different *aahara*, doing regular exercise, having adequate sleep, consuming *Rasayanas* (rejuvenating therapies).^[11]

4. Classification of Dehabala

एवं प्रकृत्यादीनां विकृतिवर्ज्यानां भावानां प्रवरमध्यावरविभागेन बलविशेषं विभजेत् ।

(च. वि. 8/123)

In *Prakruta avastha* (normal state) we see the *dehabala* and in *Vikruta avastha* (vitiated state) we see the *dosha bala*. The *dehabala* is classified into *pravara* (excellent), *madhyama* (moderate) and *avara* (poor).

5. Examination of Bala according to Ayurveda

बलं व्यायामशक्त्या परीक्षेत् ।

(च. वि. 8/40)

The *Sharira Bala* of the person should be assessed by his *Vyayamashakti* that is his capacity to perform work.^[12]

6. Definition of Manas

मन्यते अवबुध्यते ज्ञायते अनेन इति मनः ।

(शब्दकल्पद्रुम)

That which acts as an instrument in attaining knowledge is known as *Manas*.^[13]

7. Satva Pariksha

स्मृतिमन्तो भक्तिमन्तः कृतज्ञाः प्राज्ञाः शुचयो महोत्साहा दक्षा धीराः
समरविक्रान्तयोधिनस्त्यक्तविषादाः सुव्यवस्थितगतिगम्भीरबुद्धिचेष्टाः कल्याणाभिनिवेशिनश्च
सत्त्वसाराः ॥

(च. वि. 8/110)

Sara pariksha is one amongst the ten-fold examination to understand the *Bala* of the person. *Satva sara pariksha* helps in determining the *Manobala* (mental strength) of a person. The person with excellent *Manobala* has good memory, is very devoted, grateful towards others, has good presence of mind, is clean in his body, speech and mind, very enthusiastic, very swift in his actions, takes firm decisions, is competitive, moves away from depression, follows the right path, has deep and broad spectrum thinking, thinks deeply before doing any actions, performs actions for the benefit of others and are very brave.^[14]

8. Classification of manas according to Bala

सत्त्वतश्च आतुरं परीक्षेत ।

इति सत्त्वमुच्यते मनः ।

तच्छरीरस्य तन्त्रकमात्मसंयोगात् ।

तत्त्रिविधं बलभेदेन- प्रवरं मध्यम् अवरं चेति ।

अतश्च प्रवरमध्यावरसत्त्वाः पुरुषाः भवन्ति ।

तत्र प्रवरसत्त्वाः सत्त्वसारास्ते सारेषूपदिष्टाः ।

स्वल्पशरीरा ह्यपि ते निजागन्तुनिमित्तासु महतीष्वपि पीडास्वव्यथा दृश्यन्ते सत्त्वगुणवैषेष्ट्यात् ।

मध्यसत्वास्त्वपरानात्मन्युपनिधाय संस्तम्भयन्त्यात्मना आत्मानं परैर्वा संस्तम्भयन्ते ।

हीनसत्वास्तु नात्मना नापि परैः सत्त्वबलं प्रतिशक्यन्ते उपस्तम्भयितुम् ।

महाशरीरा ह्यपि ते स्वल्पानामपि वेदनानामसहा दृश्यन्ते सन्निहितभयशोकलोभमाना
रौद्रभैरवद्विष्टवीभत्सविकृत संकथास्वपि च पशुपुरुषमांसशोणितानि चावेक्ष्य
विषादवैवर्ण्यमूर्च्छोन्मादभ्रमप्रपतनानामन्यतममात्मवन्त्यथवा मरणमिति ॥

(च. वि. 8/119)

Depending upon the *manobala* (mental strength) and tolerance power of a person the *manas* is classified as *pravara*, *madhyama* and *avara*. The person with *pravara satva* is said to possess all the qualities mentioned in *satva sara*. The *pravara satva* persons though appear lean externally can tolerate pain due to different *vyadhis* without expressing it to others. The *madhyama satva* persons can overcome difficulties with the support of others. The *hina satva* is neither himself bold nor is capable of giving support to others. They are externally with a big body but cannot bear even little pain. They are constantly afflicted by fear, grief, confusion, greed. They fall into depression or faint seeing the blood and flesh of animals and people. *Madhya satva* is mainly due to *rajoguna* and *avara satva* is mainly due to *tamoguna*.^[15]

The person with *Satva guna* predominance has a good *manobala* and is stable both in times of difficulties and also happiness. They are self-supportive people. The person with *Rajas guna* predominance is able to come out of the difficulties with the help of others. The person with *Tamas guna* is unable to bear difficulties. They can neither overcome problems themselves nor with the support of others.^[16]

MATERIALS AND METHODS

- Assessment of *Jatharagni* done with the help of questionnaires.
- Assessment of *Sharira Bala* done with the help of HARVARD STEP TEST.
- Assessment of *Manobala* done with the help of questionnaires.

TYPE OF STUDY DESIGN

Present study is 'Observational' type of study.

DATA COLLECTION

The case record form which was prepared was approved by the committee appointed in our institute. Professional college students from our institute were selected by simple random sampling method for the study. The students were briefed about the study. Informed consent form was signed by students who were interested in participating in the study. These students were considered for the study. The questionnaires for *Jatharagni* Assessment and *Manobala* Assessment were distributed to the participant. The participants were explained the questionnaires and asked to tick mark the options which were felt appropriate by them. The *Sharira Bala* of the participant was assessed by the Harvard Step Test.

PLACE OF STUDY

Professional college students from our institute were selected randomly according to the inclusive criteria for the study.

SAMPLE SIZE

n = 100. Out of 100 populations, after screening, if there is any population not fulfilling the inclusion criteria will be excluded and remaining population will be the final sample size.

SAMPLING TECHNIQUE

Simple Random Sampling method has been used for the study.

STUDY DESIGN

- The CRF was prepared and the Questionnaires were standardized by 5 experts in the college committee belonging to different departments for their valuable suggestions if any. Changes were made accordingly and the questionnaires were approved for the further steps of the study.
- Volunteers as per mentioned in the inclusion criteria were selected randomly and written consent of volunteers were taken.
- Assessment of *Jatharagni* of the volunteers were done by Questionnaires in the *Agni* Assessment Tool and their percentage was calculated. Accordingly, the *Agnibala* of the volunteer was determined.^[17]
- Assessment of the *Sharira Bala* of the volunteer was done by Harvard Step Test.
- Assessment of *Manobala* of the volunteer was done by Questionnaires prepared on the basis of *Satva Sara Lakshanas*.

- The observed data was analyzed and statistical test of Chi square test of independence was applied since the data was qualitative.

CRITERIA FOR SELECTION OF STUDY

Inclusion criteria

- Apparently healthy professional college students.
- Students aged between 18 to 30yrs of either sex.

Exclusion criteria

- Students with any acute or chronic illness.
- Students with history of any psychiatric illness.
- Students under the influence of any psychotropic drugs or substance abuse.
- Handicapped students.

STUDY INSTRUMENT

- 1) The Assessment of *Jatharagni* was done by a developed, validated and verified Self - Assessment tool to estimate *Agnibala* by the Department of *Kriya Sharir*, Faculty of *Ayurveda*, Banaras Hindu University, Varanasi, Uttar Pradesh, India. It comprises of 15 questionnaires.
- 2) The Assessment of *Manobala* was done by self - made questionnaires validated and standardized by the institutional committee. It comprises of 15 questionnaires prepared depending upon the various points mentioned in *Satva Sara Lakshana* from *Charaka Samhita* and *Sushruta Samhita*.
- 3) The Assessment of *Sharira Bala* was done by HARVARD STEP TEST for which a HARVARD step bench, Metronome and stop watch was used.

Assessment of Jatharagni

Q1. What option describes best your ability to digest food?

- I. I am unable to digest even small quantity of food.
- II. My ability to digest keeps changing sometimes I am able to digest and other times I am not.
- III. I am able to digest almost all sorts of food items when consumed in appropriate quantity.
- IV. I am able to digest almost all food items very easily, even in large quantities.

Q2. What effects do you observe when food is taken in excess quantity?

- I. Takes longer time than usual to digest and causes heaviness and bloating of stomach.
- II. May sometimes cause indigestion and may sometimes digest food without causing much complications in the body.
- III. Capable of digesting excess quantity of food more or less at the appropriate time without causing any bad effects on the body.
- IV. Can easily digest even excess quantity of food.

Q3. What time do you feel like eating again after having?

- I. I feel like eating only after about 8 hours of having a meal.
- II. Not consistent keep varying sometimes before 6hrs and sometimes after 8 hrs.
- III. I feel like eating between 6-8 hours after having my meal.
- IV. I feel like eating before 6 hours of having meal.

Q4. What effects do you observe in your digestion due to irregular eating habits?

- I. Digestion gets disturbed due to slight variation in eating habits.
- II. Digestion gets disturbed due to appreciable disturbances in eating habits.
- III. Digestion is not affected much due to disturbances in eating habits.
- IV. Process of digestion gets initially disturbed like acidity etc. however later gets adapted due to variations in eating habits.

Q5. How frequently due you have meals in a day?

- I. I have less than 2 meals per day.
- II. My frequency of having meals vary from between 1 and 4.
- III. I usually have 2 to 3 meals per day.
- IV. I almost have more than 3 meals per day.

Q6. How would you describe your ability to bear hunger (i. e. your ability to wait for food after you feel hungry)?

- I. I can bear hunger for more than 2 hours.
- II. Hunger sometimes bearable up to 1hr and sometimes unbearable less than 1 hr.
- III. I can bear hunger for up to 1 to 2 hrs.
- IV. I feel it is very difficult to bear hunger, feels headache and giddiness if food not taken when hungry.

Q7. What quantity of meals do you have in a day?

- I. I usually have small meals.
- II. I sometimes have small and sometimes have large meals.
- III. I usually have meals which are neither too small nor too large.
- IV. I usually have large meals.

Q8. How do you describe your capacity to digest heavy meals in terms of time?

- I. Digestion mostly takes longer than normal.
- II. Time taken for proper digestion differs every now and then.
- III. Digestion is completed in normal time.
- IV. Digestion occurs quite quickly than normal.

Q9. Describe your capacity to digest light food like Jowari roti etc.?

- I. Takes time to digest even light food but does not cause heaviness or bloating in the stomach.
- II. Sometimes takes time to digest light food and digests heavy food easily.
- III. Digests light food at appropriate time
- IV. Digests light food very quickly and starts feeling hungry, craves for food.

Q10. Describe your capacity to digest heavy food like biryani, paneer, puree etc.?

- I. Takes longer time to digest heavy food and may cause loss of hunger for further meals.
- II. Sometimes can easily digest the heavy food and sometimes easily cause indigestion.
- III. Digest heavy food more or less at the appropriate time.
- IV. Digest heavy food very easily.

Q11. Describe your sleep pattern post having food?

- I. Feels very sleepy post meals and sleeps for long hours.
- II. Feels sleepy when food takes longer time to digest and does not feel sleepy when food digests quickly.
- III. Is not very sleepy post meals.
- IV. Does not feel sleepy post meals.

Q12. How do you describe your bowel habits?

- I. I generally have a tendency for constipation.
- II. My bowels are sometimes hard and sometimes soft.

III. My bowels are normal (neither too hard nor too soft)

IV. My bowels are generally soft.

Q13. How would you describe your eating habits?

I. I generally have food after the scheduled time.

II. I generally have food either before or after the scheduled time.

III. I generally have food exactly on scheduled time.

IV. I generally have food before the scheduled time.

Q14. How do you feel after the complete digestion of meals?

I. I frequently feel heaviness in abdomen and body.

II. I occasionally feel slight heaviness in abdomen and body.

III. I mostly feel lightness in body and abdomen.

IV. I feel lightness in abdomen and body quite early after having meals.

Q15. How do you express your feelings that you develop after looking at the food items that you like?

I. I do not feel like eating even when hungry.

II. I sometimes feel like eating and sometimes do not.

III. I feel like eating food.

IV. I feel like eating any food item irrespective of whether I like or not.

In the *Agni* assessment tool

I. Denotes *Mandagni*.

II. Denotes *Vishamagni*.

III. Denotes *Samagni*.

IV. Denotes *Tikshnagni*.

Percentage of

$$\text{Agnibala} = \frac{\text{Scores obtained for individual class of Agnibala}}{\text{Total score allotted to that class of Agnibala}} \times 100$$

Depending upon the dominance of percentage of *Agnibala* the participant is said to have that particular *Agni*.

Sharira Bala Assessment by HARVARD STEP TEST

Ask the participant to alternately step up and down, lifting each foot about 20 inches (16 inches in females) off the ground, at a rate of 30 double steps per minute, for a period of 5 minutes. (Alternately, the subject may step up and down a 50 cm bench (40 cm in females), at a frequency of 30 times/min for 5 minutes). Stop the test if the subject feels breathless and exhausted and is unable to continue the test. Count the pulse rate 1 minute after the end of the exercise.

- a) PR1(pulse rate)- 1 to 1.5 min during recovery.
- b) PR2(pulse rate)- 2 to 2.5 min during recovery.
- c) PR3(pulse rate)- 3 to 3.5 min during recovery.

$$PFI = \frac{\text{Duration of exercise in second}}{2(PR1+PR2+PR3)} \times 100$$

| PHYSICAL EFFICIENCY INDEX | FITNESS |
|---------------------------|--------------|
| Excellent | 90 and above |
| Good | 80-89 |
| Average | 65-79 |
| Low average | 55-64 |
| Poor | Below 55 |

The *Sharira Bala* of the participant depending upon the PHYSICAL EFFICIENCY INDEX was graded as follows:

- a) Participants with excellent, good and average Physical Efficiency Index was graded as having *Pravara Sharira Bala*.
- b) Participants with low average Physical Efficiency Index was graded as having *Madhyama Sharira Bala*.
- c) Participants with poor Physical Efficiency Index was graded as having *Avara Sharira Bala*.

QUESTIONNAIRES FOR ASSESSMENT OF MANOBALA

Q1. Person is given to read 15 words for 5min and see how many words the subject can recall at the end of the session-

- a) 11 to 15 words.
- b) 6 to 10 words.
- c) 1 to 5 words.

Q2. Are you devoted to your parents, teachers and elders?

- a) Sincerely devoted.
- b) Sometimes devoted.
- c) Not devoted.

Q3. Are you grateful towards the people who help you lifelong even in their absence?

- a) Always grateful.
- b) Sometimes grateful.
- c) Never grateful.

Q4. What would you do if you smell smoke in your house?

- a) Traces the smoke, able to take decision and evacuates everybody from the house.
- b) Traces the smoke but unable to take decision.
- c) Run away from the house.

Q5. How often do you clean your room?

- a) Regularly.
- b) Once in a week.
- c) Never initiates to clean the room and keeps it untidy.

Q6. Are you enthusiastic about doing a work irrespective of the problems that come your way till the end?

- a) Always keeps the same enthusiasm till the end of the work.
- b) Starts the work with enthusiasm but slowly decreases by the end.
- c) Is not much enthusiastic about working and keeps grumbling.

Q7. Are you ready to take initiative to do any kind of work?

- a) Always.
- b) Sometimes.
- c) Never.

Q8. How firm are the decisions you take in your life?

- a) Able to take very firm decisions and stick on to it.
- b) Keeps changing your decisions.
- c) Unable to take firm decisions.

Q9. Are you interested in participating in various competitions?

- a) Always interested.
- b) Sometimes interested.
- c) Never interested.

Q10. What would you do if you score less marks in your exam?

- a) Moves on and works hard for his next exam.
- b) Feels bad and later moves on with others support.
- c) Gets depressed and unable to come out of the situation even with the support of others.

Q11. Do you think deeply about how your decisions are going to affect people related to you and the society?

- a) Most of the times.
- b) Sometimes.
- c) Never.

Q12. If it is told to you that using headphone will impair your hearing, what would you do?

- a) Avoid using headphones.
- b) Will follow the advice sometimes and sometimes not.
- c) Will not follow the advice.

Q13. If during University Exams your friend falls sick, will you be kind enough to help her or him?

- a) Would go and meet the friend first do the needful and then give priority for studies.
- b) Would study first and then give priority to go and meet your friend.
- c) Would finish the exams and make a phone call to the friend to enquire about his sickness.

Q14. What would be your approach to bribery happening in front of you?

- a) You would oppose bribery.
- b) You would favor bribery.
- c) You would be indifferent to the scenario.

Q15. What would be your approach when you are facing a very bad phase in your life?

- a) You would accept the phase of life bravely and try to overcome it.
- b) You would keep grumbling about the problem in your life to others.

c) Would run away from the problems or fall into depression.

In the above questionnaires the scoring allotted to each of the category is as follows:

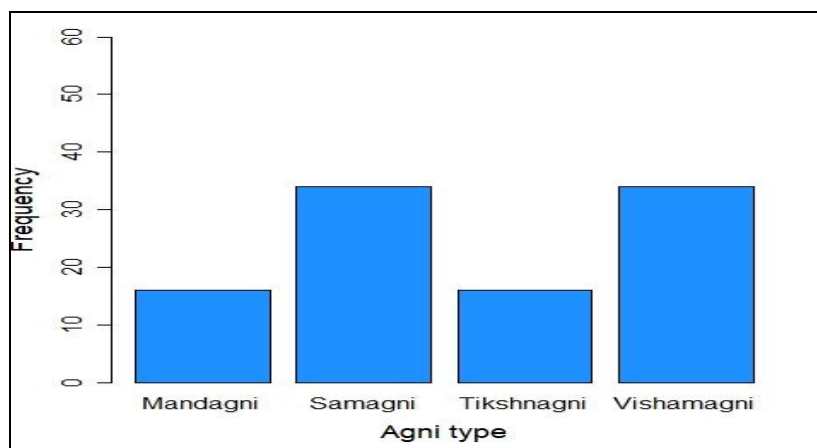
- ‘a’ option stands for *Pravara Satva Bala* and is given the score 3.
- ‘b’ option stands for *Madhyama Satva Bala* and is given the score 2.
- ‘c’ option stands for *Avara Satva Bala* and is given the score 1.

There are in total 15 questionnaires hence the maximum score would be 45 and the minimum score would be 15 and the following intervals were set:

| <i>SATVA BALA</i> | <i>SATVA ASSESSMENT SORE</i> |
|-------------------|------------------------------|
| <i>Pravara</i> | 36-45 |
| <i>Madhyama</i> | 35-26 |
| <i>Avara</i> | 25-15 |

Depending upon the score obtained the participant was graded either as having *Pravara satva*, *Madhyama satva* or *Avara satva*.

OBSERVATIONS AND RESULTS

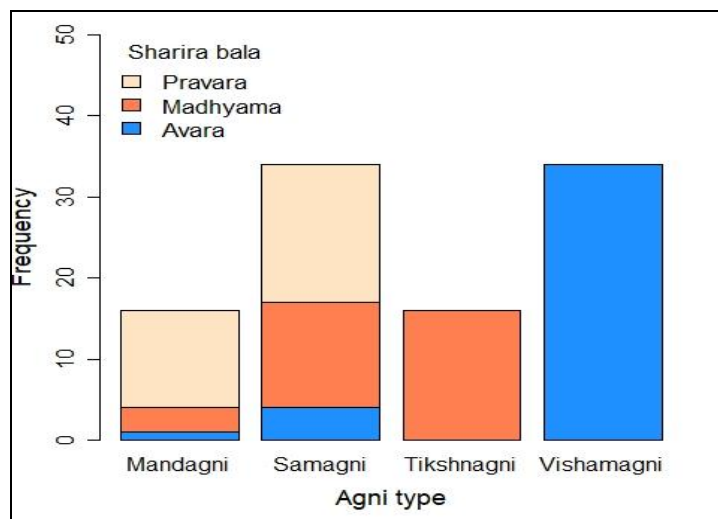


“Figure 1” – Distribution of participants according to final *Agni* type.

Table 1 – Distribution of participants according to final *Agni* type

| Final <i>Agni</i> of Participants | Frequency | Percentage |
|-----------------------------------|------------|------------|
| <i>Mandagni</i> | 16 | 16 |
| <i>Samagni</i> | 34 | 34 |
| <i>Tikshnagni</i> | 16 | 16 |
| <i>Vishamagni</i> | 34 | 34 |
| Total | 100 | 100 |

In the present study 16(16%) of participants belonged to *Mandagni* category, the participants having *Samagni* were 34(34%), participants belonging to *Tikshnagni* category were 16(16%), participants with *Vishamagni* were 34(34%).



“Figure 2” – Distribution of the number of participants based on *Agni* and *Sharira Bala* categories.

Table 2: *Agni* vs *Sharira Bala*.

Cross tabulation of the number of participants based on *Agni* and *Sharira Bala* categories.

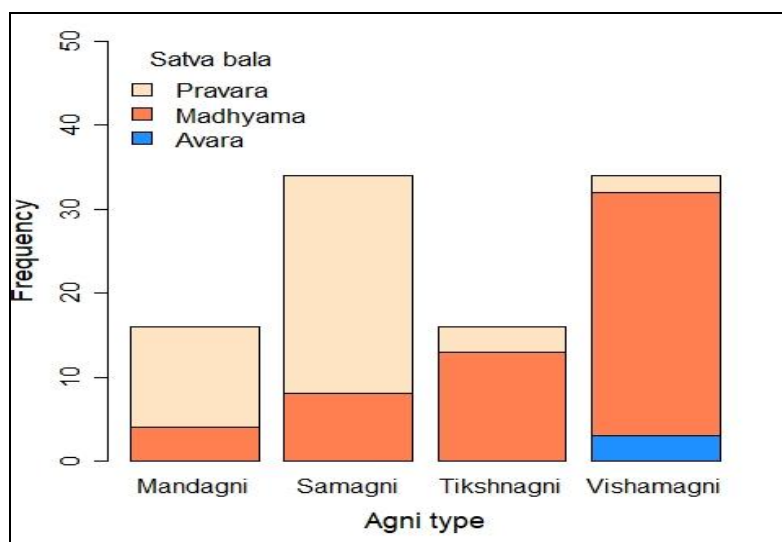
| | <i>Sharira Bala</i> | | |
|-------------------|---------------------|-----------------|----------------|
| <i>Agni</i> | <i>Avara</i> | <i>Madhyama</i> | <i>Pravara</i> |
| <i>Mandagni</i> | 1 | 3 | 12 |
| <i>Samagni</i> | 4 | 13 | 17 |
| <i>Tikshnagni</i> | 0 | 16 | 0 |
| <i>Vishamagni</i> | 34 | 0 | 0 |

In the present study participants with *Mandagni* majorly 12 of them showed *Pravara Sharira Bala*, 3 of them were with *Madhyama Sharira Bala* and 1 participant showed *Avara Sharira Bala*.

In the present study participants with *Samagni* majorly 17 of them possessed *Pravara Sharira Bala*, 13 of them were with *Madhyama Sharira Bala* and 4 of them were of *Avara Sharira Bala*.

In the present study participants with *Tikshnagni* all the 16 of them fell into the *Madhyama Sharira Bala* category.

In the present study participants with *Vishamagni* all the 34 of them fell into *Avara Sharira Bala* category.



“Figure 3” – Distribution of the number of participants based on *Agni* and *ManoBala* categories.

Table 3: *Agni* vs *ManoBala*.

Cross tabulation of the number of subjects based on *Agni* and *Mano Bala* categories

| | <i>ManoBala</i> | | |
|-------------------|-----------------|-----------------|----------------|
| <i>Agni</i> | <i>Avara</i> | <i>Madhyama</i> | <i>Pravara</i> |
| <i>Mandagni</i> | 0 | 4 | 12 |
| <i>Samagni</i> | 0 | 8 | 26 |
| <i>Tikshnagni</i> | 0 | 13 | 3 |
| <i>Vishamagni</i> | 3 | 29 | 2 |

In the present study the participants with *Mandagni* 12 of them showed *Pravara Mano Bala* and 4 of them possessed *Madhyama Manobala*.

In the present study the participants with *Samagni* 26 of them showed *Pravara Mano Bala* and 8 of them possessed *Madhyama Mano Bala*.

In the present study the participants with *Tikshnagni* 13 of them showed *Madhayma Mano Bala* and 3 of them possessed *Pravara Mano Bala*.

In the present study the participants with *Vishamagni* majorly 29 of them showed *Madhyama Mano Bala*, 3 of them were with *Avara Mano Bala* and 2 of them showed *Pravara Manobala*.

DISCUSSION

Final Agni of participant

In this study 34% participant belonged to *Vishamagni* category, 16% participant belonged to *Tikshnagni* category, 34% participant belonged to *Samagni* category and 16% participant belonged to *Mandagni* category. Maximum participants belonged to *Vata prakriti*, *Vata Pitta prakriti*, *Vata Kapha prakriti* and *Sama prakriti*. Also, the maximum participants were from *Sadharana* or *Jangala desha*.

Discussion of *Jatharagni* vs *Sharira Bala*

In the present study the person with *Mandagni* were found to have predominantly *Pravara Sharira Bala*. In *Mandagni* individuals *Kapha dosha* is predominant. Due to the *Sara guna* of *Kapha* these individuals have a body with excellence of all the *sapta dhatus*, compactness of the body parts and firm body. Due to the *Sandra guna* of *Kapha* their body is well nourished. Thus, able to perform their activities without any hinderance. Due to the *Vijjala guna* of *Kapha* the joints are well knit and lubricated because of which they are able to do their daily activities very smoothly. Even if their intake capacity of food is less and their *Jarana shakti* is slow they have good *Sharira Bala*. All these factors contribute to *Pravara Sharira Bala* in a *Mandagni person*. They do not get exhausted soon and have a good capacity to perform work.

In the present study the individuals with *Vishamagni* were found to have *Avara Sharira Bala*. In *Vishamagni* individuals there is predominance of *Vata dosha*. Due to *Ruksha guna* of *Vata* the *snigdha* (unctuous) component in their body is very less and also their body is not properly nourished. Due to *Laghu guna* and *Sheegra guna* of *Vata* they are able to do the physical activities very swiftly but gets exhausted very fast. Due to *Vaishadya guna* of *Vata* there is lack of lubrication in their joints. These individuals have irregular eating habits and so is their digestion. All these factors create hinderance in the capacity of performing work of these individuals. Hence *Vishamagni* individuals were found to have *Avara Sharira Bala*.

In the present study the *Tikshnagni* individuals were found to have *Madhyama Sharira Bala*. In *Tikshnagni* persons there is predominance of *Pitta Dosha*. Due to *Ushna guna* of *Pitta* these individuals have *Sukumara* body and their intake capacity of food is also very good. Due to *Tikshna guna* of *Pitta* their digestion is very fast also they cannot tolerate too much of physical activity. Due to the *Dravata guna* of *Pitta* their *sandhi* (joints) and muscles are very *shithila* (not firm) and *mrudu* (soft). Due to these factors, individuals have a moderate

capacity of performing physical activities. Hence the *Tikshnagni* individuals were found to have *Madhyama Sharira Bala*.

The *Samagni* individuals were found to have *Pravara Sharira Bala* in the present study. In them all the *tridoshas* are in the balanced state. When the *tridoshas* are in the balanced state the *saptadhatu*s are properly formed in the body and also the waste products are expelled out of the body timely. Their intake capacity is appropriate and so is their digestion. Hence due to these factors their capacity to perform physical activities is good.

Discussion of *Jatharagni* vs *Manobala*

In the present study *Mandagni* individuals were found to have *Pravara Satvabala*. In *Mandagni* individuals there is predominance of *Kapha dosha*. These individuals are slower in grasping but due to *sthira budhi* they can retain whatever they have learned. They are also *vidhyavant* (knowledgeable). They also possess *Gambhir budhi* because of which they think deeply before doing anything. They are very grateful towards others. They have lot of *bhakti* (devotion) towards their teachers. They are slow to initiate any work but once initiated due to their *sthira chita* they would concentrate on the work and complete it properly. They are also capable of taking firm decisions. Since the individuals with *Mandagni* were found to possess such characteristics, they were categorized under *Pravara Satvabala*.

In the present study the *Tikshnagni* individuals were found to have *Madhayama Satvabala*. In *Tikshnagni* individuals there is predominance of *Pitta dosha*. These individuals were found to have good grasping power and were very sharp. They followed cleanliness. They were found to be very brave. They were found to have good competitive spirit and used to excel in their task. Since the individuals with *Tikshnagni* were found to possess these characteristics, they were categorized under *Madhayama Satvabala*.

In the present study the *Vishamagni* individuals were found to have *Madhayama Satvabala* and few were found to have *Avara Satvabala*. In *Vishamagni* individuals there is predominance of *Vata dosha*. These individuals were found to have good grasping power but their retention power was poor. They were found to be ungrateful. They were capable of initiating any work quickly but due to *Asthira chita* they lacked concentration and focus on their work. Hence, they would sometimes finish the work and sometimes not. Due to their unstable nature, they were not capable of taking firm decisions. Due to *Avyavasthitamati* they

are unable to take the right decisions at the right time. Due to their violent nature, they hardly think about the welfare of others while doing any actions.

Discussion on the Applied Study

Since the data was qualitative a chi-square test was used to test the null hypothesis that there is no relationship between *Jatharagni* and *Sharira Bala* against the alternative that there is a dependency between *Jatharagni* and *Sharira Bala*. The value of the chi-square statistic was 116.18 and at 6 degrees of freedom(df), the p-value from the test was <0.0001 . Since this p-value is less than a significance level(α) of 0.05, the null hypothesis can be rejected. Thus, we can infer that *Jatharagni* and *Sharira Bala* are not independent.

A chi-square test was used to test the null hypothesis that there is no relationship between *Jatharagni* and *Mano Bala* against the alternative that there is a dependency between *Jatharagni* and *Manobala*. The value of the chi-square statistic was 48.28 and at 6 degrees of freedom(df), the p-value from the test was <0.0001 . Since the p-value is less than a significance level(α) of 0.05, the null hypothesis can be rejected. Thus, we can infer that *Jatharagni* and *Mano Bala* are not independent.

CONCLUSION

1. *Jatharagni* being located in its main seat that is *Grahani* (duodenum) facilitates the breakdown of complex food substances into simpler form thus rendering it favorable for absorption.
2. *Jatharagni* has a special effect all over the body by promoting tissue metabolism through *Dhatwagni*.
3. The study of *Jatharagni* is important to decide upon the food and medicine to be consumed, for the purpose of deciding treatment and to fix the *dose age* for *snehapana*, *vasti*(enema) *etc.* procedures.
4. *Agnimandya* of *Jatharagni* is caused by both improper food habits and psychological factors.
5. Due to *Agnimandya* the food consumed is partially or improperly digested giving rise to *ama* which contributes to many diseases in the body and mind.
6. *Jatharagni* in its normal functional state is responsible for *Bala* in the body.
7. *Bala* is responsible for the firmness and nourishment of the muscle tissue thus promoting all the voluntary functions of the body.

8. *Bala* helps in sustaining life by bestowing good *Sharira bala*, *Manobala*, *Atma bala*, *Indriya bala* and *vyadhikshamatva*.
9. Taking birth from healthy parents, in a healthy place, in a season where *bala* is found to be *uttama*, proper time of conception, from parents having excellence of sperm, ovum and uterus, consuming food having capability to nourish all the *sapta dhatus*, people with strong mind and good behavior are some of the contributing factors of *Sahaja bala* amongst the *balavruddhikara bhavas*.
10. Nutritious diet, following proper rules of dietics and normal functional state of *Jatharagni* are essential factors for producing *Bala* in the body.
11. From the present study it was concluded that there is a significant relation between *Jatharagni* and *Sahajabala* of the *Sharira*(body) and *Manas*(mind).
12. *Jatharagni*, *Sharira bala* (physical strength) and *Manobala* (mental strength) all the three entities are very important in maintaining the *Arogya* (health) of an individual and also in sustaining life.

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