Correlation of Obesity to Daily Diet Intake of Young Girls of Quetta City, Pakistan

Afshan Majeed, Asim Iqbal, Zubia Masood, Anum Malik, Hameed Ur Rehman, Fahim Ullah, Barkat Ullah and Muhammad Nadir

Department of Zoology, Sardar Bahadur Khan Women University, Quetta, Pakistan
Department of Chemistry, Kohat University of Science & Technology, Kohat, 26000, KPK, Pakistan
Department of Chemistry, University of Science & Technology, Bannu, KPK, Pakistan

Abstract: The present study was conducted to determine the ratio of obesity in young girls of Sardar Bahadur Khan (SBK) women’s university, Quetta, Balochistan and its relationship with their daily diet. A total of 40 samples was collected from May 2013 to May 2014. The result of the present investigation revealed that about 15% of the girls were found to be having overweight than their ages. The positive correlation values (r) obtained for the different diets meat, fast foods, different grains (cereals, rice), cream (taken mainly in breakfast) and eggs revealed that all these diets might have some kind of correlation with the obesity especially during their young age. While in contrast, the negative correlation values (r) obtained for all those young girls who used green tea, vegetables, fruits and milk in their daily diet revealed that they have no correlation with obesity.

Key words: Obesity • Young Girls • SBK University

INTRODUCTION

Obesity is defined as the excessive fat deposition in body that gives it a bulky look. It is actually the increased amount of fats, muscles and water in the body. Obesity occurs when the mean weight of the body rises above the mean height [1]. Obesity is a medical as well as a social problem. On one hand, it causes a number of diseases, likewise, cardiac problems; diabetes mellitus type II, arthritis, dyslipidemia, renal diseases and complications in respiration and poses an increased risk of cancer. Moreover, it causes hypertension, lack of confidence, isolations and several other psychological problems [2, 3].

Obesity could be caused due to a number of factors. It could be due to genetics, environmental influences and life style, hormonal effects, eating habits and starvation. Obesity could be genetic or non-genetic. According to Kopelman [2], obesity is 50-80 % inheritable. It could be of three type’s i.e. monogenicobesity that is related to single gene mutation and is related to leptin-melanocortin pathway. This pathway deals with the appetite interval, food intake and energy expenditure. A disturbance in this pathway leads to over eating and results in obesity. Second type is syndrome obesity, in which a person is obese as well as mentally abnormal. Polygenic obesity, the third type, deals with obesity due to gene and environmental effects [4].

Environment and lifestyle, is widely associated with obesity. According to Billie et al. [5] people with a sedentary lifestyle are more obese as compared to the people who keep on moving. It is because sedentary lifestyles have high energy consumption but low energy expenditure that leads to obesity. Hormones also play a vital role, being a cause of obesity [6]. Anabolic hormones like, insulin, stores the energy in adipose tissues that are found in the shoulders, chest and lower abdominal areas, causing abdominal obesity [7]. Leptin hormone, on the other hand, control appetite and food intake and is produced by adipose cells. The amount of production of leptin is directly proportional to the number of adipose cells in the body. Further, this hormone directs brain to store fat in the body [8]. According to Baranowska et al. [9], Neuropeptide Y is found in a greater amount in obese men and women. Cortisol, a well-known glucocorticoid hormone, is responsible for deposition of fats in the body [10]. Gherlin hormone, found in stomach, is responsible for the stimulation of appetite. Starvation leads to high amount of secretion of gherlin hormone [6].
Starvation is defined as deprivation of the entire food intake except water, for long duration that leads to the decrease in the body weight [11]. Starvation first utilizes carbohydrates that provide ample energy at the very beginning, after that come lipids and proteins [12]. Aim of this study was to determine the relation of obesity with diet.

MATERIALS AND METHODS

The survey was conducted under available facilities, to know the ratio of obesity in young girls of Sardar Bahadur, Khan Women University Quetta and also to determine the relation of obesity with diet. Questionnaire which shows the daily routine and lifestyle was conducted from students and a high response rate was obtained. 40 samples were collected from the students with ages ranging between 21-24 years.

Materials Required:

- Sphygmomanometer
- Stadiometer
- Top pan balance
- Waist tape measure

A Questionnaire was given to fill-up by the students showing their lifestyle, dietary habits and daily routine. Height of each student who had filled the questionnaire was measured. Weight of students was measured by using weight machine. Waist size was measured. Blood pressure was taken. Using the formula of Standard Deviation (SD) and Correlation(r value) results were measured. R value indicates the correlation between two variables i.e. age and diet.

Table 1: Correlation between diet (breakfast, brunch, lunch/ dinner) and obesity observed by the analysis of questionnaires.

<table>
<thead>
<tr>
<th>S.#</th>
<th>Breakfast items</th>
<th>r values</th>
<th>Brunch items</th>
<th>r value</th>
<th>Lunch&amp; Dinner items</th>
<th>r value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Egg</td>
<td>0.3</td>
<td>Biscuits</td>
<td>0.05</td>
<td>Vegetables</td>
<td>0.00004</td>
</tr>
<tr>
<td>2</td>
<td>Tea</td>
<td>2.05</td>
<td>Tea</td>
<td>2.05</td>
<td>Roti</td>
<td>0.01</td>
</tr>
<tr>
<td>3</td>
<td>Paratha</td>
<td>-2.26</td>
<td>Chips</td>
<td>0.03</td>
<td>Rice</td>
<td>0.3</td>
</tr>
<tr>
<td>4</td>
<td>Cream</td>
<td>0.2</td>
<td>Chaat</td>
<td>0.5</td>
<td>Meat</td>
<td>+1</td>
</tr>
<tr>
<td>5</td>
<td>Milk</td>
<td>-1</td>
<td>Canned juices</td>
<td>0.19</td>
<td>Grains/cereals</td>
<td>0.8</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Fruits</td>
<td>0.000007</td>
</tr>
</tbody>
</table>

R value indicates:

- 0.1-0.5 = Moderate Positive Correlation between diet and obesity
- 0.5-1 = Positive Correlation between diet and obesity
- +1 = 100% Positive Correlation between diet and obesity
- 0.0 = No Correlation between diet and obesity
- -1 = Negative Correlation between diet and obesity

RESULTS

The study was conducted to determine ratio of obesity in young girls and its correlation with their diets. Fig. 1 is showing a comparison between obesity among young females. It shows that majority of the girls are having normal body weight, whereas, only a few are overweight and almost 20% of them are underweight.

Figure 2 shows that, milk and paratha have a negative correlation with obesity. Whereas, cream and egg have a moderate positive correlation with obesity. But, milk tea has a very strong correlation with obesity.

Figure 3 shows that brunch items are all having a positive correlation with obesity. Where tea has the highest values, canned juices, chaat, chips and biscuits have moderately positive correlation.

Figure 4 is showing a strong correlation of meat, cereals and grains with obesity whereas correlation of rice, roti, fruits and vegetables is very weakly positive.

Table 2 is showing that only 17% of females exercise daily. Whereas 65% of young females do not exercise ever. And 43% of them get very tired; have high heart beat or difficulty to breathe.
Table 2: Showing difference in percentage of exercise between young females

<table>
<thead>
<tr>
<th>S.#</th>
<th>Exercise routines</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Exercise daily</td>
<td>17</td>
</tr>
<tr>
<td>2.</td>
<td>Exercise often</td>
<td>18</td>
</tr>
<tr>
<td>3.</td>
<td>Exercise never</td>
<td>65</td>
</tr>
<tr>
<td>4.</td>
<td>Gets tired or have complaints after exercise</td>
<td>43</td>
</tr>
</tbody>
</table>

Fig. 1: Chart showing levels of obesity among young girls.

Fig. 2: showing the difference between R values of breakfast items

Fig. 3: showing the difference between R values of brunch items

Fig. 4: Showing the difference between R values of Lunch and Dinner items
DISCUSSION

Obesity is thought to have a strong relation with the diet which an individual takes in its daily routine. The present research is a beneficial step for youth and especially for young girls. So it was decided to know the correlation of obesity in young girls with their daily diet.

The following study revealed that diet such as fruits, vegetables, Rotti, bread, Pratha, milk, egg, tea, biscuits, chips and black tea have no correlation with obesity in this region and that grains, meat, cream, chat, rice and juices are found to be correlated with obesity and 17% of the respondents were found to be overweight but researchers conducted previously showed that normally people have a weak inborn capability to diagnose diets having a greater energy density and to maintain the greater part of food eaten in order to regulate energy balance. Economic ways to select the foods may have physiologic significance. Polished grains, supplementary sugars and additional fats are among the lowermost price sources of nutritional vigor. They are low-priced and have good tastes. In difference, high nutrient Lean meats, fruits, fresh vegetables and fish cost more [13, 14].

The breakfast having egg, enhance weight loss when combines with energy lacking diet, but do not stimulate weight loss in a free living condition. The addition of egg in a weight administration plan may present a healthful count to improve weight failure [15]. The following research accords the following fact as the R value of egg is 0.3 and girls who consume egg in breakfast are not obese and have a good health. The special effects of certain tea compounds on the inhibition of obesity in human being have newly been described, while it is still uncertain whether black tea intake is beneficial or not [16].

Whole grains are precisely nutritive. On the other hand, refined grains have been managed in a mill to eliminate the fiber and seed. This gives the grain a better smoothness and increases its life, correspondingly eliminates iron, fiber and vitamins [17, 18]. Approaching research have recommended that replacing whole grain on behalf of refined grain foodstuffs might lesser the possibility of obesity and overweight. White bread is characterized as in great glycemic index having higher carbohydrate level [19]. It means that it discharges an excessive flash of sugars into the bloodstream, which results in increased insulin level and the extra sugars from the blood is deposited in fat cells but the body does not need these immense rushes of blood sugar.

Following research showed that R value of paratha (A combination of refined flour and ghee or oil) is -2.26 and has a negative correlation with obesity. Meats are in elevation and heavy fat content might be linked with greater hazard of obesity. A lot of arguments persist about the link among meat consumption and obesity [20, 21].

Milk is highly lesser in fat and full of calcium. Calcium is known to be an effective fat fighter by recent studies [22, 23]. According to the following study the R value of milk is -1 hand hold a negative correlation with obesity.

Although fruits have no significant role in obesity internationally but in this region, use of fruits is correlated to obesity this may be reflecting that in this region there is over intake of fruits. On the other hand, consumption of different juices, which contain artificial sweetener, rises in past decades. It was observed that at that time rate of obesity also increases. These drinks contain a lot of calories with no nutritional value.

According to our research girls are mostly lazy and about 65% of them do not exercise or walk at all and are obese and only 17% of them exercising daily. Deficiency of exercise supports the accumulation of body fat and growing muscle frame and not capable your body to burn body fat. Exercise helps in losing the calories of body. (BMJ Publishing Scientific trials revealed that exercise in adults with obesity or overweight can lessen the body weight [24]. In support of example an analysis done with a number of groups who thought that Namaz (Prayer) was satisfactory exercise [25].

CONCLUSIONS

Obesity is found to be one of the most common problems observed in youth, especially in young females. This might lead to early diagnosis of diabetes, cardiac problems, sleep apnea and moreover, several psychological problems. One of the main causes of this problem is its direct correlation with abnormal diet. Intake of unhealthy diet, makes body weak internally whereas, on other hand gives a flabby look to the body. If a control is taken upon it, diet is managed and exercise is done regularly than this problem could be solved.

REFERENCES