

## **To Study the Risk Factors Associated with Overweight and Obesity among Adolescents in Bihar**

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### **INTRODUCTION**

Adolescence is a psychological- biological stage of development between childhood and adulthood. Out of 1.2 billion adolescent worldwide about 85% live in developing countries. Adolescent constitute of 21% of Indian population.<sup>1</sup> As per NFHS-3, adolescents in Bihar are 22.5%. As a chronic disease, obesity is prevalent in both developed and developing countries. For industrialized countries, it has been suggested that increase in body weight have been caused by reduced level of physical activity. Overweight and obesity are the fifth risk of global death. In 2008, more than 1.4 billion adults, 20 years and older were overweight. Of these over 200 million men and nearly 300 million women were obese.<sup>2</sup> Obesity in adolescent is defined as body mass index (BMI) +2 standard deviations, according to WHO age- and gender specific growth reference charts. Obesity prevalence was higher among younger than older adolescents and generally was higher in boys.<sup>3</sup> Obese children are at greater risk of type 2 diabetes, asthma, sleep difficulties, musculoskeletal problems and future cardiovascular disease, as well as school absence, psychological problems and social isolation. Many studies have reported socioeconomic differences in adolescents physical activity, nutrition and risk of overweight or obesity. Although the growing prevalence of overweight and obesity among adolescent has received much attention in recent years but there is not much data available, so the above study was done to find Risk Factors Associated with overweight and Obesity among Adolescents in urban Area of Patna, Bihar. This study was done to assess the risk factors associated with overweight and obesity among adolescents.

### **MATERIAL AND METHODS**

This was a cross-sectional study conducted amongst 380 adolescents (10–19 years) residing in the urban community in Patna, Bihar, India from January 2016 to December 2016.

Study Tool- A predefined semi-structured questionnaire was used that was developed at the Nalanda Medical College, Patna, with the assistance from the faculty members and other experts in relation to overweight/obesity in the adolescent population. The questionnaire included questions regarding the socio-demographic profile of the individual and their family along with their dietary and lifestyle practices. The questionnaire was used in local language.

## Physical Activity

Those individuals who carry out at least 45 minutes of physical activity of moderate intensity for at least 5 days in a week are known as physically active.

## Smoking

Smoker was defined by any history of single puff of smoking by the participant in the last 30 days.

## Dietary practice

Dietary practices was done by oral questionnaire method (24 hour recall method)

## STATISTICAL ANALYSIS

The data were entered into MS Excel spreadsheets. Simple proportions, percentages and chi-square were used. Data analysis was done by Epi-Info software. RESULT Among 380 adolescents, majority were of 15 years of age, males were 227 (59.73%) and 153(40.26%) were females. 77(20.3%) participants were overweight/obese and 303 (79.7%) respondents were not overweight/obese. Out of 77 overweight/obese adolescents, 63(16.5%) were overweight and 14(3.6%) were obese.

Most of the adolescents (70.5%) consumed fruit occasionally; 24(6.31%) consumed fruit daily, 72 (18.9%) consumed fruit three to four times/week, and the remaining 16 (4.2%) did not consume fruit. Out of 380 adolescents, 59(15.5%) practiced yoga and 44 (11.6%) used tobacco [Table-2]. 307(80.9%) consumed vegetables daily and there was significant association between less consumption of vegetable and occurrence of overweight/obesity. ( $\chi^2 = 7.33$ ,  $df = 2$ ,  $P < 0.05$ ), low intake of fruit and overweight/ obesity ( $\chi^2 = 38.2$ ,  $df = 3$ ,  $P < 0.001$ ), and no yoga practicing and overweight/obesity ( $\chi^2 = 8.09$ ,  $df = 1$ ,  $P < 0.05$ ).

## DISCUSSION

In the present study, 20.26% had overweight and obesity. Laxmaiah A et al conducted a study among adolescents in Hyderabad and they found prevalence of overweight of 6.1% in boys and 8.2% in girls; prevalence of obesity was 1.6 and 1.0%, respectively.<sup>8</sup> According to a report by The National Nutrition Monitoring Bureau Surveys the prevalence of overweight among urban adolescent was 10 times higher than rural adolescents.<sup>9</sup> A study done by Kaur S et al amongst adolescent obese children, found that the prevalence of overweight was (26%) and obesity (7.4%) among the adolescent studied in Delhi and Ludhiana.

### **Vegetable Consumption**

Low intake of vegetable foods was an important contributory factor for over-nutrition. A study done by Gupta et al., in Bengal found that 84.29% adolescents were consuming vegetables among rural area.

### **Fruit Consumption**

There was a significant association between less consumption of fruit and the occurrence of overweight/obesity in the adolescents. Yusuf et al., showed that abnormal lipids, tobacco, hypertension; diabetes, abdominal obesity; psychosocial factors; consumption of fruits, vegetables and regular physical activity were the major risk factors.

### **Role of Yoga and physical activity**

In this study, we found that there no yoga practice and physical inactivity were related with the occurrence of overweight/obesity in the adolescents. Perez A et al in their study found that less physical activity is serious risk for the development of obesity.

### **Smoking**

Smoking was not significantly associated with the obesity in the present study. In a review of 19 studies, Potter et al., noted a positive relationship between smoking and body weight among adolescents, 14 yet others did not find a positive association.

### **Study limitations**

Larger sample size could have provided more vital information, however due to constraint of time the same could not be achieved. Presence of family members during interview could not be avoided and it might have influenced the response of the study subjects.

### **CONCLUSION**

Preventive healthcare strategies need to be clearly formulated and tested. Behaviour change communication supported by the screening is important for early detection to prevent complications. Community based studies are required to highlight the problem of obesity among urban adolescents by a comprehensive approach.

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