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Comparative study to evaluate the efficacy of *Madhutailik Basti* in comparison to *Lekhana Basti* in the management of *Sthaulya* (Obesity)

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ABSTRACT

Obesity is a chronic disease, increasing globally and is characterised by excess body fat. As a preventable cause of death, obesity is second only to smoking. Obesity is a potent co-morbid risk factor for mortality and morbidity, if it remains untreated. It emerges as an important health problem in India. It is estimated that 31.6 million Indians are obese, specially abdominally obese. Obesity is the primary driver of non-communicable diseases, like diabetes, cardiovascular diseases, disabilities like osteoarthritis and even cancer. In Ayurvedic texts, *Sthaulya* is categorized as *Santarpanjanya Roga*. *Lekhana Basti* is a well-known treatment for *Sthaulya* in *Ayurveda* and lot of research work has done in the past but it is not suitable for all *Sthula Purusha* because of its *Tikshana* nature. Many complications like abdominal pain or pricking pain in anal region, bleeding per rectum were observed practically. In the present study, *Lekhana Basti* and *Madhutailik Basti* were selected for *Sthaulya*. *Sthaulya* is *Kapha-Meda Pradhana Vyadhi* with *Medavritta Vata*. The drugs of *Madhutailik Basti* have *Ushna Virya* and *Kapha Vatahara* property. So, it regulates the *Samana Vayu* and restores the "*Jatharagni*" to normal, while also activating the *Vyana Vayu* to break the *Srotosanga* and synergize the activity of *Madhutailik Basti* at the cellular level. Thus, it helps to break the pathogenesis of the disease. Considering the above facts case study was planned to evaluate the comparative effectiveness of *Madhutailik Basti* with *Lekhana Basti* in the management of *Sthaulya* (obesity) in 60 clinically diagnosed and confirmed cases of *Sthaulya* from OPD of Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, Delhi.

Key words: *Sthaulya*, *Obesity*, *Meda Dhatu*, *Madhutailik Basti*, *Lekhana Basti*.

INTRODUCTION

In a world where food supplies are intermittent, the ability to store energy in excess of what is required for immediate use is essential for survival. Fat cells, residing within widely distributed adipose tissue depots, are adapted to store excess energy as triglyceride and, when needed, to release stored

energy as free fatty acids for use at other sites. This physiological system, orchestrated through endocrine and neural pathways, permits humans to survive starvation for as long as several months. However, in the presence of nutritional abundance and a sedentary lifestyle, and influenced importantly by genetic endowment, this system increases adipose energy stores and produces adverse health consequences.

Obesity is a state of excess adipose tissue mass.^[1] Although often viewed as equivalent to increased body weight, this need not be the case- lean but very muscular individuals may be overweight by numerical standards without having increased adiposity. Obesity is therefore more effectively defined by assessing its linkage to morbidity or mortality. Based on data of substantial morbidity, a BMI of 30 is most commonly used as a threshold for obesity in both men and women. Large scale epidemiologic studies suggest that all-cause, metabolic, cancer, and cardiovascular morbidity began to rise when BMI are ≥ 25 .

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The distribution of adipose tissue in different anatomic depots also has substantial implications for morbidity. Specifically, intraabdominal and abdominal subcutaneous fat have more significance than subcutaneous fat present in the buttocks and lower extremities. Many of the most important complications of obesity such as insulin resistance, diabetes, hypertension, hyperlipidemia, and hyperandrogenism in women, are linked more strongly to intraabdominal and/or upper body fat than to overall adiposity.^[2]

Data from the National Health and Nutrition Examination Surveys (NHANES) show that the percentage of the American adult population with obesity (BMI > 30) has increased from 14.5 % (between 1976 and 1980) to 33.9 % (between 2007 and 2008). According to ICMR-INDIAB study 2015, prevalence rate of obesity is 11.8%.^[3]

In *Sutra Sthana*, Acharya Charaka described eight *Asthoninditha Purusha*^[4] among which *Sthaulya* has been most emphasis. A person having excess deposition of *Meda* and *Mansa Dhatu* at the site of *Sphika*, *Udara* and *Stana* is called *Sthula Purusha*.^[5] *Ati Sthaulya* is mentioned among twenty *Kaphaj Nanatmaja Vikara*.^[6] Impaired metabolism of *Meda Dhatu* (Adipose tissue) is the main cause of *Sthaulya Roga*, hence it is also known as *Medo Roga*. It is mentioned among *Santarpana Janita Vyadhi*^[7] in Ayurvedic text. Though it is *Santarpana Janita Vyadhi* only *Aptarpana Chikitsa* is not sufficient for the management of *Sthaulya*. In *Sthaulya* etiological factors mainly vitiate *Meda - Kapha*, and *Vata* get *Avarita* by excessive *Meda*. Thus, if we used only *Aptarpaka Dravya* it increases the vitiated *Vata*. Therefore, treatment should be planned considering vitiated *Vata*, *Meda* and *Kapha*. *Panchakarma* can provide better solution to this problem.

Modern medical knowledge suggests that the best way to combat obesity is via a combination of dietary changes and physical activity. Though diet plans might help people shed pounds in the short term, keeping the weight off for good is often far more challenging and requires committing to regular exercise and eating less

calories. *Ayurveda* is a system of medicine that emphasizes avoiding harmful side effects by adapting one's lifestyle to one's geographical location, seasonal changes, and daily routine (*Ahara*, *Vihara*, *Nidra*). This is the ideal treatment for obesity. Due to these reasons, the *Ayurveda* system of medicine must have the role in management of obesity without any side effects. So, the aim of this study is to manage the obesity by using cheap, easily available and safe *Ayurveda Panchakarma* procedures and *Ayurveda* medicines. *Lekhana Basti* and *Madhutailik Basti*^[8] according to *Ayurveda* texts are used in this study. Primary aim of this thesis is to evaluate the comparative efficacy of *Madhutailik Basti* with *Lekhana Basti* in the management of *Sthaulya*.

AIM AND OBJECTIVES

AIM

To evaluate the efficacy of *Madhutailik Basti* in comparison to *Lekhana Basti* in the management of *Sthaulya*.

OBJECTIVES

1. To evaluate the efficacy of *Madhutailik Basti* in the management of *Sthaulya*.
2. To compare the efficacy of *Madhutailik Basti* in comparison to *Lekhana Basti* in the management of *Sthaulya*.

MATERIALS AND METHODS

Research is essential for diagnosis of disease, development of new treatment and gives the latest information. It often led to effective treatment that helps people to improve quality of life. Keeping this in mind the present study was taken into consideration. A case study was planned "Comparative study to evaluate the efficacy of *Madhutailik Basti* in comparison to *Lekhana Basti* in the management of *Sthaulya* (Obesity)" in randomly selected 60 clinically diagnosed and confirmed cases of *Sthaulya* (Obesity) from OPD of Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, New Delhi.

Plan of Study

Pre-Clinical screening: Complete medical history of patients with necessary physical examination was done.

Clinical screening: A detailed case history proforma was specially prepared for this purpose. All the following mentioned points were recorded in this proforma before the initiation of the trial. A total of 66 patients suffering from *Sthaulya* (Obesity) fulfilling the inclusion criteria were taken for the study and 60 patients completed the trial.

Eligibility Criteria

Inclusion Criteria

- Patients which are willing to participate in the study.
- Patients of age group 20-50 years irrespective of the gender.
- Patients having clinical features of *Sthaulya*.
- Patients with BMI 25-40 Kg/m².

Exclusion Criteria

- Patients which are not willing for participation in the study.
- Patients of age less than 20 years and more than 50 years.
- Patients which are suffering from Diabetes Mellitus, Uncontrolled Hypertension, Coronary Heart Disease, Chronic Kidney Disease.
- Pregnant and lactating mothers.
- Patients who are unfit for *Basti Karma*^[9] as mentioned in the texts- *Pandu, Unmada, Visuchika, Alasaka, Kushtha, Hikka, Swasa, Kasa, Bala, Vriddha, Chidrodara, Murchita*, etc.

Withdrawal Criteria

- If Patients willing to quit in between project, he/she will be allowed to quit and will be replaced.
- If any serious illness develops during the procedure, he/she would be treated accordingly and would be replaced.

Procedure Protocol

Patients were randomly divided and studied under two groups viz. Group A and Group B irrespective of religion, sex, occupation, cast etc.

Group A - Kala Basti with Madhutailik Basti and Murchita Tila Taila^[10] Anuvasana Basti.

Group B - Kala Basti with Lekhana Basti and Murchita Tila Taila Anuvasana Basti.

Kala Basti Schedule

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
A	A	N	A	N	A	N	A
Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16
N	A	N	A	N	A	A	A

A - Stands for *Anuvasana Basti*.

N - Stands for *Niruh Basti/Asthapana Basti*.

- Time of administration of *Madhutailik Basti/ Lekhana Basti* - empty stomach in the morning.
- Quantity of administration - 640 ml.
- Time of administration of *Murchita Tila Taila Anuvasana Basti* - After taking lunch in the afternoon.
- Quantity of administration - 120 ml
- Frequency - once a day.

Duration of clinical trial and follow up study

Total duration of trial: 24 days for each patient.

Follow up screening: Initial assessment - 0 day, then on 16th day and follow-up on 24th day to evaluate their clinical status and to observe the effect or adverse effect of treatment.

Diet and Exercise

Patients of both the group have been advised to adhere to the *Pathya Ahara* and *Vihara*. Beside this patient is advised to do exercise and *Yogasana* and brisk walking for half an hour daily.

Assessment Criteria

Patient will be assessed on the basis of subjective and objective criteria.

Subjective Criteria^[11]

Sign and symptoms of *Sthaulya* which are subjective in nature described in Ayurveda will be used for symptomatic evaluation for which scoring pattern will be adopted.

1. Chala Sphika Udara Stana

SN	Features	Grading
1.	Absence of <i>Chalatva</i> .	0
2.	Little visible movement after fast movement.	1
3.	Little visible movement after moderate movement.	2
4.	Movement after mild movement.	3
5.	Movement even after changing posture.	4

2. Alasya/Utsahahani

SN	Features	Grading
1.	Doing work satisfactorily with proper vigour.	0
2.	Doing work satisfactorily with late initiation.	1
3.	Doing work satisfactorily under mental pressure and takes time.	2
4.	Not starting any work on his own responsibility and doing little work very slowly.	3
5.	Does not take initiation and does not want to work even after pressure.	4

3. Kshudra Shwasa

SN	Features	Grading
1.	Dyspnoea after heavy work but relieved soon and up to tolerance.	0
2.	Dyspnoea after moderate work but relieved later and up to tolerance.	1
3.	Dyspnoea after little work but relieved later and up to tolerance.	2
4.	Dyspnoea after little work but not relieved later and beyond tolerance.	3

5.	Dyspnoea in resting condition.	4
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4. Daurbalya

SN	Features	Grading
1.	Feeling of well-being.	0
2.	Tired after doing strenuous physical activity.	1
3.	Tired after doing moderate physical activity but can perform daily chores.	2
4.	Perform daily chores with difficulty.	3
5.	Extreme tired to carry out daily routine work.	4

5. Ati Nidra

SN	Features	Grading
1.	Sleep up to 6-8 hours/day.	0
2.	Sleep up to 8-10 hours/day.	1
3.	Sleep up to 10-12 hours/day.	2
4.	Sleep up to 12-14 hours/day.	3
5.	Sleep up to > 14 hours/day.	4

6. Swedaadhikya

SN	Features	Grading
1.	Normal Perspiration.	0
2.	Mild perspiration after doing exertion.	1
3.	Increased perspiration after doing little exertion.	2
4.	Profuse perspiration after doing little exertion.	3
5.	Perspiration without exertion.	4

7. Daurgandhya

SN	Features	Grading
1.	Absence of body odour.	0
2.	Occasional body odour removed after bathing.	1

3.	Persistent body odour limited to closed areas difficult to suppress with deodorants.	2
4.	Persistent body odour felt from long distance not suppress with deodorants.	3
5.	Persistent body odour felt from long distance not tolerated by patient himself.	4

8. Ati Pipasa

SN	Features	Grading
1.	Drinks about 8-10 glass of water daily.	0
2.	Drinks about 10-15 glass of water daily.	1
3.	Drinks about 15-20 glass of water daily.	2
4.	Drinks about 20-25 glass of water daily.	3
5.	Unable to have a sound sleep for his thrust.	4

Objective Criteria

Body Weight

The assessment was done before and after the treatment and during the follow-up period.

Statistical Analysis

The information gathered on the basis of observation made about various parameters was subjected to statistical analysis in term of Mean, Standard Deviation and Standard error.

For subjective parameters, within group p-value compared using 'Friedman test' and Between group p-value compared using 'Mann – Whitney test'.

For Objective Parameter, within group p-value compared using Repeated Measure Anova, post hoc comparisons have been done using Bonferroni inequality and Between group p-value compared using independent sample t-test.

The results were calculated.

Not significant: $P > 0.05$

Significant: $P < 0.05$

Highly significant: $P < 0.001$

OBSERVATIONS AND RESULTS

Overall effect of Therapy

Within group p-value compared using 'Friedman test'.

S N	Parameters	P value in Group p A	Significance	P value in Group p B	Significance
1.	<i>Chal sphikaudars tana</i>	<0.001	HS	<0.001	HS
2.	<i>Alasya/Utsahani</i>	0.368	Insignificant	0.135	Insignificant
3.	<i>Kshudra Shwasa</i>	0.039	Significant	0.002	Significant
4.	<i>Daurbalya</i>	<0.001	HS	<0.001	HS
5.	<i>Atinidra</i>	<0.025	Significant	<0.025	Significant
6.	<i>Daugandhya</i>	<0.001	HS	<0.001	HS
7.	<i>Swedadhikya</i>	0.135	Insignificant	0.050	Insignificant
8.	<i>Atipipasa</i>	0.223	Insignificant	0.005	Significant

In Group A, Value of P is less than 0.05 in *Chala Sphika Udara Stana*, *Kshudra Shwasa*, *Daurbalya*, *Atinidra* and *Daugandhya* Parameters, significant difference was observed between means of BT and AT score. Hence it is concluded that these 5 parameters are significantly decreased while value of P is more than 0.05 in *Alasya/Utsahani*, *Swedaadhikya* and *Atipipasa* parameters means there was no statistically significant difference between mean of BT and AT score. Therefore, it is concluded that these 3 parameters are almost same before and after treatment.

In Group B, Value of P is less than 0.05 in *Chala Sphika Udara Stana*, *Kshudra Shwasa*, *Daurbalya*, *Atinidra*, *Daugandhya* and *Atipipasa* Parameters, significant difference was observed between means of BT and AT

score. Hence it is concluded that these 6 parameters are significantly decreased while value of P is more than 0.05 in *Alasya/ Utsahahaani* and *Swedaadhikya* parameters means there was no statistically significant difference between mean of BT and AT score. Therefore, it is concluded that these two parameters are almost same before and after treatment.

Mann Whitney’s Test: Subjective Parameters

Comparison in Group A and Group B

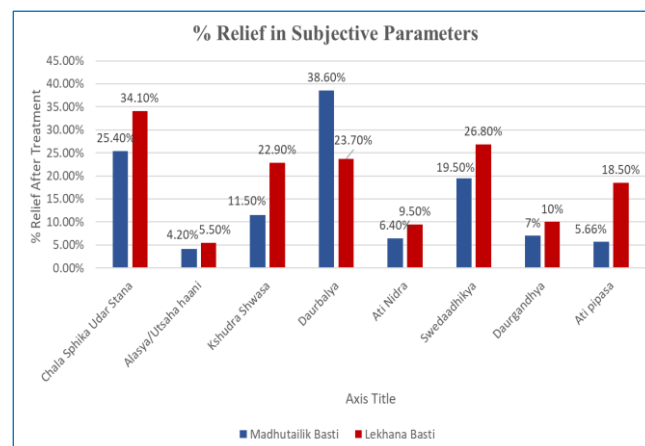
SN	Parameters	Comparison of P Value	Result
1.	<i>Chalsphikaudarstana</i>	0.153	Insignificant (A ≈ B)
2.	<i>Alasya/Utsahahaani</i>	0.019	Significant
3.	<i>Kshudra Shwasa</i>	0.622	Insignificant (A ≈ B)
4.	<i>Daurbalya</i>	0.027	Significant
5.	<i>Atinidra</i>	0.051	Insignificant (A ≈ B)
6.	<i>Swedadhikya</i>	0.318	Insignificant (A ≈ B)
7.	<i>Daurgandhya</i>	0.992	Insignificant (A ≈ B)
8.	<i>Atipipasa</i>	0.537	Insignificant (A ≈ B)

In between comparison of both the groups, P value is more than 0.05 in six Subjective Parameters viz. *Chalaspika Udara Stana*, *Kshudra Shwasa*, *Atinidra*, *Swedaadhikya*, *Daurgandhya* and *Atipipasa* and it is less than 0.05 in two Subjective Parameters viz. *Alasya/ Utsahahani* and *Daurbalya*. Therefore, it is concluded that there is a significant difference in *Madhutailik Basti* and *Lekhana Basti* group in order to decrease these two symptoms of *Sthaulya*.

So, on comparison between Group A and Group B

- Group A was found better than Group B in reducing *Daurbalya* parameter.

- Group B was found better than Group A in reducing the *Alasya/Utsahahaani* parameter.



Graph 1: Showing % Relief in Subjective parameters.

Graph shows % relief in *Madhutailik Basti* Group on *Chala Sphika Udara Stana* symptom of obesity is 25.40% and *Lekhana Basti* group is 34.10%. Relief on *Alasya/Utsaha Hani* symptom in *Madhutailik Basti* group is 4.20% and in *Lekhana Basti* group is 5.5%. Better effect of *Lekhana Basti* was observed as compared to *Madhutailik Basti* on *Kshudra Shwasa* after treatment (22.9% v/s 11.5%). Better effect of *Madhutailik Basti* was observed as compared to *Lekhana Basti* on *Daurbalya* after treatment (38.6% v/s 23.7%). It was observed that effect of the treatment was slightly better in *Lekhana Basti* group as compared to *Madhutailik Basti* (9.5% compared to 6.4%) on *Ati Nidra* symptom. Effect of the treatment on *Swedaadhikya* was better in *Lekhana Basti* group as compared to *Madhutailik Basti* group (% change/relief was 26.8% as compared to 19.5%). Similarly, effect of the treatment on *Daurgandhya* was slightly better in *Lekhana Basti* group as compared to *Madhutailik Basti* group (% relief was 10% as compared to 7%). Effect of the treatment on *Ati Pipasa* was better in *Lekhana Basti* group (% relief = 18.5%) as compared to *Madhutailik Basti* group (% relief = 5.66%).

Average % Relief in Subjective Parameters

In Group A, Average % Relief was 14.79% and in Group B, Average % Relief was 18.87%. Hence according to % relief in symptoms, *Lekhana Basti* is more effective than *Madhutailik Basti* in *Sthaulya* (Obesity).

Objective Parameter

SN	Parameters	P value in Group A	Significance	P value in group B	Significance
1.	Body weight	<0.001	HS	<0.001	HS

(Within group p-value compared using Repeated Measure Anova, post hoc comparisons have been done using Bonferroni inequality.)

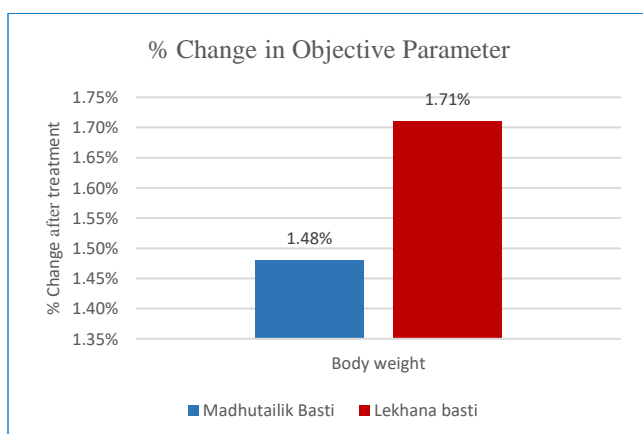
In Group A as well as in Group B, Value of p is less than 0.001, significant difference was observed between mean of BT and AT score. Hence it is concluded that Body weight is significantly decreased in both the groups.

Independent T Test: Objective Parameter Comparison in Group A and Group B.

SN	Parameters	Comparison of P Value	Result
1.	Body weight	0.004	Significant

The P value is less than 0.05 in Objective Parameter, the mean difference between Group A and Group B was significant. Therefore, it is concluded that there is significant difference in *Madhutailik Basti* and *Lekhana Basti* group in order to decrease Body weight.

- Group B was found better than Group A in reducing the Body Weight.



Graph 2: Showing % Relief in Objective parameter.

In the case of Objective parameter i.e., Body weight, Effect of *Lekhana Basti* was more as compared to *Madhutailik Basti* (% change was 1.71% v/s 1.48 %).

DISCUSSION

After completion of clinical trial, all data was collected in Case Record Forms. Collected data was tabulated, classified and presented in the forms of tables and graphs. Data was then analysed statistically in order to draw interference. When compared, Average % Relief was 14.79% in group A and Average % Relief was 18.87% in Group B. Hence according to % relief in symptoms, *Lekhana Basti* is more effective than *Madhutailik Basti* in *Sthaulya* (Obesity) in reducing subjective parameters. Both treatments have decreased Body weight. Change in objective parameter is more in Group B than in Group A. Hence *Lekhana Basti* is more effective than *Madhutailik Basti* in *Sthaulya* in reducing body weight.

As the name suggests itself, *Madhutailik Basti* has *Madhu* and *Tila Taila* as the main contents. Main role of *Madhu* is to increase the retention time of *Basti* by counteract the irritative property of *Saindhava*. Honey contains natural sugars which are quickly absorbed by digestive system and converted into energy. In some research articles it is explained that obesity is accompanied by chronic inflammation mediated by oxidative stress^[12] and Honey is very good antioxidant so it is obvious that honey is beneficial for obese patients. *Madhu* has *Sukshma*, *Kaphashamak*, *Chedana*, *Lekhana* and *Srotoshodhana* property which can help the medicated drugs to reach at micro level in all over body and clearing out all the aggravated *Kapha Dosha* and *Vikriti Meda Dhatu* from the channels of body, cleanses the *Srotas* and clearing the obstruction of *Srotas*. It's *Ruksha Guna* counteract *Snigdha Guna* of the aggravated *Kapha Dosha* and *Meda Dhatu*. *Madhu* is also mentioned in *Sthaulya Chikitsa*.

Tila Taila is an oily compound so it increases the permeability of cell membrane and become helpful in the elimination of *Dosha* and *Mala*. *Tila Taila* has *Sukshma Guna* through which it has the capability to reach all micro channels of the body. By its *Lekhana Guna* it can scrape out the viscid *Kapha*, by *Vikasi Guna*

it pacifies the aggravated *Dhatu* and aggravated *Kapha Dosh* and *Vyavayi Guna* helps in fast spreading of drug throughout the body. It has *Tikta Rasa* and *Kashaya Anurasa* which counteract the aggravated *Kapha Dosh*. Because of it *Vyavayi*, *Sukshma*, *Tikshna* and *Ushna* property it helps in reducing the aggravated *Meda Dhatu* in *Sthaulya*.

Apart from *Madhu* and *Taila*, *Erandamoola Kwatha* is another main content in *Madhutailik Basti*. *Eranda* has *Ushna* property due to which it has *Vatakaphahara Guna*. It has aphrodisiac action also which helps in improving impotent condition in *Sthaulya*. These drugs, by virtue of their *Ushna Virya* acts on *Kapha-Vata*. In *Medo Roga*, excessive *Meda Vridhi* occurs along with production of *Ama Rasa*. *Madhutailik Basti* breaks the *Srotosanga*. So, the active principle reaches to the cellular level. *Erandamoola Kashaya* causes *Shoshana*, *Lekhana*, *Amahara Karma* due to *Tikta*, *Katu* and *Kashaya Rasa*.

CONCLUSION

Sthaulya (Obesity) is very prevalent disease in today's world which is causing physical, mental, and social impact on the suffering individual. It is common in middle age, females, married woman, housewife and educated people. Administration of *Lekhana Basti* as well as *Madhutailik Basti* showed good results in the management of *Sthaulya* (obesity). Clinically, *Lekhana Basti* is found slightly better than *Madhutailik Basti* in reducing the parameters of *Sthaulya*. Average relief in parameters of *Sthaulya* (obesity) found more better in *Lekhana Basti* (18.87%) than *Madhutailik Basti* (14.79%). One interesting thing to note that *Acharya Sharangdhara* told *Medonashaka* as well as *Brihana* property of *Madhutailik Basti* so there is further scope for new researchers to conduct a study in both *Sthula* as well as *Krishna* patients.

REFERENCES

1. Flier JS, Maratos-Flier E. Biology of obesity. In: Jameson JL, Fauci AS, Kasper DL, Hauser SL, Longo DL, Loscalzo J, editors.

Harrison's Principles of Internal Medicine. 17th ed. New York: McGraw Hill; 2008. p. 462.

2. Flier JS, Maratos-Flier E. Biology of obesity. In: Jameson JL, Fauci AS, Kasper DL, Hauser SL, Longo DL, Loscalzo J, editors. Harrison's Principles of Internal Medicine. 17th ed. New York: McGraw Hill; 2008. p. 463.
3. Ahirwar R, Mondal PR. Prevalence of obesity in India: A systematic review. *Diabetes Metab Syndr*. 2019 Jan-Feb;13(1):318-321. DOI: 10.1016/j.dsx.2018.08.032. PMID: 30641719.
4. Pandey KS, Chaturvedi G. Charak Samhita; savimarsh vidyotini hindi vyakhya (first part). Reprint 2020. Varanasi: Chaukhambha Bharati Academy; Sutra Sthana 21/3, p. 355.
5. Pandey KS, Chaturvedi G. Charak Samhita; savimarsh vidyotini hindi vyakhya (first part). Reprint 2020. Varanasi: Chaukhambha Bharati Academy; Sutra Sthana 21/9, p. 357.
6. Pandey KS, Chaturvedi G. Charak Samhita; savimarsh vidyotini hindi vyakhya (first part). Reprint 2020. Varanasi: Chaukhambha Bharati Academy; Sutra Sthana 20/17, p. 352.
7. Pandey KS, Chaturvedi G. Charak Samhita; savimarsh vidyotini hindi vyakhya (first part). Reprint 2020. Varanasi: Chaukhambha Bharati Academy; Sutra Sthana 23/6, p. 379.
8. Srivastava S. Sharangadhar Samhita of Acharya Sharangdhar "Jiwanprada" hindi commentary. Reprint 2017. Varanasi: Chaukhambha Orientalia; Uttar Khanda ch.6, p.387/29-31.
9. Pandey KS, Chaturvedi G. Charak Samhita; savimarsh vidyotini hindi vyakhya (second part). Reprint 2020. Varanasi: Chaukhambha Bharati Academy; Sidhi Sthana 2/14, p. 902.
10. Shastri KA. Jvararogadhikar 5/1286-1287. Bhaijiya Ratnavali. Varanasi: Chaukhambha Prakashana; 2018. p. 85-186.
11. Nagar S. Comparative study to evaluate the efficacy of Madhudaka and Manda in the management of Sthaulya (Obesity) [thesis]. New Delhi: CBPACS; 2020. p. 77.
12. Skalicky J, Muzakova V, Kandar R, et al. Evaluation of oxidative stress and inflammation in obese adults with metabolic syndrome. *Clin Chem Lab Med*. 2008;46:499-505.

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