

Original Research Article

Prevalence of overweight and obesity in medical and allied science students of Karnataka, India

Keshab Parajuli^{1*}, Rajendra Lamichhane¹, Nishant Lama², Nirmal Raj Marasine³,
Ashwini Narasannavar⁴, Shivaswamy M. S.⁵

¹Department of Public Health, Asian College for Advance Studies, Purbanchal University, Nepal

²Karnali Academy of Health Sciences, Jumla, Nepal

³School of Health and Allied Sciences, Pokhara University, Nepal

⁴Department of Community Medicine, ⁵Department of Public Health, Jawaharlal Nehru Medical College, KLE Academy Higher Education and Research, Karnataka India

Received: 19 June 2019

Accepted: 01 August 2019

*Correspondence:

Mr. Keshab Parajuli,

E-mail: ksabparajuli@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial

ABSTRACT

Background: Overweight and obesity is the underlying cause of death for about 3 million people each year. More than 100 million individuals are obese in India. Few studies have been carried out among Indian undergraduate students where irregular dietary pattern, stress and anxiety are more prevalent due to academic pressure. The objective of this study was to estimate the prevalence of over-weight and obesity in Medical and Allied Science students.

Methods: The cross-sectional study was conducted in 2017 among 922 medical and allied science undergraduate students of Jawaharlal Nehru Medical College, Karnataka, after obtaining the institutional ethical approval and written informed consent. Information was obtained with the help of pre-designed, pretested semi-structured questionnaire by self-administered method and anthropometric measurement.

Results: Overall prevalence of overweight and obesity among students was 23.6% and 5.2% respectively. Prevalence of overweight among male students was 28.7% and 18.6 % in female. Obese male students were 5.5% and 5 % were obese in female.

Conclusions: About one fourth of the students were overweight and more than one in twenty students were obese. Overweight and obesity was more in male than female.

Keywords: Overweight, Obesity, Undergraduate students

INTRODUCTION

Overweight and obesity are well-defined as abnormal or unnecessary fat accumulation in the body, body mass index (BMI) equal to or more than 25 is taken as overweight, and BMI equal to or more than 30 is taken as obesity by WHO.¹ World Health Organization has recommended lowering the BMI cut off levels for Asian people to 23.0 for overweight and 25 kg/m² for obesity.²

Data suggest that, if secular trend persist, in the world there will be 38% overweight and 20% obesity among adults by 2030.³ In India, the prevalence of obesity varies

from 10-50%.⁴ We perceived obesity mostly affects among the adults of middle age but recently, in a regular, there is increase of obesity among young adults, mainly the college students and of university becoming evidence.⁵ The objective of the study was to determine the prevalence of obesity and overweight among Medical and Allied Science students.

METHODS

A cross sectional study was carried out to determine the prevalence of overweight and obesity among medical and allied sciences students in Jawaharlal Nehru Medical

College, Belagavi, Karnataka. Study was conducted from March 2017 to February 2018. Complete enumeration, total nine hundred twenty two medical and allied science students were enrolled for the study. Ethical principle the respect to the participants was maintained in the study and in the report. Data was collected from the participants by using pre-designed, pretested semi-structured questionnaire by self-administered method and anthropometric measurements. Height was measured in meters by using measuring tape. Weight in kilograms was recorded by using adult standard spring balance. Data were entered in EpiData 3.1 and analysed in SPSS version 20. Univariate and bivariate analysis was done. In univariate analysis, frequency and percentage was calculated and in bivariate analysis, Chi-square test was used to show the association between BMI and socio-demographic variables.

RESULTS

In our study, majority (48.7%) of the students were in the age groups of 20-22 years, 38% were in the age group of 17-19 years, 13.3 % were in the age group of ≥ 23 years. More than half (52.45%) of the students were female. Most of the participants (79.2%) were from Hindu religion followed by Muslim (9.5%) and Christian (2.3%). Majority (74%) of the students were from nuclear family. More than one third (41.5% participants father were studied in graduate level followed by post graduate level (30.2%), PUC level (16.7%), secondary level (8.5%) and primary level (2.5%). About one third (32.5%) participants' mothers had graduate level of education, followed by post graduate level (24.5%), PUC level (18.5%), secondary (15.3%) and primary level (6.0%) (Table 1).

Table 1: Socio-demographic characteristics of the participants (n=922).

Characteristics	Categories	Frequency	%
Age (in years)	17-19	350	38.0
	20-22	449	48.7
	≥ 23	123	13.3
Gender	Male	439	47.6
	Female	483	52.4
Religion	Hindu	730	79.2
	Muslim	88	9.5
	Christian	83	9.0
	Others	21	2.3
Type of family	Nuclear	682	74.0
	Joint	224	24.3
	Extended	16	1.7
Education of father	Illiterate	10	1.1
	Primary level (1-5) th standard	19	2.1
	Secondary level (6-10) th standard	78	8.5
	PUC level (11-12) th standard	154	16.7
	Graduate level	383	41.5
	Post-graduate level	10	1.1
Education of mother	Illiterate	29	3.1
	Primary (1-5) th standard	55	6.0
	Secondary (6-10) th standard	141	15.3
	PUC (11-12) th standard	171	18.5
	Graduate level	300	32.5
	Post-graduate level	226	24.5

Table 2: Socio-economic status according to modified BG Prasad classification (n=922).

Characteristics	Categories	Frequency	%
Socio-economic status according to modified BG Prasad classification	Class I (upper class)	561	60.8
	Class II (upper middle class)	183	19.8
	Class III (middle class)	93	10.1
	Class IV (lower middle class)	45	4.9
	Class V (lower class)	40	4.3

According to B.G Prasad's classification of socio-economic status, 60.8% of study participants belonged to upper class followed by upper middle class (19.8%), middle class (10.1%), lower middle class (4.9%) and lower class (4.3%) (Table 2).

Our study revealed that 22% of the participant's mothers and 23.9% of the participants' fathers were obese (Table 3).

Table 3: Distribution of participants according to the family history of obesity (n=922).

History of obesity in the family	Father N (%)	Mother N (%)
Yes	220 (23.9)	203 (22.0)
No	702 (76.1)	719 (78.0)
Total	922 (100)	922 (100)

Table No. 4: Association between BMI and gender of the participants.

BMI	Gender		Total	P value
	Male N (%)	Female N (%)	N (%)	
Below 18.5 underweight	43 (9.8)	89 (18.4)	132 (14.3)	<0.001 $\chi^2=22.179$, df = 3
18.5-24.9 normal weight	246 (56.0)	280 (58.0)	526 (57.0)	
25-29.9 overweight	126 (28.7)	90 (18.6)	216 (23.6)	
30-34.9 obesity	24 (5.5)	24 (5.0)	48 (5.2)	
Total	439 (100)	483 (100)	922 (100)	

Out of 483 female participants, 58% were normal weight, 18.6% were overweight, 18.4% were underweight and 5% were obese. Out of 439 males, 56% were normal weight, 28.7% were overweight, 9.8% were underweight and 5.5% were obese. There was significant association between BMI and gender ($\chi^2=22.179$, df=3 p=0.00) but not for obesity (Table 4).

DISCUSSION

Our study revealed that, prevalence of overweight and obesity among students was 23.4% and 5.2% respectively. In this study, there was 28.7% overweight among male students and 18.6% in female which was similar to study conducted among adolescent students of Gujarat, India and also consistent with the findings of the study conducted among medical students of under graduation in Madhya Pradesh, India where the prevalence of overweight and obesity among students was 25% and 9.64% respectively.^{6,7} In our study, 60.8% participants belonged to upper class and 19.8% were from upper middle class according to BG Prasad classification of socio-economic status which was consistent with the findings of the study conducted in Medical College of Haryana where 58.4% and 26.9% of the participants were from upper class and upper middle class respectively.⁸ Majority 74% of the participants in our study were from nuclear family which was similar to the study of obesity and overweight among students of Karnataka.⁹

CONCLUSION

The present study concluded that overweight and obesity in the undergraduate students was high. About one fourth of the students were overweight and more than one in

twenty students were obese. Overweight and obesity was more in male than female.

ACKNOWLEDGEMENTS

We acknowledge for all the participants of the study.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of Jawaharlal Nehru Medical College, KLE Academy Higher Education and Research, Karnataka, India

REFERENCES

1. World Health Organization. Key Facts, what are obesity and overweight, 2018. Available at: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>. Accessed on January 2017
2. Lim JU, Lee JH, Kim JS, Hwang YI, Kim TH, Lim SY, et al. Comparison of World Health Organization and Asia-Pacific body mass index classifications in COPD patients. *Int J Chron Obstruct Pulmon Dis*. 2017;12:2465-75.
3. Hruby A, Hu FB. The epidemiology of obesity: a big picture. *Pharmacoeconomics*. 2016;33(7):673-89.
4. Masoodi SR, Wani AA, Wani AI, Bashir MI, Laway BA, Zargar AH. Prevalence of overweight and obesity in young adults aged 20-40 years in North India (Kashmir Valley). *Diabetes Res Clin Pract*. 2010;87(1):4-7.
5. Poobalan A, Aucott L. Obesity Among young adults in developing countries: a systematic overview. *Curr Obes Rep*. 2016;5(1):2-13.

6. Alok P, Malay P, Divyeshkumar V. Prevalence of overweight and obesity in adolescents of urban and rural area of Surat, Gujarat. *Natl J Med Res*. 2012;2(3):325-9.
7. Niranjan A, Kumar M, Adhikari P, Saxena M. Prevalence and determinants of overweight and obesity among undergraduate medical students of Shyam Shah Medical College, Rewa. *Int J Med Sci Public Heal*. 2016;5(11):2410.
8. Yadav S, Saini P, Khan Z, Bachloo T, Kumar R, Singh J. Assessment of body mass index among undergraduate medical students: a cross-sectional study from the Medical College of Haryana. *Int J Med Sci Public Health*. 2015;5(4):705.
9. Nayak BS, Bhat VH. Prevalence of overweight/obesity among school children in Karnataka, South India. *Int J Public Health Res Special Issue*. 2011;180-4.

Cite this article as: Parajuli K, Lamichhane R, Lama N, Marasine NR, Narasannavar A, Shivaswamy MS. Prevalence of overweight and obesity in medical and allied science students of Karnataka, India. *Int J Community Med Public Health* 2019;6:3739-42.