

**Study of Satmya Lakshana in volunteers of Sadharana desha consuming excessive dietary salt**<sup>1</sup>Dr Narendra Yadnik, <sup>2</sup>Dr Manisha Nareenge, <sup>3</sup>Dr Ravi Joshi<sup>1</sup>Lecturer, Dept. of Sharir Kriya, Parul institute of Ayurved, Parul University, Limbda, Vadodara.<sup>2</sup>Professor, Dept. of Shalakyatantra, Parul institute of Ayurved, Parul University, Limbda, Vadodara.<sup>3</sup>Lecturer, Dept. of Sharir Rachana, Parul institute of Ayurved & Research, Parul University, Ishwarpura, Vadodara.**Corresponding Author:** Dr Narendra Yadnik, Lecturer, Dept. of Sharir Kriya, Parul institute of Ayurved, Parul University, Limbda, Vadodara.**E-mail Id:** [narendrayadnik@gmail.com](mailto:narendrayadnik@gmail.com)**Conflicts of Interest:** Nil**Abstract**

The greatest disadvantage of fast food is the adverse effect that it has on one's health. It is a fact that fast food is more unhealthy than home-cooked meals, as they contain higher amounts of unwanted *nutrients* like salt, *fat* and various types of additives. Considering all types of professions and standard of living, fast food is becoming the popular trend between the people, whatever be the profession i.e. Engineers, Doctors, IT professionals, workers etc. They all are consuming the Diet containing high sodium, fats, protein which is not significantly needed to the human body. According to Ayurveda in Charaka Vimansthana 1, excessive use of Lavana creates Satmya Lakshana viz. Vali, Palita & Khalitya. A survey study was done on sample size of 200 volunteers who consume daily salt between the range of 5 to 12 gms. After data collection, conclusion was drawn.

**Keywords:** Lavana, Vali, Palita, Internal Medicine, Salt.**Introduction**

Fast-food restaurants deliver filling, inexpensive meals and snacks. But there's usually a hidden added cost: a wallop of salt (sodium) that isn't good for cardiovascular health. Even with the current clamor for reducing sodium in the American diet, and industry promising to do just that, the amount of sodium in prepared foods hasn't changed much since 2005, according to a report published in the latest issue of *JAMA Internal Medicine*. Why does sodium matter? Too much of it can increase blood pressure and make the kidneys work harder.

Lavana is an essential element in the diet of not only human but of animals and even of many plants. Human needs salt to live. When man developed agriculture, salt was added to supplement the vegetable and cereal diet and the quest for salt become a primary motivation in history. Indian history recalls the prominent role of salt and salt making.

In medieval times for medicinal purposes, people of various regions were using lavanas according to their local name. So the name of one lavana was different in one region from other.

Generally, high sodium diet is consumed by people belonging to all class, whatever may be the reason, lack of time, lack of money, or habit to obey the demand of tongue. Many people have habit to consume dietary salt directly while eating salads, burger, pizza, snacks in the form of chat *masala*, *chatani*, *achar* etc. So unnecessary quantity of salt is consumed by them than actual requirement.

People are consuming excessive dietary salt not in recent decades, but from many centuries. Hence Acharya Charaka has mentioned in *Vimanshana* that how “*Lavana Ati-upayunjit Lakshana*” harm the body. It was their keen observation at that time that from which region excessive dietary salt is being consumed from long duration. Acharya charaka has mentioned the symptoms produced due to over consumption of dietary salt in two way i.e. 1) *Satmya Lakshana* 2) *Asatmya Lakshana*. Here Satmya lakshana are concentrated.

### Objectives

- 1) To apply the *Trividh Pariksha* to “*Satmya Lakshana*” in volunteers consuming excessive salt.
- 2) To elaborate the concept of *Satmya Lakshana* according to Ayurvedic classics.

#### • Properties of Lavana (Sea salt)

- Ushna
  - Tikshna
  - Anatiguru
  - Anatisnigdha
  - Upakledi(Moistness)
  - Visransana samartham (Helps to create secretions),
  - Annadravya ruchikaram (Increases taste of food)
  - Apatabhadram prayogasamasadgunyaat – It is healthy if consumed in proper quantity
  - Doshasanchaya anubandham – Helps to create Dosha sanchaya
  - It is used for Rochana(Taste), Pachana(Digestion), Kledana (Moistness in body), Visransana( Produces secretions)
- Contain of sodium in different food types according to WHO
  - (1000mg = 43.5 mmol of sodium)

Food Type	Sodium per 100g (WHO)
Table salt, Baking soda, Baking powder	38,000
Snack foods (cheese puffs, popcorn)	1500
Cheese (soft)	400
Cheese (hard)	800
Butter/Margarine	500
Processed vegetables	600
Processed fish	400
Bread, breakfast cereals, biscuit, cakes, pastries	250
Fish (raw or frozen)	100
Eggs	80
Milk and cream	50
Vegetables (fresh or frozen)	10
Fruits	5
Beef (roast, lean, fat)	48
New potato	9
Potato chips	12
Sweet corn (canned and heated)	250
Peanuts (roasted and salted)	400

• **Indian food products consumed with additive salt**

No	Food product
1)	Eggs
2)	Masala Puri (Panipuri)
3)	Flavored Soda
4)	Potato Vapors
5)	Farsaan
6)	Pizza
7)	Chinese Food
8)	Cane Sugar Juice
9)	Roasted Sweet corn
10)	Lavana Bhaskar Churna Or Kayam Churna etc.
11)	Papad
12)	Pickle
13)	Salted fish (bombil etc)
14)	Roasted Recipe of Chicken and meat (Kabab)
15)	Fruits like Pineapple, Papaya, Watermelon, Guava, Unripe mango.

**Satmya Lakshana**

If someone has become habitual to over consumption of salt, below symptoms are seen in that person at very low age. That is called “Satmya Lakshana”

- Khalitya – Baldness
- Palitya – Greying of hairs
- Vali – Wrinkles on skin

• **Material and methods**

- a) Study type - Observational → Cross-sectional
- b) Sample Size – 200 volunteers
- c) Sampling method – Stratified random sampling

Sadharana desha was selected. This region had many small urban and suburban areas. These areas have specific names. These all areas were listed. Then 25 chits of 25 urban and suburban areas were prepared. Among these 25 areas, 5 areas were selected by Lottery method. Then 40 volunteers were selected by simple random sampling from these 5 areas. Thus total 200 volunteers were selected from 5 urban/suburban areas by simple random sampling.

- d) Inclusion and Exclusion criteria – Decided accordingly.

• **Assessment of Satmya (Atilavana satmya) lakshana**

**1) Vali**

Acharya Vagbhata described Vali as a “Tvak Sankocha” | It can be called as wrinkled skin fold. Pinch test was done to every volunteer to assess “vali”. Also questionnaire was used to assess. Trividha pariksha was done of every volunteer for Vali parikshana. Skin folds was examined using Darshana Pariksha and question was asked whether their skin texture is rough or moist or wrinkled.



## 2) Palita

Acharya Charaka described Palitya as “Kesha shuklatvam” that is nothing but greying of hairs. It was examined by Darshana and Prashna Pariksha. Also question from questionnaire was asked and observations were recorded in CRF.



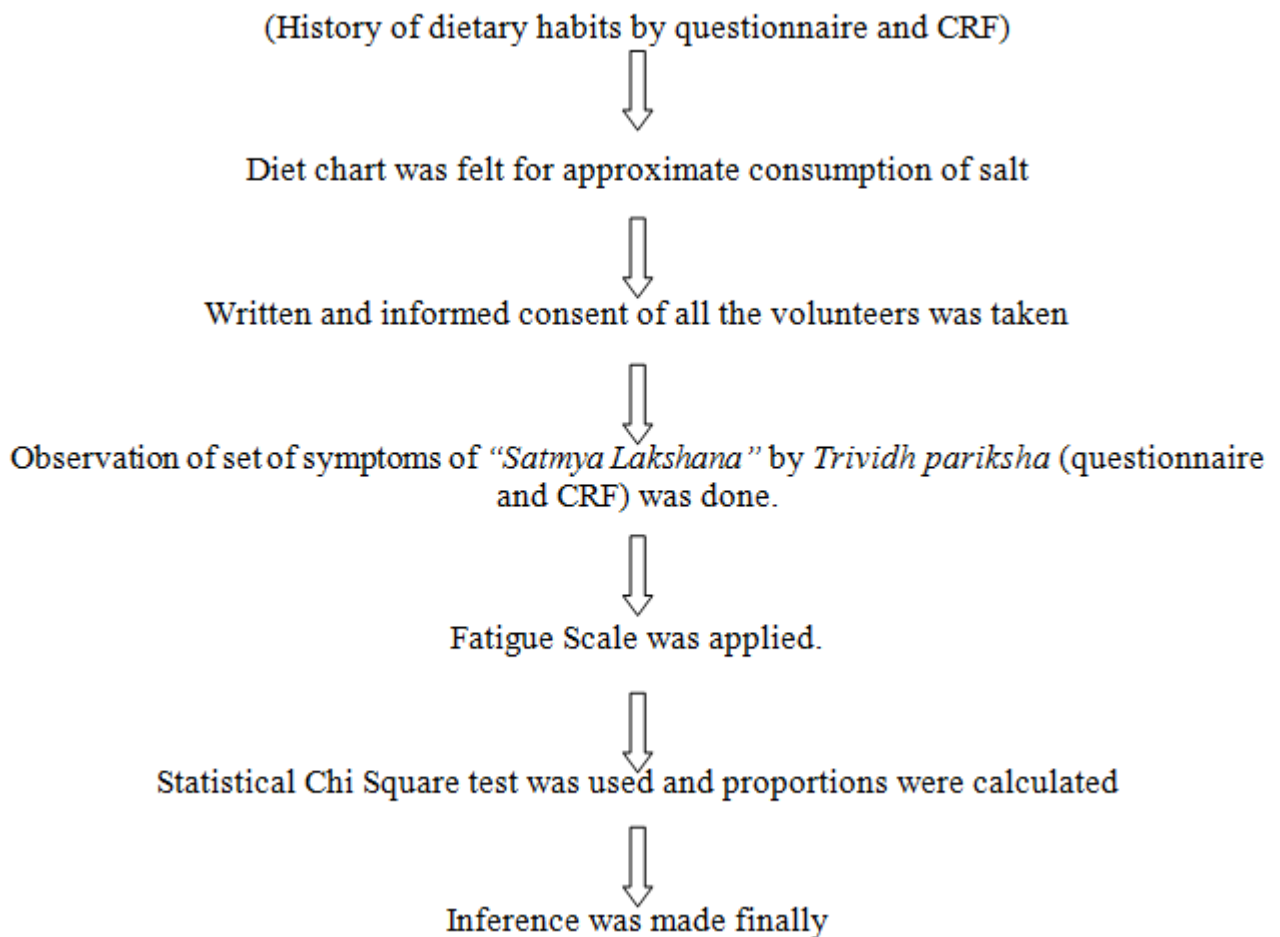
## 3) Khalitya

Khalitya was assessed using Darshana, Sparshana, Prashna pariksha and questions from questionnaire. Observations were assessed in Case record form.



### • Study design

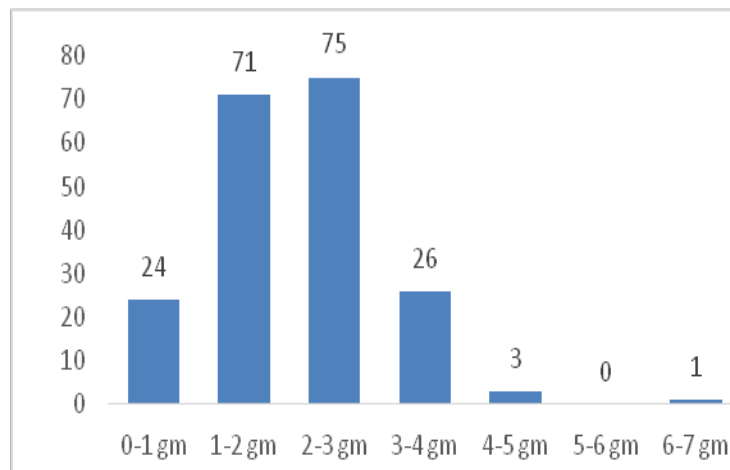
Selection of volunteers was done by inclusion & exclusion criteria and interview



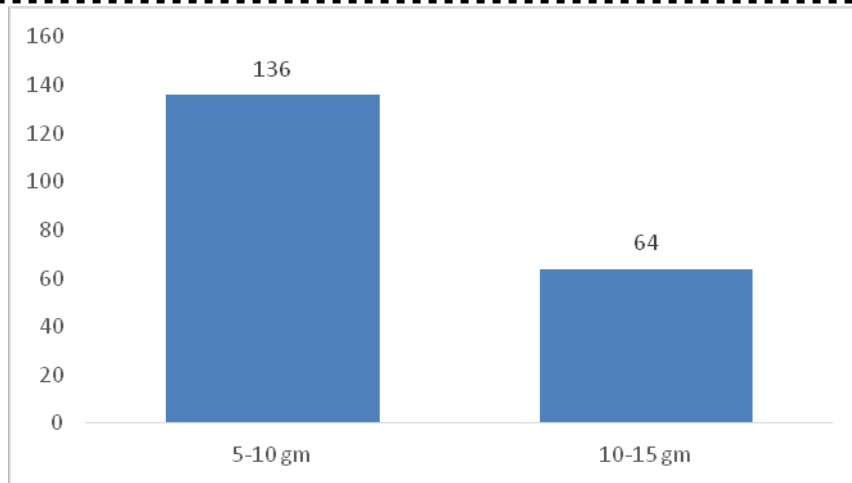
- **Observation and Result**

In this study, total 200 volunteers were included of either gender according to inclusion and exclusion criteria. Screening test, Questionnaire and Fatigue scale was applied for the assessment criteria. After analyzing and studying the data, statistical test was applied and result was drawn.

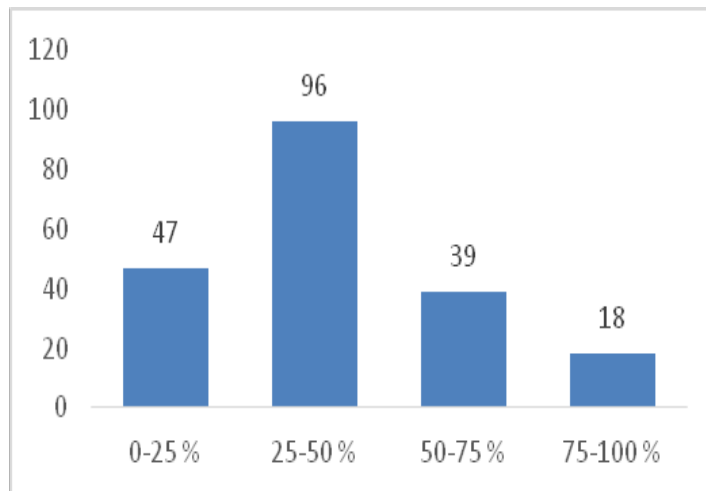
- Distribution of volunteers according to extra grams of salt consumed per week.



- Distribution of volunteers according to total grams of salt consumed per day per person.

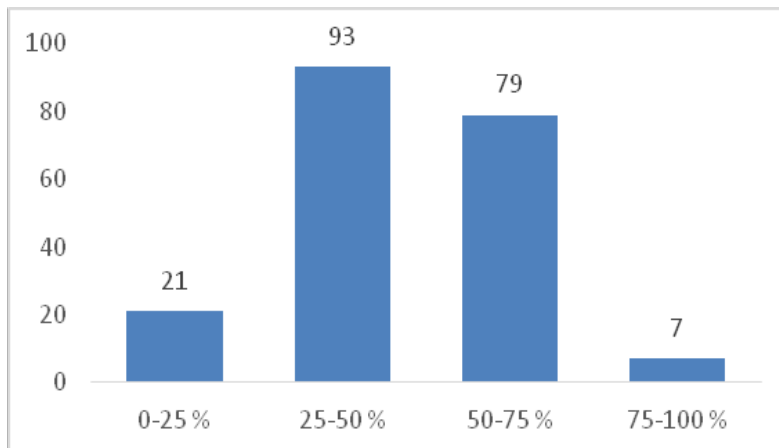


- Distribution of volunteers suffering from symptom Vali.



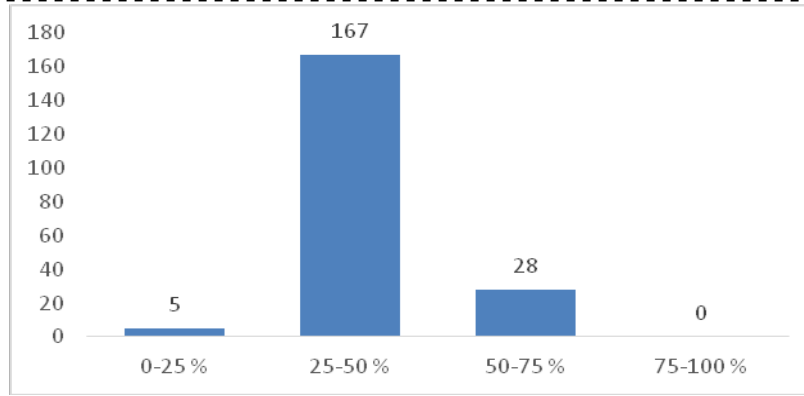
In most of the volunteers, symptom Vali was seen Moderately Significant. (25% - 50%)

- Distribution of volunteers suffering from symptom Palita.



In most of the volunteers, symptom Palita was seen Moderately Significant. (25% - 50%)

- Distribution of volunteers suffering from symptom Khalitya.



In most of the volunteers, symptom Khalitya was seen Moderately Significant. (25% - 50%)

## Discussion

Common salt i.e. Sodium Chloride is generally taken as a Samudra Lavana. According to Charakacharya, even plants, shrubs, trees do not grow or live with stunted growth in the places belonging to Ushara (Lavana) bhumi, which have saline soil. So people belonging to these places may also suffer from hazardous effect of excessive salt as food they consume is produced from that “Ushara Bhumi”. Charakacharya also have explained that, even the person who are suited for to excessive consumption of salt fall victim to untimely Baldness, graying of hairs and wrinkles. So Lavana should not be excessively used in day to day life.

Further Acharya chakrapani stated that, “Atilavana satmya lakshana” does not only belong to “Ushara bhumi” but also to the all type of Desha. Desha swabhava does not matter much, but the quantity of excessive consumption of Lavana matters most of the time also in Atimatra Lavana Satmya persons.

## • Conclusion

1. From the above Observation and Discussion, It is concluded that excessive consumption of dietary salt (Atiupayunjita) above 5 grams and up to 10 grams shows Atilavana satmya Lakshana i.e. Vali, Palita, Khalitya as per Vimanasthana of Charaka Samhita.
2. This quantity is in excess according to Modern science i.e. 5 gram.
3. These symptoms were observed in Sadharana Desha also.
4. Therefore it is reassessed according to Chakrapani that Satmya (Atilavana satmya) lakshana can be found in any type of Desha whether it is Jangala, Anupa or Sadharana desha in persons consuming extra dietary salt ( Atiupayunjita Lavana)

## • References

1. Kaviraj Dr. Shastri Ambikadatta, Sushruta Samhita, Ayurvedatvatvasandipika Commentary, Varanasi, Chaukhamba Sanskrit Sansthan, Reprint 2014.
2. Dr. Tripathi Bramhananda, Charak Samhita, Poorvardha, Varanasi, Chaukhamba Subharati Prakashan, Edition2015.
3. Dr. Tripathi Bramhananda, Charak Samhita, Uttarardha, Varanasi, Chaukhamba Subharati Prakashan, Edition2015.
4. Dr. Thakaral Keval Krushna, Sushruta Samhita, Varanasi, Chaukhamba Orientalia, Edition2014.
5. Vd. Harish Chandra Singh Kushwaha, Charaka Samhita Poorvardha, Ayurveda Dipika Ayushi Hindi Commentary, Varanasi, Chaukhamba Orientalia, Reprint2012.

6. Vd. Harish Chandra Singh Kushwaha, Charaka Samhita Uttarardha, Ayurveda Dipika Ayushi Hindi Commentary, Varanasi, Chaukhamba Orientalia, Reprint2012.
7. Dr. Tripathi Bramhananda, Ashtanghridayam, Nirmala Hindi Commentary, Delhi, Chaukhamba Sanskrit Pratishthan, Reprint 2015.
8. Vd. Jadhavaji Trikamji Acharya, Charaka Samhita, Ayurveda Dipika Commentary, Varanasi, Chaukhamba Subharati Prakashan, Reprint2009.
9. Prof. Sharma Priyavrat , Charak Samhita, Vol-2,Varanasi,Reprint Edition2008.
10. Prof. Sharma Priyavrat, Sushruta Samhita, Vol2, Varanasi, Chaukhamba Vishvabharati, Edition1st 2000.
11. Prof. Chunekar .K.C.,Bhavprakasha Nighantu,, Varanasi, Chaukhamba Bharati Academy , Edition Reprint2015.
12. Raja Radha Kanta Deva,Shabdakalpadrum, Chaukhamba Sanskrit Series Office,Part2,Edition 3<sup>rd</sup> , 1967.
13. Pandit Hargovinda Shastri, Amarkosha, Varanasi,Chaukhamba Sanskrit Series Office,Edition1970.
14. Ayurvedacharya Venimadhavshastri Joshi, Ayurvediya Shabadkosha,Mumbai, Maharashtra Rajya Sahitya Mandal, Edition 1968.
15. Prof. Sharma Priyavrat, Dravyaguna Vidnyana Vol.1(Bsaic Concepts), Varanasi, Chaukhamba Bharti Academy, Reprint Edition2008.
16. Prof. Shrikantha Murthy K. R., Sushruta Samhita,Varanasi, Chaukhamba Orientalia, Reprint Edition2010.
17. Dr. Desai V. G.,Bhartiya Rasashastra(The ancient chemistry of India), Dadar,Mumbai, Raghuvanshi Publication, Edition
18. Pandit Sharma Hemraj, Kashyapa Samhita, Varanasi, Chaukhamba Sanskrita Sansthana, Edition
19. Prof.Dr. Sathe Kalpana Dilip, Pushakalabhidhanam, Sharir Kriya Pratyakshika Parikshavidhi Margadarshika,Pune, Pragati Book Pvt.Ltd,Edition2005.

#### **Modern Literature**

1. Shah N.S., API Textbook of Medicine Vol1, Mumbai, The Association of Physicians of India, Reprint 2009.
2. K. Sembulingam, Prema Sembulingam, Essential of Medical Physiology, New Delhi, Jaypee Brothers Medical Publishers Ltd. 3<sup>rd</sup> Edition,Reprint2005.

#### **Web References**

1. Sodium intake for adults and children [www.who.int/nutrition/publications/guidelines/sodium\\_intake](http://www.who.int/nutrition/publications/guidelines/sodium_intake)
2. SALT INTAKE IN INDIA – AN ALARMING SITUATION , Dhemla S. and Varma K. Department of Home Science, University of Rajasthan.
3. Indians consume twice the recommended salt intake, new global study finds - Times of India
4. UTILITY OF THE KNOWLEDGE OF DESHA - A CLINICAL PERSPECTIVE Darshan Babu N, Final Year Pg Scholar, SDM College Of Ayurveda, Udupi, Karnataka, India.
5. INTERSALT Study Findings. Public Health and Medical Care Implications, Jeremiah Stamler, Geoffrey Rose, Rose Stamler, Paul Elliott, Alan Dyer, and Michael Marmot
6. <https://www.health.harvard.edu/blog/sodium-still-high-in-fast-food-and-processed-foods-201305166267>