



## Prevalence of obesity and overweight

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### Abstract

Obesity and overweight has become a global and challenging epidemic. According to World Health Organization (WHO), the worldwide prevalence of obesity more than doubled between 1980 and 2014. In present study we considered various studies concerning with prevalence of obesity and overweight with a discussion in the last section.

**Keywords:** obesity, overweight

### Introduction

Globally the prevalence of overweight and obesity has increased dramatically, over the past 3 decades. (Twells LK *et al*, 2014) <sup>[1]</sup>. A study documented that in 2008, 1.5 billion adults were overweight, whereas, nearly 300 million women and over 200 million men were obese worldwide. The prevalence of obesity was found ranging from below 5% in Japan, China, Indonesia, India, and certain African countries to over 75% in Nauru and Samoa (Mahmood TA *et al*, 2012) <sup>[2]</sup>.

Salman MSA revealed in a study that the rate of obesity is significantly high among different age groups and occupations; at different locations in the country; and among both males and females. The main factors causing obesity include family history, diet pattern and eating habits, genetic factors, marital status, hypertension and lack of physical activities; while, the major consequences are cardiovascular diseases, diabetes, cancers, and Ischemic heart disease (Salman MSA, 2016) <sup>[4]</sup>.

In one of the studies, a complex multistage probability sample of the US noninstitutionalized civilian population from the National Health and Nutrition Examination Survey (NHANES) was found taken. In this sample both height and weight measurements of 4115 adults and 4018 children in 1999-2000 and 4390 adults and 4258 children in 2001-2002 were considered. Results of this study revealed no significant changes among adults in the prevalence of overweight or obesity (64.5% vs. 65.7%), obesity (30.5% vs. 30.6%), or extreme obesity (4.7% vs. 5.1%) between 1999-2000 and 2001-2002. In the same study, among adults aged at least 20 years in 1999-2002, 65.1%, 30.4% and 4.9% were observed overweight, obese, and extremely obese respectively (Allison A H, 2004) <sup>[5]</sup>.

We came across another study considering NHANES data. This study considered height and weight measurements of 3958 children and adolescents aged 2 to 19 years and 4431 adults aged 20 years or older in 2003-2004. Results of this study disclosed that 17.1% of US children and adolescents were overweight and 32.2% of adults were obese in 2003-

2004. An increase was found observed in the prevalence of overweight in female children and adolescents from 13.8% in 1999-2000 to 16.0% in 2003-2004 as well as increase in the prevalence of overweight in male children and adolescents from 14.0% to 18.2%. A significant increase in the prevalence of obesity among men between 1999-2000 (27.5%) and 2003-2004 (31.1%) was found reported and the same among the women was not observed significantly increasing between 1999-2000 (33.4%) and 2003-2004 (33.2%). In case of the prevalence of extreme obesity (body mass index  $\geq 40$ ) in 2003-2004 it was analyzed 2.8% in men and 6.9% in women. In this study race/ethnicity and age were reported showing significant differences in prevalence of obesity (Cynthia L. Ogden *et al*, 2006) <sup>[6]</sup>.

In one of the study, conducted in urban slum of Karachi, Pakistan, frequency of obesity, body fat composition and distribution, in a high risk population was determined. This study surveyed 451 participants on socio-demographics, diet and physical activity. In this study, 29% and 21% study subjects were observed overweight and obese (58.7% with central obesity) respectively. Females were found reported more obese (P 0.03) with higher prevalence of central obesity (P < 0.001) (Faridah Amin *et al*, 2015).

In one of the cross-sectional studies considered, 180 workers of a financial institution in Accra were taken using the World Health Organization's STEPS (STEP wise approach) instrument for non-communicable disease risk factor surveillance. Study revealed that the overall prevalence of obesity and overweight among the bank workers was 55.6% (17.8% obese and 37.8% overweight) whereas, physical activity (OR = 0.34, 95% CI = 0.13-0.89, p = 0.03), alcohol consumption (OR = 3.00, 95% CI = 1.35, 6.68, p = 0.007), marital status (OR = 2.74, 95% CI = 0.96-7.85, p = 0.04), sex (OR = 2.78, 95% CI = 1.23-6.33, p = 0.01), and age (OR = 1.10, 95% CI = 1.01-1.20, p = 0.036) were observed significantly associated with obesity and overweight (Prince NOA *et al*, 2015) <sup>[8]</sup>.

We came across another cross-sectional study, aiming estimation of the prevalence of overweight and obesity in

northeast China in 2012. In this study a total of 9873 men and 10 966 women aged 18–79 years were included. Reported overall prevalence of overweight (body mass index (BMI) 24–27.9 kg/m<sup>2</sup>) was 32.3% (male 34.3%; female 30.2%), and the prevalence of obesity (BMI >28 kg/m<sup>2</sup>) was 14.6% (male 16.3%; female 12.8%) in Jilin Province. According to this study the prevalence of both overweight and obesity were also higher in men than women ( $p < 0.001$ ) (Wang R *et al*, 2015).

One of the study considered 18 745 children from eight European countries between 2007 and 2010, for assessing the European distribution of weight status according to different classification systems based on body mass index (BMI) in children (2.0–9.9 years). In this study combined prevalence of Overweight/obesity was found ranging more than 40% in southern Europe to less than 10% in northern Europe. The prevalence of overweight was found higher in girls (21.1%) as compared with boys (18.6%) (W Ahrens *et al*, 2014) <sup>[10]</sup>.

In another study global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013 was estimated. This study reported that the proportion of adults with a body-mass index (BMI) of 25 kg/m<sup>2</sup> or greater increased between 1980 and 2013 from 28.8% (95% UI 28.4–29.3) to 36.9% (36.3–37.4) in men, and from 29.8% (29.3–30.2) to 38.0% (37.5–38.5) in women worldwide. Prevalence was reported increased in children and adolescents in developed countries; 23.8% (22.9–24.7) of boys and 22.6% (21.7–23.6) of girls were found overweight or obese in 2013. The same was also observed increased in children and adolescents in developing countries, from 8.1% (7.7–8.6) to 12.9% (12.3–13.5) in 2013 for boys and from 8.4% (8.1–8.8) to 13.4% (13.0–13.9) in girls (Marie Ng *et al*, 2014) <sup>[11]</sup>.

A total of 1281 children between the age group of 10 to 15 years, during July 2009 to April 2011 were considered from 4 schools of Pune city. In this study 704 and 577 children were found from government schools private schools respectively. According to the study considered, prevalence of obesity and overweight among children of private school was 8.83% and 12.13% respectively. Whereas, overall prevalence of obesity and overweight was found 5.62% and 9.99% respectively (Swati G *et al*, 2015) <sup>[12]</sup>.

## Discussion

As obesity has become a major global health challenge, there is a need to raise awareness and early detection regarding obesity to prevent and control the occurrence of overweight and obesity.

## References

1. Twells LK, Gregory DM, Reddigan J, Midodzi WK. Current and predicted prevalence of obesity in Canada: a trend analysis. *CMAJ open*. 2014; 2:E18-E26.
2. Mahmood TA, Arulkumaran S. Obesity: A ticking time bomb for reproductive health Newnes, 2012.
3. Marie Ng, Tom Fleming, Margaret Robinson, Blake Thomson, Nicholas Graetz, Christopher Margono, Erin C Mullany, Stan Biryukov, Cristiana Abbafati, *et al*. Global, regional and national prevalence of overweight and obesity in children and adults 1980-2013: A systematic analysis. *The lancet*. 2014; 384(9945):766-781.
4. Alqarni M, Salman SA. Review of Prevalence of Obesity in Saudi Arabia. *J Obes Eat Disord*, 2016; 2:2. doi: 10.21767/2471-8203.100025.
5. Allison A, Hedley Cynthia L, Ogden Clifford L, Johnson, *et al*. Margaret D, Carroll Lester R, Curtin Katherine M, Flegal. Prevalence of Overweight and Obesity among US Children, Adolescents, and Adults. 1999-2002. *JAMA*, 2004; 291(23):2847-50.
6. Cynthia L, Ogden Margaret D, Carroll Lester R, Curtin, *et al*. Margaret A, McDowell Carolyn J, Tabak Katherine M, Flegal. Prevalence of Overweight and Obesity in the United States. 1999-2004. *JAMA*, 2006; 295(13):1549-55.
7. Faridah Amin, Syeda Sadia Fatima, Najmul Islam, Anwar H Gilani. Prevalence of obesity and overweight, its clinical markers and associated factors in a high risk South-Asian population. *BMC Obesity*, 2015, 2:16.
8. Prince NO. Addo Kofi M. Nyarko Samuel O. Sackey, Patricia Akweongo and Bismark Sarfo Prevalence of obesity and overweight and associated factors among financial institution workers in Accra Metropolis, Ghana: a cross sectional study, *BMC Research Notes*. 2015:599.
9. Rui Wang, Peng Zhang, Chunshi Gao, Zhijun Li, Xin Lv, Yuanyuan Song, Yaqin Yu, Bo Li. Prevalence of overweight and obesity and some associated factors among adult residents of northeast China: a cross-sectional study. *BMJ Open*, 2016, 6:e010828.
10. Ahrens W, Pigeot I, Pohlabeln H, De Henauw S, Lissner L, Molnár D, Moreno LA, Tornaritis M, Veidebaum T, Siani A. Prevalence of overweight and obesity in European children below the age of 10. *International Journal of Obesity*. 2014; 38:S99-S107.
11. Marie Ng, Tom Fleming, Margaret Robinson, Blake Thomson, Nicholas Graetz, Christopher Margono, Erin C Mullany, Stan Biryukov, Cristiana Abbafati, *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. *The lancet*. 2014; 384(9945):766-81.
12. Swati Ghonge PS, Adhav Jyoti Landge, Nilesh Thakor. Prevalence of obesity and overweight among school children of Pune city, Maharashtra, India: a cross sectional study. *International journal of research in medical sciences*. 2015; 3(12):3599-603.