



SOCIO-DEMOGRAPHIC STUDY OF SCHOOL GOING ADOLESCENTS

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ABSTRACT

Aim Study of demographic information of school going obese adolescents of Chandigarh

Methodology A total of 1002 subjects comprising of boys and girls aged 15-19 years were studied cross-sectionally in schools of Chandigarh. For data collection a self-structured questionnaire was used which comprised of questions pertaining to socio-economic status, type of school and family history of disease. Questionnaire consisted of multiple choice, close and open ended questions.

Result 35.36% and 12.40% adolescents going to private and government school respectively were found to be obese. 26.10% of adolescents belonging to upper class were found obese. 46.89% of adolescents have a family history of diabetes, hypertension and cardiovascular disease.

Conclusion The findings revealed that most of the adolescents belonging to higher socio-economic status (SES) were positively associated with a higher intake of high-energy foods such as cakes, ice-cream, burgers and sandwiches. Thus, higher prevalence of obesity in private schools as children going to these schools belong to elite class.

KEYWORDS : socio-economic status; obesity; adolescent

Introduction

Obesity in children and adolescents is gradually becoming a major public health problem in many countries, including India [1]. The prevalence is higher in urban than in rural areas. The results of studies among adolescents from parts of Punjab, Maharashtra, Delhi, and South India revealed that the prevalence of overweight and obesity was high (11% to 29%). In Ludhiana, Punjab, urban children in the age group of 11 to 17 years of age were more overweight (11.6%) than their rural counterparts (4.7%). In Pune, Maharashtra, studies among 1228 boys in the age group of 10 to 15 years indicated that 20% were overweight, whereas 5.7% were obese. In a recent publication from a study, the combined prevalence of overweight and obesity among school going adolescents (12-18 years) in Delhi was shown to be 16.6% [2]. In higher SES classes in India, the prevalence of overweight and obesity among school-aged youth is now on par with the prevalence in many countries of the developed world [3]. Moreover, there is double burden of under- and over-nutrition. While the epidemic of overweight and obesity is raging in the developed countries, most countries in Asia are still facing the double burden of under-nutrition and over-nutrition, both exerting considerable stress on the health system. The prevalence is generally higher in urban areas than in the rural areas, and in higher socio-economic groups of the population [4].

Method

Research design: The present cross-sectional study was designed in such a way that equal representation of students from different parts of Chandigarh could be used for the assessment of obesity. A written informed consent was obtained from Director of School Education followed by oral permission from the Principal of each school situated in various areas of Chandigarh.

Subjects: Study population was students from 15 -18 years of age i.e. from class 9th to 12th. Students were selected from each class by the simple random technique, till the desired sample from each class was met. From each institution, at least 100 subjects would be recruited.

Questionnaire: For data collection a self-structured questionnaire was used. The questions had been prepared in English. The framing of the questionnaires was done keeping in mind that the questions were well defined, simple, short and easy to understand. Questionnaire consisted of multiple choice, close and open ended questions. The questionnaire comprised of the following sections:

Socio-demographic information:It included questions like

name, gender of the respondents, age, and some questions based on educational qualification, occupation and income of family members for the assessment of economic status. To assess the socio economic status of respondents family, updated Kuppuswamy scale was used (Dudala 2013) where education qualification and occupation of father and mother and income of family was used to calculate the socio-economic status.

Obesity and overweight assessment: Height was measured in centimeters (cm) using a portable anthropometric rod. Weight was measured in kilograms (Kg) using a standardized weighing machine. Body mass index (BMI) was calculated using the formula weight (Kg) divided by height in square meters (m²).

Statistical analysis: The Indian Academy of Paediatrics (IAP) Growth Chart Committee recommendations were followed for height, weight and BMI assessment of 5-18 year old Indian children. Associations were assessed using χ^2 test. For all statistical tests, $p < 0.05$ was taken as the significant level.

Results

Table 1 Demographic information of respondents

Variable	Sub variable	Overall %	
Sex	Male (n=501)	15	19.96
		16	19.96
		17	19.96
		18	19.96
		19	20.16
	Female (n=501)	15	20.56
		16	19.56
		17	19.96
		18	19.96
School	Government	52.30	
	Private	47.70	
Socio Economic Status	Upper class I	48.20	
	Upper middle class II	32.34	
	Middle/ lower middle class III	8.68	
	Lower/ upper lower class IV	10.38	
	Lower V	0.40	
Family history of disease	Hypertension	18.36	
	Diabetes	21.56	
	Cardiovascular disease	7.0	

Table 1 shows the distribution of study population based on

demographic information. As seen in the table there is overall equal representation of both the sexes and students from government and private schools. Based on modified Kuppuswamy scale for Socio-economic status education qualification and occupation of father and mother as well as income of family was calculated to access socio-economic status. Most of the respondents parents' were graduate or post graduate ,degree holder and were working in tertiary sector while some of them were holding their own business or working in secondary sector. Very few of them were working as farm or field workers. Most of the students recruited in our study belonged to upper economic status (48.20%) while only 10.8% were from lower socio economic status family. It has been reported in earlier studies that per capita income of people living in Chandigarh (UT) is high as compared to other states.

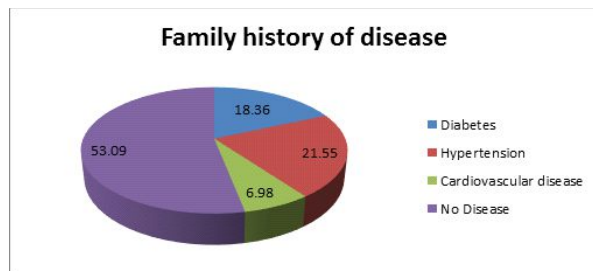


Figure 1 Family history of disease among the respondents in the study

Figure 1 illustrates the family history of disease of parents and grandparents of the respondents. 46.89% of adolescents reported family history of disease that is diabetes, hypertension and cardiovascular disease in their parents or any of their grandparents. Asians Indians have ethnic susceptibility to Type II Diabetes [5; 6] and a high familial aggregation of the disease [7; 8].

Table 2 Basic characteristics of sample and the prevalence of overweight and obesity among adolescents of 15-19 years of age.

Variable	Sub-variable	Perce nt	Mean BMI (95% CI)	Overwei ght %	Obese %
Adolesce nts	Boys	50.00	20.03(19.73, 20.33)	17	6
	Girls	50.00	20.1(19.82, 20.38)	20	3.80
Subjects from type of school	Government	52.29	19.34(19.08, 19.59)	10.31	2.10
	Private	47.70	20.86(20.54, 21.18)	27.82	7.53
SES	Upper class (I)	48.50	20.61(20.31, 20.9)	8.50	17.60
	Upper middle class (II)	32.33	20.03(19.65, 20.42)	8.70	11.50
	Middle/lower middle class (III)	8.68	18.69(18.19, 19.2)	12.5	13.63
	Lower/upper lower class (IV)	10.37	18.87(18.3, 19.43)	11.53	7.70
	Lower class (V)	0.40	18.5(14.29, 22.71)	0	0

CI- confidence interval. SES- socioeconomic status.

According to table 2 total of 1002 adolescents of both sexes each in the age group of 15-19 years were studied. Approximately almost 25% of the respondents belonged to higher socio-economic status. Proportions of respondents was approximately equally distributed in both private and government schools. There is little difference between obesity in girls and boys. However, prevalence of overweight and obesity was observed to be much higher in private

schools students (27.82%, 7.53%) than students of government school (10.31%, 2.10%). The findings revealed that most of the adolescents belonging to higher SES were positively associated with a higher intake of high-energy foods such as cakes, ice-cream, burgers and sandwiches. Skipping breakfast, snacking and preference for Western foods were more common in the high SES groups and in urban areas. A report from the Nutrition Foundation of India suggests that the prevalence of obesity varies with socio-economic status in urban [9], with those in the upper strata having higher prevalence rates (32.2% among males, 50% among females) than the middle classes (16.2% males, 30.3% females), followed by the lower socio-economic groups (7.0% males, 27.8% females) and the poor in urban slums with the lowest (1.0% males, 4.0% females). The latter finding shows that India has not yet shown the increase in prevalence of obesity seen among the urban poor that is characteristically observed in Brazil and in South Africa. A similar trend is seen in the prevalence of obesity in our study i.e. the percentage prevalence of obesity decreases with decrease in socio-economic status.

Discussion

According to financial Express (2015) Chandigarh is at third position in terms of per capita income after NCT (Delhi) and Goa. Chandigarh and Delhi have the highest proportion of graduates — over one in every five persons, thus well employed. Hence, due to the above stated reasons it can be attributed that major part of our study population belonged to upper socioeconomic status (48.20%). People belonging to elite class can afford ready to cook food and fast food hence more prone to heart diseases. 46.89% had a family history of disease. Our study shows that socio-economic factors are important since obesity and overweight increases with SES. Being financially sound may allow the children to indulge in practice of purchasing calorie dense fast foods and a life-style involving less of physical activity and more in-door activities like playing games on computer, watching television, etc. Also, the cultural beliefs in this region of the world like being overweight being considered as a marker of prosperity and good health may play a major role. Hormonal, cultural and social factors may account for the observed gender differences [10], especially in Indian context. Also, it has been seen that post-pubertal girls are more conscious towards their physical appearance and consequently may take active steps to control obesity as compared to boys [11].

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