A CONCEPTUAL SURVEY-BASED STUDY TO ASSESS THE RELATIONSHIP BETWEEN STHAULYA AND NIDRA

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ABSTRACT

According to W.H.O. in 2008, more than 1.4 billion adults, 20 years and older, were overweight. Out of these over 200 million were men and nearly 300 million women were obese. *Sthaulya* (obesity) is one among the major diseases of modern era. Nowadays it is considered as life style disorder due to lack of physical activity, change in dietary habits, and stress during work and unwholesome dietary habits causes' victim of many diseases. Along with *Swasth shareera*, *Nidra* is also considered as important part for healthy life. Perspective of *Sthoulya and Anidra* is explained in *Ashtanindaniya Adhyaya. Acharaya Charaka* has affirmed that happiness & sorrow, strength & weakness, virility & impotence as well as survival of life and its termination depend on sleep. A healthy body is the only one media to achieve the ultimate goal among the *Chaturvidha Purusharta* i.e. *Dharma, Artha, Kaama, Moksha. Sthoulya* is a condition wherein there will be *Apachaya* of *Shareera* associated with abnormal increase in *Medo Dhatu.* Thus both of them are related to life style pattern and *Prajagrana* is also mentioned *Nirdistha Vihara* for *Ati Sthaulya. Sthaulya* (obesity) and *Karshya* (emaciation) depends upon *Ahara* (diet) and *Nidra* (sleep). It is a Survey based study in which observed that *Ahara* and *Vihara* have direct influence on *Sthoulaya* and *Nidra*. On this issue of *Nidra* and *Sthaulya* our survey study is based. A refrence was available in *Charak Suthrasthan* (21/51) that there is direct relation of *Sthaulya* to *Nidra*. Observations were made according to different categories, i.e. sex, age, occupation religion etc. Final conclusion says that *Sthaulya* and *Nidra* are associated with each other as mentioned in the classical. More is *Nidra* more will be the *Sthaulya*.

KEYWORDS: *Nidra*, Sleep, *Swapna*, *Sthoulaya,* Obesity, *Meda Dhatu*, Survey Study.

INTRODUCTION

The nature has taught Human how to be healthy before the science has discovered the laws of health. But it is an irony of the fates that on this earth one hand Millions do not get enough food and roam in a skeletal appearance while on the other hand, there are many more who, besides over eating lead a sedentary life too much towards an untimely death.

Sthaulya is one among the major diseases of Modern era. In Modern era with continuous changing life styles and environment, changed diet habits, man has become the victim of many diseases caused by unwholesome dietary habits and obesity is one of them.

Obesity is a blessing of Modern age of Machines and Materialism. It occurs as a result of lack of physical activity with increased uptake of food. The Industrialization, stress during work, dietary habits, lack of exercise and various varieties among the daily diet, for example fast foood, freezed fruits, increased amount of soft drinks and bevarages, canned foods results into the clinical entity which we can call as obesity.

Obesity is the only one disease gaining more and more attention of scientist at global level. Curiosity is one of the nobelest instincts of man, the endless desire of man for his knowledge. By this time many countries are making an effort into this field of research. Many theories have been put forward with many new hypotheses describing the exact aetiopathology of *Sthoulya* or Obesity.

As it is said that "where ever the carcass there is will be vultures gathered together in the similar fashion," the obesity is such a physical state where Hypertension, Osteoarthritis, Diabetes mallitus, cardiovascular accidents, Impotency and many other grave complications are the vulturous invited. The long term dangers of obesity are like a sword hanging over one's head tied in a week thread which can strike at any time and create numerous difficulties and boundless miseries.

A defination of *Swastha Purusha* as given by *Acharya Charaka* in *Charaka Samhita*[1] and *Sushruta*[2] A healthy body is the only one media to achieve the ultimate goal among the *Chaturvidha Purusharta*. *Acharya Sushruta* also said that *Madhyam Sharira* is the best but *Ati Sthoulya* and *Ati Krisha* are always affected with some complaints. *Acharya Charaka* has thrown light on the eight varieties of impediments which are designated as *Nindita Purusha*[3]; *Ati Sthaulya* comprises one of them.

Defination of *Nidra* is one of the important factors to lead a healthy life. It is one the *Trayopasthamba* in *Ayurveda* (*Ch.Su* 11/35). It is also said to be one of the important natural urges i.e. *Adharniyavega* explained in *Ashtanga Hrudaya* (*A.H*.4/1). In this study we are working on the sleep pattern, depending on the sleeping hours, relationship with *Sthaulya* in different categories i.e. Weight, BMI, Raised waist hip ratio, raised body height weight ratio.

Nidra, Sleep pattern is divided in to 3 categories i.e. *Alpanidra*, *Samyaknidra*, *and Atinidra*. *Anidra* is having sleep for less then 6 hours, *Samyaknidra* is sleeping for 6-8 hours and *Atinidra* is further again divided in 4 parts (Sleep upto 8-10 hours, Sleep upto 10-12 hours, Sleep upto12-14 hours and more then 14 hours per day).

MATERIALS AND METHODS

A theory becomes valuable only when its hypothesis is tested, verified, retested, and proved without any doubts by the experts of the field.

A hypothesis will never turn in to a theory/principal always. As the definition of research is either to invent something new or to throw light on old facts & principals which are traditionally proved as truth first by challenging them then critically reexaming & then either accepted or rejected on the basis of evidence found. It must with stand the test of time to become a principal/theory. To test a hypothesis many steps have to follow. Similarly, if the theme or correlation of this work has to proved then it has to overcome many steps.

Source of data

The source for present study was on the people residing in Bohar Rohtak area.

Method of collection of data
Survey study
Plan of study

- **Conceptual study:** Detailed study on *Nindra* and *Sthaulaya.*
- **Survey study:** Detailed study of *Nidra* and *Sthaulya* on "*Swapnaharasam Samuthe Cha Sthaulyakarshye Visheshtah*" through pre-planned survey proforma.
1. Urban and Rural areas of Rohtak were selected on the basis of stratified random sampling method.
2. Door to door survey was carried out on volunteers fulfilling the inclusion exclusion criteria and sampling was done.

Inclusion exclusion criteria

Inclusion criteria

A. Volunteer of 18-80 year of age group irrespective of sex, creed, caste, religion etc.

B. BMI= Weight in kg / (Height in metres.)^2

   Patient having BMI >25 kg/m^2 will be included in the study.

C. Raised waist Hip Ratio – waist measurement divided by hip measurement (W/H) in inches >0.8 in females and >1 in male.

Exclusion criteria

A. Patient below 18 year age and above 80 year.

B. Family history of obesity.

C. Patients having Kaphaj Prakriti

D. Patient on sedative drugs or drug effects viz. toxicity, throat disorders.

E. Night shift work employment.

F. Pregnant and lactating women.

G. Grishma Ritu.

Criteria for assessment

1. Subjective criteria

• Health status

• Nutritional status

• Quality of life

• Incidence of disease

2. Objective criteria

• Height and Weight

• BMI

3. Statistical Analysis: Result was calculated by application of person's correlation coefficient and this was done by the coefficient of correlation as a measure of closeness of association between two variables such as *Nidra* and *Sthaulya.*

Evaluation was done on the basis of observations.

Performa

Name:

Age:

Sex: M/F

Religion:

Address:

Contact No:

Habitat: Urban/Rural.

Dietary status: Vegetarian/Mixed.

Marital status: Married/Unmarried/Widower (Widows).

Educational status: Uneducated/Primary educated/Higher secondary educated/Graduate.

Occupation: Study/Service/Business/Home work/No work.

Life style: Heavy/Moderate/Sedentary/No work.

Economical status: Upper class/Middle class/Lower class.

Addiction: Beedi, cigarette/Pan (betal leaf)/Tea, coffee/Tobacco/No addiction.

Rogi pariksha

Prakriti: Vatpittaj/Pittkaphaj/Kaphavataj/SamDoshaj.

Sara: Sarvasar/Madhyam sara/Asara.

Samhanana: Susamhanana/Madhyam /Samhanana/Heena samhanana.

Satmya: Uttam/Madhayam/Avar.

Satwa: Pravar/Madhyam/Avar.

Jaran Shakti: Pravar/Madhyam/Avar.

Vyayam Shakti: Uttam/Madhyam/Heena.

Vaya pariksha: 0-16/17-30/31-60/61-onwards.

Status of agani: Sama/Visham/Manda/Tikshana.

Ras Satamya: Madhura/Amala/Lavana/Katu/Tikta/Kashaya.

Koshtha: Krura/Madhyam/Mridu.

Table 1: *Aharatmaka nidana* of *sthaulya.*

S. No.	*Nidana*	Yes	No
1.	*Ati Sampurana (Over eating)*		
2.	*Santarpana*		
3.	*Adhyashana*		
4.	*Guru Aharasevana (Excessive consumption of Heavy food)*		
5.	*Madhura Ahara sevana (Excessive consumption of sweet food)*		
6.	*Sheeta Aharasevana (Excessive consumption of cold diet)*		
7.	*Snigdha Aharasevana (Excessive consumption of unctuous food)*		
8.	*Sleshmala Aharasevana (Kapha increasing food)*		
9.	*Navannasevana (Usage of fresh grains)*		

10.	*Nava Madyasevana (Usage of fresh alcoholic preparation)*		
11.	*Gramya Rasasevana (Usage of domestic animal's meat & soups)*		
12.	*Audak Rasasevana (Usage of Aquatic animal's meat & soups)*		
13.	*Mamsa Sevana (Excessive use of meat)*		
14.	*Paya Vikara Sevana (Excessive Usage of milk & it's preparations)*		
15.	*Dadhi Sevana (Excessive use of curd)*		
16.	*Sarpi Sevana (Usage of Ghee)*		
17.	*Ikshu Vikara Sevana (Usage of sugarcane's Preparations)*		
18.	*Guda Vikara Sevana (Usage of jaggery's preparations)*		
19.	*Shali Sevana (Excessive use of Rice)*		
20.	*Godhuma Sevana (Excessive use of wheat)*		
21.	*Masha Sevana (Usage of Phaseolus mungo)*		
22.	*Rasayana Sevana*		
23.	*Vrushya Sevana*		
24.	*Bhojanotara Jalapana*		

Table 2: *Viharatmaka nidana of sthaulya.*

S. No.	*Nidana*	*YES*	*NO*
1.	*Avyayama (Lack of physical exercise)*		
2.	*Avyavaya (Lack of sexual life)*		
3.	*Divaswapa (Day's sleep)*		
4.	*Asana Sukha (Luxurious sitting)*		
5.	*Swapnaprasangat (Excessive sleep)*		
6.	*Gandhamalyanu Sevana (Using of perfumes, garlands)*		
7.	*Bhojanotara Snana (Bathing after taking the meal)*		
8.	*BhojanotaraNidra (Sleeping after meal)*		
9.	*Bhojanotara Aushadha Sevana (Drugs after meal)*		

Table 3: *Mansika nidana of sthaulya.*

S. No.	*Nidana*	*YES*	*NO*
1.	*Manasika Nidana*		
2.	*Harshnityatvat (Uninterrupted cheerfulness)*		
3.	*Achintanat (Lack of anxiety)*		
4.	*Manasonivritti (Relaxation from tension)*		
5.	*Priyadarshana (Observations of beloved things)*		
6.	*Saukhyena*		

Table 4: Other *nidana of sthaulya.*

S. No.	*Other Nidana*	YES	NO
1.	*Amarasa*		
2.	*Snigdha Madhura Basti Sevana (Administration of unctuous & Sweet enema)*		
3.	*Tailabhyanga (Oil Massage)*		
4.	*Snigdha Udvartana (Unctuous unction)*		
5.	*BijaDoshaswabhavat (Heredity)*		

Table 5: *Sthaulya lakshana.*

S. No.	Lakshana	YES	NO
1.	*ChalaSphika UdaraStana* (Visible movements (in the areas) during movement		
2.	*Kshudrashwasa* (Dyspnoea at work)		
3.	*Durbalya (Alpa Vyavaya)* (decreased physical activity)		
4.	*KshudhaAtimatra* (increased appetite)		
5.	*PipasaAtiyoga* (increased thirst)		
6.	*NidraAdhikya* (increased sleep)		
7.	*Daurgandhya* (bad odour from body)		
8.	*AlpaVayayaya* (impaired libido and sexual performance)		
9.	*GatraSada* (fatigue)		
10.	*SwedaAdhikya* (Excessive sweating)		

Table 6: Functional assesment of *sthaulya.*

Weight
BMI (kg/m^2)
Raised waist hip ratio
Raised body height weight ratio

Table 7: Nidra lakshna.

S. No.	Anidra-Samyaka-Atinidra Lakshana	YES	NO
1.	*Tamobhuyistanaam AhasuNishashu cha Bhavati* (person sleeps during day and night)		
2.	*Rajobhuyishthanaamnimitam* (sleeping time not specific i.e. person sleeps anytime either day or night)		
3.	*Satvabhuyishtanaamardharatri* (person sleeps normally daily at midnight)		
4.	*Angamarda*		
5.	*Shirogaurav* (feeling of heaviness in head)		
6.	*Jrimbhika* (Yawning)		
7.	*Jadta*		
8.	*Glani*		
9.	*Bhrama*		
10.	*Apakti*		
11.	*Tandra*		
12.	*Apachyamana* (due to Ama)		
13.	*Kapha vridhi*		
14.	*Gatragauravta*		
15.	*Alasya*		

Table 8: Assessment criteria of *nidra*

Alpanidra	Below 6 hours per day
Samyaknidra	Normal sleep 6-8 hrs. per day
Atinidra	Sleep up to 8-10 hours/day

	Sleep up to 10-12 hours/day
	Sleep up to 12-14 hours/day
	Sleep more than 14 hours/day

Remarks/miscellaneous: Scholars name: Dr. Amrit, Dr. Poonam

OBSERVATION AND RESULTS

Total 126 voluntaries were registered in this study, out of that all 126 voluntaries were studied in this research work. Each patient was observed thoroughly and noted neatly. The observations are recorded and necessary charts and graphs were made. As there are only 126 voluntaries to whom the performa is filled with. Generally only one group will shown in observation regarding sex, education, socioeconomic status, religion etc.

Showing association between *Sthaulya* **and** *Atinidra*

Bmi	Sleeping hours			
	8-10 hrs	**10-12 hrs**	**12-14 hrs**	**Above 14 hrs**
25-30	2	2	1	1
30-35	4	5	3	2
35-40	3	3	3	4
40-45	3	4	5	3
45-50	4	7	6	11

Statistical analysis

Chi Square = 5.7314

Degree of Freedom = 12

P value = 0.9290

DISCUSSION

In any research work Discussion plays an important role which sheds light on logical analysis, reasoning and rational interpretations to ignite new ideas. Hence, here is an attempt of discussion on the topic.

- Discussion on *Sthoulya*
- Discussion on *Nidra*
- Discussion on Material and Methods (Survey)
- Discussion on Observational Study.
- Discussion on Result

Discussion on *sthoulya*

Sthoulya is a *santharpanajanya vikara*, having unique *samprapthi*. Unlike other diseases here there will be *teekshna jatharagni* and *manda dhatvagni*. *Srotorodha* caused by *kapha* and *Meda* will lead to *tiryak gati* of *vata* which inturn intensify the *jatharagni*.

Sthoulya can be compare to obesity in modern science. According to modern science Overweight and Obesity are defined as abnormal or excessive fat accumulation that may impair health. It is the most common physical abnormality and a serious health hazard found all over the world in people of all races and of all age groups irrespective of any barrier.

The causative factor for *Sthoulya* is *Beeja Dosha*, *Aharatamaka*, *Viharatamaka* and *Manasika hetu. Aharatamaka bhava* includes excess intake of *guru* and *snigdha ahara, viharaja nidana* includes sedentary life style, *divaswapana, mansika hetu* broadly includes careless attitude.

Nidana - *Ayurvedacharyas* described so many etiological factors of *Sthaulya roga* in their *Samhitas* which are related to all aspects at life and affect the body from out side and inside also. The hereditary (*Bija Dosha*) is the inherited factor, and in diet the food which increases *Meda* and *Sleshama* are the main causative, in *Vihara Diwaswapana, Achinta* etc. are the responsible factors.

According to Moderrn science the causes of obesity are distributed into 2 main groups according to modern medicine.

1. **Exogenous:** Where the chief cause is excessive appetite or over feeding, smoking, drinking alcohol, excessive intake of junk food.

2. **Endogenous:** Where endocrine factors are important. In *Sthoulya kleda, kapha, pachaka pitta, samana vayu*, and *vayaan vayu* all together impart the *Sthulta.*

Purvarupa - No specific reference are mentioned in classics about *purvaroopa*, Symptoms of *Medovahastrotodushti* are described as *purvarupa* of *prameha* which can be considered as *purvarupa* of *sthoulya* also because *bahudrava sleshma* and *abaddha Meda* are the two main components vitiated in pathogenesis of *prameha* as well as *sthoulya*. The symptoms of *Medovaha strotodushti* is like *atinidra, tandra, aalasya* etc. are also signs of *sthoulya*. Hence initial stage of these signs and symptoms can be considered as a *purvarupa* of *sthoulya,* In Modern science premonitory symptoms of obesity have not been described, and so overweight and its related initial or mild symptoms can be taken as premonitory symptoms.

Rupa- The symptomatology of *Sthaulya* is asserted by *Acharyas* in broad manner, to understand them, need to elaborate as follow. According to *Charaka*,

"मेदोमांसातिवृद्धत्वाच्चलस्फिगुदरस्तनः।

अयथोपचयोत्साहो नरोडतिस्थूल उच्यते।।इ;बेँनेण 21थ्छ्द्ध्ण

Which means the inordinate increase of fat and flesh is disfigured by pendulous buttocks, abdomen and breast and that increased bulk reduces the corresponding increase in energy. So, the person has less enthusiasm in his physical activity. Besides these cardinal symptoms, Eight disabilities of *Sthaulya* are:

1. *Ayusohrasa* (Diminution of lifespana)
2. *Javoparodha* (Lack of enthusiasm)
3. *Kriccha Vyavaya* (Difficulty in sexual act)
4. *Daurbalya* (Debility)
5. *Daurgandhya* (Foul smelling of body)
6. *Svedabadha* (Distressful sweating)
7. *Kshudhatimatrata* (Excessive hunger)
8. *Pipasa atiyoga* (Excessive thirst)

Elaborated pathogenesis of occurrence of *Ashta Dosha* of *Sthaulya* has been mentioned in *Charak Samhita* (Ch.Su. 21/04) which are as follow:

• **Ayushohrasa** - Life expectancy is get decreased because other *Dhatu*s could not get nourished properly.

• **Javoparodha** - Due to *Shaithilya, Saukumarya* and *Guru* Properties of *Meda Dhatu*, it causes *Javoparodha*.

• **Kricchavyavaya** - Due to obstruction in genital passage by *Medo Dhatu* and less production of semen the sex act becomes difficult.

• **Daurbalya** - This results because of the deranged metabolism owing to malnourishment of the *Dhatu*s.

• **Daurgandhya** - Bed smelling is results due to excessive sweating, innate quality of *Medo Dhatu* and morbid nature of vitiated *Meda*.

• **Svedabadha** - On account of the admixture of *Kapha* with *Meda*, Vishyandi, Bahutva and *Guru* Properties of *Meda* and its inability to bear the strain of exercise it results in *Svedabadha*.

- ***Kshudhatimatrata*** and ***Pipasatiyoga***: Because of increased *Agni* in *Koshtha* and vitiation of *Vata* by obstruction of *Meda* it results in excessive appetite and thirst. All the symptoms of *Sthaulya* described in various *Ayurvedic* texts have been summarized in the following table.

Samprapti ghataka

The following factors play an important role in samprapti of *Sthaulya*.

Dosha:

- ***Kapha*** *– Kledaka*
- ***Pitta*** *- Pachaka*
- ***Vata*** *- Samana, Vyana*
- ***Dushya****: Rasa, Meda Dhatu*

Agni

- *Jatharagni,*
- *Parthiva,*
- *Apya Bhutagni,*
- *Rasa and Meda Dhatvagni*

Srotas: *Medovaha Srotas*

Srotodusti: *Sanga*

Margavarodha

Amatah

Adhisthana: *Sarva shareera*

Particularly Vapavahana and Medo dharan Kala

Udbhavasthana: *Amashaya*

Prasara: *Rasayani*

Roga marga: *Bahya*

Ama: *Jatharagni Mandhyajanit Ama*

Dhatvagni Mandhyajanit Ama

Vyaktisthana: *Sarvanga*

Specifically Sphik, Udara, Stana and Gala.

Sadhya asadhyata

Kriccha Sadhya nature of *Sthaulya* has been described by most of the *Ayurvedic* classics Bad prognosis of *Sthaulya* has been described by *Charak*, because if they are not duly managed, they are prone to death due to excessive hunger, thirst and complications. Moreover, lack of immune power (*Vyadhi Asahatva*) is mentioned as a common feature as well as serious draw back of *Sthaulya* so they are frequently prone to secondary diseases.

Bad prognosis for S*ahaja* (hereditary) diseases is described. Hence *sahaja Sthaulya* can be considered as *Asadhya*.

Discussion on *nidra*

Ayurveda considered *Nidra* as natural urge *Adharniya Vega*, the suppression of this urge leads to many complications considered as *Adharniya Vega. Nidra* is one of the tripods for the maintenance of the living organism. While discussing about *Nidra a*nd *Anidra* in the perspective of *Astaunindaniya* (*Adhyaya*), *Charak* has affirmed that happiness & sorrow, growth & wasting, strength &weakness, virility & impotence, the knowledge & lack of know-ledge as well as survival of life and its termination depend on the sleep. Moreover, *Nidra* is *Pushtida* and *Jagarana* or *anidra* does the *Karshana* of the body. Untimely extreme sleep and expanded vigil take away both contentment and endurance, like the night of destructions.

Charak has included the *Asvapna* (Insomnia) in *Nanatmaja Vata Vikaras. Sushrut* enlightened this in *Garbha Vyakarana Shariram*, as *Nidra* has a responsibility nourishment and growth of the body. He further explained the *Vaikariki Nidra* which can be associated to sleep disorders. *Vagbhatta* in *Ashtanga Sangraha* mentioned this in *Viruddhanna-vigyaniya Adhyaya*, where he explained the *Trayopastambhas*. Here he considered *Manda Nidra* due to *Vata,* but used *Asvapna* term in *Vataja Nanatmaja Vikaras*. In *Ashtanga Hridaya – Nidra*, its *Vikaras* and *Chikitsa* are revealed under *Anna-rakshadhyaya* where *Trayopastambhas* are explicated. *Sharangadhara*, concerted the *Anidra*, *Alpanidra, Atinidra* in *Vataja, Pittaja, Kaphaja Nanatmaja Vikara*. *Anidra* or *Alpa Nidra* is seen as a *Lakshana* in many diseases and it may be *Upadrava* or *Lakshana* of *Arishta.*

Sleep is one of the most important physiological functions that influence the daytime activity, vigilance, concentration and performance. Hence maintaining good quality sleep would be crucial to health. Insomnia is a common sleep disorder and is often associated with

significant medical, psychological and pharmacological approaches; however, long-term use of frequently prescribed medications can lead to habituation and problematic withdrawal symptoms. Stress is one of the commonest causes attributed to Insomnia. Sleep disturbance associated with stress has not been well-documented, predominately due to its transient's nature. It must be further emphasized that those who do respond with insomnia may later develop chronic psychophysiological insomnia as result of the initial stress. *Vata* and *Manasa* are interdependent and if one becomes vitiated, it vitiates the other thus both seem to be vitiated in *Anidra*. *Charak* has given importance to *Vata* in the management of *Anidra*. Treating this psychic disorder is a difficult task, however proper counseling and relaxation techniques along with other therapies are supportive in the management. Hence, *Manaha-sukham*, *Manonukula-vishaya* etc. are mentioned in the management of *Anidra*.

Discussion on Material and Methods (Survey)

Source of data

(A) Population of either gender living around Dehradun, Uttrakhand, India were considered for the study. Population of 126 volunteers with age group between 18 to 80 yrs were conciderd for the study. The prescribed proforma was filled after asking question from the persons.

(B) Literary – To collect the literary review on *Nidra* and *Sthaulya* from various *Ayurvedic* and Modern texts.

Discussion on observation study

Distribution of patients based on sex- Out of 126 voluntaries, 67 voluntaries were male while 59 voluntaries were female. It means total 53.17% were male as compared to 46.83% were female.

Distribution of patients based on age- Out of 126 voluntaries, 26 voluntaries were in age group 18 - 29 while 37 voluntaries were in age group 30- 39, 53 voluntaries were in age group 40-49 and rest 10 in age group 50-60 years of age.

Distribution of patients based on occupation- Out of total 126 volunteers, 13(10.31%) were Govt. employees, 53(42.06%) were Homemakers, 47(37.30%) were Self employees, and 14(11.11%) were Private Service. However maximum patients were found in homemakers group. They were 42.06%.

Distribution of patients based on socio economic status or quality of life- Out of total 126 volunteers, 31(24.6%) individuals were Upper class, 53(42.06%) individuals were Middle

class and 42(33.33%) individuals were Lower Class maximum were Middle class people (42.06%).

Distribution of patients based on marital status: In the study out of 126 volunteers, 65 were Married (51.58%), 61 were Unmarried (48.41%).

Distribution of patients based on dietary habit: In the study out of 126 Volunteers, 20 were vegetarian (15.87%), 19 were non vegetarian (15.07%) and maximum were of mixed diet that is 87 (69.04%).

Prakriti **wise distribution:** In this study out of 126 individuals, 44 (34.92%) were having *Vata Prakriti*, 32 (25.39%) were having *Pitta Prakruti*, 50(39.68%) were having *Samdosaja prakriti*.

Sara **wise distribution**: In this study out of 126 individuals 43(34.12%) have *Pravara Sara*, 83(65.87%) have *Madhyam Sara*.

Samhanana **wise distribution:** In this study out of 126 individuals 29(23.01%) have *Susamhanana samhanana*, 70(55.55%) have *Madhyama Samhanana,* 21(16.66%) Have *Samhanana*, and rest were 6(4.7%) were *Heena Samhanana*.

Satmaya **wise distribution:** In this study out of 126 individuals, 23(18.25%) volunteers were Uttam *satmaya,* 71(56.34%) were have *Mdhyam satmaya. and* 32(25.39%) were Avara *satmaya*.

Satva **wise distribution:** In this study out of 126 individuals, 29(23.01%) have *Pravara satva*, 81 (64.28%) have *Madhyama satva*, 21(16.66%) have *Avara satva*.

Kostha **wise distribution:** In this study out of 126 individuals 7(5.5%) have *Mridu Koshtha*, 101(80.16%) have *Madhyama Koshtha*, 18(14.28%) have *Krura Koshtha*.

V*yayayama* wise distribution: In this study out of 126 individuals 32(25.3%) Volunteers does Madhyama vyayayama, 76(60.31%) volunteers does Avara vyayayama, 18(14.28%) Volunteers were Uttam Vyayayama.

Aharatamaka nidana of Sthoulaya- In this study out of 126 individuals, following *Aharatamaka nidana* individuals take-*Ati Sampurana ahara sevana 85(67.4%), Santarpana 80(63.4%), Adhyasana 71(56.3%), Guru ahara sevana 106(84.12%), Madhura ahara sevana 67(53.2%), Sheeta ahara sevana 78(61.9%), Snigdha ahara sevana 80(63.49%), Sleshmala ahara sevana 44(34.9%), Navanna sevana 95(75.39%), Nava madya sevana 64(50.79%), Gramya rasa sevana 84(66.66%), Audak rasa sevana 74(58.73%), Mamsa sevana 72(57.14%), Paya vikar sevana 82(65.07%), Dadhi sevana 119(94.44%), Sarpi sevana 95(75.39%), Ikshu vikar sevana 104(82.5%), Guda vikar sevana 93(73.80%), Shali sevana*

54(42.85%), Godhuma sevana 96(76.19%).Masha sevana 93(73.80%), Rasayana sevana 71(56.34%), Vrushya sevana 72(57.14%), Bhojanotara jalpana 110(87.30%).

***Viharatamaka nidana* of *sthoulaya*:** In this study out of 126 individuals, *Avyayama* does 117 (92.85%) individuals, *Avayavaya* 72(57.14%), *Divaswapana* 80(63.49%), *Asana sukham* 102(80.95%), *Swapna prasangat 81(64.28%) Gandhamalyanusevana* 109(86.50%), *Bhojanotara snana* 42(33.33%), *Bhojanotara nidra* 82 (65.07%), *Bhojanotarsa Aushadha Sevana* 106(84.12%).

Mansika nidana* of *sthoulaya: In this study out of 126 individuals, *following Mansika nidana sevana 99(78.57%) does following people, Harshmityatvat 72(57.14%), Achintanat 80(63.49%), Manasonivriti 65(51.58%), Priyadarshana 103(81.7%), Saukhyena 92(73.01%).*

Other *nidana* of *sthoulaya:* *Aamarasa 109(86.50%), Snigdha madhura basti sevana 35(27.77%), Tailaabhayanaga 44(34.92%), Snigdha udvartana 58(46.03%).*

Sthaulya lakshana: In this study out of 126 individuals following *lakshana* and there percentage are *Chala Sphika Udara Sthana* 82(65.07%), *Kshudrashwasa* 109(86.50%), *Durbalya* 83(65.87%), *Kshudha Atimatra* 104(82.53%), *Pipasa Atiyoga* 84(66.66%), *Nidra Adhikya* 114(90.47%), *Daurgandhya* 55 (43.65%), *Alpa Vyayaya* 71(56.34%), *Gatra Sada* 99(78.57%), *Sweda Adhikya* 87(69.04%).

Prakriti* wise *nidra lakshana: In this study out of 126 individuals following *lakshana* and there percentage of *Nidra* are *Tamobhuyistanaam Ahasu Nishashu Cha Bhavati* 28(22.22%), *Rajobhuyisthanaamnimitam* 33(26.19%), *Satvabhuyishtanaamardharatri* 64(50.79%)

Anidra lakshana: In this study out of 126 individuals following *lakshana* and there percentage of *Anidra* are *Angamarda* 86(68.25%), *Shirogaurav* 90(71.42%), *Jrimbhika* 62(49.20%), *Jadta* 104(82.53%), *Glani* 44(34.92%), *Bhrama* 52(41.26%), *Apakti* 80(63.49%), *Tandra* 87 (69.04%).

Atinidra lakshana: In this study out of 126 individuals following *lakshana* and there percentage of *Atinidra* are *Apachyamana* 103(81.74%), *Kapha Vridhi* 96(76.19%), *Gatragauravta* 93(73.80%), *Alasya* 107(84.92%).

Discussion on result

Showing association between *Sthaulya* and *Atinidra*

BMI	SLEEPING HOURS			
	8-10 hrs	**10-12 hrs**	**12-14 hrs**	**Above 14 hrs**
25-30	2	2	1	1
30-35	4	5	3	2
35-40	3	3	3	4

| 40-45 | 3 | 4 | 5 | 3 |
| 45-50 | 4 | 7 | 6 | 11 |

Statistical analysis

Chi Square = 5.7314

Degree of Freedom = 12

P value = 0.9290

On the basis of BMI data out of 126 (*Sthaulya*) volunteers- 27 volunteers were taking *Alpa Nidra*, 23 volunteers were taking *Samyaka Nidra*, and 76 volunteers were obese taking excessive sleep or *Ati Nidra*.

Now out of 76 volunteers – 16 volunteers were sleeping (8 -10 hours), 21 volunteers were sleeping for (10 -12 hours), 18 volunteers were sleeping for (12 -14 hours), and 21 volunteers were sleeping for more than (14 hours).

If we see on the basis of BMI out of 76 volunteers 06 volunteers were having BMI between (25-30),14 volunteers were having BMI between (30-35), 13 volunteers were having BMI between (35-40), 15 volunteers were having BMI between (40-45), and BMI between (45-50) were having 28 in number which is the maximum number which proves the direct relationship between *Sthaulya* and *Ati Nidra*.

By applying Chi Square test it has found that Chi Square value =5.7314, Degree of Freedom =12, P value = 0.9290 which shows that null hypothesis is rejected and alternative hypothesis is accepted so P value shows significant association between *Sthaulya* and *Nidra* which is already mentioned in our texts (*Ch.Su 21/51*)

CONCLUSION

Without finding some conclusion on any study, it would not become successful in its aims and a scientific discussion on any conceptual and clinical oriented study definitely gives rise to some fruitful conclusions. Here also in this particular study, some reasoning and achieved results along with the observations have been discussed in the previous pages and from that following conclusions are drawn:

- Obesity is identified as a nutritional disorder, thirty years ago, still continues to be one of the most important, yet preventable health hazard.
- Obesity viz., *Sthoulya* is characterized by pendulous abdomen, buttocks and breasts.

- The term S*thoulya* and *Medoroga* are synonymous. They indicate the same condition where medovrudhi in the body is noticed.

- *Charaka* included the obese person under the category of eight undesirable personalities in the society.

- *Acharya Sushruta* considered the *Rasa* as the major pathological factor involved in both obesity and emaciation *(Sthoulya* and *Kaarshya).*

- *Acharya Charaka* has specifically mentioned *BeejaDosha* as the nidana for *Sthoulya*. In *Bhavaprakasha* it has been mentioned that increased proportion of '*Shonita'* and decreased proportion of '*shukra'* predisposes towards the development of stout but weak body

- Of the two, obesity and emaciation, emaciation is less harmful than obesity, even though both of them are equally in need of treatment. Because volume of suffering is more in obese.

- *Charaka* has mentioned bad prognosis for *Sahaja (*hereditary) disease. Hence *Sahaja Sthoulya* can be considered as *Asadhya*. Therefore *Sadhyasadhyata* of *Sthoulya* can be constructed on the basis of general principles of *Sadhyasadhyata* depicted in *Ayurvedic* Texts.

- Obesity / *Sthoulya* are a chronic illness that requires continuous treatment.

- *Sthoulaya* has direct relation with *Nidra.*, more and more *Nidra* than normal parameters leads to more *Sthoulaya*.

- *Aharaja nidana* of *Sthoulaya, Viharaja Nidana* of *Sthoulaya,* and *Mansika Nidana* of *Sthoulaya,* all *Sevana* together will fulminate *Sthoulaya* more and more.

- *Samayaka Nidra* maintains *Samyaka Swasthaya*, more *Nidra* more *Medovriddhi,* As *Atinidra* leads to *Mandagni* or here specially *Dhatvagni*, this ultimate leads to *Kleda* and *Meda Vridhi*. Less *Nidra vitiates Vata Dosha and Vata Dosha* dissociates *Meda*. For Normal health Normal sleeping time is mendatory.

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