A study to assess incidence of obesity in relation family history and obesity among adolescents.

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Abstract : A research was conducted for assess incidence of obesity in relation family history and obesity among adolescents. The objectives of this research is to assess incidence of obesity among adolescents, to assess the family history of obesity among adolescents, to find an association if any between obesity and selected demographic variables, to find an association if any between obesity and family health status. Descriptive cross sectional design was used for this study. Setting for this study were selected affluent schools of Pimpri Chinchwad Municipal Corporation. Sample size was 200 adolescents. Probability cluster sampling technique was used. Structured interview schedule, BMI was calculated was used for the study. 43% of the adolescents were aged 12-13 years, 36% of them were aged 14-15 years and 21% of them were aged 16-18 years.More than half (58.5%) of them were males and 41.5% of them were females.Majority of 81% of them were Hindu, 14.5% of them were Muslims, 4% of them were Christians and 0.5% of them were Sikh.Majority of 65.5% of them were non vegetarians and 34.5% of them were vegetarians.31.5% of them were studying in VIIIth class, 27.5% of them were from IXth, 20% of them were in Xth and 21% of them were from XIth class.Majority of 76% of the adolescents were from nuclear family and 24% of them had joint family.37% of the adolescents’ fathers had business, 2.5% of their fathers were expired and 60.5% of their fathers had service.2% of the adolescents’ mothers had business, 83% of their mothers were housewives and 15% of their mothers had service.19.5% of the adolescents did not had any siblings, 59.5% of them had single sibling, 16.5% of them had two siblings, 2% of them had three siblings, 1.5% of them had four siblings, 0.5% of them had five siblings and 0.5% of them had six siblings. Majority of 93% of them had full term birth and 7% of them were premature. 21% of adolescents were obese while 44% were overweight. Since p value is less than 0.05 (p=0.017 and 0.079) there is an association between both and female adolescents are not comfortable with their body weight and the female adolescents are more conscious of making their body weight is found to be significant. Incidence of obesity was more among males as compared to females.

Key words: Family History, Obesity, Adolescents.

Introduction

Obesity has reached epidemic proportions in the developed part of the world with as many as 30-40% of adults being already obese and the incidence in children and adolescents is rising. In the United States the prevalence of children and adolescents with Body Mass Index of greater than 95th percentile has doubled in the last two decades and there is 50% increase in the prevalence of those with BMI of greater than 85th percentile. In urban India too, obesity in childhood is increasing rapidly, though prevalence data is scare. Obesity has now been recognized as a disease, not just a cosmetic problem. Apart from impaired mobility and interference with Activities of Daily Living, it also has several health consequences: Hypertension, Hyper-insulinemia, Diabetes, Poly Cystic Ovarian Syndrome, Dyslipidemia, Intertriginous infections and sleep apnea all such consequences. In adulthood it leads to problems such as osteoarthritis, coronary heart disease, higher risk of certain malignancies and possible worsening of asthma and renal diseases. In addition obese children may suffer from feeling inadequacy and being different and being stereo typed as clumsy, lazy, stupid or worthless.

50-80% of obese children will continue as obese adults (Ghai,2008) and fall into risk group of Diabetes, Hypertension, Coronary Heart Diseases and many more obesity related diseases. Complications of adult obesity are made worse if the obesity begins in childhood. Obesity is harder to treat in adults than in children (WHO, 2010)

Effective prevention of adult obesity will require the prevention and management of childhood obesity (Sidhu and Kaur, 2008) WHO has also emphasized on urgent need of understanding the prevalence, trend, factors contributing and developing strategies for effective intervention.

The incidence of obesity among children and adolescent has increased gradually and it is a major global public health problem because of the health consequences and greater risk of obesity in
adulthood. High risk of childhood obesity has been reported in studies of several racial groups, the cause of childhood obesity has not been elucidated completely and several factors might be related to the rising rates of obesity. Studies revealed that decrease in physical activity is a result of the increasing availability of high-tech devices, such as computers and other visual entertainment, may play a role in the increase of overweight children. Obesity is a global nutritional concern. Obesity is a form of development driven malnutrition that is emerging among all age groups as well as among socioeconomic groups. (WHO, 2000)

WHO observes, ‘Childhood obesity is one of the most serious public health challenges of the 21st century. The problem is global and is steadily affecting many low- and middle income countries, particularly in urban settings. The prevalence has increased at an alarming rate. In 2007, estimated 22 million children under the age of 5 years were overweight throughout the world. More than 75% of overweight children live in low- and middle income countries. (Kliegman et al., 2009)

International Obesity Task Force (IOTF) reports also underscore obesity in children and young people as a crisis in public health. It mentions that, although rare in past, obesity in children now represents one of the most serious challenges to health of age group of 5-19. It has a profound effect on the child’s life. It increases the child’s risk to numerous health problems and it can also create emotional and social problems. Obese children are more likely to be obese as adults, increasing their risk of serious health problems indicated above. (Ghai, 2008)

While going through the literature it is quite clear that due to different approaches towards study of obesity and different parameters being used, it is difficult to really cross compare obesity in different countries as obesity is increasing all over the world and is approaching epidemic proportions. There is no missing the trend. With growing acceptance of standards fixed by WHO and more and more studies across the globe using BMI as parameter to study obesity and its prevalence, better data is available to cross study the prevalence. (WHO 2010, Ghai 2008)

Obese children tend to be obese adults and 70% of obese adults have acquired obesity in childhood, also childhood obesity is expected to rise rapidly in the coming years. It has accelerated rapidly in western world like USA, UK, France, Netherlands, Poland, Germany, Spain and Czech Republic. (Sidhu, 2006) The childhood obesity has tripled in Canada, doubled in USA and Japan in the last 20 years (WHO, 2010) Rising trend of childhood obesity is also seen in studies from Iran, Malaysia, Finland, Brazil and China. (WHO 2010, Ghai 2008)

There is a growing felt need of doing scientific study in this arena in recent times and there are quite a few studies that indicate that obesity in school going children in India varies between 6% to 18% and is influenced by gender, age, eating habits, physical and sedentary activity pattern, genetic factors and social and psychological factors. A study conducted in Chennai on 10 to 15 year old public school girls reported a prevalence of 5.9% in 1981 and 6.2% in 1998 (Strauss, 2000). In another study on urban Indian adolescent school children (13 – 18 years) prevalence of overweight was 17.8% for boys and 15.8% for girls. Another study conducted New Delhi on 1238 school children of 7-9 years of age reported prevalence of obesity as 6.22% with family history, overeating and physical inactivity coming out as major factors for the development of obesity (Allen, 1991).

A research was conducted for study to assess incidence of obesity in relation family history and obesity among adolescents.

**Objectives:**

1. To assess incidence of obesity among adolescents.
2. To assess the family history of obesity among adolescents.
3. To find an association if any between obesity and selected demographic variables.
4. To find an association if any between obesity and family health status

**Methodology:** Descriptive cross sectional design was used for this study. Setting for this study was selected affluent schools of Pimpri Chinchwad Municipal Corporation. Sample size was 200 adolescents. Probability cluster sampling technique was used. Structured interview schedule, BMI was calculated was used for the study. Structured interview schedule was used, BMI was calculated. Section I consisted of 10 questions. 5 on demographic variables viz: Age, Gender, Religion, Dietary pattern, Class in which studying. 5 on family structure viz: Type of family, Occupation of Father, Occupation of Mother, Number of siblings, Premature/ Full term birth. Section II comprised of 9 questions on personal history of health problems. Section III comprised of 12 questions on family history of health problems. Section IV was BMI profile. The nature and purpose of study was explained to the parents and adolescents and parents informed consent was taken. The data was collected and entered in computer. Appropriate statistical analysis was done using SPSS16. Descriptive statistics such as mean, SD frequency and inferential statistics was done.

**Data Analysis, Result and Discussion:**

Majority 43%(86) were aged 12-13 years, 58% (117) were males, 81% (162)were belonging to hindu religion, 65 (131) were non vegetarians,
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31.5% (63) were studying in Standard VIII. Family structure: 76%(152) resided in joint family, 65%(121) fathers occupation was service, while 83% (166) mothers were housewives. 59.5%(119) had one sibling while 19.5%(39) were single child, 7%(14) were premature births.

Distribution of adolescents according to age

- 43.0% (85) aged 15-16 years
- 36.0% (70) aged 14-15 years
- 21.0% (40) aged 13-14 years

Distribution of adolescents according to gender

- 58.5% (116) females
- 41.5% (83) males

Distribution of adolescents according to type of family

- 76.0% (152) Joint
- 24.0% (48) Nuclear

Distribution of adolescents according to dietary pattern

- 34.5% (69) Non Vegetarian
- 65.5% (129) Vegetarian

Distribution of adolescents according to class in which studying

- 31.5% (63) VIII
- 27.5% (54) IX
- 20.0% (39) X
- 21.0% (41) XII
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Personal history of health problems: 29.5% (59) had worry anxiety or stress which made them to eat more often. 43% (36) female adolescents suffered with menstrual irregularities, 42% (35) female adolescents suffered with hirsutism, while 43.5% (87) male adolescents had hyperpigmentation of neck.

Prevalence of obesity: 35.5% were Normal weight, 43.5% were Overweight while 21% were obese. 21% (42) were not comfortable with their body weight, 58% (116) were conscious of maintaining their body weight by doing Yoga, jogging, exercise or diet. Only 42% (84) were aware of adverse effects of obesity on health.

Family history: 21% obese adolescents family members were overweight, 29% adolescents one or both parents were overweight, 12% adolescents siblings were overweight, 15% adolescents grandparents were overweight.

<table>
<thead>
<tr>
<th>Personal history of health problems</th>
<th>Gender</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have any worry/anxiety/depression/stress, which make you to eat more or less food</td>
<td>No</td>
<td>0.002</td>
</tr>
<tr>
<td>Do you suffer from any menstrual problem</td>
<td>Yes</td>
<td>0.000</td>
</tr>
<tr>
<td>Hirsutism for girls</td>
<td>No</td>
<td>0.000</td>
</tr>
<tr>
<td>Gyneacomastia for boys</td>
<td>No</td>
<td>0.000</td>
</tr>
<tr>
<td>Hyperpigmentation of neck</td>
<td>Yes</td>
<td>0.343</td>
</tr>
<tr>
<td>Does any member in your family have history of any diseases</td>
<td>No</td>
<td>0.774</td>
</tr>
<tr>
<td>Do you know your body weight</td>
<td>Yes</td>
<td>0.473</td>
</tr>
<tr>
<td>Do you feel comfortable with your Body weight</td>
<td>No</td>
<td>0.017</td>
</tr>
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Conclusion:
Prevalence of obesity increased with increase in age in both boys and girls. Family history of obesity, snacking of high energy foods and lack of physical activity were important influencing factors of obesity. Consumption of high fat and high energy (junk foods) and snacking in between the meals should be avoided by children. Health education should be given to parents, teachers and children regarding dietary habit and sedentary lifestyle. (S.Kumar, 2007)

Community Health Nurses need to assess the adolescents for their BMI levels and identify those with elevated BMI. These adolescents and their parents need to be given health education on ill effects of unhealthy eating, importance of physical activity. Height and weight can be measured for assessing BMI values. Adolescents can be identified in school setting or family setting. There is a need to maintain health record of all adolescents. Anthropometric measurements should be charted with efficacy. School health nurses should impart planned and incidental health education programme on obesity prevention messages to parents and adolescents and suggest weight control interventions for those with excess weight. Clinical approach to community paediatrics must be comprehensive and multifaceted. Dietary modification should be done by the family especially those having incidence of obesity among family members. Careful planning and a comprehensive approach in dealing with adolescent obesity problem today will contribute to improvement in public health for the future generations.
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