



A Survey To Assess Quality of Life In Obesity In Relation To Ashtadoshas of Ati-Sthoulya And Prakriti- A Cross-Sectional Study

Dr.Vandana KS , Dr. P. Sudhakar Reddy

IIIPG Scholar , Professor& Head, Dept.of PG Studies in Swasthavritta, JSS Ayurveda Medical College, Mysuru

Abstract

Background: Obesity is one among the life style disorder which contributes to ill health and most serious public health problem in 21st century. Obesity has been described by the term *Sthoulya Roga* in various *Ayurvedic* classics. The strong negative impact of obesity on physiological health has been well established. However, the impact of obesity on psychological and social functioning has been studied less extensively. While it is generally believed that obesity has an adverse effect on many areas of psychological functioning. The impact of weight on overall quality of life has not been studied directly. Such study will lead to a better understanding of physical, mental and social problem of obese people and it will help us to educate them in a proper way to lead a happy life and to prevent the complications of obesity. With this background present study was conducted to assess the quality of life in obese people in relation to *Ashtadoshas* of *Athisthoulya* and *Prakruti*.

Objectives

1. To assess the quality of life with pre-designed and pre-tested questionnaire in obesity.
2. To assess the impact of *Ashtadoshas* and *Prakruti* in *Ati-Sthoulya*

Methods: 200 subjects with the age group 20-70 years, irrespective of sex, religion and socio-economic status, were selected randomly. Using the standard measuring tape and weighing machine the height and weight were measured. Using IWOQL and standard *Prakruti* questionnaire the quality of life and *Prakruti* of each participant were assessed. On the basis of tables prepared, the survey data were studied, interpreted and conclusions were drawn about the correlation between obesity, quality of life, *Ashtadoshas* and *prakruti*.

Result: Result showed that the qualities of life of obese people are more dependent on the chronicity and age of individual and *Ati-Sthoulya* persons are affected with *Ashtadoshas*.

Conclusion: The overall qualities of life of obese person were good with exception of Social/Interpersonal and Activities of daily living. The participants with young age and with less chronicity of obesity were worried more about their weight and were with poor quality of life. *Ashtadoshas* of *Ati-Sthoulya* persons .i.e. with BMI >40 were affected with *Ashtadoshas*. Persons with *Prakruta Pitta* and *Kapha Dosha* is having close relation with *Sthoulya*.

Key words: Quality of life, obesity, *Ashtadoshas*, *Ati-Sthoulya*, *Prakruti*.

Introduction:

Ayurveda being the science of life emphasizes importance in maintaining health of healthy individual and curing the disease of an ill. Health of an individual is a dynamic process influenced by the factors making the individual able to survive. The factors which determine the health of a person are many, but the two major factors are genetic makeup, which determines the predisposition to disease & lifestyle. Inherited factors cannot be changed but adaptation can be made in our behavior to control the risk of disease & injury. These adaptations are also referred as lifestyle. Obesity is one among the lifestyle disorder which contributes to ill health and serious public health problem of 21st century. Over weight and obesity are 5th leading risk of global deaths, worldwide obesity has more than doubled since 1980, in 2014, more than 1.9 billion adults, 18 years and older, were overweight. Of these over 600 million were obese¹. Significance of *Sthoulya* as a

pathological condition has changed over years from the time of Charaka Samhita (ancient Ayurvedic treatise) to the later authors. This may be due to the prevalence of disease which gradually increased in the course of time. Understanding this disease from Ayurvedic perspective is the most important need of the present era, as it has reached the pandemic levels and has a great influence on morbidity and mortality. Ayurveda consider Sthoulya as a condition of a person, "who on account of the excessive increase of Meda (~fatty tissue) and Mamsa (~muscular tissue), is disfigured with pendulous, buttocks, belly and breasts; and whose increased bulk is not matched by a corresponding increase in energy".¹ Ayurveda and Modern medicine consider obesity as metabolic disorder.^{2,3} Prakruti is an important concept of Ayurveda that explains uniqueness of every individual and has role in prevention, diagnosis and treatment of diseases. It is the innate character physical character of a person on the basis of predominance of tridoshas determined at the time of conception. While explaining the Lakshanas of Prakruti, Astanga Hridayakara explains Pralamba Bahu in Kapha Prakruthi and Deergha Kaya in Vata Prakruti. This hints at a relation between Prakruti and Sthoulya. The strong negative impact of obesity on physiological health has been well established. However the impact of obesity on psychological & social functioning has been studied less extensively while this is generally believed that obesity has an adverse effect on many areas of psychological functioning. The impact of weight on overall quality of life has not been studied directly. The study was conducted in 200 subjects of obesity which lead to a better understanding of physical, mental & social problems of obese people, helped us to educate them in a proper way to lead a happy life and to reduce the complications of obesity and to see the relationship between Prakruti and Sthoulya

METHODOLOGY

Objectives of The Study: To Assess The Quality Of Life With Pre-Designed And Pre-Tested Questionnaire In Obesity & To Assess The Impact Of Ashtadoshas And Prakruti In Ati-Sthoulya

MATERIALS AND METHODS

Source of Data: Literary study-Conceptual study related to Sthoulya, and Prakruti were reviewed by referring supportive literature in Brihatrayees and other classics. Literature review related to Obesity, Quality of life were collected by referring modern text books journals, published research works, articles, the available digital data and cyber links. Survey study- 200 subjects fulfilling subjective criteria were selected from population of the age group between 20-70 years and required Pramana assessments were done.

Method of Collecting Data materials: Standard Quality of life and *Prakruti* questionnaire, Consent form, Standard measuring tape, Standard digital weighing machine, Sphygmomanometer

Conceptual study: Books, thesis, journals including those published on the concept related to subject were reviewed and related information were collected and analyzed scientifically.

Survey study: 200 subjects of obesity in the age group 20-70 years, irrespective of sex, religion and socio-economic status, were selected from OPD, IPD and special camps conducted in JSS *Ayurveda* Hospital. Informed consent from volunteers was taken. An interview was conducted to evaluate the quality of life and *Prakruti* by pre-designed and pre-tested questionnaire.

Procedure of data collection: Interview: a structured interview was conducted, which included information on socio-demographic variables like age, gender, education, occupation, religion, domicile, marital status, behavioural factors like diet and habits, IWOQL questionnaire and *Prakruti* questionnaire.

Physical measurement: Body weight was measured by portable weighing machine setting the pointer at zero with the heels back, head touching the wall and without wearing shoes. Height was recorded during inspiration with standardized measuring tape and the BMI was calculated. B.P was recorded using the standard mercury Sphygmomanometer with adult size cuff in auscultatory method in sitting posture. Abdominal circumference was assessed using Standard measuring tape at the level of umbilicus. Waist

circumference was assessed at the level of iliac spine using standard measuring tape. Hip circumference was also measured at level of mid of buttock and waist hip ratio was calculated.

Diagnostic Criteria: BMI $\geq 30 \text{kg/m}^2$

Inclusion Criteria : BMI $\geq 30 \text{kg/m}^2$, Age group of 20-70 yrs of either sex. Subjects who were willing to participate in this study.

Exclusion Criteria : Age group below 20 yrs and above 70 yrs Subjects who were not willing to participate in this study., BMI $< 30 \text{kg/m}^2$

Assesment Criteria: The qualities of life of obese person were assessed by pre-designed and pre-tested questionnaire based on IWQOL-Duke University Medical Centre, which is divided into 8 scales. With different no of items in the 8 scales, Health- 14, Social/Interpersonal-11, Work-7, Mobility-10, Selfesteem-10, Sexual life-6, Activities of daily living- Comfort with food-6 The Ashtadoshas and Prakruti were also assessed through pre-designed questionnaire. Score for each scale: 1- Never true, 2- rarely true, 3- sometimes true, 4-often true, 5-always true. With the exception of the comfort with food scale, the higher the score the poorer the quality of life.

Statistical Analysis: The continuous data were calculated using descriptive statistics and others were calculated in frequency and percentage.

Study Design: Cross-sectional and observational study was conducted during December 2015 to January 2017 – after selecting subjects as per inclusion criteria, an interview was conducted by pre-designed and pre- tested questionnaire to assess the quality of life and Prakruti.

Results & Discussion : For every research work, rational interpretation and useful discussion should be made, so that it contributes at least “squirrel service” to the medical field, in turn serving the society. Here an attempt is made to discuss the concepts with respect to literary as well as on survey work.

Discussion on review of literature: All the definitions, which are mentioned in contemporary science, have one or the other drawback. For instance, a person accustomed with regular exercises, may weigh relatively more and as per the definitions he should be termed as obese person in spite of his active routine works and lack of symptoms and hence one feels difficult to define obesity. But the definition given by *Ayurveda* holds well in this regard i.e. irrespective of body weight unless until if a person has “*Chala Spik Sthana and Udara Lambana*” he cannot be termed as obese.

Discussion on synonyms: Various synonyms had been given in the ancient textbooks for *Sthoulya*, which includes from over weight to morbid obesity. Recent scholars had tried to classify the synonyms based on modern criteria as follows:

Table No: 01. Classification of synonyms of *Sthoulya* based on moderan criteria.

	Synonym	Comment
BMI < 27	<i>Pusti, Mamsalata</i>	Well nourished deposition of fat with mild degree of overweight
BMI 27-30	<i>Medasvita, Medovridhi, Medurata, Medopusti</i>	For extensive growth of Meda dhatu without risk factor.
BMI > 30	<i>Athi Sthoulya, Medo vikara, Medodusti</i>	Morbid obesity

Discussion on concept of *Medas*:

There is very thin line difference between *Medo Vridhi* and *Meda Roga*. Many a times both of these terms are used synonymously. The only difference one can find is that *Meda Vridhi* person will have *Lambana* of *Spik, Sthana* and *Udara*, where as *Medo Rogi* will have *Chalatwa* due to increased *Lambana* in the same parts.

Discussion on *Nidana*: Role of *Beeja Dosha* a having its own part in the manifestation of the disease. However unless and until the combination of *Dosha-Dushya-Nidana* takes place, *Sthoolata* in the body is not seen. The etiological factors that are found in both the classics are almost same. The concept of *Santarpaka Ahara* and *Vihara*, when viewed with modern science, than it can be concluded that the *Nidana*, which are explained, are nothing but the high caloric foods and sedentary life styles. For eg. If a person sleeps in afternoon then due to increased resting hours the calories will be spared, resulting in fat accumulation. Hence the day sleep is totally contraindicated in all individuals (except in *Greshmaritu*) for the maintenance of health.

Discussion on *Ashtadoshas*

Ayushohrasa – decreased life span: The life span of an obese person decrease proportionally with increase of BMI. As a result it will be increase chances of inviting the dead full complications like Stroke, IHD etc. Hence an obese person dies after meeting with the complications. **Javoparoda**- hampering the movements: As the skeleton is not customized with bearing extra burden in the form of fat, there will be hampering of movements. **Swedabadha** and **Dourgandhya**- Sweda is said to be the excretory product of Medas, and it is practically seen in all most all subjects suffering with obesity will have excessive sweating. **Athi kshuda / Pipasa**: Usually obese patients will have impaired levels of leptine, which is responsible to cause satiety. Moreover due to increased basal metabolic rate, obese patients have to consume more energy; hence they come across above feature.

Kruchravayavayata- Shukradhatu is responsible for Vyavaya. When its rate of formation is reduced due to Mandataof Meda Dhatwagni, there will be difficult in sexual act. The study conducted by Dr. Geeta shows significant result of Kruchra Vyavayata in Sthoulya.

Discussion on quality of life and obesity

The concept of quality of life is defined. And both general and obesity- specific measures are reviewed. It is clear that obesity confers negative consequents on both the physical and psychological aspect of OQL, especially among severely obese.

Overweight and obesity have the largest association with physical function measures. Recent national standards, which have lowered the threshold for defining over weight, identify patients who are more likely to have clinically significant reduction in HRQOL and functional impairment. Also association with an increased risk of heart disease, non-insulin dependent DM, Ischemic stroke, certain form of CA (e.g. breast, colon), degenerative arthritis and sleep apnea. Moreover being obese has important social and economic consequences, like being less productive, lower income, reduced social acceptability.

According to 3rd National Health and Nutrition education survey provides recent guidelines on obesity specify BMI categories that are associated with disease specific morbidity and mortality in epidemiological studies. The health burden of obesity goes beyond its association with specific disease states, however among individuals with class II- III obesity, body functions are disturbed than a non-obese. For eg:- Shortens of breath and specific complications referable to the digestive tract and musculoskeletal system were reported more frequent by patients with a BMI >30kg/m². The major findings are that overweight and obesity persons have significantly lower HRQOL across physical health measures, and that obese persons have significantly lower HRQOL across physical health perception and vitality measures, compared with normal BMI after adjustment for demographic, Health, habits, medical condition and depression .

Discussion on Observation

Discussion on demographic data: On age Among 200 participants, the age ranges from minimum of 20 yrs to 68 yrs, with Mean of about 42.53 and S.D of about 12.58 years. It can be observed that, productive age group of an individual is the age in which he/she is more prone to mental stress, change in dietary habits, change in erratic lifestyle, sleep patterns which probably end up in causing obesity

On gender In the present study out of 200 participants 104 i.e. 52% were male and 96 i.e. 48% were female. It is observed that in the study there is no much difference in prevalence of obesity in males and females.

On religion In the study out of 200 subjects 182 were Hindu, 12 were Muslim and 6 were Christian. This data is in consistence with population of Mysore which indicates the predominance of Hindu religion.

On education Study reveals that among 200 participants 8 were illiterate, 9 were having Primary education, 22 were having Secondary education, 43 were studied till Higher Secondary, 83 were Graduate and 35 were Post Graduate. This may be because of the lifestyle of individual.

On occupation It is observed in the survey, among 200 participants, 33% were unemployed, 18% were having private job, 25% were self employed, 15% were having Government job and 9% were from other category. In the study it indicates that the maximum were unemployed who are suffering from obesity may be because there is no balance between the energy intake and energy expenditure.

On domicile Among 200 participants 48% were from urban area and 52% were from semi urban area. Usually it is seen that obesity is more prevalent in urban area, but in this study maximum numbers of participants were from the semi urban area

On socioeconomic status Out of 200 participants 5 were belonging to poor category 38 were from lower middle class, 139 from upper middle socio-economic status and 18 were from rich category. The observation shows maximum numbers of participants were from the upper middle socioeconomic status as they are more prone to the sedentary lifestyle.

On marital status Among 200 participants 146 were married, 53 were unmarried and 1 participant was divorced.

Discussion on behavioral data

On diet It is observed in the study that out of 200 participants 63(31%) were vegetarian and 138(69%) were following mixed diet. The study reveals that the non vegetarian diet is having a major role in obesity as majority of the participants were from mixed diet category.

On habits Out of 200 participants 30 were having the habit of alcohol intake, 8 were with the habit of smoking, 4 with both alcohol and smoking and 158 were not having any habit of intake of alcohol and smoking. Alcohol consumption promotes weight gain by providing substantial energy. It can also stimulate appetite.

On General Examination Study shows that Mean Pulse Rate of participants in the study was 76.28 ± 5.30 , Mean Heart Rate was 75.69 ± 5.2 , Mean Respiratory Rate was 16.89 ± 1.41 , Mean BMI 34.30 ± 2.91 , Mean Waist circumference of 104.6 ± 12.97 , Mean Hip circumference was 106.29 ± 14.02 , Mean Abdominal circumference was of 110.18 ± 12.71 and the Mean Waist Hip Ratio was of 0.93 ± 0.04 .

On BMI Out of 200 participants 131(65.6%) were having BMI ranging from 30-34.9, 50(25%) were having BMI between 35-39.9 and 19 members were having BMI >40 .

On AharaShakti Out of 200 participants 140 participants were having Pravara Ahara Shakti and 60 with Madhyama Ahara Shakti. This indicates obese persons may have good Ahara Shakti and food consumption will be more.

On Vyayama Shakti In the study out of 200 participants 39 were having Pravara Vyayama Shakti, 120 with Madhyama Vyayama Shakti and 41 with Avara Vyayama Shakti. Indicating the capacity to do work will decrease due to increase in weight.

On Vaya In the study 185 were Madhyama Vaya and 15 were Vrudha. As I have taken the age group of 20-70 years.

On chronicity Out of 200 participants, maximum i.e. 136 were having chronicity above 10 years, 62 within 5-10 years and 2 below 5 years

Discussion on Result By assessing all the 77 questions the final result was assessed.

Overall assessment of quality of life From the mean score of all the 7 parameters, It can be observed that while considering overall quality of life assessed by questionnaire it shows that the quality of life is good apart from the areas like Social/Interpersonal and activities of daily living. But while considering the chronicity and age it is observed that for a person with less age (within 30 years) and less chronicity the quality of life is poor. Even for some person with BMI >40 showed poor quality of life. It can be considered that with the increasing age and chronicity, weight would exert less impact on quality of life. It is expected that as the individual/disease grows older they tend to be less concerned with their condition. Since advancing age generally is associated with greater difficulties with health and mobility, it was expected that age would have greater impact on these areas and Activities of daily living and Work. In the study conducted by Kolotkin et al indicated that as age increased, both men and women reported less impact of weight on

quality of life and as age increased, both men and women reported greater impact of weight on Activities of daily living.

Discussion on Ashtadoshas of Ati-Sthoulya Understanding this disease from Ayurvedic perspective is the most important need of the present era as it is reaching pandemic levels and has a great influence on the mortality and morbidity.

Not only the definition but also the classification of Sthoulya has a good similarity with the western classification of obesity which can be compared as below:

Table No: 98. Comparison of classification of *Sthoulya* with western classification.

Sl.No	Classification of <i>Sthoulya</i>	Classification of obesity
1	<i>Heena Sthoulya</i>	Obese class I (BMI – 30 to 34.9)
2	<i>Madhya Sthoulya</i>	Obesity class II (BMI 35 to 40)
3	<i>Adhika Sthoulya</i>	Obesity class III (BMI > 40)

In the study it is observed that the mean of 6 Parameters as, Ayushohrasa 46.32±5.59, Javoparodhaand Dourbalya 62.47±14.61, Kruchravayavayata 21.26±6.27, Kshuthatimatra 25.26±7.39, Swedabadha and Dougandhya 6.05±1.31, Pipasadhikya 4.05±1.03 Which means that the people with Athi-Sthoulya are affect with Ashtadoshas mentioned my Charaka.

On Prakruti Out of 200 participants 1 was from Vata Pittaja Prakruti, 4 belonging to Vata KaphajaPrkruti and 195 were Pitta Kaphaja Prakruti. This observation reveals that the Sthouly/obesity people will have predominance of Prakruta Dosha Pitta and Kapha. Or can be like the Person with predominance of Pitta and Kapha as PrakrutaDosha are more prone to get Sthoulya.

Conclusion

The present study reveals that the overall quality of life of obese person are good with exception of Social/Interpersonal and Activities of daily living, this could be due to minimum survey sample size, it may give different results if study conducts with large sample size. The participants with young age and with less chronicity of obesity are worried more about their weight and are with poor quality of life. While considering the *Ashtadoshas* of *Ati-Sthoulya* persons with BMI >40 are affected with *Ashtadoshas* mentioned my *Charakacharya* Persons with *PrakrutaPitta* and *KaphaDosha* is having close relation with *Sthoulya*. The present study emphasizes the need of health education to improve the quality of life in youth with obesity.

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