Population Overweight and Obesity Trends of Eight Years in Basrah, Iraq

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Abstract

Background: Data on overweight and obesity in Iraq is anecdotal, scarce and not representative of the community. The objective of this study was to see the prevalence trends of excess weight (overweight and obesity) in Basrah (Southern Iraq) over 8 year, starting in 2003 and extending to 2010.

Methods: The study was a cross-sectional simple random population based study done by the Al-Faiha Diabetes and Endocrine Center in Basrah (Southern Iraq). It was started in May 2003 and completed end of December 2010.

Results: Overall overweight and obesity affects 55.1% of the population (54.7% of women and 45.3% of men). Overweight alone is not increased over 8 years. It was seen in 31.3% (50.2% of them men and 49.8% of women) with no significant gender differences. There was no significant trend in increase of obesity over 8 years. The overall prevalence of obesity was 23.8%. It is more in women than men (61.1% of them women and 38.9% of men) (p<0.0001). Both overweight and obesity were seen more in illiterate women and those aged 50 and above than men (p<0.0001).

Conclusion: Excess weight (overweight and obesity) affects more than half of the population in Basrah with no significant increase in the prevalence over 8 years.

Keywords: Overweight; Obesity; Prevalence; Iraq

Introduction

International data indicates that the obesity epidemic is in fact a global health problem [1]. The World Health Organization (WHO) has declared the current increase in population obesity to be an epidemic and describes obesity as one of the most blatantly visible, yet most neglected public-health problems that threaten to overwhelm both more and less developed countries [2]. More than half of the world’s population is considered to be overweight [3]. Furthermore the International Obesity Task Force estimates that at present at least 1.1 billion adults are overweight, including 312 million who are obese [2]. The epidemic reflects progressive secular and age-related decreases in physical activity, together with substantial dietary changes with passive over-consumption of energy despite the neurobiological processes controlling food intake.

Data on overweight and obesity in Iraq is anecdotal, scarce and not representative of the community [4], or studying only certain variables of overweight and obesity [5-7].

The objective of this study was to see the prevalence trends of excess weight (overweight and obesity) in Basrah (Southern Iraq) over an 8 year period, starting in 2003 and extending to 2010.

Materials and Methods

The study was a cross-sectional simple random study.

Study design

This study was the main population based study of Al-Faiha Diabetes and Endocrine Center in Basrah (Southern Iraq). It was started in May, 2003 immediately after the end of the war, to the end of December 2010, mainly to study non-communicable disease in one distract in Basrah around 300 meters from the center called dor-Nwab-thobat. The people of that distract were invited by media and verbally to attend the center at any time if they were ages 18 years and older. In each household, people between 18 and 75 years were informed verbally about the study objectives and their participation was requested. Patients who responded were registered in a database to avoid duplication. Over 8 years each patient registered once only with no follow-up visit. The aim of invitation was only for anthropometric analysis, no history about medical illness was taken and no laboratory investigation was done. Person under age of 18 or pregnant women were excluded.

Those who responded numbered 29,107 (14,425 men and 14,682 women) urban people over 8 years with mean age 44.4±15.8 year.

Data collection

Once they attained, a full history with physical examination was done. In the questionnaire, educational status was evaluated by asking the participants to declare their highest level of education achievement. Education level was grouped into four categories: a) Illiterate or not having finished elementary school b) Primary education, c) Secondary education and d) University education or above.

Every subject’s height was measured in centimeters while the participant stood without shoes, and weight was measured in kilograms while the participant stood without shoes and wore light clothing. BMI was calculated as weight divided by square of height (kg/m²). In this study, the WHO classification of obesity was used [8].

Statistical methods

Categorical variables are presented as numbers and percentages. The Chi-square test was used to compare categorical variables.

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Chi-square test was applied to test for an association between gender and year with respect to proportion overweight and obesity. To test the null hypothesis that there was no difference in the proportion of overweight and obesity in individuals over an eight-year period, a chi-square test was applied with two factors, year (2003-2008) and obesity (yes/no).

Result

In Table 1, the overall overweight and obesity affected 55.1% of the population (54.7 % of women and 45.3 % of men). It was seen in women more than men (p<0.0001) with no significant increase in the prevalence over 8 years. Overweight and obesity was more in illiterate women (61.3% vs 38.7%) (p<0.0001) as seen in Table 2. In Table 3, overweight and obesity were more in women aged 50 years and above (60.0% vs 40%) (p<0.0001).

Overweight alone was not increased over 8 years. It was seen in 31.3% (50.2% of them men and 49.8% of women) with no significant gender differences. Overweight women were more likely to be illiterate and aged 50 years and above, than men (54.8% vs 45.2% and 54.0% vs 46.0% respectively) (p<0.0001).

There was no significant trend in increased obesity over 8 years. The overall prevalence of obesity was 23.8%. It was more in women than men (61.1% of them women and 38.9% of men) (p<0.0001). Again obesity was more in illiterate women than men (69.5% vs 30.5%) and more in women aged 50 and above (68.6%) vs 31.4%) (p<0.0001).

<table>
<thead>
<tr>
<th>Years</th>
<th>*Men No. (%) both overweight and obesity</th>
<th>Women No. (%) both overweight and obesity</th>
<th>**Total both overweight and obesity</th>
<th>#Men No. (%) overweight alone</th>
<th>Women No. (%) overweight alone</th>
<th>Ø Total overweight alone</th>
<th>Ø Total Obesity alone</th>
<th>Ø Women No. (%) Obesity alone</th>
<th>Ø Total No. (%) Obesity alone</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>394 (49.3)</td>
<td>405 (50.7)</td>
<td>799 (50.2)</td>
<td>241 (55.4)</td>
<td>194 (44.6)</td>
<td>435 (27.3)</td>
<td>153 (42.0)</td>
<td>212 (58.0)</td>
<td>365 (22.9)</td>
</tr>
<tr>
<td>2004</td>
<td>846 (45.3)</td>
<td>1022 (54.7)</td>
<td>1868 (55.1)</td>
<td>522 (51.8)</td>
<td>486 (42.2)</td>
<td>1008 (29.7)</td>
<td>324 (37.6)</td>
<td>537 (62.3)</td>
<td>861 (25.4)</td>
</tr>
<tr>
<td>2005</td>
<td>1036 (44.4)</td>
<td>1297 (55.6)</td>
<td>2333 (56.4)</td>
<td>639 (51.0)</td>
<td>614 (49)</td>
<td>1253 (30.3)</td>
<td>397 (36.8)</td>
<td>683 (63.2)</td>
<td>1080 (26.1)</td>
</tr>
<tr>
<td>2006</td>
<td>988 (42.9)</td>
<td>1314 (57.1)</td>
<td>2302 (53.3)</td>
<td>623 (48.2)</td>
<td>670 (51.8)</td>
<td>1293 (29.9)</td>
<td>365 (36.2)</td>
<td>645 (63.8)</td>
<td>1010 (23.4)</td>
</tr>
<tr>
<td>2007</td>
<td>932 (45.2)</td>
<td>1128 (54.8)</td>
<td>2060 (56.2)</td>
<td>576 (49.4)</td>
<td>592 (50.6)</td>
<td>1168 (31.9)</td>
<td>356 (39.9)</td>
<td>537 (60.1)</td>
<td>893 (24.4)</td>
</tr>
<tr>
<td>2008</td>
<td>849 (46.8)</td>
<td>966 (53.2)</td>
<td>1815 (53.5)</td>
<td>541 (49.5)</td>
<td>552 (50.5)</td>
<td>1093 (32.2)</td>
<td>308 (42.6)</td>
<td>415 (57.4)</td>
<td>723 (21.3)</td>
</tr>
<tr>
<td>2009</td>
<td>1139 (46.3)</td>
<td>1321 (53.7)</td>
<td>2460 (54.8)</td>
<td>738 (50.4)</td>
<td>727 (49.6)</td>
<td>1465 (32.6)</td>
<td>401 (40.3)</td>
<td>594 (59.7)</td>
<td>995 (22.2)</td>
</tr>
<tr>
<td>2010</td>
<td>1083 (45.2)</td>
<td>1309 (54.8)</td>
<td>2392 (58.0)</td>
<td>694 (49.8)</td>
<td>701 (50.2)</td>
<td>1395 (33.8)</td>
<td>390 (39.0)</td>
<td>608 (61.0)</td>
<td>998 (24.2)</td>
</tr>
<tr>
<td>Total</td>
<td>7267 (45.3)</td>
<td>8762 (54.7)</td>
<td>16029 (55.1)</td>
<td>4574 (50.2)</td>
<td>4536 (49.8)</td>
<td>9110 (31.3)</td>
<td>2694 (38.9)</td>
<td>4231 (61.1)</td>
<td>6925 (23.8)</td>
</tr>
</tbody>
</table>

*P value=0.001 (difference between men and women)  
**P value=0.05 (difference over 8 years)  
IP value=0.21 (difference between men and women)  
ØP value=0.263 (difference over 8 years)  
ØP value=0.001 (difference between men and women)  
IP value=0.081 (difference over 8 years)

Table 1: Trends in overweight and obesity over 8 years according to gender.

<table>
<thead>
<tr>
<th>Qualification</th>
<th>*Men No. (%) both overweight and obesity</th>
<th>Women No. (%) both overweight and obesity</th>
<th>Total both overweight and obesity</th>
<th>Ø Men No. (%) overweight alone</th>
<th>Women No. (%) overweight alone</th>
<th>Total overweight alone</th>
<th>Ø Men No. (%) Obesity alone</th>
<th>Women No. (%) Obesity alone</th>
<th>Total No. (%) Obesity alone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>2141(38.7)</td>
<td>3395(61.3)</td>
<td>5536 (34.5)</td>
<td>1396(45.2)</td>
<td>1697(54.8)</td>
<td>3093(34.0)</td>
<td>746(30.5)</td>
<td>1701(69.5)</td>
<td>2447(35.3)</td>
</tr>
<tr>
<td>Primary school</td>
<td>1534(47.9)</td>
<td>1667(52.1)</td>
<td>3201 (20.0)</td>
<td>948(51.5)</td>
<td>893(48.5)</td>
<td>1841(20.2)</td>
<td>566(43.0)</td>
<td>775(57.0)</td>
<td>1361(19.7)</td>
</tr>
<tr>
<td>Secondary school</td>
<td>2136(48.0)</td>
<td>2315(52.0)</td>
<td>4451(27.8)</td>
<td>1342(52.6)</td>
<td>1209(47.4)</td>
<td>2551(28.0)</td>
<td>794(41.8)</td>
<td>1107(58.2)</td>
<td>1901(27.5)</td>
</tr>
<tr>
<td>More than Secondary school</td>
<td>1456(51.2)</td>
<td>1385(48.8)</td>
<td>2841(17.7)</td>
<td>888(54.6)</td>
<td>737(45.4)</td>
<td>1625(17.8)</td>
<td>568(46.7)</td>
<td>648(53.3)</td>
<td>1216(17.6)</td>
</tr>
</tbody>
</table>

*P value <0.0001 (difference between men and women)  
ØP value <0.0001 (difference between men and women)  
ØP value <0.0001 (difference between men and women)

Table 2: Trends in overweight and obesity over 8 years according to qualification.

<table>
<thead>
<tr>
<th>Age</th>
<th>*Men No. (%) both overweight and obesity</th>
<th>Women No. (%) both overweight and obesity</th>
<th>Total both overweight and obesity</th>
<th>Ø Men No. (%) overweight alone</th>
<th>Women No. (%) overweight alone</th>
<th>Total overweight alone</th>
<th>Ø Men No. (%) Obesity alone</th>
<th>Women No. (%) Obesity alone</th>
<th>Total No. (%) Obesity alone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 50 years</td>
<td>4735(48.8)</td>
<td>4965(51.2)</td>
<td>18055(62.0)</td>
<td>2864(53.0)</td>
<td>2533(46.9)</td>
<td>5397(59.2)</td>
<td>1871(43.5)</td>
<td>2433(56.5)</td>
<td>4304(62.2)</td>
</tr>
<tr>
<td>50 years and above</td>
<td>2532(40.0)</td>
<td>3797(60.0)</td>
<td>11052(38.0)</td>
<td>1710(46.0)</td>
<td>2003(54.0)</td>
<td>3713(40.8)</td>
<td>823(31.4)</td>
<td>1798(68.6)</td>
<td>2621(37.8)</td>
</tr>
</tbody>
</table>

Ø P value <0.0001 (difference between men and women)  
*P value <0.0001 (difference between men and women)  
Ø P value <0.0001 (difference between men and women)

Table 3: Trends in overweight and obesity over 8 years according to age.
Discussion

Our prevalence of overweight alone was 31.3% (50.2% of them men and 30.9% of women) and obesity was 23.8% (61.1% of them women and 18.6% of men). Obesity, but not overweight was more in women. One previous study from Iraq showed that obesity and overweight was seen in 56.6% of patients among 4,580 out-patient and in-patient medical clinics of Al-Faiha Hospital in Basrah over the period from May 2003 to April 2004 [9]. Overweight was prevalent among 31.1% with a similar pattern in males and females, and obesity was seen in 25.4% and was consistently higher among females regardless of grade. Sectarian violence for the last five years has caused many Iraqis to retreat to the safety of their homes and became increasingly sedentary. According to a 2006 World Health Organization survey, 26% of Iraqi men and 38% of Iraqi women aged 25-65 years were obese [10].

These figures indicated that both overweight and obesity prevalence is comparable to neighboring countries in the Middle East and there was no increased trend of excess weight over 8 years. Reported prevalence of overweight and obesity in the Co-operation Council of the Arab States of the Gulf (GCC) region in adults were 25–50% and 13–50%, respectively [11]. The reported prevalence rates of overweight in adults ranged from 26.3–48% in men, and 25.2–35% in women and prevalence rates of obesity in adults ranged from 13.05–37% in men, and 16–49.15% in women. Prevalence of obesity and overweight was higher in women, whereas overweight was higher in men. In Riyadh, Saudi Arabia the overall prevalence of overweight, was 26.3% and obesity was 31.1%. The prevalence of obesity was significantly higher in females, with an overall prevalence of 36.5%, than in males (25.1%) [12].

For Iran, prevalence of obesity for adults (>18 years) was 21.5%, and risk of obesity was greater in women [13]. The age-adjusted prevalence rates of overweight and obesity in this Iranian population were 62.2% and 28.0%, respectively. Both overweight and obesity were more common in women than men, while in Turkey, overall, the overweight rate was 34.2% (33.5% of women and 36.3% of men) and the obesity rate was 23.7% (32.4% of women and 14.1% of men) [14]. These data gave a less prevalence rate than that seen in a study in Jordan in 1998, where the overall prevalence of obesity was 49.7%; 32.7% in males and 59.8% in females [15].

In this study women were more likely to be obese. At all ages and throughout the world, women are generally found to have a higher mean BMI and higher rates of obesity than men, for biological reasons [16].

We found that obesity was more in the illiterate and people aged 50 years and above. Similar finding were seen in Jordan where obesity, was more prevalent in the older age groups, and illiterate people [15]. Obesity prevalence in South Africa is high, especially among the poorest women, and reflects the general worldwide finding that obesity is linked to poverty [17]. In England in 1996, obesity was commoner among those with less education, and in women of a lower occupational status [18].

Study limitation

Studying the same persons over 8 years probably gives a better idea about increasing trends of overweight and obesity in the population.

Conclusion

Excess weight (overweight and obesity) affects more than half of the population in Basrah. It is more in women, the illiterate and those aged 50 and above with no significant increase in the prevalence over 8 years.

References