International Journal of Medicine Research
ISSN: 2455-7404; Impact Factor: RJIF 5.42
Received: 07-02-2019; Accepted: 08-03-2019
www.medicinesjournal.com
Volume 4; Issue 2; April 2019; Page No. 101-102

Prevalence of obesity among rural school-going children in district Bandipora

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Abstract
Childhood obesity is an emerging global challenge in the contemporary times. The rural India is also facing the challenge. The state of Jammu and Kashmir which lies in North of India has been showing increase in the obesity in children. The present study, therefore, intends to find out the prevalence of obesity among school children in the age group of 10-16 years in the rural district of Bandipora in the Kashmir province of Jammu and Kashmir.

Keywords: obesity, rural, bandipora, BMI

Introduction
Obesity has been defined as a condition of abnormal or excessive fat accumulation in adipose tissue, to the extent that health may be impaired [1]. Overweight and obesity are important determinants of health leading to adverse metabolic changes and increase the risk of non-communicable diseases. Obesity is not an immediate lethal disease itself, but it is a significant risk factor associated with a range of serious non-communicable diseases and conditions like increased risk of coronary heart disease, hypertension, diabetes mellitus, gallstones etc.
According to the report of International Obesity Task Force in year 2000 about 10% of the young people aged 5-17 years globally were overweight; among which 2-3% were obese [2]. In high income countries (developed nations) and North American region, prevalence of overweight youth (10-16 years) varies 15% to 30% [3]. In some developing countries, childhood obesity was most dominant in wealthier social groups but it is also rising among the urban poor "possibly due to their exposure to Westernized diets coinciding with a history of under nutrition. Many studies in developed and developing countries have shown increasing trend of overweight and obesity among children but at different paces following different patterns with most dramatic changes among the adolescents. Over the last two decades, the prevalence of overweight among older children and adolescents almost doubled in USA (from 15.4% to 25.6%) but tripled in Canada (from 11% of boys and 13% of girls in 1981 to 33% and 27% respectively in 1996) [4]. The prevalence of overweight and obesity among 6-17 year olds more than tripled (from 4.1% to 13.9%) in Brazil from 1974 to 1997 which is a fast growing developing country [4]. Among urban Chinese children within a 6-year period between 1991 and 1997 the prevalence of overweight and obesity increased from 7.7% to 12.4% though such trend was not observed among rural children [5]. It is interesting to note that not only the absolute body fat (as assessed by BMI) but also the central fat deposition is showing an increasing trend among children from various regions [6].
Obesity has reached epidemic proportions globally [7]. More than 1 billion adults are overweight, and at least 300 million of them are clinically obese [8].
In Kashmir there is paucity of data on the prevalence of childhood obesity in children of rural areas which is an emerging health challenge. The present study determined the prevalence of obesity among school going children in the age group of 10-16 years in District Bandipora. This will provide much needed data for planning prevention policies and for future research in this area. This has helped us in estimating the prevalence of this condition and will prepare us for the challenge of introducing preventive measures required to combat this condition in the community. Not only this, but the study has created more awareness about this condition at the school level which might prove fruitful as a measure for preventing emergence of risk factors of obesity among school children.

Objectives
To Determine prevalence of obesity prevalence of obesity among rural school-going children in district Bandipora

Methodology
The study was a population based cross-sectional study conducted in the selected government and private schools of the Srinagar district. The data collection was done for a period of three months from May 2018 to August 2018 after obtaining the permission from the directorate of school education of Jammu & Kashmir. A total of 20 clusters were taken for the study and 16 subjects including both male and female were included per cluster. Selection of the study unit was done in two stages:
Stage 1: In the first stage the schools were line listed and divided into whether they are private or government schools. A weighed proportion of schools (8 private schools and 12 government schools) from both the strata were selected depending on the relative proportion of students in the private and government schools.
Stage II: from each selected school appropriate number of children (16) was selected randomly after obtaining list of students studying in class fifth to tenth from school principal/headmaster. Equal number of males and females were selected from each school.
For measuring BMI the measurements of weight and height in the study subjects was taken in the presence of class teacher or the school attendant. The detailed information on socio-demographic profile, dietary intake, physical activity,

type of school, distance from home etc. was elicited from the subjects with the help of a predesigned questionnaire (proforma-I). Weight was measured using commercial" Krupp's weighing scale". Subject was weighed barefooted and with minimal clothes. Standing body height was measured with the use of commercial stadiometer with the shoulder in relaxed position and arms hanging freely and without shoes. Subject body mass index is compared with WHO growth charts for the age group and is labeled as Overweight or obese as per the growth charts. Subject is classified as Overweight if the BMI of subject is >=+1 SD to < +2 SD. Subjects are classified as Obese if the BMI of subject is>= +2 SD. <=-2SD to>-3SD is classified as "Thin". And <= -3SD as "Very Thin". The data collection was done in a period of three months from May2018 to august 2018.

The data was entered in Excel. The continuous variables were summarized by mean and standard deviation and the categorical variables were summarized by frequency tables.

Results

Table 1

Sex	Frequency	Percent
Girls	166	51.23%
Boys	158	48.76%
Total	324	100%

Table1 shows that there were 166 girls i.e. 51.23% and 158(48.76%) boys in the study population.

Table 2: shows there were 310 non-obese (95.67%) and 14 i.e. 4.32% obese school children among the study subjects.

Sex	Non-obese	Percent	Obese	Percent	Total
Girls	166	52	5	1.54	166
Boys	149	48	9	2.77	158
Total	310	95.67	14	4.32	324

Discussion

The present study shows the prevalence of obesity in rural schools as 4.32 percent which is quite high and consistent with the other previous studies. As the life among rural areas is not very sedentary as compared to urban children, the prevalence of obesity is comparably less.

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