



**AN EXPLORATORY STUDY TO ASSESS THE PREVALENCE AND FACTORS
CONTRIBUTING TO OBESITY AMONG STUDENTS OF SELECTED SENIOR
SECONDARY SCHOOL, LUDHIANA, PUNJAB.**

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BACKGROUND OF THE STUDY

Introduction

“Childhood obesity is a huge systemic problem. It's a pandemic to a certain extent.”

Cathy Nonas

Obesity is one of the most common diseases found all over the world. In India among adolescents the key causes for obesity are an increased consumption of more energy-dense, nutrient poor foods with high levels of sugar and saturated fats combined with reduced physical activity (due to increased use of automated transport technology) and more passive leisure pursuits are suspected as major contributors to rising levels of obesity. Urbanization has a remarkable impact on socio-economic status and life styles, globalization of food markets are major forces thought to underline the epidemic. In addition to this, cultural factors such as dietary practices, attitudes towards food are changing which ultimately contribute to the high prevalence and incidence of obesity. Obesity is a type of malnutrition that is characterized by abnormal growth of adipose tissue which occurs due to increase in size and number of the fat cells.¹

World Health Organization (WHO) has defined obesity as “Global Epidemic”. It is complex condition with psychological and social dimensions. W.H.O defined obesity as



BMI of 30 or more. However, BMI more than 21 is at risk of Cardio-Vascular Disease. According to W.H.O reports in 1995 the prevalence of overweight was 200 million among adults and 18 million in children. Childhood obesity is of greater concern because 50-80% obese children become obese adults.²

According to World Health Organization, approximately 1.6 billion adults (age 15+) were overweight; and at least 400 million adults were obese in 2005, at least 20 million children under the age of 5 years were overweight globally in year 2005. Childhood obesity prevalence has increased by three to four folds globally within past few decades; the obesity epidemic has resulted due to sedentary life style and decline in physical activity.³

A National Health and Nutrition Examination Survey (NHANES) conducted a survey to determine the prevalence of overweight in US children using national data with measured weights and heights and to examine trends in overweight. The prevalence of overweight increased from 10.5 % to 15.5 % in the age group of 12 to 19 years between 1994 and 2000 and in between in the age group of 2-5 year age increase was from 7.2 % to 10.4 %.⁴

Need of the study

The growing affluence in India has come with a heavy price – the burden of obesity. Paradoxical as it may seem, India needs to grapple with extreme poverty and malnourishment on one hand and on other hand there is growing epidemic of obesity amongst the affluent. It may well be called the mother of all disparities, for the moneyed middle class and upper class consume more than recommended and are bursting at the seams, while the poor remain hungry, just skin and bones-both extremes which cost the country very dearly.¹⁹

It is a complex, multifactoral and chronic condition resulting from interplay between environment and genetics. The prevalence of obesity has been growing at an alarming



rate for decades in both children and adults. Being an overweight child under 3 years of age, does not predict future obesity unless at least one parent is also obese. After the age of 3 years, the likelihood that obesity will persist into adulthood increases with advancing age of the child and is higher in children with severe obesity in all age groups. After an obese child reaches 6 years of age, the probability that obesity will persist into adulthood exceeds 50%, and 70%–80% of obese adolescents will remain so as adults.²⁰

Obesity is considered a global epidemic because its prevalence and severity in both adults and children is increasing worldwide at alarming rates. This increase has been related to an increasing sedentary lifestyle with less physical activities as well as changing dietary habits, which occur not only in affluent countries, but also in developing countries and in countries in economic transition. One consequence is that overweight and obesity are becoming the most prevalent childhood nutritional disorders in many parts of the world. As a result, more children experience severe psychosocial burdens and health risks, and because most obese children grow into obese adults, this trend is expected to lead to huge economic costs to health and social security systems.²¹

Worldwide over 18 million children under the age of five were being overweight (WHO 1990). In 1998, W.H.O declared childhood obesity as a global epidemic. In 1999 - 2002 statistics shows that among children in the age group of 7 – 16 years, 47% of them are overweight and 11% are obese.²²

It is estimated that globally there are about one billion over weight adults and atleast 300 million of these are obese .It is estimated to affect about 20-30% adults and 10-20% of children and adolescents in developing country.²³

According to World Health Organization (WHO) 10-20% of children are affected by obesity Globally the prevalence of childhood obesity varies from over 30% in USA to less than 2% in sub- Saharan Africa. Currently the prevalence of obese school children is 20% in U. K. and Australia, 15.8% in Saudi Arabia, 15.6% in Thailand, 10% in Japan and



7.8% in Iran. About 52% children ate meals outside home, boys more frequently than girls (60% and 43% respectively) who had significant correlation with obesity. It is assumed that Physical inactivity is not only a prime role in the development of overweight and obesity but also in the development of chronic diseases such as heart diseases, diabetes, hypertension, cancers and osteoporosis in later life.²⁴

Prevalence of obesity in India (BMI > 30 kg/m²) according to state wise are: Delhi urban female 33.4; population of Hyderabad Urban female 36.3%; Delhi urban females 48.6%. Nutrition Foundation of India investigated that Punjabi urban females are 25.3%.²⁵

National representative data for childhood obesity in India is unavailable, however available studies of Chennai and Delhi has shown that prevalence of 6.2% and 7.4% respectively. Obesity is more likely to persist when its onset is in late childhood or adolescence.²⁶

Statement of the Problem

An Exploratory Study to Assess the Prevalence and Factors Contributing to Obesity among Students of Selected Senior Secondary School, Ludhiana, Punjab.

Aim of the Study:The aim of the study is to assess the prevalence and factors contributing to obesity among students of selected senior secondary school with the view to prepare pamphlet for students on the prevention of obesity.

Objectives

1. To assess the prevalence of obesity among students.
2. To assess the factors contributing to obesity among students.
3. To find out the relationship of prevalence of obesity with selected variables i.e. Age, Gender, Mother's Education, Father's Education, Mother's Occupation, Father's Occupation, Monthly Income, and Dietary Pattern.
4. To prepare pamphlet for students on prevention of obesity.

Research Methodology



Research Approach : A quantitative research approach was used to assess the prevalence and factors contributing to obesity among students.

Research Design: An exploratory non-experimental research design was suitable in the present study, where exploration implies without any manipulation of variables or control over the research setting.

Research Setting: The present study was conducted in the B.C.M. Arya Model Senior Secondary School, Shastri Nagar, Model Town, Ludhiana. Shri Brij Mohan Lal had laid down the foundation stone of this institution on 2nd October, 1977. BCM Arya Model Senior Secondary School is an English Medium Senior Secondary School affiliated to Central Board of Education, New Delhi . The total sample size (N) was 300 students of Class 8th studying in Selected Senior School, Ludhiana, Punjab for assessing the prevalence of obesity. The prevalence of obesity (N₁) was among 50 obese students studying in Selected Senior School, Ludhiana, Punjab. The sample size for identifying factors contributing to obesity was 50 obese students.

ANALYSIS AND INTERPRETATIONS

RELATIONSHIP OF PREVALENCE OF OBESITY WITH SELECTED VARIABLES I.E. AGE, GENDER, MOTHER'S EDUCATION, FATHER'S EDUCATION, MOTHER'S OCCUPATION, FATHER'S OCCUPATION, MONTHLY INCOME, AND DIETARY PATTERN

Objective 3: To find out the relationship of prevalence of obesity with selected variables i.e. Age, Gender, Mother's Education, Father's Education, Mother's Occupation, Father's Occupation, Monthly Income, and Dietary Pattern.



Table 10: Mean Prevalence of obesity (BMI) among obese students according to Age

N₁ = 50

Age	n	Mean	SD	df	f value	
12-13 years	18	28.17	2.77			
14-15 years	32	28.79	2.71	Sb ² =4.50	1	0.60 ^{NS}
16-17 years	-	-	-	Sw ² = 359.29	48	
≥ 18 years	-	-	-			

NS= Non significant

Table 10 and Fig 51 depicts that according to age mean prevalence of obesity with BMI of (28.79) was higher in age group of 14-15 years than the age group of 12-13 years (28.17).

However, the mean difference in mean prevalence of obesity (BMI) in the category of age among students was not found statistically significant.

Table 11: Mean Prevalence of obesity (BMI) among obese students according to Gender

N₁ =50

Gender	n	Mean	SD	df	f value	
Boy	33	28.87	3.31	Sb ² =8.60	1	1.16 ^{NS}
Girl	17	28.0	0.58	Sw ² =355.18	48	

NS= Non significant

Table 11 and Fig 52 depicts according to Gender that the maximum mean prevalence of obesity with BMI of (28.87) was higher among boys than girls (28.0)

However, the difference in mean prevalence of obesity (BMI) in the category of gender among students was not found statistically significant.



Table 12: Mean Prevalence of obesity (BMI) among obese students according to Mother's Education

N₁ =50

Mother's Education	n	Mean	SD	df	f value	
Illiterate	-	-	-			
Upto middle	-	-	-	Sb ² =12.02	1	1.64 ^{NS}
Senior secondary	6	29.90	4.84	Sw ² =351.76	48	
Graduate & above	44	28.39	2.34			

NS= Non significant

Table 12and Fig 53 depicts according to mother's education, the maximum mean prevalence of obesity with BMI of (29.90) was among those student's whose mother's were educated up to senior secondary; followed by students whose mother's were graduates & above (28.39).

However, the difference in mean prevalence of obesity (BMI) in the category of student's mother's education among students was not found statistically significant.

Table 13: Mean Prevalence of obesity (BMI) among obese students according to Father's Education

N₁=50

Father's Education	n	Mean	SD	df	f value	
Illiterate	-	-	-			
Upto middle	-	-	-	Sb ² =16.16	1	2.23 ^{NS}
Senior secondary	4	30.50	5.54	Sw ² =347.62	48	
Graduate & above	46	28.40	2.38			

NS= Non significant

Table 13and Fig 54 depicts according to Father's education the maximum mean prevalence of obesity with BMI of (30.50) was among those student's whose father's



were educated up to senior secondary; followed by student's whose fathers were graduates & above (28.40).

However, the difference in mean prevalence of obesity (BMI) in the category of student's father's education among students was not found statistically significant.

Table 14: Mean Prevalence of obesity (BMI) among obese students according to Mother's Occupation

N₁=50

Mother's occupation	n	Mean	SD		df	f value
Housewife	41	28.64	2.54	$S_b^2=14.91$	2	
Service	6	28.70	4.18	$S_w^2=358.87$	47	0.32 ^{NS}
Business	3	27.33	1.66			

NS= Non significant

Table 14 and Fig 55 depicts according to mother's occupation the maximum mean prevalence of obesity with BMI of (28.70) was among student's whose mothers were in service: followed by mean prevalence of obesity with BMI of (28.64) were among student's whose mothers were housewife and followed by minimum mean prevalence of obesity with BMI of (27.33) was among student's whose mothers had their own business.

However, the difference in mean prevalence of obesity (BMI) in the category of student's mother's occupation among students was not found statistically significant.



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