Assessing prevalence and risk factors of Obesity in patients reporting at Ayothidoss Pandithar hospital, National Institute of Siddha, Chennai 2018 - A Cross-sectional study

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ABSTRACT

Introduction

Nowadays, Obesity has become a major chronic disorder affecting the larger population more than any other diseases in the world.Obesity is the state of excess of adipose tissues [1]. It's one of the most prevalent forms of nutritional disorders in many countries. According to World Health Organization (WHO) statistics (2016), more than 1.9 billion adults, 18 years and older, were overweight. Of these over 650 million were obese [2]. In Tamil Nadu in the 15 to 49 years age group, 30.9% of women and 28.2% of men are obese [3]. Based on this epidemiological data this study mainly to uses in collecting the data relevant to obesity associated with age, life style, food habits, occupation, personal habits, physical inactivity, alcoholism, smoking, etc.

Method

The study protocol was approved by the IEC and the study was registered in Clinical Trial Registry India (CTRI)**.**Obesity and overweight were defined according to the WHO standards.Patients reporting in NIS OPD were randomly selected based on the inclusion and exclusion criteria.A pre tested standard closed ended questionnaire was designed to conduct the study. This is a hospital based observational study conducted in 500 patients selected by simple randomization method in the outpatient department (OPD) of AyothidossPandithar Hospital, National Institute of Siddha, Chennai-47 during June 2018 to August 2018 to estimate the prevalence and associated risk factors of obesity and also the co morbid conditions.

Results

Among 500 patients 33.8% (169) patients were overweight, 11% (55) patients were class I obesity, 4.4% (22) were class II obesity and 0.2% (1) patients were class III obesity. Overweight was observed in 33.8 % and obesity was 15.6 %.

Discussion

This result indicated a need of community based cross sectional study in a large population andto derive a protocol for prevention of obesity through siddha system of medicine.

KEY WORDS

Obesity, Risk factors, Cross sectional study.

INTRODUCTION

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health. Overweight and obesity are now dramatically on the rise in low and middle income countries, particularly in urban settings. Nearly half of the children under 5 who were overweight or obese in 2016 lived in Asia. According to WHO, The Global Health Observatory (GHO) data revealed that 18% of children and adolescents aged 5-19 were overweight or obese in 2016 about 13% of the world's adult population (11% of men and 15% of women) were obese in 2016.The worldwide prevalence of obesity nearly tripled between 1975 and 2016.As per WHO report, India has the world's third-largest obese population. The prevalence of obesity in India is increasing and ranges from 8% to 38% in rural and 13% to 50% in urban areas [2].

The National Family Health Survey highlights that obesity affects urban population more than its rural counterpart [3]. According to the National Family Health Survey (NFHS-3) 2-15% of women in south India were overweight or obeseis highest in Kerala (34%), followed by Tamilnadu (24.4%), Andrapradesh (22.7%) and Karnataka (17.3%). In past 10 years, the number of obese people has doubled in the country, according to the National Family Health Survey (NFHS-4).In this survey 28.2% of men were overweight or obese and 30.9% women were overweight or obese. The survey highlights that urban population is more prone to obesity as compared to their rural counterparts [5]. Overweight and obesity are linked to more deaths worldwide than underweight [2].A cross sectional study carried out by Awad Mohammed Al-Qahtani (2019) showed that overall prevalence of overweight and obesity was, respectively, 38.3% and 27.6% [3].

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended [2]. Childhood obesity is associated with a higher chance of obesity, premature death and disability in adulthood [6]. In recent years its prevalence is estimated that 10% of the world's children are currently overweight. Several researchers have highlighted that

obesity accounts for 80-85 per cent of the risk of developing type-2 diabetes [7].H.-M. Xue et al (2017) and M. X. Guerra et al (2017), showed the findings of Screen – based sedentary behaviors such as overuse of internet devices and social media, smart phones, and watching TV programs and sedentary lifestyle were associated with overweight and obesity [8,9]

Raised BMI is a major risk factor for non-communicable diseases including diabetes, cardiovascular diseases, musculoskeletal disorders, and some cancers [2]. The risk for these non-communicable diseases increases, with increases in BMI. National Institute of Siddha is conducting special OPD for Obesity functioning every Thursday 2 pm to 4pm, as the numbers of patients were increasing for the management of Obesity and obesity associated diseases.NIS (2018), in this special OPD census, from April'17 to March '18 four thousand nine hundred and sixty six (4,966) obesity cases were reported [10]. Because of this increased data a hospital based cross sectional study was conducted to estimate the prevalence of obesity and the Risk factors, life style modifications and co morbid conditions of obesity were assessed through pretested questionnaire.

Aim

To assess the prevalence and risk factorsof Obesityamong the patients reporting at Out Patient Department ofAyothidossPandithar Hospital, National Institute of Siddha, Chennai.

Objective

To determine the correlation of obesity with Age, sex, occupation, Food habits, Physical activity, Life style modifications and metabolic disorders etc.

METHODOLOGY

The study protocol was approved by Institutional Ethics Committee (IEC),National Institute of Siddha, Chennai (NIS/IEC/2018/7 dated 07/05/2018). This was the hospital based cross sectional study conducted in Out Patient Department of AyothidossPandithar Hospital, National Institute of Siddha, Chennai. Among the patients reporting in OPD, NIS, 500 patients were randomly selected and subjected to the observational study through pretested standard questionnaire for a period of six months. Before enrolling the samples for this cross sectional study, the study was registered in Clinical trials Registry India and the registration number isCTRI/2018/06/014438[11]. Obesity and overweight were defined according to the WHO standards. Overweight was defined as BMI equal to or greater than 25. Obesity was defined as BMI equal to or greater than 30.

Sample size: 500

Study site: Out Patient Department of AyothidossPandithar Hospital, National Institute of Siddha, Chennai.

Sampling method: Simple Random Sampling method was used in this study. The sample of patients was drawn using a random number table [12].

Study design: Hospital based cross sectional study.

Patient selection:

Inclusion criteria

1. Both male and female patients.
2. Random allocation will be followed in this study.

Exclusion criteria

1. Below 13 years patients
2. Any serious illness of Liver, Kidneys, Heart and Lung diseases.
3. Pregnancy and lactation.

Data collection

1. Patients who were registering in Out Patient Department of AyothidossPandithar Hospital, National institute of Siddha were taken for the study**.**
2. The purpose of the study was explained by the scholar and, if the patient is willing to participate in this study then he/ she was included as per inclusion criteria.
3. The data set consists of the questions including demographic data and data relevant to obesity
4. The data set was filled by the scholar during patients visiting to OPD.
5. Questionnaire for this study about will be based on,
   - Life style, Food Habits, Personal habits , Any other health conditions.

RESULTS

Gender of the participant of this study

In this study, 54.2 % (271) of patients were female and 45.80% (229) were male.

Age of the participant of this study

Among 500 participants, 19.8% were between 14-30 years, 43.4 % were between 31and 50, 32.6 % were between 51 and 70 and 4.2 were between 71 and 90 years of age. Most of the patients i.e., 43.4% (217) of patient were between the age of 31 and 50.

Table – 1Educational status of the study participants

Educations	Frequency	Percentage
Illeterate	30	6
Upto 5thStd	85	17
Upto 8thStd	75	15
HSC/HSSC	153	30.6
UG	72	14.4
PG	46	9.2
Profession	7	1.4
Dip/ITI	32	6.4

In 500 patients only 6 % (30) were illiterate and the other 70 % (94) were literate in various educational levels [Table -1].

Table – 2Occupational status of the study participants

Occupation	Frequency	Percentage
Profession	29	5.8
Semi Profession	6	1.2
Clerical/Shopkeeper	42	8.4
Skilled Worker	17	3.4
Semi-Skilled Worker	4	0.8
Un Skilled Worker	1	0.2
Un Employed	15	3
Former	84	16.8
Wage Labour	55	11
Government/Private	202	40.4
Home Maker	15	3
Student	24	4.8
Retired	6	1.2

Most of the cases were 40.4 % (202) working in government and private sectors [Table – 2].
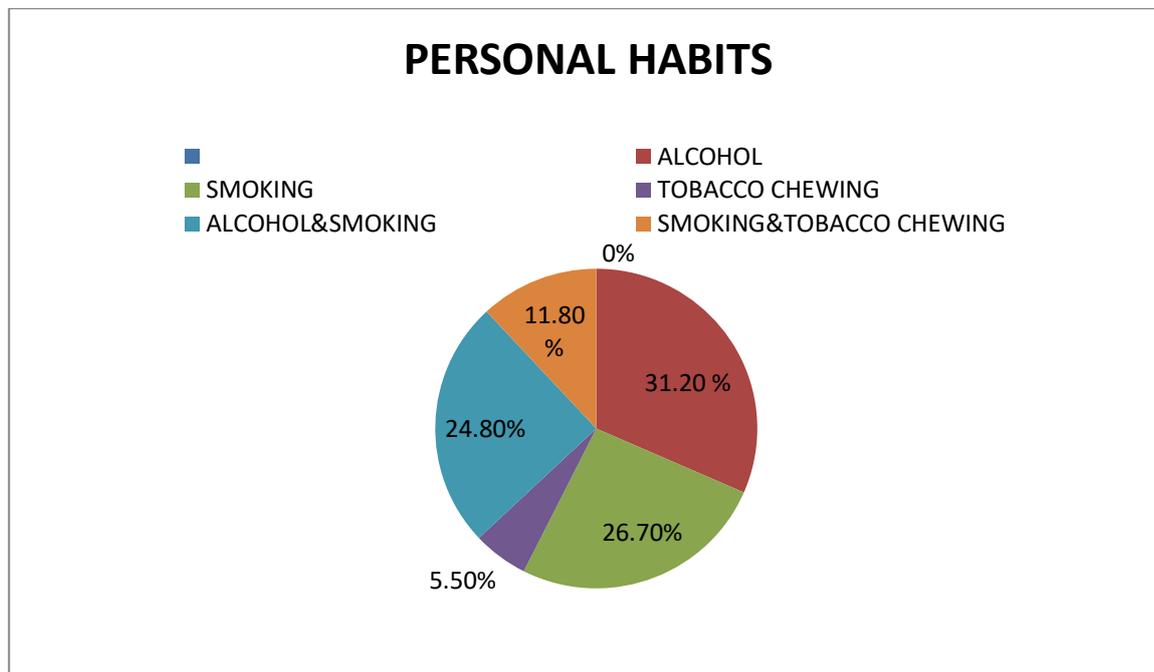
Socio Economic Status of the study participants

Most of the patients i.e., 85.60 % (428) were middle socio economic status, 13 % were poor economic status and 1.40% was rich.

Residential status of the study participants

Most of the patients i.e., 67.8 % (339) were from urban resident, 15.2% (76) were from semi urban in Chennai and Kanchipuram District and 17 % (85) were from rural region of Kanchipuram District.

Fig.1 Personal Habitsof the study participants

Personal habits of alcohol consumption observed in 31.20 % of cases [Fig.1].

Marital Status of the study participants

84 % of (420) patients in this study were married.

Table – 3 Food Habitsof the study participants

Food Habit	Frequency	Percentage
Vegetarian	127	25.4
Mixed diet	373	74.6
Fast food	352	70.4
Dried food	124	24.8

Light eat food	168	33.6
Coffee / Tea	436	87.2
Energy drink	13	2.6

Fast food eaters (70.4%) and mixed diet habits (74.6%) were more among 500 patients [Table- 3]

Eating Pattern of Fast Food in this study

Among 352 participants offast food eaters in this study , 19.32 % (68) of participants were taking fast food every day, 12.78 % (45) were few times a day, 11.93 % (42) were taking once in a week and 9.66 % (34) were taking few times a month. Most of the participants i.e., 46.31% (163)were taking rarely.

Types of snacks mostly consumed by the participants in this study

54 % of the patients were taking unhealthy food like chips (21%), salty snacks (15.2%), crackers (1.6) and both chips and salty snacks (16.2).

Baked Foods mainly consumed by the participants in this study

Most of the patients 97.2 % (386) were taking backed food items such as cookies (49.4 %), donuts (0.4 %), cakes (5.6 %), cookies and cakes (21.8%) etc.

Sleep Pattern of participants in this study

Altered sleep patterns were observed only in 23.4 % of cases i.e Disturbed sleep in 16 %, insomnia in 0.8 %, Day time sleep in 1.4 % and excessive sleep in 1%.

Stress

Only 11.2 % (56) of cases felt stress and the remaining 88.8 % (444) were stress free life.

Technology Usages by the participants in this study

All the patients 100 % in this study were frequently usingthe technology based instruments like TV (60%) mobile (52%) and computer (48%) for their work and entertainments eight hours and more.

Mode of transportation of participants

78.4 % of individuals were using bus / car, 18% were using bike for transportation and only 0.6% were by walk.

Waist Measurement of the participants

Increased waist measurement (≥ 90 cm in males and ≥ 80 cm in females) was observed in 32.4 % (162) of male and 37.2 % (186) of female patients.

Table -4BMI Distribution among the participants

BMI Distribution	Frequency	Percentage
Very severely under weight	1	0.2
Severely Under weight	5	1
Under weight	19	3.8
Normal	228	45.6
Over weight	169	33.8
Obese class I	55	11
Obese class II	22	4.4
Obese class III	1	0.2

Among 500 patients 33.8% (169) patients were overweight, 11% (55) patients were class I obesity, 4.4% (22) were class II obesity and 0.2% (1) patients were class III obesity. Overweight was observed in 33.8 % and obesity was 15.6 %. (Table – 4]

Tale -5 Co morbid conditions of the study participants

Health condition	Frequency	Percentage (%)
Diabetics Mellitus (DM)	59	11.8
Hypertension (HTN)	52	10.4
Thyroid Disorder	10	2
Cardio Vascular Disease	8	1.6
PCOS	6	1.2
Middle Age Obesity	2	0.4
Diabetes Mellitus&Hypertension	44	8.8
DM,HTN and ThyroidDisorder	6	1.2
DM,ThyroidDisorder	7	1.4
Osteo arthritis	250	50
Acid peptic disease (APD)	2	0.4
Gall bladder stone	10	2
Respiratory diseases	40	8
Insomnia	4	0.8

Obesity associated diseases such as Type -2 diabetes, hypertension, CVD, thyroid dysfunction PCOS, Osteo arthritis, respiratory diseases etc., were observed in many cases [Table -5].

DISSCUSSION

'Obesity is the mother of several diseases'. It is atopical, medical and social problem [13]. Obesity is projected to become a public health concern worldwide, and it is becoming a serious problem in developing countries [14]. It is a complex multisystem metabolic disorder and it is very difficult to treat by the health care professionals. . A lot of work has been done in educating the public in preventing the obesity and its associated complications but this has been a tough challenge for health care workers. The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended. Globally, there has been an increased intake of energy-dense foods that are high in fat; andan increase in physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanization [2].

In this study, 54.2 % (271) of patients were female and 45.80% (229) were male.The Chennai urban rural epidemiology study (CURES) conducted in Chennai city in Tamilnadu reported that the prevalence of generalized obesity was 45.9% while abdominal obesity was 46.6% [15]. Vamshikrishnaundavalli et al reported that the prevalence of generalized, abdominal and combined obesity was significantly higher in women and individuals in the age group of 41 – 50 years [16]. Pandey et al in their study reported higher prevalence among women [17]. Most of the patients i.e., 85.60 % (428) in this study were middle socio economic status. People with high socio economic status have a higher risk of being obese than those with low socio economic status [18].

Most of the patients included in this study were from Kanchipuram and Chennai district. 67.8% of patient included in this study were from urban region of Chennai and Kanchipuram district. According to Chennai population census 2011-2019out of the total Chennai population for 2011 census, 100.00 percent lives in urban regions of district [19] and 63.5 % urban populations in Kanchipuram district [20]. Pradeepa et al assessed that prevalence of generalized, abdominal and combined obesity was significantly higher among urban residents compared to rural residents [15].

In this study, 54 % of the patients were taking unhealthy food like chips, salty snacks, crackers and both chips and salty snacks. The accelerated lifestyle of the last half century has flavoured fast food, which is dense and with a lot of calories [21]. Processed foods are the major contributors towards sodium intake thereby pre – disposing individuals towards risk of Diet Related Non Communicable Diseases (DR – NCDs). There is paucity of data on sodium and potassium content of processed packaged foods in India. The sodium and potassium content of the most commonly consumed processed packaged foods were analyzed by AOAC 969.23 method using flame photometer. Highest

analyzed mean sodium content was found in soups (3220 t0 8000 mg/ 100 g) while the potassium content was highest in chips with a range between 360 t0 1220mg/100g [22].

Lack of physical exercise causes obesity [23]. Exercise was rarely performed after youth – and obesity and type – 2 Diabetes mellitus develop exactly after the young age. Nurse's health study data revealed that people who are 40 years and above with a BMI > 31 kg / m^2 area increased risk of type– 2 Diabetes Mellitus [24].In this study most of the patients suffered from obesity associated diseases such as type – 2 Diabetes mellitus, hypertension, cardio vascular diseases, osteo-arthritis, thyroid disorder, insomnia etc. Obese patients are at risk of heart disease, stroke and high blood pressure than people who are not obese (ADA, 2011) [25]. 50% of patients included in this study were visiting the OPD for osteo-arthritis. Extra weight increases the risk of osteo-arthritis by placing extra weight on the joints leading to the wear and tear of the cartilage that should protect them. Altered sleep was observed in 23.4% of patients. Sleep apnoea has been associated with obesity, a serious condition that can lead to heart failure and daytime sleepiness. 2% of patients in this study were diagnosed with gall bladder stone. Gall bladder stone is another condition caused by obesity and it is due to the deposition of bad cholesterol in the gall bladder (ADA 2011) [25]. The risk of this disease increases due to gain in weight.

Televisions and personal computers may encourage sedentary behaviours. Increased use of technology reduces the physical activity. Increased time spent in sedentary activities like videos and computer games contribute to positive energy balance and the development of obesity. According to a cross sectional study, children with lower physical activity are approximately four times more likely to have increased body fat [26].

CONCLUSION

From the results of this cross sectional study, there is a need to public health education programme with the aim of treating obesity, such as changing eating habits, increasing physical activity, becoming educated about life style behavior changes to promote healthy body weight engaging in a support group or extracurricular activity and setting realistic weight management goals through Siddha system of medicine. Increasing or initiating a physical activity program is an important aspect in managing obesity and hence to prevent the development of obesity associated non communicable diseases.

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