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Prevalence of overweight and obesity among a university faculty and staffs from 2004 to 2010, China

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Abstract

Background: Overweight and obesity are epidemic worldwide. Our present study was to examine the prevalence of overweight and obesity in a university faculty and staffs using two references [Working Group on Obesity references in China (2004) and World Health Organization (WHO) criteria 2000].

Objective: The purpose of this study was to estimate the prevalence of overweight and obesity among university faculty and staffs in China.

Methods: A cross-sectional study was designed to collect the routine health screening data for a university faculty and staffs from 2004 to 2010(2004, 2006, 2008 and 2010); the subjects aged 22-94 years.

Results: Depending on the references used (China and WHO, respectively), the overall prevalence of overweight, including obesity of the subjects was 36.1% and 25.5%, the prevalence of obesity was 5.3%, and 1.5%, respectively, the prevalence of overweight, including obesity among the male subjects was 46% and 32.5%, respectively, the prevalence of overweight, including obesity among the female subjects was 21% and 14.1%, respectively. An interesting observation made was that the overall prevalence of overweight was increased with age.

Conclusions: Regarding the harmful of overweight and obesity, it is encourage reducing liberal food environment and increasing physical activity among university faculty and staffs, especially for male faculty.

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Key words: Body mass index. Faculty. Obesity. Overweight. China.

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Introduction

In recent decades, the prevalence of obesity in children and adults has risen steeply worldwide. Some researchers documented that employees have less self-efficacy and consume less healthful diets than their normal weight colleagues. A high prevalence of adults obesity and overweight cases has been reported in developing countries undergoing nutritional transition. These are also emerging as a major public health problem in China.

Obesity is associated with significant comorbidities and health problems such as breast cancer, diabetes mellitus, hypertension, coronary artery disease, and occupational injuries. Some researcher showed that the prevalence of obesity was higher among middle-aged adults. In China, the prevalence of overweight, general obesity and abdominal obesity among Chinese adults has increased greatly during the past 17 years. However, there is a paucity of data on prevalence of overweight and obesity in university faculty and staffs.

In this study, the Center for Working Group on Obesity references in China and World Health Organization (WHO) criteria was used to assess the prevalence of overweight, obesity in a university faculty and staffs in Wuhu area of south Anhui, China.

Methods

Subjects and Methods

Participants

Routine health screening was performed among university faculty and staffs every two years in this study a total of 9,979 person-years (6,038 male and 3,941 female) data was collected between 2004 to 2010 (2004, 2006, 2008 and 2010), aged 22-94 years. All subjects agreed to provide their personal information regarding the purpose and the procedures of our study. This study was approved by local committee.

Anthropometric measurements

Height was measured using a standard stadiometer following study protocols, and weight in kilograms was measured on an electronic scales. BMI was computed using the following standard equation: BMI = Weight in kg/height squared in meter.

Definitions

Overweight and obesity were defined on BMI cutoff points, which are gender and age specific. Working Group on Obesity references in China, the BMI cut-off points are 24 and 28 for overweight and obesity respectively; the WHO reference is based on the BMI of 25 and 30 at the age of 18 for classification of childhood and adolescent overweight and obesity, respectively.

Ethical consideration

Faculty and staffs in the selected university were well-informed on the scope and extent of the survey and consent of the parents were also obtained.

Statistical analysis

R software programming language was performed to describe the prevalence of overweight/obesity. A line graph was draw by Excel software.

Results

In this study a total of 9,979 person-years (6,038 male and 3,941 female) data was collected between 2004 to 2010 (2004, 2006, 2008 and 2010), aged 22-94 years. The mean values (± SD) of weight, height, and calculated BMI are shown in table I. An interesting observation made was that the mean of BMI and weight was increased with year in male but not in female (fig.1).

The prevalence of overweight and obesity for university faculty and staffs are shown in table II. Depending on the references used (China and WHO, respectively), the overall prevalence of overweight, including obesity of the subjects was 36.1% and 25.5%, the prevalence of obesity was 5.3%, and 1.5%, respectively, the prevalence of overweight, including obesity among the male subjects was 46% and 32.5%, respectively, the prevalence of overweight, including obesity among the female subjects was 21% and 14.1%, respectively. An interesting observation made was that the overall prevalence of overweight was increased with age. The higher prevalence of overweight and obesity observed in our subjects using the WHO reference and working group on obesity references in China.

Discussion

In the present study, we use two references to compare the overweight and obesity. The results revealed that overall prevalence of overweight, including obesity of the subjects was 36.1% and 25.5%, the prevalence of obesity was 5.3%, and 1.5%, respectively, depending on the references used (China and WHO, respectively). An interesting observation made was that the mean of BMI and weight was increased with year in male but not in female, these data provide an indication that university male faculty and staffs should be taken more attention.
Table I
Mean (± SD) of height, weight and BMI of university faculty and staffs from 2004 to 2010

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2006</th>
<th>2008</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male n</td>
<td>1,436</td>
<td>1,646</td>
<td>1,673</td>
<td>1,627</td>
</tr>
<tr>
<td>Age(years)</td>
<td>51.20 ± 16.80</td>
<td>50.82 ± 16.56</td>
<td>50.53 ± 17.11</td>
<td>51.46 ± 17.36</td>
</tr>
<tr>
<td>Height(m)</td>
<td>1.69 ± 0.06</td>
<td>1.69 ± 0.06</td>
<td>1.70 ± 0.06</td>
<td>1.71 ± 0.06</td>
</tr>
<tr>
<td>Weight(kg)</td>
<td>67.03 ± 17.36</td>
<td>67.60 ± 9.85</td>
<td>68.49 ± 9.65</td>
<td>70.03 ± 9.87</td>
</tr>
<tr>
<td>BMI(kg/m²)</td>
<td>23.31 ± 3.09</td>
<td>23.50 ± 2.94</td>
<td>23.72 ± 2.86</td>
<td>24.04 ± 2.93</td>
</tr>
<tr>
<td>Female n</td>
<td>892</td>
<td>1,100</td>
<td>1,185</td>
<td>1,190</td>
</tr>
<tr>
<td>Age(years)</td>
<td>47.58 ± 16.59</td>
<td>47.05 ± 16.27</td>
<td>45.39 ± 17.59</td>
<td>46.20 ± 18.08</td>
</tr>
<tr>
<td>Height(m)</td>
<td>1.59 ± 0.12</td>
<td>1.59 ± 0.06</td>
<td>1.59 ± 0.06</td>
<td>1.60 ± 0.07</td>
</tr>
<tr>
<td>Weight(kg)</td>
<td>54.76 ± 8.08</td>
<td>55.25 ± 8.09</td>
<td>55.22 ± 7.83</td>
<td>55.69 ± 7.74</td>
</tr>
<tr>
<td>BMI(kg/m²)</td>
<td>21.76 ± 3.11</td>
<td>21.94 ± 3.11</td>
<td>21.89 ± 2.97</td>
<td>21.83 ± 2.84</td>
</tr>
</tbody>
</table>

Table II
The prevalence of obesity for university faculty and staffs according to age

<table>
<thead>
<tr>
<th>Reference</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male n</td>
<td></td>
</tr>
<tr>
<td>Age(years)</td>
<td>22-30</td>
</tr>
<tr>
<td>n</td>
<td>607</td>
</tr>
<tr>
<td>Overweight</td>
<td>China##</td>
</tr>
<tr>
<td>obesity CHINA#</td>
<td>4.6</td>
</tr>
<tr>
<td>Overweight</td>
<td>WHO#</td>
</tr>
<tr>
<td>obesity WHO#</td>
<td>1.3</td>
</tr>
<tr>
<td>Female n</td>
<td>693</td>
</tr>
<tr>
<td>Age(years)</td>
<td>8.4</td>
</tr>
<tr>
<td>Overweight</td>
<td>China##</td>
</tr>
<tr>
<td>obesity CHINA#</td>
<td>1.0</td>
</tr>
<tr>
<td>Overweight</td>
<td>WHO#</td>
</tr>
<tr>
<td>obesity WHO#</td>
<td>0.1</td>
</tr>
<tr>
<td>All n</td>
<td>1,300</td>
</tr>
<tr>
<td>Overweight</td>
<td>China##</td>
</tr>
<tr>
<td>obesity CHINA#</td>
<td>2.7</td>
</tr>
<tr>
<td>Overweight</td>
<td>WHO#</td>
</tr>
<tr>
<td>obesity WHO#</td>
<td>0.7</td>
</tr>
</tbody>
</table>

## Working Group on Obesity references in China. # The WHO reference. Overweighta: Overweight including obesity.

Fig. 1.—Trend of BMI and weight according to sex from 2004 to 2010.
Recent evidence suggests that the nutrition transition is accelerating and the outcome of this trend is a rapid increase in obesity and chronic diseases\(^2\). Lifestyle transition and socio-economic improvement have contributed enormously to the escalating problem in developing countries. Especially, lifestyle\(^2\) and food variety\(^2\) may have an influence on obesity. Meanwhile, obesity also is associated with reduced sleeping hours and long working hours\(^6\). Lack of health awareness to male university faculty may also be linked to its high prevalence.

The references used in this study produce different estimates for overweight and obesity. However, future research is needed to identify more accurate defining criteria for overweight and obesity using the BMI cut-offs in adults.

**Conclusions**

The study showed that the prevalence of overweight in early adolescence school girls in small town of our country is a critical health issue. The study suggests that greater risk of overweight among university faculty and staffs for targeted intervention that promotes increased physical activity and decreased consumption of energy dense foods to control the escalating prevalence.

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Conflict of Interest
None declared.

References