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ORIGINAL ARTICLE

Absolute and relative educational inequalities in obesity among adults in Tehran: Findings from the Urban HEART study-2

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KEYWORDS

Educational inequality;
Urban-HEART;
Generalized linear
model;
Obesity;
Iran

Summary

Background: The prevalence of obesity is increasing in Iran. Previous studies showed mixed results in relation to association between socioeconomic status and obesity in the country. The current study aimed to examine educational inequalities among adults in Tehran in 2011.

Method: Data on 90,435 persons 18 years and older from Urban Health Equity Assessment and Response Tool (Urban HEART-2) were analyzed. The Slope Index of Inequality (SII) and the Relative Index of Inequality (RII) were used for assessing educational inequalities in obesity. These measures were quantified using generalized linear models for the binomial family adjusted for sex and age. Subgroup analysis was conducted across sex, age groups and the 22 districts of Tehran.

Results: Both SII and RII showed substantial educational inequalities in obesity in favour of more educated adults [RII and SII (95% CI were equal to 2.91 (2.71–3.11) and 0.12 (0.12–0.13)), respectively]. These educational inequalities were persistent even after adjusting for employment, marital status and smoking. Subgroup analysis revealed that educational inequalities were more profound among women. While among men educational inequalities were generally increasing with age, an inverse trend was observed among women. Educational inequalities were observed within all 22 districts of Tehran and generally there were no statistically significant differences between districts.

Conclusion: An inverse association between education and obesity was observed in the current study. To decrease educational inequalities in Tehran, priority should be given to younger women and older men. Further analyses are needed to explain these inequalities.

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Introduction

Obesity is a main public-health concern with an alarming level worldwide. In 2008, obesity rates were about double of rates in 1980; with an estimated of 205 million and 297 million obese men and women, respectively [1]. The main reason for this concern is that obesity acts as a major risk factor for some chronic conditions including hypertension, type 2 diabetes, cardiovascular disease and depression [2,3]. For example, a recent study showed that obesity is associated with a higher mortality rate and a BMI of 30–35 was related to 2–4 years reduction in median survival [4]. From an economic perspective, these associations imply increasing direct costs and productivity loss due to obesity. A systematic review showed that obesity accounted for 0.7–2.8% of a country's total health-care costs, and obese individuals had medical costs 30% higher than those with normal weight [5].

A range of factors has been considered to contribute to the high prevalence of obesity including genetic predisposition, technological factors, changes in the food system, urbanization and

changes in life style such as improper eating habits and physical inactivity [6–8]. Moreover, socioeconomic status (SES) is considered as an important predictor of obesity. In developed countries, most studies have found a negative association between SES and obesity (i.e. obesity is more prevalent among people in lower socioeconomic groups) [9,10]. However, in the developing world, while earlier studies showed a positive association between obesity and SES [11], more recent studies showed mixed associations for men, but mostly inverse association for women [12]. Investigating socioeconomic inequalities in obesity has important policy implications in terms of identifying major risk groups and planning target group-specific interventions [13].

High prevalence of obesity has been reported among the Iranian population [14,15] and results of three national surveys showed that overall prevalence of obesity increased from 13.6% in 1999 to 22.3% in 2007 in the country [16]. A previous study using the Urban HEART study-2 reported age-standardized prevalence of 10.7% for men and 15.3% for women among individuals aged ≥ 15 years

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