VOLUME - 13, ISSUE - 04, APRIL - 2024 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Home Science

ASSOCIATION OF OBESITY AND PHYSICAL ACTIVITY AMONG COLLEGE GOING GIRLS

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ABSTRACT Obesity is a significant risk factor for numerous severe chronic illnesses, such as osteoarthritis, dyslipidaemia, hypertension, cardiovascular disease, type 2 diabetes, and various types of cancer. One of the primary risk factors for overweight and obesity is a lack of physical activity. The aim of present study was to ascertain whether obesity and physical activity are related. For this study 300 female college students (18-24 years), residing in campus hostels, were selected from 10 different colleges of Uttarakhand state, India. Anthropometric indices of BMI were calculated for all subjects following standard techniques. The data collected about the time spent on each activity (sleeping, occupational and non- occupational) was used to compute physical activity level (PAL) values using physical activity ratio (PAR) given by ICMR, (2020). It was found that 18.6% were underweight, 51.6% were normal weight and 29.8% were overweight/ obese. Majority of the subjects (64.7%) were sedentary active, 35.3% were moderately active and none of the subject was under the category of heavy activity. There was statistically significant association between physical inactivity and prevalence of overweight as well as obesity. Results were indicative of a strong association the of obesity and physical activity. Measures need to be taken for the awareness of maintaining healthy weight and appropriate physical activity to ensure the well-being of young population.

KEYWORDS : Obesity, Body Mass Index (BMI), Physical Activity Level (PAL), College girls

INTRODUCTION

Being a multifaceted condition, obesity is frequently linked to numerous other significant illnesses like diabetes, hypertension, and other cardiovascular conditions, arthritis and specific types of cancers (Stabouli et al, 2005). Globally, obesity is becoming a major issue affecting not just adults but also kids, teens, and young people (Chincholikar and Sohani, 2019). The problem of overweight/obesity in college going students is growing rapidly due to westernisation and urbanisation. Students when face a transition from school to college expose them to multiple factors leading to health deterioration. The chances further increase if students reside away from home in hostels where there is greater independence of decision making under lack of parental control (Fernandez et al, 2014). Along with drastic change in food and lifestyle, students also tend to show changes in their physical activity levels during college time. It is well documented that physical activity begins to decline in youth with concomitant increase in weight. The lack of physical activity is one of the main risk factors that lead to overweight and obesity (Hill and Wyatt, 2005). Almost everyone can get advantage from regular physical activity, regardless of age, ethnicity, or current health status (CDC, 2020). Frequent, moderate physical activity has been linked to a significant reduction in many serious causes of death, as well as a lower risk of obesity, hyperlipidaemia, hypercholesterolemia, hypertension, type 2 diabetes, cerebral vascular disease, metabolic syndrome, and ischemic heart disease (Kim et al, 2005). Remarkably, most of adults specially youth don't exercise at all during their free time (Bernstein et al, 2004). There isn't much research on the activity level as well as awareness of physical activity among college students. Therefore, this study was undertaken with the objective to find the association of overweight/obesity with physical activity among college students.

METHODOLOGY

The study area of the study was conducted at Uttarakhand state. Using the purposive sampling approach, 40 colleges were selected having separate girls' hostel and similar meal pattern. Finally, 10 colleges were selected for data collection by random sampling method. For the present study, sample size of 300 college going girls was taken and 30 students were selected randomly from each college. All college-going girls were between the ages of 18- 24 years and willing to participate in the research, living in campus hostels, unmarried and not taking any medications for any previously diagnosed disease to serve as study population. Anthropometric measurements and information regarding time spent of different activity by the participants was gathered through questionnaire cum interview schedule. Body mass index (BMI) and physical activity level (PAL) value were used to assess obesity and physical activity among the population in the present study. After computation and categorisation, statistical analysis was done using SPSS 20. Figure 1 represents different steps followed in the present study.

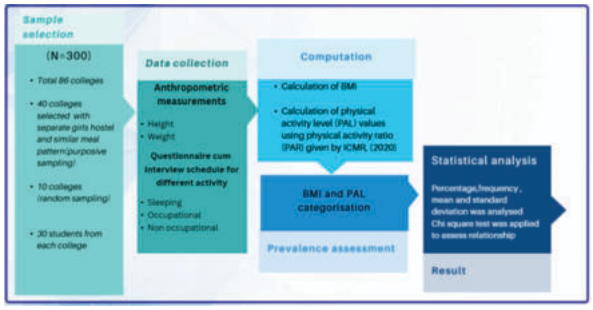

Figure 1: Illustration Of Methodology

Obesity

Obesity is a multi-factorial disorder, which is often associated with many other signifi cant diseases such as diabetes, hypertension, other cardiovascular diseases, osteoarthritis and certain cancers. Obesity is a multi-factorial disorder, which is often associated with many other signifi cant diseases such as diabetes, hypertension, other cardiovascular diseases, osteoarthritis and certain cancers.

Obesity is an escalating problem worldwide as a major risk factor in many serious chronic diseases (Chincholikar et al, 2019). Body mass index (BMI) is an important, effective and simple method for the measurement of obesity (Kavak et al, 2014). BMI, a simple index of weight-for-height that is commonly used to classify underweight, overweight, and obesity within the population was used in the present study. It is a value derived from the weight and height of a person.

Anthropometric measures of the study individuals' height and weight were meticulously documented using standard methods given by WHO, (2015). BMI was derived by dividing their weight in kilogram by the square of their height in meters. Then subjects were classified according to BMI classification given by WHO, (2004) as underweight (BMI < 18.5), normal (BMI 18.5-24.9), overweight (BMI 25-29.9), and obese (BMI ≥30). Distribution of all categories of BMI in the study population was found as 19% underweight, 52% normal weight, 13% overweight and 6% obese as shown in Figure 2.

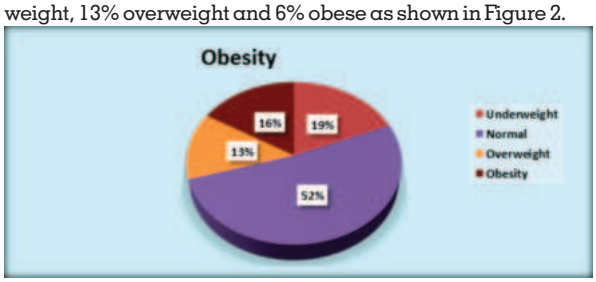

Figure 2: Distribution Of Study Population According To Prevalence Of Obesity

Physical Activity

Physical activity refers to all movements including during leisure time, transport to get to and from places, or as a part of a person's work (WHO, 2010). In the present study, the assessment of the physical activity was done using the physical activity level (PAL) value given the Indian council of medical research (ICMR, 2020). Data on the duration of various activities (including sleeping, occupational and non-occupational) was gathered and PAL value was calculated for each subject. A PAL value classification adopted was-sedentary activity (PAL < 1.40), moderate activity (PAL 1.41-1.80) and heavy activity (PAL 1.81-2.30). Computation was done using a factorial method of energy expenditure for the adult population given by ICMR 2020. In the present study, 35% of study population was found to be under sedentary active lifestyle, 65% under moderately active lifestyle and no one under the category of heavy active lifestyle (Figure 3).

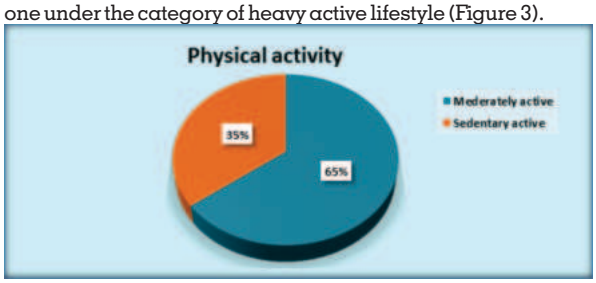

Figure 3: Distribution of study population according to prevalence of physical activity

RESULT

Table 1: Association Between Obesity And Physical Activity

BMI category	Physical Activity Level (PAL)		Total %	p value
	Moderate Active %	Sedentary active %		
Underweight	13.3	5.3	18.6	0.000*
Normal	40.3	11.3	51.6	
Overweight	9.3	4.0	13.3	
Obesity	1.6	14.6	16.3	
Total	64.7	35.3	100	

***Significant at p≤0.05**

For the study population, the relationship between obesity and physical activity level was examined using chi-square test to determine the association between body mass index and physical activity. There was a statistically significant association ($\chi 2 = 141.88$, p value <0.00) between BMI and PAL value (Table 1). Therefore, it can be concluded from the present study that physical activity act as an important factor in developing obesity. The findings of the present study were also supported by previous studies conducted on college students of South India (Shankar and Satheesh, 2015) and Maharashtra (Joshi et al, 2023) which reported strong association of obesity and physical activity among the study subjects.

DISCUSSION

Overweight/obesity among college going students is an important issue. This age group is very important to inculcate the importance of physical exercise. Lifestyle developed in early age is essential for maintaining health not only in present but also in future. Even realising its importance by everyone, still solid measures and steps for its execution is lacking specially in the age group of youth (Bhargava et al, 2016). Lack of physical activity in young age is deteriorating for health leading to obesity and related metabolic complications. Evidence from the literature demonstrates that government policies involving competitive sports, physical education, and other initiatives have placed a strong emphasis on physical activity programming. There is, however, no evidence of a well-coordinated national strategy or vision to address the epidemic of physical inactivity through parent and educator education or the creation of intersectoral policy initiatives. Creating an agenda for allocating funds to active living research and policy should be the main objective in increasing young physical activity. Campaigns for health promotion are a vital instrument for public education and advocacy. Targeted physical activity programs have the potential to create supportive social and physical conditions while also educating the public about the advantages of exercise for general health. Policymakers' priorities may change in response to growing interest from kids and young people, families, and educators in order to fund more infrastructure and research to promote active living.

REFERENCES

1. Bernstein, M.S., Costanza, M.C. and Morabia, A. Association of physical activity intensity levels with over- weight and obesity in a population-based sample of adults. Preventive Medicine, 2004 Oct; 38:94-104.
2. Bhargava M, Kandpal SD, Aggarwal P. Physical activity correlates of overweight and obesity in school-going children of Dehradun, Uttarakhand. J Family Med Prim Care. 2016 Jul-Sep;5(3):564-568.
3. Bhavna Pramod Joshi, Swati Manikrao Mahajan, Deepak Narayan Tayade, Physical activity and its correlation with various measures of obesity among medical students and young faculty, Clinical Epidemiology and Global Health. 2023;23:101363.
4. Centers for Disease Control and Prevention. Physical activity and fitness, 2011. Healthy people 2020: Physical activity. http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=33
5. Chincholikar S, Sohani A. Association between physical activity and obesity in adolescent population in urban areas of Maharashtra. Int J Community Med Public Health 2019;6:3433-7.
6. Fernandez K, Singru SA, Kshirsagar M, Pathan Y. Study regarding overweight/obesity among medical students of a teaching hospital in Pune, India. Med J D Y Patil Univ 2014;7:279-83.
7. Hill JO, Wyatt HR. Role of physical activity in preventing and treating obesity. J Appl Physiol. 2005;99(2):765-70.
8. ICMR, 2020 Indian Council of Medical Research (ICMR). Recommended dietary allowances and estimated average requirements. Nutrient requirements for Indians. A manual, National Institute of Nutrition. 2020:125-127.
9. Kavak, Vatan & Pilmane, Mara & Kažoka, Dzintra. Body mass index, waist circumference and waist-to-hip-ratio in the prediction of obesity in Turkish teenagers. Collegium antropologicum. 2014; 38:445-51.
10. Kim, J., Must, A., Fitzmaurice, G.M., Gillman, M.W., Chomitz, V., Kramer, E., McGowan, R. and Peterson, K.E. Relationship of physical fitness to prevalence and incidence of overweight among schoolchildren. Obesity Research, 2005 Oct;13:1246-1254.
11. Shankar, K., and Satheesh B.C. "A comparative study on the prevalence of obesity and physical activity levels among college students in South India." Journal of Evolution of Medical and Dental Sciences, 2015 Oct 29;87(4):151-159.
12. Stabouli S, Kotsis V, Papamichael C, Constantopoulos A, Zakopoulos N. Adolescent obesity is associated with high ambulatory blood pressure and increased carotid intimal-medial thickness. J Pediatr 2005;147:651-6.
13. WHO expert consultation. Appropriate body mass index for Asian populations and its implications for policy and intervention strategies. Lancet. 2004;157-163.
14. WHO STEPS Surveillance Part 3: Training & Practical Guides, Section 4: Guide to Physical Measurements (Step 2). 2015. https://www.who.int/ncds/surveillance/steps/STEPS_Manual.pdf
15. World Health Organization. Global Recommendations on Physical Activity for Health. Geneva, Switzerland: World Health Organization; 2010.