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A Comparison of Women's Body Composition in Rural and Urban Areas

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Abstract – Women from an urban and rural are compared in terms of body composition and fat distribution. Those in attendance Women were recruited via the media and the community as a convenience sample. Main outcome indicators Weight, height, waist and hip circumferences, visceral fat area, body fat (kg and percent), and skeletal muscle mass are all taken into consideration. Conclusions The average age of the overall sample (n = 254) was 28.0 (7.6) years, and 53 percent of them lived in an urban region. Rural women's average age was much greater than urban women's. The majority of women (66.5%) had a BMI in the healthy range (18.5–24.9 kg m2), and there was no statistically significant difference in mean BMI between rural and urban women. Rural populations had considerably larger central fat distribution, waist circumference, and waist-to-hip ratio measurements. Rural women had a much larger visceral fat area. Differences in waist circumference, waist-to-hip ratio, and visceral fat area were no longer statistically significant once age was taken into account. last thoughts While there were no statistically significant variations in body composition between urban and rural women, these findings underscore the considerable impact of age on central adiposity measurements. To better understand changes in body composition among women in their 20s and 30s, population monitoring should include measurements of excess central adiposity, especially visceral fat area.

Keywords – Women's Body, Rural and Urban, Composition, Obesity.

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INTRODUCTION

Body composition analysis is required for a number of reasons. Body composition analysis may aid in determining the ideal weight for health and physical performance. Obesity has been linked to an increased risk of developing a number of chronic conditions [1]. Along with cardio-respiratory endurance, muscular strength, muscular flexibility, and muscular endurance, ideal body composition is one of the components of fitness. Obesity occurs when a person's body composition changes. Body fat is divided into two types: necessary and storage. We can't eliminate essential body fat without impairing physiological functioning since it's found in nerve tissues, bone marrow, and organs (all membranes). Storage fat, on the other hand, is an energy reserve that builds up when too much energy is eaten and depletes when too much energy is spent. Essential body fat accounts for around 3% of male body mass and 12% of female body mass. Because of childbearing and hormonal activities, women are thought to contain more necessary fat than males. In general, young males have a total body fat percentage of 12 to 15 percent, whereas young women have a total body fat percentage of 25 to 28 percent [2].

Obesity:

Obesity, one of the most important disorders mentioned in society, represents an increasing 1998 cost burden of an estimated $78.5 billion, accounting for 9.1% of total medical expenses at that point. Recent information from the National Center for Health Statistics indicates that 30% of US people 20 years and older are obese (Centers for Disease Control and Prevention [CDC], 2006). The impact of obesity may be assessed in various aspects. Obesity may be connected to bodily workings, psychological difficulties and social wellbeing either directly or indirectly (CDC). Obesity has been related also to medical problems such as higher risk of type II diabetes, heart disease and strokes and cancer.

A deterioration in the quality of life was associated with the cumulative impact of obesity on physical, psychological and medical issues as well as social welfare. A person satisfied with his or her life is quality of life. It shows a relative value that is tied to individual needs and aspirations. The literature for study may be structured into primarily physical and psychological issues relating to the quality of life. For example, the reaction of patients to obesity was often tied to the appearance or difficulty in day-to-day operations. Between 20-45 years, women have

a literature that makes them sensitive to weight gain and events that change their lives. The following are the triggers:

Marriage: A longitudinal research by young people on the health-related behavior, social situation and behavior, found that co-existence (living with one spouse) has been strongly linked to higher BMI and waist circumference and weight in both men and women[5]. The dietary habits of newly married couples were analyzed and indicated that women were responsible for the buying and preparing of meals while men were playing an important part in the process. Small but considerable variations were found between women and husbands who expressed love and distaste for food and expressed concerns[18]. The chances of weight growth were linked to marriage separately.

Marriage increases and food opportunities have been two suggested causes since married couples like to eat together and so to strengthen each other's intake. The interpersonal attractiveness might be the second probable factor. Marriage is a desired condition for most, they believe that thinness boosts future partners' attractiveness except that weight rise after marriage due to a diminished incentive for body weight reduction after divorce in order to attract new partners [10].

Pregnancy: It is natural and important to gain weight during pregnancy. Pregnancy is nonetheless the start of weight difficulties for a few of ladies. They develop a high weight and do not thereafter lower it. Many women refer to one or more of their pregnancies when their obesity begins. Pregnancy is one of the periods of weight growth during which obesity becomes more difficult to manage and lead to an increased number of fat cell. Obesity may, generally speaking, increase maternal and foetal morbidity [9]. The average number of women with children between 18-25 years was 8.7kg as opposed to 6.6kg for those without children, however this was not substantial. The waist circumference in young women with children was significantly increased by 8.0 cm compared to those without children (3.5cm). Young ladies aged between 18-25 were more sedentary with children (53%) compared to children without children (38 percent sedentary). This was not a significant difference between males but comparable proportions (53 percent sedentary with children and 40 percent without children). For women with children, energy consumption rose substantially between 18 and 25 years but was not different for men[7].

Menopause: The risk of obesity rises with menopause. Adipose tissue deposition may be contributed to hormonal changes that occur during the menopause era, especially in the abdominal region. They also pointed out that lifestyle adjustments are part of effectively maintaining weight loss [2]. The reduced estradiol (E2) production and the body energy needs, which vary with age 23, promote body fat. Estrogen has a crucial role in the intake of food and energy, which contribute to its overall effects inhibiting the deposition of adipose. The rise in visceral fat in women begins 3-4 years before menopause. Obese women have worsened processes of menopause [3].

The Differences in obesity (Urban and Rural)

Obesity prevalence was 39.6% for rural people and 33.4% for urban people. Compared to urban adults, the prevalence in rural areas was much greater. In rural America, obesity merits more attention [1][2]. A cross sectional study of 11940 women aged 18-45 from Victoria, Australia showed that 24% in urban areas and 26% in rural areas had overweight and 19% in urban areas and 23% in rural areas. They thus concluded that a greater incidence of obesity in rural women is due to the socioeconomic mix of these locations compared with urban women. But compared to India, this is not true. In their research, migration to urban zones is linked to an increase in obesity, which results in other changes in the risk factor. Migrants have adopted lifestyles that put the urban population at comparable danger. Gender disparities are surprising and warrant additional research of several risk variables by location of origin [4].

Attitudes of women on obesity and weight management

Overall women reveal that physical exercise is not motivated, that there is little time for preparing and consuming home-grown food. The ladies were thus more obese, and no weight loss activity was initiated. Past research have shown favorable views regarding food, physical activity and environment among young people. In the first four-year longitudinal study of 18-22 years of age, who studied at home in Ireland, there was a poor level of awareness about obesity and nutrition, in spite of having chosen to seek a profession in healthy behavior. In their conduct, the overall favorable behavior in terms of dietary recommendations (62%) and physical activity (67%) was not reflected (20 percent for diet; 2.1 percent for physical activity).

These students did not feel that they were more likely to become fat, but thought they were more likely to becoming overweight. Overweight individuals think exercise enhances looks and self image, more than normal weight. Exercise, practice near young people, workouts around fit and health club sales individuals more than normal weight ($p <$ 001) feel more humiliated and intimidated overweight. Exercise with the other sex, sophisticated exercise equipment, exercise ennui and ambition to practice overweight and normal weight feel the same [8].

Effect of Home Based Exercises

There is minimal effectiveness in long-term weight reduction strategies [6] and the expenses of obesity therapy are high [7]. Home-based exercises (HBE) have been proven to work in a variety of ailments, such as wrist joint arthritis40 and cardiometabolism41 as well as obesity and obesity 42, and will be cost efficient when working. Home-based workout offers the benefit of conducting exercises with time flexibility in the familiar environment and may be done with low costs. For rural women, it is convenient, since extra resources are not needed to execute these activities. It has been shown that simple home based exercise and food programmes might be useful for children and young adults who are overweight and obese because they improve body composition.

LITERATURE REVIEW

Brown et. al. (2010). It has been reported that gonadal hormones affect the intake and weight of food potently. In females, the consequences of estradial activation have an immediate and chronic impact on homeostasis of body weight. Estrogen controls peri-ovulatory reduction in the daily consumption of food. And oestrogen decline is linked to changes in human bodily weight and fat distribution. Estrogen stimulates subcutaneous fat formation and the lack of oestrogen is related to an increase in central fat. Oestogens control the distribution of body fat, interact with an integrated leptin-borne adiposity message and improve the leptin's activity in sympathetic activation of visceral fat, facilitating visceral deport fat mobilisation and the fat deposition of fat in subcutaneous deposits.

Floriana et. al. (2010). Confirms a connection between fat and depression. The risk of depression, most marked among American people and for clinically confirmed depression, was increased by obesity. Depression has also been shown to be predictive with obesity development. In the USA and Europe the thinness is regarded the perfect beauty and obesity may raise body discontent and lower self-esteem, which are risk factors for depression, partially due of societal acceptability and socio-cultural reasons. Stört eating behaviours and dietary disorders are also known to raise the risk of depression and suffer bodily discomfort as a direct result of obesity.

G. Shivaprakash et. al. (2011). The proportion of general obesity diabetes was determined to be 48.9% and of central obesity to be 68.1%. Almost 45% of diabetic patients had increased their BMI- and waist-range, 26.7% had normal BMI, and Waist-range, 24.7% had increased their waist-range, and 4.3% had increased BMI on themselves. Consequently, they determined that more than general obesity is a major proportion of type II diabetes.

Ghosh et. al. (2014). 343 rural Asian Indian women reported that a significant difference in central obesity status between the groups (central not obese with a waist range less than 80 cm and centrally obese = waist circumference more than 80cm) was seen in television watching (categories). They thus concluded that increased leisure activities are connected to central obesity and that early intervention is required to avoid the growing prevalence of cardiovascular disease in the community.

Manning et. al. (2014). He noted that the development of novel medication use as antiobesity agents has taken diverse courses from the use of the positive central activities of fenfluramine to liraglutide, from lorcaserine, a selective serotonin medication without any systemic adverse effect. A bottle hormone previously used as a medicine which reduces glucose, but with appetite suppressant qualities, or a new phentermine/topiramate medicine combination, two existing substances used on lower dosages, leading to a weight loss additive and less adverse effects than past therapeutic applications.

P. A. Dyson (2010). Meta-analyses and systematic assessments were done out on the treatment of obesity. The overall effectiveness of lifestyle treatments for obesity treatment was examined in a main analysis, and the relative efficacy of each intervention were examined in a secondary analysis. There have been nine systematic reviews and meta-analysis reports which have shown the overall effectiveness of lifestyle therapy treatments. Obesity prevention and treatment lifestyle approaches include food, exercise and psychological procedures. The majority of interventions in lifestyles have a moderate but substantial impact on weight reduction but no data shows that any therapies are more successful. Additional therapy has an additive impact and both the prevention of and the therapy treatment are best combined with diet, exercise, and behavioural treatments.

Ranjit et. al. (2014). A research of 142,227 persons was performed in four locations in India (Maharashtra, Tamilnadu, Jharkhand and Chandigarh). The Global Physical Activity Questionnaire was used to measure physical activity. It was discovered that 54.4% (Males: 47.7%) were inactive, 31.9% were active and 13.7% (Males: 58.3) were highly active. (Males: 61.3%). Things in urban rather than rural environments were more inactive (65.0 percent vs 50.0 percent). The men were far more active than the women. This research thus found that more individuals in India are sedentary with less than 10% engaged in physical leisure. They suggested that immediate measures be undertaken to encourage physical activity to stop the double disease and obesity epidemics in India.

Sudha et. al. (2014). It has shown, using leg-to-leg impedance and skinfold methods in southern Indians, that measures of body fat are far more in line with DEXA than with impedance handheld.

Body fat was measured by 35.10+7,26 by leg-toleg technique and by cutlet fat measurement by 35.77+6.06, the reference method DEXA was not statistically different, when body fat at 35.82+8.33 was the percentile. A rather strong correlation with DEXA was discovered with an examination of fat from leg to leg (r=0.741, p>0.001).

Tiago et. al. (2013). 122 noted that the 7-site methodology for skinfold measurements is the most prevalent approach for the determination of body fat. This approach is attracted by the comparatively inexpensive cost when comparing other techniques such as hydro-densitometry, air displacement plethymography, and dual energy x-ray absorptiometry when other techniques are costly. Skin-folded measurement is highly fast, reliable and less intrusive than the reference technique discussed above, which requires very little clothes, total exhalation and/or exposure to X-rays. SKF technology is also viable, trustworthy and valid as field measurements.

Zhang et. al. (2015). Five overweight and obese teen tests were performed. 1) The attractiveness of BMI agents changed; 2) the homophilisation of the BMI changed; 3) the degree of peer influence; 4) the general distribution of BMI shifted; and 5) the diät treatments were targeted at highly interrelated people. A significant reduction in the prevalence of overweight and obese was seen by increasing peer influence; the negative impact of peers (i.e. the reverse of friends) promotes overweight. They also noted that when BMI was generally raised, higher peer impact raised overweight proportions. There was minimal influence on other therapies, including specialised diets. Therefore, they concluded that the enhancement of peer influence in communities with low density might be a good technique for weight management.

OBJECTIVES OF THE STUDY

- To measure rural and urban women's percentages of body fat
- To analyze rural and urban women body compositions.
- To correlating the body fat percentage with specific socio-demographic characteristics.
- To measure and calculate the ratio of waist hip in rural and urban women.

RESEARCH METHODOLOGY

STUDY DESIGN: The research has been conducted in two parts. The first part of the investigation was the cross-sectional research in which the analysis of body composition was performed in urban and rural women. The second part of the study consisted of a comparative study of quasi-experimental research design, which examined the efficacy of home based exercises (HBE) among urban and rural women. Urban women from Pimpri Chinchwad were analysed while rural women from Pune district of Alandi and Markal, Maharashtra, India were analysed.

STUDY POPULATION: The first phase of the research was performed with women aged 20-45 years from both urban and rural areas. This research was done in Pune, Maharashtra, India, where urban women in the Pimpri Chinchwad region were examined while rural women in the villages of Alandi and Markal were reviewed. Overweight and obese women from urban and rural regions were added as research topics for the second part of the research.

SAMPLE SIZE AND SAMPLING TECHNIQUE: A total of 1063 samples were assessed for Phase 1 investigation, including 518 urban women and 545 rural women. In the first part of the investigation, sampling techniques were stratified. The estimated sample size was alpha 0.05 with 0.80 power, taking into account the prevalence of obesity and overweight in urban women as 75.66% and in rural women as 67.99%. 55 The Phase 2 sampling approach was the Census sampling, as all women who were detected with obesity and overweight during phase 1 were included in phase 2 and those who were prepared to participate in the research. The total number of women in phase II consisted of 214, including 110 urban women, and 104 rural women.

OUTCOME MEASURES:

1. Body Weight
2. Body Mass Index
3. The proportion of body fat assessed by fat analyser and determined using skinfold measurements
4. Girth measurements at various sites
5. Fat weight
6. Waist: Hip ratio

RESEARCH TOOLS:

1. Stadiometer (Tanita leicester height measure)
2. Fabric Measuring tape
3. Skinfold caliper
4. Sphygmomanometer (Diamond Mercurial Blood pressure Apparatus, Regular)
5. Stethoscope (Micro-tone, Manufactured by Malhotra Surgical Industries, Delhi)

6. GM3+ Glucometer with PGS 050- Glucose Test Strips (Pulsatom Health Care Pvt. Ltd.)

7. Fat analyzer – TANITA Inner Scan Body composition Model BC – 532.

CONCLUSION

Overall, 45% of women were overweight and obese, whereas 55% were ordinary and underweight. The weight, BMI, waist circumference and percentage of fat of urban females was much greater than that of rural females. Higher proportions of women in urban areas were overweight and obese (56.95%) whereas women in rural areas were less weight and normal weight (66.42 percent). When we analyse the waist circumference, greater urban women (61.58 percent) were at risk for CVD than rural women with abdominal obesity (33.59 percent). The study has shown that in all social and demological factors, including age, training, marriage, number of children, diet, socioeconomic level, physical activity, and working at home, urban women had an always higher body fat percentage. The proportion of body fat at the different levels/groups of age, children no, socioeconomic conditions and physical activity of urban and rural women was significantly different. The body mass index, the percentage of body fat and the size of waist were strongly correlated compared to each other. Age and proportion of body fat were somewhat correlated.

Home-based exercises, along with the necessity of healthy diets and lifestyle changes were discussed and urged to be followed by all overweight and obese women for 12 weeks. These therapies have been proven to reduce weight, body mass and circumference more efficiently than in rural women in urban women. The category was moving from overweight to normal weight for 13 urban women and 11 rural women, whereas the category of overweight altered for 22 urban women and 19 rural women. After 12 weeks of domestic exercise, 31.81% urban women and 28.84% rural women had had changes in their BMI category.

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