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PREVALENCE OF OBESITY AND RELATED HEALTH RISK FACTORS IN URBAN ADULTS: A CLINICAL SURVEY

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ABSTRACT

Obesity is touching its peak globally; with a count of approximately 1 billion overweight adults and at least 300 million clinically obese and becoming a major risk for serious diet- related chronic diseases. This study estimates the pattern and prevalence of obesity in different sections of adults in a particular population. The data set of a population-based case-control study was analyzed. Data were collected from a representative sample of 220 adults (aged 15-60 years, 107 females and rest males) chosen randomly from college campus, and various areas of Lucknow. The survey followed an interactive sessions with these peoples through questionnaire in which main emphasis was laid on the Body Mass Index (BMI), lifestyles, food habits, related health problems of the peoples along with preventive measures taken by them to avoid obesity. Then the data were analyzed using pie charts, line charts, column charts and bar diagrams to show the final percentage. With few exceptions, most of the obese patients were found to habitual of eating unhealthy food, lacking exercise and BMI between 25-29.9. Compared with peoples of age group below 30 yrs, peoples with age group in the range of 30-60 were large in percentage in having chronic diseases like diabetes; heart problems etc., but there were many cases that were having high blood pressure and asthma type problems in the age of 18-30. These results suggest that there is no optimal age for the occurrence of obesity and related problems in adult life and that excessive weight gain may begin at any time. The risk factors of obesity and health problems are multifactorial and variable in percentage among populations.

KEYWORDS: *Obesity, BMI, Risk factors*

INTRODUCTION

The global obesity epidemic has been described by the World Health Organization (2002) as one of the most blatantly visible health problems but is yet neglected by the populations in both more and less developed countries[1]. It has reached epidemic proportions in India in the 21st century, with morbid obesity affecting 5% of the country's population[2]. According to the National institute for health and clinical excellence (England), in adults, BMI is frequently used as a measure of obesity and overweight, with obesity being defined as a BMI $\geq$ 30 and overweight as BMI 25-29.9[3]. Physical inactivity, adoption of sedentary life-styles and changing high calorie dietary habits are the main factors contributing to overweight and obesity along with the urbanization and modernization of lifestyle, environmental, cultural and genetic factors[4, 5, 6] and these factors are now expanding their states in low-and middle-income countries, particularly in urban settings[7]. The WHO estimates that in 2005 approximately 1.6 billion people were found to be overweight throughout the world and that at least 400 million adults were obese. They further project that, by 2015, this prevalence will raise up to 2.3 billion overweight adults and that at least 700 million will be obese[8]. Obesity has been linked to several serious diseases, including diabetes, cardiovascular problems including high blood pressure etc [9]. If the problem of obesity and its causes are left unchecked then it may lead to severe health hazards. Therefore this study was planned to study the prevalence, trends and causes of obesity in different populations of adults.

MATERIALS AND METHODS

Study Subjects
The survey was conducted among a total of 220 persons in which 75 were students chosen randomly

from college campus and rest were the volunteers residing in different areas of lucknow city including Aashiana, Alambagh, Aishbagh, Charbagh**.,** Gomti Nagar, Aliganj, Rajaji Puram, Krishna Nagar, etc. Using a pre-tested, self-administered questionnaire, this clinical survey on obesity was made centralized on lifestyle of people, prevalence of obesity, and the health problems among them.

Inclusion Criteria
Men and Women aged 20 yrs or older.
Mostly literate persons were selected so as to get the authentic data.
Person looking obese by appearance.

Exclusion Criteria
Pregnant women and lactating mothers.
Mentally or physically disabled persons.
Persons having any surgical history in last 3 months.

Collection of Data
The patients selected were stratified into three different age groups as follows:
Younger age (15-30 years)
Middle age (30-45 years)
Older adults (45-60 years).
The purpose of the study was verbally explained to the study participants prior to data collection, and their consents were sought, and the questionnaires were filled only by those who agreed. This survey data were used to examine the relationship between dietary pattern, food quality, lifestyle changes and their effects on obesity and disease occurring, with the help of questionnaire comprising of 12 questions. It was divided into two domains, in which, first domain consisted of the demographic details of the respondent, and, second domain consisted of data related to respondent like their lifestyle, eating habits, routine sleep, amount of stress, health problems, drugs taken regularly, and preventive measures taken to avoid obesity and genetic consideration.

Analysis of Data
The data was analyzed after obtaining the survey reports of 220 responders included in the study. The data was spread on excel sheets and was then converted into a statistical report in the form of line charts, bar diagrams, column charts and pie charts to show the final percentage accordingly and hence , on that basis results were evaluated.

RESULTS

The results were arranged in the form of pie charts, line chart, bar diagrams and column charts . Each question gave a new observation regarding all the parameters evaluated:

Body Mass Index
Body Mass Index is one of the main measures of a person's relative weight. BMI of 18.5 to 25 may indicate optimal weight, lower than 18.5 suggests underweight, a number in the range of 25-30 indicates overweight and above than that indicates the obesity of person. The results (Fig.1) showed that 0% people have a BMI of less than 18.5, 2% people (5) have a BMI of more than or equal to 30, 28% people (62) have a BMI between 18.5-24.9 while 70% people (153) have a BMI between 25-29.9, which suggests the maximum no. of overweight persons in survey. It was also found that the BMI of 18.5-24.9 mainly occurs in the persons of age group 15-30 yrs, while 25-29.9 occurs in the persons aging 30-45 yrs, and equals to or more than 30 BMI was mainly shown by people lies in the age group of 45-60 yrs (Fig.2). This data reflects the fact that younger among adults are the persons having the biggest proportion of overweight (BMI 25-29.9) peoples while obesity (BMI >30) was more common in middle-aged adults i.e. those lies in the age group of 30-45 yrs.
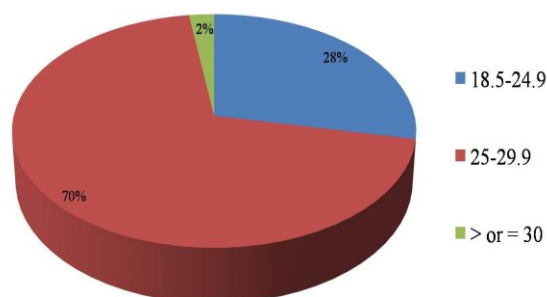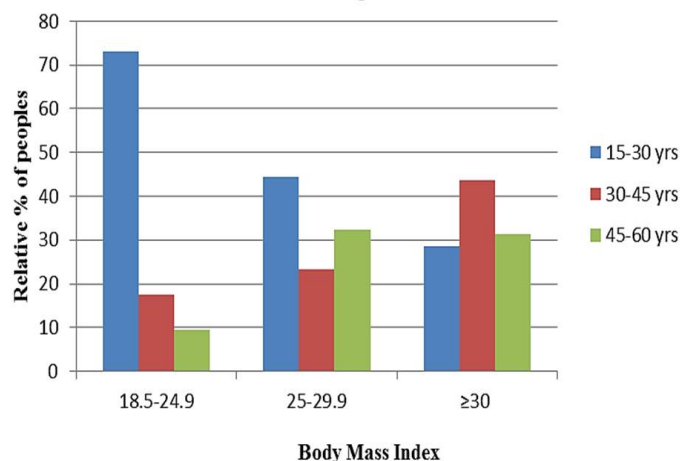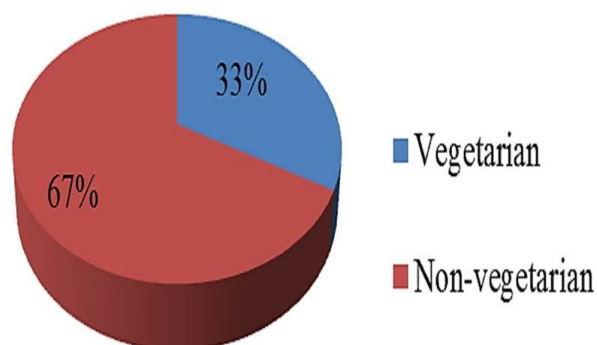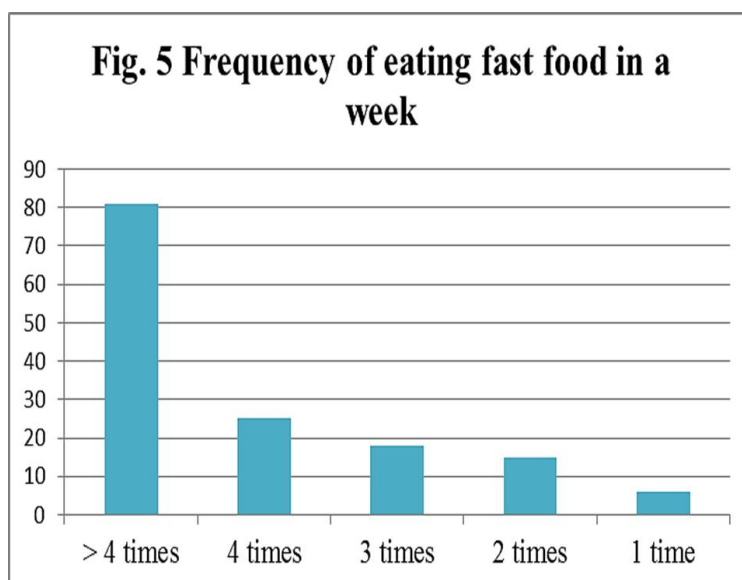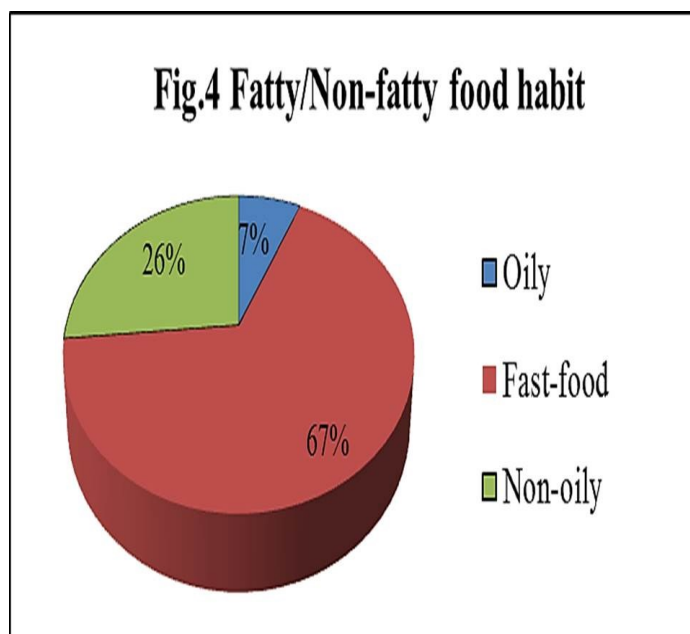
Fig.1 BMI Values

Fig.2 Correlating age of people with different ranges of BMI

Obesity due to food habits

Figure 3 shows the type of food most commonly taken by peoples. It was found that 33% of the people (72) are vegetarian while 67% people (148) are non-vegetarian. This reflects the fact that non-vegetarian people are more prone to obesity as compared to vegetarian and it can be interpreted that the changes in dietary habits of obese persons from non-vegetarian to vegetarian diet help in reducing the obesity. Fast food causes generation of free radicals in the body. The prevalence of fast food lovers i.e. 67% (Fig. 4) represents that junk/fast food consumption is playing a major role in making the persons obese in modern society. The rest population comprises 7% of the people preferring oily food while 26% non-oily food consumer. Their obesity might have other etiology other than food habits. Among the 67 % of fast food consumers, there were 56 % persons having fast food more than 4 times a week (Fig.5), 37 % four times a week, 13 % were having it thrice a week, 10 % eat it twice in a week, while only 4 % eat it once.

Fig. 3 Veg/Non-veg food habit

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Fig.4 Fatty/Non-fatty food habit

Fig. 5 Frequency of eating fast food in a week

Obesity resulting from lifestyles

Figure 6 represents that 15% of the people (34) have sedentary type of lifestyle, 19% (41) have an active lifestyle while 66% (145) have an intermediate type of lifestyle. As the study was conducted mainly on college students who mainly lives intermediate type of lifestyle. But, though this fact can't be ignored that sedentary or luxurious lifestyle poses health hazardous effects as it reduces the physical activity. Physically inactive peoples are more susceptible to obesity showed by the results of exercise routine of peoples (Fig.6). It was found that 0% (0) people exercise for more than 2 hours, 1% (2) people exercise for 1-2 hours, 44% (96) exercise for less than 1 hour while 55% (122) people do not exercise at all. Sleeping hours of people doesn't seems to be directly associated with obesity as results (Fig.7) revealed that 3% of the people (7) take more than 8 hours of sleep every day, 7% (16) take less than 4 hours of sleep, 33% (73) take 4-6 hours of sleep while 57% of the people (124) take 6-8 hours of sleep every day. When asked about smoking/drinking habits, it was found that among the 220 obese persons only 10% of the people (22) are indulged into smoking/drinking while 90% (198) are not indulged into smoking/drinking (Fig.9).This result showed no causal relationship between smoking, drinking type habit and obesity in our study.
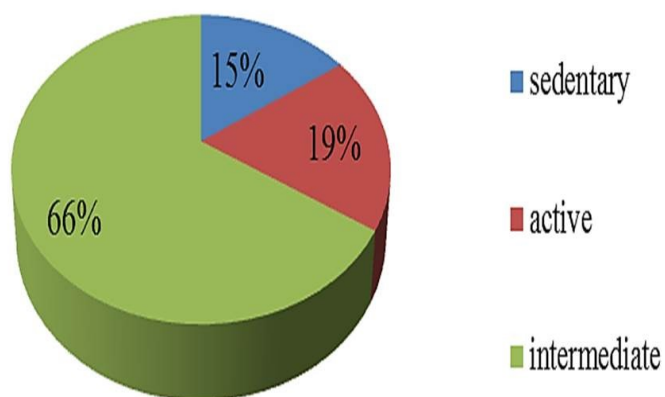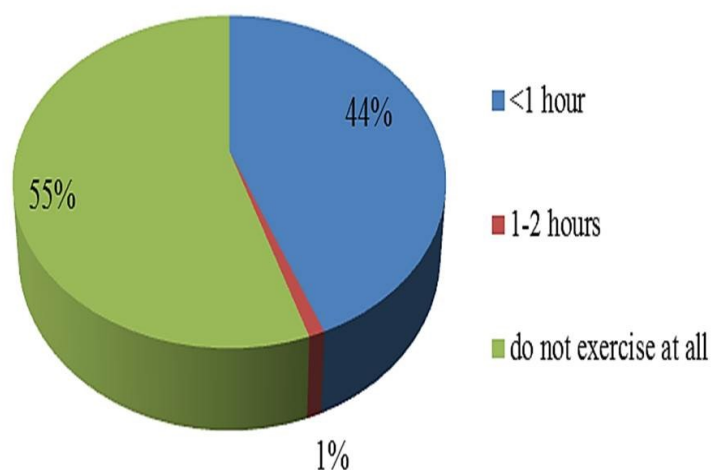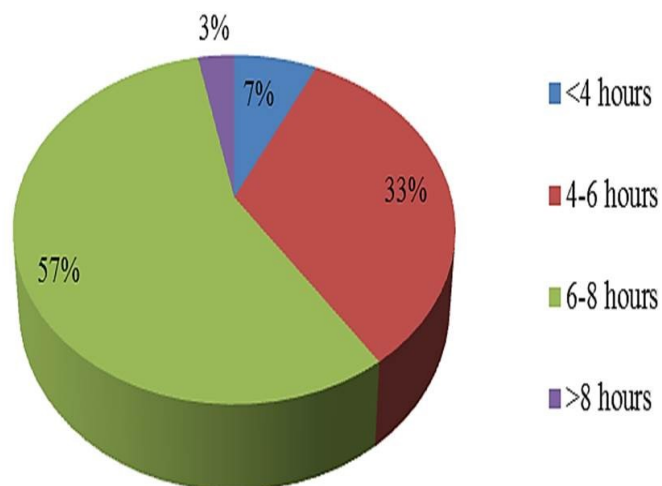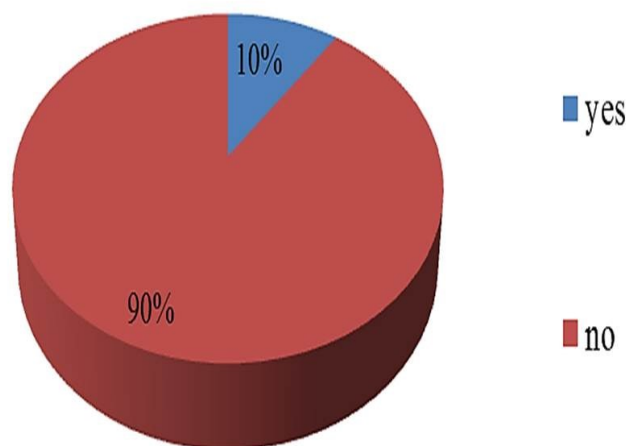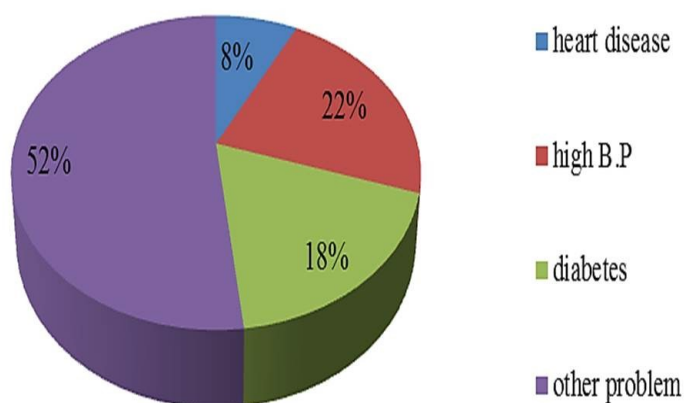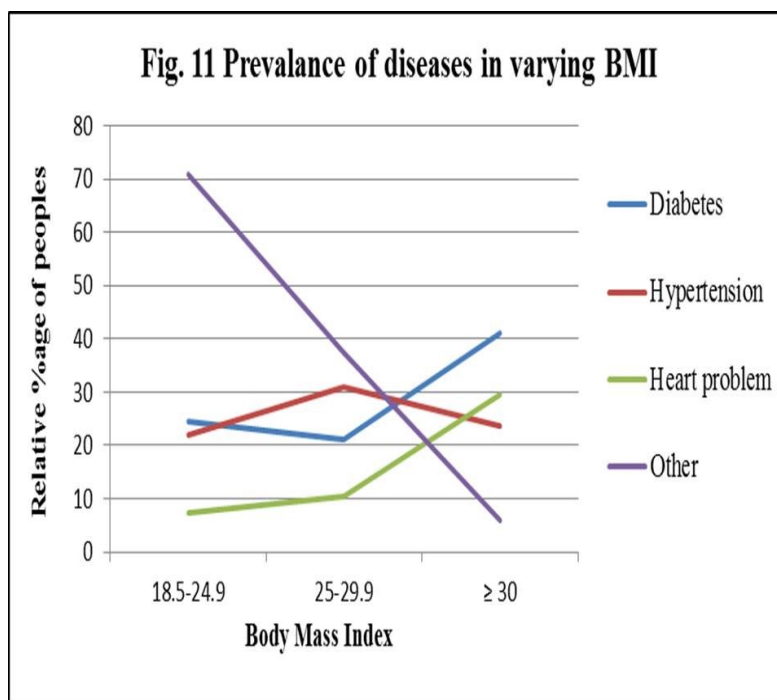
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Fig.6 Lifestyle pattern

Fig. 7 Exercise Pattern

Fig. 8 Sleeping hours

Fig. 9 Smoking/Drinking habit

Fig. 10 Percentage of adults in obesity related disorders

Obesity and related health problems

While finding the answer about the health problems occurring due to obesity, it was shown (Fig.10) that, 8% of the people (17) are suffering from heart disease, 18% (40) are suffering from diabetes, 22% (49) have the problem of high B.P while 52% (114) of the people have other health problems. But, to make clear the prevalence of various chronic diseases in overweight or obese persons, line chart was prepared. Accordingly, peoples with BMI equals to or more than 30 (i.e. obese) was more in numbers in having heart disease and diabetes as compared to those having lower BMI. Peoples having a BMI in the range of 25-29.9 occupied the major portions of diabetes patients, while those having BMI in the range of 18.5-24.9 were mainly suffering from other less severe diseases like weak eyesight, breathing problems, cold & cough, asthma, laziness etc.. It is clearly visible and can be interpreted that diabetes and high B.P are the two major health hazards occurring in obese persons. The rest among 220 surveyed peoples were those who were overweight or obese, but having no health problem, proportion being very less.

Fig. 11 Prevalance of diseases in varying BMI

DISCUSSION

Our study shows a continuing increase in obesity in sexes, all ages and almost all participants showed common pattern of lifestyles, food habits etc. In general, this study showed that the major part of the population preferred to eat junk/fast-food and, although being aware of the ill effects of obesity majority of the people did not exercise at all which were the two primary concerns related to the habits and lifestyles of the people that evolved out of the study. Because of the strong association between overweight and obesity and several well-established risk factors for severe diseases, reversing the obesity epidemic is an urgent priority and also majority of the population had a BMI in the range of 25-29.9 which denotes the overweight category especially the growing adults of 15-30 yrs. This is an alarming result as the majority of people being in the overweight category means that if situation left unchecked the same majority may pass into the obese category which will increase their problems. Also other aspects of the lifestyles of volunteers were not found to be satisfactory with respect to the prevention of obesity. The World Health Organization (WHO) describes obesity as one of the modern epidemics, considerably bringing the human population at risk and predicts that in 21st century it is going to be reformed into a plague with raging consequences for public health and social insurance systems. Since 1948, the WHO has included obesity in its list of diseases. Although obesity represents the second most prevalent cause of death, it surely can be prevented[10, 11]. Both WHO

and the World Bank have highlighted the increasing burden of economic impact of obesity in several countries[4]. The identification of risk factors is the key to prevention. Numerous risk factors for obesity have been proposed, among which few were diagnosed through this study like preference of less healthy non vegetarian or fast food, doing less or no exercise and limiting the physical activity by living a sedentary lifestyle. No-one is immune to obesity, but those with a family history of obesity and undefined food habit are particularly liable to excessive weight gain[1]. Furthermore, there is no useful way of identifying that portion of the population which is at particularly high risk of obesity so that preventive measures can be focused on that subgroup. Therefore obesity can be prevented by early detection and choosing the treatment of excessive weight gain[12]. Finding result means that the situation is not right with respect to obesity for future the future. Such results show that there is a need to initiate the starting steps in the direction of preventing obesity condition and in turn preventing the other health problems arising from obesity.

CONCLUSION

Obesity is now so common within the world's population that it is beginning to replace under nutrition and infectious diseases as the most significant contributor to ill. Eating well and staying fit could save one's life one day. A good way to commit to healthier living is to stay informed about health improvements and to make

them part of your life. Another way is to help others learn more about good health. One can stay away from the ill effects of obesity by eating healthy food, doing work-outs, maintaining proper routine and monitoring the health regularly. Accommodating severely obese patients will no longer be a rare event, and health care providers have to prepare for preventing such patients[13]. Although the identification and prevention of hypertension, elevated cholesterol levels, asthma, arthritis, and diabetes remain priorities of clinical health services globally, still, development and application of national programs to promote a healthy nutritional diet, increased physical activity, modified lifestyle and proper weight control must

be national priorities as well[14]. This study on obesity will help people to change their lifestyles and in turn prevent and fight with obesity. Better the lifestyle, lesser will be the occurrence of obesity and healthier will be the people.

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REFERENCES

1. Mathur L. K., Manohar B., Shankarapillai R., Pandya D. Obesity and periodontitis - a clinical study. J. Indian Soc. Peridontol, 15(3), 240- 244. (2011)
2. Beers, Mark H., M. D., and Robert Berkow, M. D., editors. "Nutritional Disorders: Obesity." Section 1, Chapter 5. In The Merck Manual of Diagnosis and Therapy. Whitehouse Station, NJ: Merck Research Laboratories, 2004.
3. Obesity: full guidance final version. Accessed on 28 March 2014. http://www.nice.org.uk/nicemedia/live/11000 /38294/38294.pdf
4. Bag S., Kundu A., Ramaiah S., Anbarasu A. Obesity study among patients in eastern India suggests WC and WHR as better indicators. Int J Pharm Sci, 5, 659-665. (2013)
5. Pandey S., Bhaskaran A., Agashe S., Vaidya R., A cross-sectional study of childhood and adolescent obesity in affluent school children from western suburbs of Mumbai 2001-200 2 and 2013-2014. J Obes Metab Res, 1, 7-13.
6. Giammattei J., Blix G., Marshak H. H, Wollitzer A. O., Pettitt D. J., Television watching and soft drink consumption. Arch Pediatr Adolesc Med, 157, 882-86. (2003)
7. World Health Organization. Obesity. 2008. Accessed on May 1 2014. Available at: http://www.who.int/topics/obesity/en/
8. Nguyen D. M., Hashem B., The epidemiology of obesity. Gastroenterol Clin. North Am, 39(1): 1-7, (2010)
9. Butryn M. L., Phelan S., Hill J.O. Consistent self-monitoring of weight: a key component of successful weight loss maintenance. Obesity (Silver Spring), 15, 3091-3096. (2007)
10. Agrawal P. K (2002-05-23). "Emerging obesity in northern Indian states: A serious threat for health". IUSSP Conference, Bankok, 10 June 12-2002. Retrieved 2008-07-24.
11. "WHO | Physical Inactivity: A Global Public Health Problem". World Health Organization. Retrieved February 22, 2009.
12. Garrow, J. S., Is it possible to prevent obesity? Infusions therapies, 17(1), 28-31. (1990)
13. Sturm, R. Increases in clinically severe obesity in the United States, 1986-2000. Arch Intern Med, 163, 2046-2048. (2003)
14. Mokdad A. H., Earl F. S., Bowman B. A., Dietz W. H., Vinicor F., Bales V. S., Marks J. S. Prevalence of Obesity, Diabetes and Obesity-related helath risk factors. JAMA, 289: 76-79, (2003).