6. DISCUSSION

As per the objective of this study the conceptual study of Sthoulya Vyadhi has been done in two segments i.e.
1. Conceptual study of Sthoulya as per Ayurvedic text.
2. Sthoulya / Obesity as per Modern science.

Conceptual study of Sthoulya:

In this study before starting clinical study, detail Study of literature of Sthoulya vyadhi has been studied. In Vedic kala there is no detail description of Sthoulya vyadhi but some scattered references are available in Atharvaveda, Rigveda and Yajurveda.

In Bruhatrayi detailed description of Sthoulya vyadhi has been given. Charaka includes Sthoula as one of the Astha Nindit Purusha. He considers Sthoulya as grave problem and gave its management in details. While explaining Sthoulya vyadhi in details Sushruta clearly quotes Rasa as the cause of it. Ashtang Hridaya explains Sthoulya in Dwividhopakramaneeya Aadhya and includes it under Langhan karma.

In Laghutray, Madhava gives description of Sthoulya named as ‘Medoroga’ also he has explained its nidan panchak. Sharangdhara more emphasise on its management while Bhava Prakash explains Medoroga chikitsa in details and suggested various lepa, udvartan etc. to its treatment.

In other classical texts various aspects of Sthoulya were explained in details. In Kashyapa samhita ‘Medasvi Dhatri chikitsa’ has been explained in details. Yogaratnakara explains many herbo mineral preparations to treat Medoroga. Bhaishajyaratnavali gives various treatments to treat Sthoulya. Commentators like Chakrapani, Dalhana, Vangasena, Indu etc. covers different aspects of Sthoulya nidan and its chikitsa.

In previous research work of Sthoulya, research carried at various institutes all over India has been mentioned. More than eighty types of research on Sthoulya all over India has been studied, where as Thirteen no of published research papers were also studied.
In this study the detail of Medodhatu i.e. its vivechan, nirukti, cynonames as mentioned by different anthers were studied. The site of Medoroga i.e. Sthan ,Swarupa (appearance), Utpttti(production) along with its hetu(cause) etc. were studied. In this clinical study female patients were found more than male i.e.80% . It has been observed in female, that causative factors like Avyayama, Divaswapna, Ati guru-madhur-snigdha aahar sevan were found. It has been noted that the causative factors like Viharatmk nidan, Manasik nidan is also responsible for Sthoulya.

Poorvarupa, Rupa, Samprapti, Upadrava, Chikitsa etc. of Sthoulya has been studied in details.

**Obesity in modern medicine**

In review of Obesity Definition, Exogenous, Endogenous and Miscellaneous causes, classification of Obesity, Diagnosis, Pathogenesis, Complications and Prognosis of obesity has been explained in details. Treatment of Obesity according to modern science has been explained in details at the end of conceptual study.

**Gender:**

Incidence of female patients was high in all three groups i.e.average 81.10%. Incidence of Obesity is slightly more in females than males, our clinical study supports this fact. Ignorance in males towards their weight and increased concern in females about their weight may be another reason.

**Age:**

In 31 to 40 age group average percentage of patient was maximum i.e. 34.55%. In 41 to 50 and 51 to 60 age group the average percentage was 23.33% and 24.44% respectively. In 21 to 30 age group average percentages of patients was comparatively less i.e. 17.77% this indicates the increasing trend of obesity in young and middle aged population i.e.31 to 50 yrs of age (57.88%).

The Incidence of higher number of patients in the age group of 41-50 and 51-60 In this clinical study young and middle aged population is more. Consumption of rich food, lack of exercise and mental stability coming after settlement in middle age may be the reason behind this.
Religion:

In A group 29 patients were Hindu i.e. 96.66%, 01 patient was Buddha 3.33%. In B group 27 patients were Hindu i.e.90% and 03 patients were Muslim i.e.10%. There was no Buddha patient. In C group 28 patients were Hindu i.e. 98.33%, there was no Muslim patient and 02 patients were Bauddha i.e. 6.66%.

Maximum patients i.e. 94.99% were Hindu and only 05% patients were from other religion. Maximum patients included in this clinical trial were from Swargate to Katraj and adjoining area of Pune city. The distribution of community around this area might have been reflected. The sample size included in this clinical trial is very small so it is very difficult to come to any conclusion in this observation.

Marital Status:

In present study number of married patients is very high i.e. 93, 33%, remaining patients are unmarried and number of unmarried were very less in all three groups. After marriage many persons puts on weight is a general observation, there is no textual reference for this weight gain. To draw any conclusion with scientific reason in such condition is very difficult. Sedentary life style and some psychological factors etc. may have important role in this.

Educational Status:

In A group 02 patients were completed H.S.C i.e. 6.66%, 28 patients were Graduates i.e. 93.33%, no patient was Post Graduate. In B group 02 patients were completed H.S.C i.e. 6.66%, 28 patients were Graduates i.e. 93.33%. In C group 28 patients were Graduates i.e. 93.33% and 02 patients were Post Graduates i.e.6.66%.

Maximum patient were from Graduate group i.e.93.33%. This probably indicates that the personas having graduate degree were doing less physical activity which lead them to gain weight.
**Prakriti:**

In A group 10 patients were Kaphavataja i.e. 33.33%, 14 patients were Kaphapittajai.e. 46.66%, 02 patients were Vatapittaja i.e. 6.66%, 04 patients were Vatakaphaja i.e. 13.33%. In B group 06 patients were Kaphavataja i.e. 20%, 18 patients were Kaphapittaja i.e. 60%, 02 patients were Pittakaphaja i.e. 6.66%, 04 patients were Vatakaphaja i.e. 13.33%. In C group 09 patients were Kaphavataja i.e. 30%, 21 patients were Kaphapittajai.e. 70%.

Observation shows that more percentage of the patients was of Kaphapittajai and Kaphavataja prakruti in the patients. This clearly indicates the major role of Kaphapradhan Prakruti as causative factor in Sthoulya.

**Koshtha:**

In normal condition, Madhyama Koṣṭha found due to Kapha dominancy and the same thing is found in all three groups i.e. majority of the patient were having Madhyama Koshtha (88%).

**Habitat:**

In all three groups average 94.44% patients were from urban area. Findings in this clinical trial clearly support previous surveys which showed dominance of Obesity in urban population.

**Satva:**

In A and B group all patients were having Heen Satva. In C group 29 patients were having Heen Satva i.e. 96.66%, 01 patient was having Madhyama Satva i.e. 3.33%. Heena Satva individual may tend to do more mistecks, do aahartaha and vihartaha hetusevan which became casutive factor for Obesity.
Diet:

In A group 26 patients were Mixed diet i.e. 86.66%, 04 patients were Vegetarian i.e. 13.33%, In B group 26 patients were Mixed diet i.e. 86.66%, 04 patients were Vegetarian i.e. 13.33%, In C group 26 patients were Mixed diet i.e. 86.66%, 26 patients were Vegetarian i.e. 86.66%. Most of the patients were taking Mixed diet i.e. Guru, Sheeta and Snigdha guna pradhana diet which are the predominant factors for Sthoulya. Dietary habits are of prime importance in the pathogenesis of Sthoulya. Ayurvedic texts has clearly mentioned the role of Guru, Snigdha, Madhura, Sheeta pradhana diet as the etiological factor of Sthoulya and this fact can rightly be justified by the results of the present study.

Occupation:

In all three groups average 85.55% patients were having sedentary occupation and 14.44% patients were having Moderate occupation. This clearly indicates that not only the dietary habits but also the occupational status plays an important role in the incidence of Sthoulya. This can be attributed to the fact that the occupational status of a person determines his/her life style. A person with a sedentary life style must be leading a more or less luxurious life without any sort of exercise or walking while a person belonging to the labour class, who can’t afford this luxurious life and for whom “hand to mouth” is the order of the day and it is universally accepted fact that such people do not have Sthoulya.

Economic Status:

In A group 28 patients were having moderate economic status i.e. 93.33%, 01 patient was of poor economic status i.e. 03.33%. In B group 29 patients were having moderate economic status i.e. 96.66%, 01 patient was of poor economic status i.e. 03.33%. In C group 28 patients were having moderate economic status i.e. 93.33%, 01 patients were having poor economic status i.e. 03.33%, 01 patient was of poor economic status i.e. 03.33%.

In all three groups average 94.44% patients were having moderate economic status and 3.33% patients were having poor economic status and 2.22% patients were having rich economic status. Economy definitely has a role to play in the occurrence
of Obesity. Middle class and Higher Middle class people were mainly affected by obesity because today this group is getting all the luxury, easy availability of food and tends to become more sedentary.

**Effect of the Drug on Subjective Criteria**

**Atikshudha:**

Excessive accumulation of meda causes obstruction in the way of vata. This obstructed vayu causes ‘agnisandhukshan’ in koshta. This teevra agni digest the food fast and thus excessive hunger is seen in atisthula. In A group symptom was found in 24 patients and all of them got relief. In B group symptom was found in 28 patients and all patients got relief. In C group symptom was found in 28 patients and there was no relief in any patient. Both drugs are having excellent result to reduce Atikshudha. The compound rasa property of MKG is Tikta rasa, and ushna virya helps to digest the excessive Meda and relives the obstruction of vatadosha. The same factor of shilajit is effective in group B.

**Atinidra:**

Nidra is developed normally due to the physical and mental fatigue. In Obesity patients Atinidra symptom is common because the effect of Kaphadosha and tamaguna on buddhi-indriya also effect of Aama are responsible factor. During the trial in A group Atinidra was found in 20 patients where as 19 patient (95%) got relief. In B group Atinidra was found in 19 patients out of them 17 patients (89%) got relief. In C group symptom was found in 21 patients and there was no relief. The property of drugs MKG and Shilajit is Ushnaviyatmaka, Rukshaguna and Tiktarasa were helps to Aamapachan, Kaphagna and clears the Tama aavarana resulting in to normal nidra.

**Atisweda:**

Excessive sweating is always found in obese persons than normal persons. As per Ayurveda process of sweating in obese persons is due to the pachan of vikrut kled which finally turns into sweate and mutra. In this trial the group A having 16
patients of Aatiswedprvrutti but after the trial 14 patients got relief. Where as in Group B 18 patient got relief out of 20 patients and there were no any relief in Atiswed from Group C. Here the trial drug and Shilajit having the property of Kledaghna, Aamapachan helps to controle the symptom. As per statistics shilajit having good results than MKG. These two drugs also playing the role to controle in the development of vikrut kleda and counter acting from excessive medodhatu production.

**Swedadaurgandhya:**

The symptom Swedadaurgandhya i.e. foul smell in obease persone. This happens because of excessive sweating due to metabolism of Aam and kleda. The Aama itself having the foul smell property. During the trial this symptom was found in 30 patients and in Group A & in Gr. B it was 12 out of 30.Where as in Group C noticed only 7 patients without any effect. The Group A showed 100% result and Group B was 91.66%.

**Aalasya:**

The Aalasya symptom is found in maximum patients of Obesity. The Aalasya means persone dosent ready for any physical and mental activity. This is happened because obstration of Vatadosha by vikrut Medodhatu. In Group A symptom was found in 18 patients and 16 patient (88.88%) got relief. In Group B symptom was found in 16 patients and 15 patients (93.33%) got relief. In Group C symptom was found in 15 patients no relief found in any patient. The Alasya was disappear by MKG and Shilajit and turns it into normal activity. Aamapachan activity of the both drug removes the obstruction and allows vatadosha to carry on its normal functions.

**Shramashwas:**

This symptom is commonly found in Obease persones. In these patients are loosing their enthusiasm because of property of Aama and its Strotorodha leads into fatigueness.Here Patient require more efforts to carry on small work i.e. walking, climbing etc. In Group A symptom was found in 12 patients and, 11 patient (91.66%) got relief. In B group symptom was found in 12 patients and 10 patients (83.33%) got
relief. In C group symptom was found in 07 patients there was no any relief. The symptom was reduced by MKG and Shilajit because of its amapachana property

i.e. Ushna guna and Laghu guna clears the obstruction. Shilajeet is also having good results in this lakshana but MKG is having better results than Shilajeet.

**Atipipasa:**

Pipasa & atipipasa these two lakshana were found due to the samata or Ama. this ama require liquid or water for the digestion of ama so that water is required in form of thrust and also their may be imbalance of drwatva due to vikrut kleda. Atisandukashana also creates pipasa lakshana. In group A and group B symptom was found in 12 and 15 patients respectively and there was 100% relief in both the groups. In group C symptom was found in 15 patients and there was no relief. Tikta rasa and ushna virya of MKG reduces obstruction created by Aama and koshna jala clears the dryness from throat with maintain its waitness & reducess this lakshna. Both drugs MKG and Shilajatu showed equal and good result in this symptom.

**Angasad:**

The symptom Angasad is occurred in various types of diseases because of srtorodha, & ama. Here i.e in Sthoulya the same factors and meddhatu is responsible. The ama is actied in this diseases as aforign substances which creates angasad lakshana i.e slightly body ache. In group A and group B angasad was found in 05 and 07 patients respectively and there was 100% reliefin both the groups. In C group symptom was found in 08 patients and there was no relief in any patient. Excess Meda, Aama and Kleda creates this lakshana. The Aampachak&srotorodha nashak action by Tikta rasa, ushna virya laghu guna of MKG reduces Angasad lakshana. Both drugs MKG and Shilajatu showed equal and good result in this symptom.

**Alpamaithun:**

Normally all dhatu poshana is done through the conversation of normal diet in to the prakrut aahar rasa. This prakrut aahar ras narishes the rasadi dhatu, dosha & mala. The sexual act is becouse of normal or prakruta shukra& mental
wellbeingness. In obesity the factor responsible for alpamaithuna (lack of sexual desire) is srotrodha, may be vikrut shukra dhatu, & alpa poshana of remaining dhatu, also the effect of obesity on mind turns in to stress. The alpamaithuna was found in 02 equally i.e. A & B pts in both group and there was 100% relief in both the groups. In C group symptom was found in 02 patients and there was no relief in any patient. Both drugs MKG and Shilajatu showed equal and good result in this symptom. The drugs Shilajit Amalaki, Haritaki, Gokshur are in madhur rasa & sheeta virya, Rasayan vrishya rejuvenating playing a effective role in to increase in sexual desire.

**Effect of the Drug on Objective Criterions**

**Weight:**

In this study the average range of weight 60 to 110 Kg. was found in the patients of Obesity. Here Obesity was defined on the basis of BMI not weight as criterion. During this trial it has been observed that mean weight reduction by Mustadikwatha Ghanavati was 6.88 Kgs, where as Group B was on Shilajeet showed mean weight reduction was 5Kgs. and Group C given maize starch did not show reduction in weight. This reduction in weight in both Groups due to the Aamapachak, Kaphagna and Lekhan properties of MKG and Shilajeet. Where as Group A has better result in weight reduction than Group B because Group A i.e. on MKG having combine effect of ingredients as Shilajit is single drug.

**BMI:**

Normally excessive pusthi (Nutrition) of Mansa dhatu and Medo dhatu is considered as increase in BMI. The symptom Daurbalya is Observed because of increased BMI and its effect on decreased daily activity. In this trial it has been noticed that effect of the trial drug i.e. MKG shows mean reduction in BMI was 2.85 where as by giving Shilajit the reduction in BMI was 2.28. Group A and Group B shows reduction in BMI but Group C did not show reduction in BMI. Group A is slightly better than Group B. The effect of trial drug was better than Gr. B because its combine effect of MKG. This trial showed good effect on subjective parameters i.e.
Shramashwas, Aalasya etc. is nothing but reverse in Dourbalya and resulting in normal activites and subject feels swasthya (Wellbeing of Mental and physical state).

Effect of Drug in Various Aayamas: (Body Measurement)

In Sthoulya vyadhi because of excess medovrudhi size and shape of various body parts increases and is called sharir aayam vrudhi. In this clinical study we observed change in sharir aayam, before and after the treatment in all three groups, it is important objective of this study. In this study we have taken various circumferences (Aayamaa) of Stan(breast), Udar (abdomen) and Sphik (buttok), skin fold thickness from Arm, Abdomen and Thigh region is also measured in this study. The result is as below.

i) Stana Aayama

The result of Stan Aayam in Gr. B i.e. Shilajeet showing 4.93 cms. that Gr. A i.e. MKG recorded as 4.63 cms whereas Gr. C i.e. Maize starch did not show any reduction in Stan Aayam (-0.17 cms).

ii) Udar Aayama

During trial the measurement of Udar(Abdomen) was significant in Gr. A and Gr. B. Comparatively Gr A i.e MKG 8.70 cms. is slightly better than Gr.B i.e. Shilajeet 7.73 cms. there is no significant change in Gr. C i.e. Maize starch table.(-0.57cms).

iii) Sphik Aayama

The result of Sphik Aayam(Buttok) was equal in both A and B Group. The group C dose not show any change. Measurement of Sphik Aayam of Gr. A is 4.50 cms. reduction in Sphik Aayama by Mustadikwatha Ghanavati was 4.50 cms, Shilajeet 4.50 cms and maize starch did not reduce Sphik Aayama (-2.20cms).

Brest (Stan), Abdomen (Udar), Buttock (Sphik) are the main sights of fat accumulation as written in ayurvedic texts. Classical Ayurvedic text explains
Medovrudhi lakshanas as Stan lambanam and Udara lambanam. Modern science has considered android type of obesity, in which there is fat distribution mainly around the abdomen, buttock and breast. Hence the reduction in its circumferences holds high significance. Maximum reduction was found in Udar Aayama than Sphik and Stan Aayama. Shilajeet is having good results in these lakshana but MKG is having better results than Shilajeet, only in Stan Aayama Shilajeet is having slightly better results.

**Skin Fold Thickness:**

This trial indicated that mean reduction in Skin fold thickness by Mustadikwatha Ghanavati was 7.00 mm, Shilajeet 4.89 mm and maize starch did not reduce Skin fold thickness (-2.18cms). Shilajeet is having good results in these lakshana but MKG is having significantly better results than Shilajeet.

**Sr. Cholesterol:**

This trial indicated that mean reduction in Sr. Cholesterol by Mustadikwatha Ghanavati was 15.55 mg/dl, Shilajeet 5.73 mg/dl and maize starch did not reduce Sr. Cholesterol (-0.04mg/dl).

**Sr. HDL:**

This trial indicated that mean increase in Sr. HDL by Mustadikwatha Ghanavati was 2.40 mg/dl, Shilajeet 2.23 mg/dl and maize starch did not reduce Sr. HDL (-0.14 mg/dl).

**Sr. LDL:**

This trial indicated that mean reduction in Sr. LDL by Mustadikwatha Ghanavati was 5.92 mg/dl, Shilajeet 4.03 mg/dl and maize starch did not reduce Sr. LDL (-0.90mg/dl).

**Sr. VLDL:**
This trial indicated that mean reduction in Sr. VLDL by Mustadikwatha Ghanavati was 5.92 mg/dl, Shilajeet 4.03 mg/dl and maize starch did not reduce Sr. VLDL (-0.90mg/dl).

**Sr. Triglyceride:**

This trial indicated that mean reduction in Sr. Triglyceride by Mustadikwatha Ghanavati was 5.92 mg/dl, Shilajeet 4.03 mg/dl and maize starch did not reduce Sr. Triglyceride (-0.90 mg/dl).

Among the serum lipid profile MKG shows better results than Shilajeet, the serum cholesterol level shows the mean reduction of 15.55, serum triglyceride level shows the mean reduction of 5.29, HDL level shows the mean increase of 2.40mg/dl, the mean difference in the LDL level was 11.95and the mean difference in the VLDL level was 5.92. Statistically, all have high significance. Tikta, Katu and Kashaya rasa, Laghu and Tikshna guna helps in reducing excess fats in the body. Lekhan and Aamapachak action of MKG helped in lowering Sr. Cholesterol, Sr. LDL, Sr.VLDL and Sr. Triglyceride, at the same time MKG helped in increasing the number of Sr. HDL. Thus MKG increases Lipid mobilisation reduces body tendency of lipid deposition. Shilajit is also equally effective in Obesity.

**Probable Mode of action of Mustadikwatha Ghanavati**

Sthoulya is abnormal and excess accumulation of Medodhatu under the skin and around certain organs such as belly, buttock, breast and thigh. Medo dhatu aganimandya is the causative factor for excess production of Medodhatu due to this dhatu agnimandya vikrut kleda is formed in the form of mala.

According to Charaka, due to avarana (obstruction) of all the srotas (channels) by the meda, turns into vriddhi of kosthashrit samana vayu, which plays role of ati sandhukshan of jatharagni.

The increase in jatharagni leads to rapid digestion of consumed food and making the person craving for more food. This increased agni, produces excessive hunger tend to eat more food and life style etc, factors continues cycle of excessive production of
meda. In this way it becomes a vicious circle creating excessive improperly formed meda dhatu, producing various sign and symptoms of Sthoulya.

The vitiated Medodhatu is responsible to vitivte rasa, rakt mamsa and asthi, majja, shukra as it appears in the chain of saptadhatu. Thus signs and symptoms of remaining vitiated dhatus rasa, rakta etc. may be found along with Sthoulya i.e. lack of concentration, Klaibya etc.

Mustadikwath Ghanavati contains thirteen types of herbal drugs, in which 10 drugs are having Laghu guna and 8 drugs are having Ruksha guna property. Ruksha guna of MKG absorbs dravabhaga/ liquid part from excess medodhatu. So as maximum drugs in MKG is having effect on Medodhatu by absorbing excess medodhatu, it helps in reducing excess Aapdhatu from the body.

In MKG 12 drugs are of Tikta rasa and 9 drugs are of Kashaya rasa where as 5 drugs are of Katu rasa. Katu, Tikta and Kashaya Rasa of MKG helps to reduce the vitiated kaphadhatu. Where as the tikta, kashaya and katu rasa also reduces the kaphadhatu along with kleda and vikruit meda.

So combined effect of these rasa reduces excess kaphadhatu, Kled and Vikruit Medadhatu. In MKG 8 drugs are Katuvipaki and this Katu vipak reduces Kapha and Medha Dhatu. MKG is having Kaphashamaka/ Kaphagha action.

So finally as Samhitakar says if some Formulation is having more ingredients in it, its action will be considered as the combined effect of the hole drug and not according to their individual action.
7. SUMMARY

The Ph.D. thesis entitled “Clinical study of Musthadikwath Ghanwati in the Management of Sthoulya (Obesity)”, is comprised of total of 235 pages (excluding pages devoted to various annexure). There are ten chapters. It starts with Introduction in which how the various traditional systems of medicines such as Ayurveda, Unani, Homeopathy have been developed and present scenario of the Sthoulya (Obesity) in the world and in the India has been described. The worldwide prevalence of Sthoulya (Obesity) has seen doubled between 1980 and 2014. Sthoulya is associated with increase of risk of diseases like type 2 diabetes mellitus, coronary heart disease, hypertension, metabolic syndrome, certain cancers, etc., which significantly increase the risk of mortality. In view of different pathophysiological aspects behind Sthoulya, need of the present study has been explained.

In the second chapter, Aim and objectives of the present study has been given.

In the Review of Literature previous research work at various institutes on Sthoulya for MD and Ph.D. degrees, recently published research work and historical review of literature on Sthoulya have been mentioned in historical review, literature on Sthoulya i.e. Ayurvedic classics texts such as Charak Samhita, Susruta Samhita, Ashtang Hridaya, Sharangdhar Samhita, Bhavaprakash and commentaries by various authors has been described in detail. In review of Sthoulya (Obesity) disease, Medodatu Vivechan, Nidan, Poovarupa and Rupa, Samprapti, Updrava, Chikitsa, and Pathya-Apathya of Sthoulya has been thoroughly discussed.

Materials and method has been described in fourth chapter. In materials, drug review, properties of contents of Musthadikwath Ghanwati, Botonical description of plants used in Musthadikwath Ghanwati, properties of Shilajit vati and Placebo-Maize Starch has been described in details. There are thirteen plants used in Musthadikwath Ghanwati. In the botanical description of these
thirteen plants Latin name, its family, Ayurvedic synonyms, trade name, local name, morphological description, ayurvedic properties, formulations and therapeutic uses have been given. Photographs of plants, twig, fruits or parts used in the drug, are very useful in identification (authentication) of a plant/drug. Therefore photographs and detail description of morphological characters of the all the plants have been also provided.

In methodology details of method of preparation of Musthadikwath Ghanwati, Shilajit vati and Maize-starch tablet has been described in detail.

Similarly plan of research work, Criteria of selection and Criteria of assessment has been given.

This study was done as randomized controlled trials with the three groups (trial drug Musthadikwath Ghanwati, proven drug -Shilajit vati and placebo i.e. Maize-starch tablet). Total ninety patients were selected and were divided into three groups and each group included thirty patients.

**Effect of the Drugs in objectives parameters**

Changes in objectives parameters such as weight, BMI, lipid profile, etc have been assessed and result showed that trial and control drugs has effective.

**Effect on Weight :-** Musthadikwath Ghanwati vati and Shilajit vati showed good result on weight but Musthadikwath Ghanwati vati has shown better result than Shilajit.

**Effect on BMI :-** BMI has been considered as the most precious parameter to measure body fat and Musthadikwath Ghanwati vati showed better results than Shilajit.

**Effect on Sharir Ayamas :-** Maximum reduction was been found in Udar, Sphik and Stanayam. Musthadikwath Ghanwati vati is having good result in
Udar and Sphikayamthan Shilajit. But Shilajit showed better result on Stanayam.

**Effect on Skin fold thickness:** Musthadikwath Ghanwati showed sigificatly better results than Shilajit

**Effect on Lipid Profile :-**

1) Mean reduction in serum cholesterol by Musthadikwath Ghanwati is better results than Shilajit
2) Mean increase in serum HDL cholesterol by Musthadikwath Ghanwati is slightly better than Shilajit
3) Mean reduction in serum LDL by Musthadikwath Ghanwati is better than Shilajit
4) Mean reduction in serum VLDL and Triglyceride by Musthadikwath Ghanwati is also better than Shilajit

**Effect of Drugs in subjective parameters :-**

Changes in subjective parameters of Sthoulya such as Atikshudha, Atinidra, etc. were assessed by gradation method.

**Effect on Atikshudha :-** MKG and Shilajit showed 100% effect on Atikshudha lakshana. There was no relief in any patient taking Maize Starch tablet.

**Effect on Atinidra.:** MKG is more effective than Shilajit Vati

**Effect on Atiswed:** Shilajit Vati is more effective than MKG.

**Effect on Sweddaurghandhi:** MKG is more effective than Shilajit Vati.

**Effect on Atipipasa:** MKG and Shilajit Vati both the drugs are equally effective in this lakshana.

**Effect on Aalsya:** Shilajit Vati is more effective than MKG.

**Effect on Sramaswasa:** Shilajit Vati is more effective than MKG.

**Effect on Angasad:** MKG and Shilajit Vati both the drugs are equally effective in this lakshana.

**Effect on Alpamaithun:** MKG and Shilajit Vati both the drugs are equally effective
in this lakshana.
8. CONCLUSION

1) Mustadikwatha Ghanavati is an effective, safe and economical alternative for the management of Obesity/Sthoulya.

2) The study of Sthoulya and obesity (Modern Medicine) can be concluded that the factors responsible for this disease are common like aahar and vihar, which can be corelate in modern as lifestyle disorder. These factors are responsible for hazardas diseases like Hrudroga, Premeha, IHD, Diabetes mellitus, Hypertension etc.

3) Mustadikwath Ghanavati is more effectivethan Shilajit Vatiin subjective criterion like Atinidra, Sweddaurghandhi and in objective criterion like Weight, BMI, Udar Aayam, Skin Fold Thickness, Sr. Cholesterol, Sr.HDL, Sr. LDL, Sr. Triglyceride.

4) Shilajit Vati is more efficative than Mustadikwath Ghanavati in subjective criterion like Atiswed, Aalsya, Shramasawasa and also in objective criterion i.e Stan Aayam.

5) Mustadikwath Ghanavati and Shilajit Vati both drugs are equally effective in subjective criterion like Atikshudha, Atipipasa, Angasad, Alpamaithun and Sphik Aayam.

6) The Grouup C i.e Maize Starch Tablet dose not shows any effect in the patients of Sthoulya (Obesity).
8.1. Limitations of the Study

1) To evaluate the efficacy of the drug on subjective and objective criterion it requires more sample size.

2) It is necessary to advice to the patients of obesity for specific diet and exercise.

3) This study was conducted by offering only Shaman chikitsa but combination of Shaman and Shodhan chikitsa will be more effective. The sample size in this study was small. Only medicine as intervention was used in this work, whereas Ayurveda advocates a whole system approach comprising medicines, diet, lifestyle and panchakarma.

8.2. Further Scope for the Study

To evaluate combine effect of Medicine, for obesity management along with Specific diet, Exercise and Yoga will be more effective. Further study needs more number in sample size. The study should be carried out with out investigators bias and exploration of mechanism of actions of the medicine.
9. BIBLIOGRAPHY-REFERENCES

1) Charak Samhita; with Ayurveda dipika comm. of Chakrapanidatta edited by Jadaviji Trikamji Acharya, Chaukhambha Sanskrit Sansthan, 5th Ed.

2) Charak Samhita; with Ayurveda dipika comm. of Chakrapanidatta and Jalpakalpataru commentry by Gangadhara Pub. By Chaukhambha Publishers 2nd Ed. 2002


5) Ayurvediya Shabdakosh by Vd. Veni Madhav S. Joshi Apte Sanskrit English Dictionary Ed. 1st


9) Database on Medicinal Plants used in Ayurveda vol. I-II; P.C. Sharma, M.B. Yelne, T.J. Dennis, pub. by CCRAS, Dept. of ISM&H. Ministry of Health and family welfare (Govt. of India ) 2002


14) Research in Ayurveda; Dr. M.S. Baghel, Edited by Dr. G.K. Jain, Mridu Ayurvedic publications and Sales; 2007.


20) Rigveda Samhita, by Kanyalal Joshi, Varanasi, Chaukhambha Orientalia, 2000, pp 1060, pg. no. 574.

21) Yajurveda Samhita, Editor Vedamurthy Taponishta Pandit Shriram Sharma Acharya Chapter No. 12, Sloka No. 97.


➢ Previous Research work done in Various Research Institutes has been shown in tabular form from page nos. 12 to 18. It has not been mentioned here to avoid duplication.

References of Research Published on Sthoulya / Obesity


RUGNA PA TRAKA

A case paper for examination of the patients of

“Clinical Study Of Musthadi Kwath Ghanwati in the Management
Of Sthoulya (Obesity)”

GENERAL INFORMATION

OPD NO. : Date:
I.P.D No. : Bed No.:
Date of Admission. Date of Discharge
Name : Sex: Age :
Address :
Occupation :
Religion :
Marital Status :

___________________________________________________________

VEDANA VISHESH (Chief Complaints)

VARTAMANA VYĀDHI VRUTTA (History of Present illness)

PURVOTPĀNNA VYĀDHI VRUTTANT (History of Past illness)

KULVRUTTA (Family History)

Matruj :
Pitruj :
RAJAHPRAVRUTTI VRUTTA (Menstrual History)

RUGNA PARIKSHANA

A. 1) Prakṛti

<table>
<thead>
<tr>
<th>Vātaj</th>
<th>Pittaj</th>
<th>Kaphaj</th>
<th>Vāta-pittaj</th>
<th>Vāt-Kaphaj</th>
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2) Sara (Saptadhatu):

3) Samhanan:

4) Praman (Kṛṣh, Madhyam, Sthuolya):

5) Vaya:

6) Satmya:

7) Satva:

8) Āhara śākti:

9) Vyāyama śākti:

10) Desh:

11) Kāl:

12) Bal:

B. Vikrutitaha Parikshan (SrotasaParikshan)

1) Pranavaha:

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<td>Phuphusa</td>
<td>Hṛdaya</td>
<td>Shtheewan (sputum)</td>
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2) Udakvaha:

   Talu :   Klom :    Trut (Truṣṭa)

3) Annavaha:

   Oshtha    Kapola    Jivha
   Āmāśaya   Grahane

4) Rasavaha:

   Nadi :    Hṛdaya m :

5) Raktavaha:

   Yakṛt :   Pleeha :
   Rakta :   Raktavahinya :

6) Mansavaha:

   Snayu :   Twaka :    Khamalani :
   Galashundi : Gilayu :

7) Medovaha:

   Vrukka :   Udaram :
   Sphik :    Stana :

8) Asthivaha:

   Medodhatu : Danta :    Nakhakeṣādi :

9) Majjavaha:

   Asthi :    Sandhipārvani :
10) Shukravaha:

Medhra: Vruṣāna: Oja:

11) Mutravaha:

Gavinnyo: Basti:
Mutrapātha: Mutra:

12) Purishavaha:

Pākvaśāya: Guda: Puriṣā:

13) Swedovaha:

Meda: Romkup: Sweda:

14) Ārtavvaha:

Antaphale: Ārtavvahinya:
Yoni: Garbhaśāya:

15) Stanyavaha:

Stanya: Chuchuka: Vahinya:

16) Manovaha:

Nidra: Buddhi: Smruti:

Roga Parikhana –

• Hetu of Medorog

• Samprapti

• Visheṣā samprapti

• Poorva Roopa

• Roopa
• Upasaya / Anupasaya

• Vyādhi vinischaya

Cikitsa –

Date :

Follow up: (After Treatment)

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<td>Weight (kg.)</td>
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Signature of Student       Signature of Guide
INFORMED CONSENT

I, Mr. / Mrs. __________________________________________
hereby giving my consent to undergo examination and treatment in the
project, Clinical Study Of Musthadikwathghanwati in the Management
Of Obesity(Sthoulya) by Dr. Pravin S. Sawant for his studies. I have been
fully informed about the nature, duration, dose of the said treatment. I am
ready for· the full treatment and follow-up. I have given my consent in
complete consciousness· and without being under any pressure.

Date: ___________________________ Sign/ Thumb:

Place: ___________________________ Name of Patient:

रुणसंमतीपत्र

मी स्वत: श्री. /श्रीमती. __________________________________________

माझ्या गोंद तपासणीसाठी व चिकित्सणीसाठी संमती देत आहे. डॉ. प्रविण गावंत यांनी, गुरुनाडी
क्वाद्य वनवटी चिकित्सेसाठी स्थील्यावर होणारा परिणाम हा विषय अभ्यासांमध्ये धेरून आहे.
त्यांनी मला सदर विषय, त्याचे स्वरूप लागणारा काळावधी, त्याच्या दिव्या जाणांच्या औपचारिक
प्रमाण याबद्दल संचित माहिती दिलेली आहे. मी पूर्ण चिकित्सा येण्यास व व्यांत्रिक्या
तपासणीसाठी येण्यास तयार आहे. मी ही संमती पूर्णपणे शुद्धीत व कोणाही दवावात न वेला देत
आहे.

दिनांक: ___________________________ रुणाची सही /अंगठा

Page 236 of 246
Institutional Ethical Clearance

CERTIFICATE

This is to certify that Dr. Pravin Shantao Sawant, Ph.D. scholar in the specialty of Kayachikitsa, has presented the outline of the research work entitled, "Clinical study of Mustadi Kashaya Housing in the management of obesity (Sthovila)" before the experts of Institutional Ethical Committee [IEC] on 11/1/11. The suggestions given by experts are incorporated in this outline.

We recommend the same for being submitted to the adjudicator.

Dr. A.B. Patil
Principal
Bharati Vidyapeeth Deemed University

Dr. V.V. Doiphode
Chairman
Institutional Ethical Committee
LETTER OF PROVISIONAL ADMISSION

To,
Dr. Pravin Shamrao Sawant
C-7, Laxmi Palace Apt.,
Near Gurudwara,
Aundh Gaon, Pune – 411007.

Sub: Admission for Ph.D.

Sir/Madam,

I am directed to inform you that the authorities of Bharati Vidyapeeth Deemed University have been pleased to grant you provisional admission for the Ph. D. degree course in Kayachikitsa under the faculty of Ayurved with effect from 05th August, 2010. Subject to the fulfillment of the eligibility and other conditions.

Your name of the guide, place of Research and payment of fees shall be as shown below.

1. **Name of the Guide**
   - Dr. Bharat B. Kadiaskar

2. **Name of the Co-guide (if any)**
   - 

3. **Place of Research**
   - College of Ayurved, Pune – Satara Road, Pune.

4. **Fees (First year)**
   - a) Tuition Fee Rs. 25000/-
   - b) Eligibility fee Rs. 500/-

Fees will be paid in the office of University by cash or Demand draft in the name of “The Registrar, Bharati Vidyapeeth Deemed University, Pune.”
Ref.No.: BVDU/Ph.D./1557/2011-2012

To,
Dr. Pravin Shamrao Sawant
C-7, Laxmi Palace Apt.,
Near Gurudwara,
Aundh Gaon, Pune – 411007.

Sub: Final Ph.D. registration.

2) Per Ph.D Course. Completed Satisfactorily.

Sirs/Madam,

With reference to above, University authorities are happy to inform you that you have been granted final registration of Ph.D. in Kayachikitsa under the Faculty of Ayurved under the guidance of Dr. Bharat B. kadiaskar. The topic of your Ph.D. research is “Study of Musthadikwath Ghanwati in the Management of Obesity (Sthoulya).”

As per University rules you are required to submit Six Monthly Progress report of your Ph.D. Work through your Research Guide and Head of Place of Research Work

Thanking you,

Yours faithfully,

[Signature]
(Dr.P.M.Bulakhe)
Director BCUD

CC:
1. Principal, Ayurved College, Pune – Satara Road, Pune.
2. Dr. Manasi Deshpand, Dean, Faculty of Ayurved.
3. Dr. Bharat B. kadiaskar, Research Guide, HOD, Dept. of Kayachikitsa, College of Ayurved, Pune – Satara Road, Pune -43.
CERTIFICATE

To whom so ever it may concern

This is to certify that Dr. Pravin S. Sawant, College of Ayurveda, Bharti Vidyaapeeth Deemed University, Pune -411043, is doing research leading to Ph. D. on following herbal drugs:

He has been submitted the following specimens to me for the botanical standardization & authentication where identified & confirmed as:

1. Cyperus rotundus (Musta)
2. Cassia fistula (Aragwadha)
3. Cissampelos pareira (Patha)
4. Emblica officinalis (Amalaki)
5. Terminalia chebula (Hritaki)
6. Terminalia belerica (Bibhitaki)
7. Cedrus deodara (Devdara)
8. Tribulus terrestris (Gokharu)
9. Acacia catechu (Khadir)
10. Azadirachta indica (Nimba)
11. Curcuma longa (Haridra)
12. Berberis aristata (Haruharidra)
13. Holarrhena antidysenterica (Kutaj)

The above herbal samples which were collected for the Ph. D. work by Dr. Pravin S. Sawant are authentic and botanically well identified. These can be used for further studies.
Date: 14/04/2012

To,
Dr. Pravin Shamrao Sawant
Associate Professor
‘Kayachikitsa Department’
College of Ayurved, Bharati Vidyapeeth Deemed University.
Pune.

TEST REPORT

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<td>Patha</td>
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<tr>
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All the tests were performed as per the standard methods. In case of any queries regarding the results, please feel free to contact us back.

For Late Prin. B. V. Bhide Foundation

Signed
A.S. Bhave
(Ex-Director)
Date: 14/04/2012

To,
Dr. Pravin Shamrao Sawant
Associate Professor
‘Kayachikitsa Department’
College of Ayurved, Bharati Vidyapeeth Deemed University.
Pune.

**TEST REPORT**

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All the tests were performed as per the standard methods. In case of any queries regarding the results, please feel free to contact us back.

For Late Prin. B. V. Bhide Foundation

A.S. Bhave

(Prop. Director)
Dr. Pravin Sawant  
Ph.D Scholar,  
Dept. of Kayachikta,  
B.V.U. College of Ayurveda,  
PUNE

Sub: Manufacturing of Mustadikwathghanavati for Ph.D research project in our Parco Pharmaceutical.

Respected Sir,

Herewith we are certifying that following preparation of Mustadikwathghanavati for Ph.D research project has been prepared as per yor sop dated on 30/04/2012 in our Parco Pharmaceutical according to GMP rule

Thanking you,  
Yours faithfully  

[Signature]

Dr. Pushkar S. Dalal
# CLINICAL STUDY OF MUSTHADIKWATH GHANWATI IN THE MANAGEMENT OF STHOULYA (OBESITY)

## ORIGINALITY REPORT

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## PRIMARY SOURCES

1. **www.slideshare.net**
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