

Research

Corresponding author

Hameed Mumtaz Durrani, MBBS, MSPH
Department of Public Health and
Community Medicine
AJK Medical College
University of Azad Jammu and Kashmir
Muzaffarabad, Azad Kashmir
E-mail: imhameed@live.com

Volume 4 : Issue 1

Article Ref. #: 1000PNNOJ4123

Article History

Received: August 30th, 2016

Accepted: October 7th, 2016

Published: October 10th, 2016

Citation

Durrani HM, Durrani SM, Kumar R, UI Haq A. Prevalence of overweight and obesity among adolescents of Islamabad: A cross sectional study. *Pediatr Neonatal Nurs Open J.* 2016; 4(1): 8-11. doi: [10.17140/PNNOJ-4-123](https://doi.org/10.17140/PNNOJ-4-123)

Copyright

©2016 Durrani HM. This is an open access article distributed under the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Prevalence of Overweight and Obesity Among Adolescents of Islamabad: A Cross Sectional Study

Hameed Mumtaz Durrani, MBBS, MSPH^{1*}; Salma Mumtaz Durrani, MBBS, MSPH²; Ramesh Kumar, MBBS, MSPH, PhD³; Anwar UI Haq, MBBS, MSPH⁴

¹Department of Public Health and Community Medicine, AJK Medical College, University of Azad Jammu and Kashmir, Muzaffarabad, Azad Kashmir

²Alumni-Rawalpindi Medical College, Tipu Rd., Rawalpindi, Pakistan

³Health Services Academy, Islamabad, Pakistan

⁴Department of Airport Health Karachi, Ministry of National Health Services Regulation and Coordination, Government of Pakistan, Islamabad, Pakistan

ABSTRACT

Adolescence is one of the fundamental processes of life, where transformation in composition of the body along with behavioral and physiological take place making the adolescents one of the most vulnerable group of population in the community and it is extremely important to take care of their nutritional as well as health status. Present study was carried out to find the prevalence of obesity in adolescents of Islamabad, so that; their health and well-being can be improved. A total of 315 adolescents studying in different schools both male and female within the age range of 15-19 were selected after proper sample size calculation. For data collection a pre-tested self-report questionnaire was used in order to find out the level of obesity and factors leading to overweight and obesity. Results reveal that 74% of the adolescents living in Islamabad had a normal body mass index (BMI)-for-age, 17.4% are overweight while 8.5% are obese. It was found that with increase in age and grade, level of overweight and obesity was higher.

KEYWORDS: Adolescents; Obesity; Overweight; Body mass index (BMI).

ABBREVIATIONS: BMI: Body Mass Index; WHO: World Health Organization; IRB: Institutional Review Board; WHR: World Health Report.

INTRODUCTION

Adolescence is a phase of growth from childhood to adulthood characterized by structural body changes with unique distribution of body fat quantity and location along with physiological changes. Adolescents constitute 1/6th of the world's population and there are more than 1.2 billion adolescents globally forming 18% of world population while 88% of the adolescents live in developing countries. India is the leader in the group of adolescents globally while Pakistan ranks 4th globally with an adolescent population of 41 million. The most concerning point regarding adolescents is that the urban population of adolescents which was 50% in 2009 will rise to 70% in 2050 and the largest increase will be in developing countries, an alarming situation putting additional burden to accommodate the health and well-being of this huge chunk of population.¹

World Health Organization (WHO) has expressed concern about the prevailing trends of childhood obesity globally. The global prevalence of overweight and obesity has risen from 1980 to 2013 by 47.1% for children and adolescents. The prevalence is more demonstrating in developed countries rising from 16.9% to 23.8% in boys, while 16.2% to 22.6% in girls. The data from developing countries shows the rise in prevalence from 8.1% to 12.9% in boys, while 8.4% to 13.4% in girls.²

The knowledge about one’s ideal body weight also has a role and is major driving force for the weight management strategies. The studies have shown that adolescents who have normal BMI-for-age but perceive themselves as obese or overweight are at greater risk for developing eating disorders. This wrong perception can lead them to potentially harmful behaviors like dieting, slimming pills, or diuretics, etc. although the onset of exercise to lose weight has no harmful effect.³ On the other hand, if a person is obese or overweight but perceives oneself to be normal, this self-perception can predispose such individuals to co-morbid conditions, which can be easily avoided by giving them awareness of the ideal BMI-for-age. Although, the topic of relationship between self-perception of ideal body size and obesity has been studied in the developed countries, the data on this topic in developing countries is scarce and there is a need to explore this in the developing countries.

The risk of being overweight in adulthood is greater with higher degrees of overweight in childhood and in the later adolescent years.⁴ Being overweight, in turn, is recognized as a significant risk factor for chronic diseases such as arteriosclerosis, ischemic heart disease and diabetes; all of which are major causes of morbidity and mortality.^{5,6}

Overweight during adolescence also has social, economic, and psychological consequences, including effects on academic performance and psychosocial functioning.⁷ Obesity has numerous socially related consequences in later life such as lower wages, less likelihood of marriage, and less education.⁸

In order to improve the health and well-being of adolescents in school-going children. This study was designed to; assess the frequency of obesity pertinent to the adolescent population of Islamabad.

METHODOLOGY

A cross-sectional study was conducted by interviewing 315 school children between 15-19 years of age selected from 4 private schools of urban Islamabad. Subjects were selected through convenient sampling; for each of the selected schools, healthy adolescents were included in this study. Children with physical or mental disability, and reported chronic illness were excluded.

After taking consent from the head of organization and class teachers, a guided questionnaire was used among adolescents by using convenient sampling technique to assess their; age, grade, obesity trend in the family, knowledge and perception about weight, knowledge of ideal BMI, weight check in one year, self-perception, and BMI-for-age. The data was entered and analyzed using SPSS version 21. This study was approved from the Institutional Review Board (IRB) of Health Services Academy, Islamabad.

RESULTS

A total of 316 adolescents were interviewed and frequencies and percentages of all the variables were calculated. Age and grade wise frequency of adolescents from various schools were evaluated (Table 1). Out of the total 316 respondents, 167 (52.8%) were females and 149 (47.1%) were males. Maximum adolescents were found in age group 16-17 years, which were 85 (26.9%), while the minimum respondents were found in the age range of 17-18 years which were 70 (22.15%). There were 167 (52.85%) students from the O levels, while 149 (47.15%) were from the A levels.

Maximum frequency of 187 was observed in adolescents who thought that none of their parent was obese, while 129

Variables	Frequency	Percentage	
Gender	Female	167	52.8
	Male	149	47.2
Age	15-16	82	25.9
	16-17	85	26.9
	17-18	70	22.2
	18-19	79	25.0
Grade	O levels	167	52.8
	A levels	149	47.2
Knowledge about ideal BMI	Don't know	146	46.2
	Know	170	53.8
Weight checked in last one year	Not checked	83	26.3
	Checked	233	73.7
Self-perception	Just the right weight	198	62.7
	A bit too fat	79	25.0
	Far too fat	39	12.3

Table 1: General information, knowledge and self-perception of adolescents.

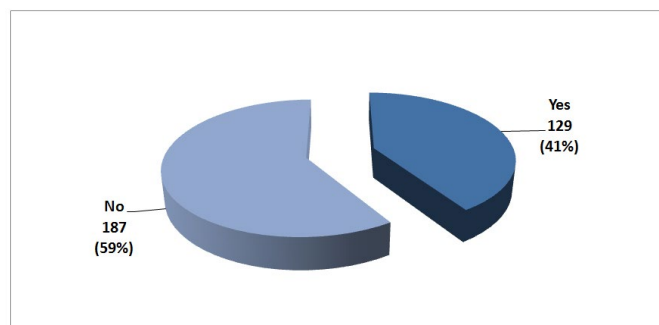


Figure 1: Obesity trend in the family of adolescents from various schools of Islamabad.

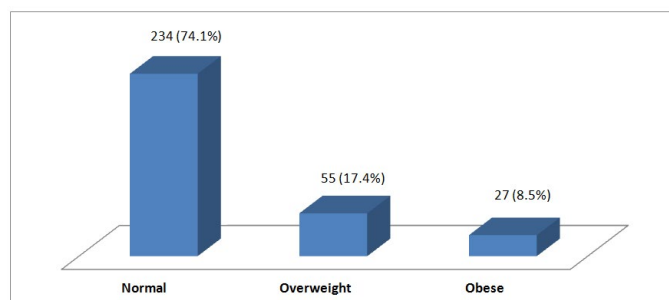


Figure 2: BMI-for-age of adolescents from various schools of Islamabad.

said that at least one of the parents was obese (Figure 1).

There were 170 adolescents who had knowledge about the ideal weight for their age while 146 had no knowledge of what their ideal weight should be. There were 233 adolescents who had their weight checked in the last one year, while 83 of the adolescents had not checked their weight in the last one year. The maximum frequency of 198 was observed in adolescents who considered themselves to be of right weight, while only 39 considered that that are far too fat (Table 1). The BMI of the respondents was a very important variable which was based on the BMI-for-age of the individuals. When calculated, 234 respondents had a BMI-for-age value of less than +1 Z-score, 55 had a BMI-for-age value of greater than +1 Z-score, while 27 had a BMI-for-age value of greater than +2 Z-score.

In terms of percentage, 74% respondents had a BMI-for-age value of less than +1 Z-score, 17.4% had a BMI-for-age value of greater than +1 Z-score, while 8.5% had a BMI-for-age value of greater than +2 Z-score (Figure 2).

DISCUSSION

Obesity is considered a disease in its own right and in this study adolescents were found with this problem. Hence, it is also considered as one of the key risk factors for other chronic diseases together with smoking, high blood pressure and high blood cholesterol. In the analysis carried out for World Health Report (WHR) 2002, approximately 58% of diabetes, 21% of ischemic heart disease and 8-24% of certain cancers globally were attributable to a BMI above 21 Kg/m². These findings are support-

ing our results.⁹⁻¹¹ Body mass index is the most frequently and widely used method due to its simplicity and ease of application.¹² In this study BMI was used for categorizing individuals in normal, overweight and obese categories according to previous standards. Obesity are now dramatically on the rise in low and middle-income countries particularly in urban setting.¹³ Supporting this statement studies from countries such as India,¹⁴ Sri Lanka,¹⁵ also show the high prevalence of overweight and obesity in their population and more so in urban, affluent settings. The prevalence of obesity, though representing a small proportion of our community, constitute a high prevalence of overweight and obesity i.e. (17.4%) and (8.5%) respectively. Our study is comparable to the data available from other countries like India, Sri Lanka, Qatar and Iran.¹⁴⁻¹⁶ Study on dietary pattern of children among low socioeconomic group of Karachi showed obesity and overweight to be 4%.¹⁷ In our study, there is high prevalence of overweight and obesity compared to the above study.

CONCLUSION

Study has concluded that the obesity and overweight is prevalent in students of urban Islamabad. There is a high likelihood that a person who is overweight or obese in adolescence will carry it in the adult life and thus will be exposed to life-threatening non-communicable diseases. However, an immediate intervention on healthy diet might be started to overcome this situation.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES

1. United Nations. Department of Economic and Social Affairs. *World Population Prospects: The 2008 Revision, Highlights*. 2009. Web site. http://www.un.org/esa/population/publications/wpp2008/wpp2008_highlights.pdf. Accessed Oct 20, 2015.
2. Ng M, Fleming T, Robinson M, et al. Global, regional, and national prevalence of overweight and obesity in children and adults during 1980-2013: A systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2014; 384(9945): 766-781. doi: [10.1016/S0140-6737\(14\)60406-8](https://doi.org/10.1016/S0140-6737(14)60406-8)
3. Liechty JM. Body image distortion and three types of weight control behaviors among non-overweight girls in the U.S. *J Adolesc Health*. 2010; 47: 176-182. doi: [10.1016/j.jadohealth.2010.01.004](https://doi.org/10.1016/j.jadohealth.2010.01.004)
4. Guo SS, Roche AF, Chumlea WC, Gardner GD, Siervogel RM. The predictive value of childhood body mass index values for overweight at age 35y. *Am J Clin Nutr*. 1994; 59(4): 810-819. Web site. <http://ajcn.nutrition.org/content/59/4/810.short>. Accessed August 29, 2016.
5. Abraham S, Collins G, Nordsiek M. Relationship of childhood weight status to morbidity in adults. *HSMHA Health Rep*. 1971; 86(3): 273-284. Web site. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1937073/>. Accessed August 29, 2016.
6. Cora E, Lewis D, Jacobs JR, et al. Weight gain continues in the 1990s: 10 year trends in weight and overweight from the Cardia Study. *Am J Epidemiol*. 2000; 151: 1172-1181. Web site. <http://aje.oxfordjournals.org/content/151/12/1172.long>. Accessed August 29, 2016.
7. Nikki MR, Diane EB, Lawton C, et al. Relation of self image to body size and weight loss attempts in black women. *Am J Epidemiol*. 1998; 148: 1062-1068. Web site. <http://aje.oxfordjournals.org/content/148/11/1062.full.pdf>. Accessed August 29, 2016.
8. Gortmaker SL, Must A, Perrin JM, et al. Social and economic consequences of overweight in adolescence and young adulthood. *N Engl J Med*. 1993; 329: 1008-1012. Web site. <http://www.nejm.org/doi/pdf/10.1056/NEJM199309303291406>. Accessed August 29, 2016.
9. Lapidus L, Bengtsson C, Larsson B, et al. Distribution of adipose tissue and risk of cardiovascular diseases and death: A 12-year follow-up of participants in the population study of women in Gothenburg, Sweden. *BMJ*. 1984; 289: 1257. doi: [10.1136/bmj.289.6454.1257](https://doi.org/10.1136/bmj.289.6454.1257)
10. Sultana R, Ahmed M, Humayun A, Mohammad T. Obesity an individual risk factor for lipoprotein abnormalities in patients with type 2 diabetes mellitus. *J Med Sci*. 2010; 18(4): 197-199.
11. Segal KR, Van Loan M, Fitzgerald PL, et al. Lean body mass estimated by bioelectrical impedance analysis: A four site cross validation study. *Am J Clin Nutr*. 1988; 47(1): 7-14. Web site. <http://ajcn.nutrition.org/content/47/1/7.abstract>. Accessed August 29, 2016.
12. Noor M, Iman N, Raza U, Zeeshan MF. Assessment of frequency and risk factors of obesity based on body mass index n 1031 healthy adults from North West Frontier Province of Pakistan. *J Med Sci*. 2008; 16(1): 34-42.
13. World Health Organization. Obesity and Overweight: Fact-sheet. 2006. Web site. www.who.int/mediacentre/factsheets/fs311/en/index.html. Accessed October 23, 2015. Updated June, 2016.
14. Sharma A, Sharma K, Mathur KP. Growth pattern & prevalence of obesity in affluent school children of Delhi. *Public Health Nutr*. 2007; 10(5): 485-491. doi: [10.1017/S1368980007223894](https://doi.org/10.1017/S1368980007223894)
15. Wickramasinghe VP, Lamabadusuriya SP, Attapattu N, Sathiyadas G, Kuruparanantha S, Karunarathne P. Nutritional status of school children in an urban area of Srilanka. *Ceylon Med J*. 2004; 49: 114-118. 2004; 23: 250-258. Web site. <http://imsear.li.mahidol.ac.th/handle/123456789/48990>. Accessed August 29, 2016.
16. Ayatollahi SM, Mostajabi F. Prevalence of obesity among school children in Iran. *Obes Rev*. 2006; 8: 289-291. doi: [10.1111/j.1467-789X.2006.00299.x](https://doi.org/10.1111/j.1467-789X.2006.00299.x)
17. Aziz S, Rehan N, Zaidi UR, Hosain K, Siddiqui IH. Dietary intake and its impact on the growth among low socio-economic school children of Karachi. [Abstract taken from the *J Pak Med Assoc*. 2009; 59(1): 35-38.]. *J Pedr Gastroenterol Nutr*. 2001; 45: e22.