EFFECTIVENESS EVALUATION OF NUTRITIONAL COUNSELING:
THE EXPERIENCE OF AZIENDA SANITARIA LOCALE 12 OF VIAREGGIO
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Introduction
The sharp increase in chronic-degenerative diseases nutrition-correlated observed in the Western Countries represents not only a public health problem in terms of mortality and morbidity, but also the indirect evidence of how the acquisition of correct eating behaviour is still far from our cultural model. Sedentary lifestyle and high-caloric and unbalanced diet are at the base of the epidemic of overweight and obesity that we are observing in the Western Countries. To eradicate this tendency is a great challenge that can be won only by applying to the entire population a strong preventive action, early in life.

Organization and mode of operation

The Centre for Nutritional Education
Since 2004, within the Department of Prevention of USL of Viareggio has been acting as a Centre for Nutritional Education, with the aim of promoting healthy lifestyles with particular emphasis on nutritional aspects. The main mode of operation has been identified in "nutrition counselling" as an effective tool to support self-management for the people who want to change their lifestyle. Nutritional counselling is an intervention directed to a single person or to small groups in which the participants are directly involved in strategies best suited for changing lifestyle. The main goal of nutritional counselling is to make people able to manage properly their way of life through awareness of bad habits and viable alternatives, both in relation to their diet and daily physical activity. The achievement of "reasonable weight" and its maintenance over time thus becomes the natural consequence of a new modus vivendi. As a part of primary prevention, nutritional counselling is addressed not only to those who have weight problems, but also in healthy subjects at risk, that have not yet developed disease, but which belong to subgroups of the population who have an increased probability of developing a condition of excess weight.

The path of counselling
We have identified two alternative therapeutic strategies: the “group path” and the "individual path". The “group path” is divided into a first individual visit followed by six subsequent group sessions lasting about an hour, over a period of 15 days. The maximum number of participants was 12. During the first individual visit, in addition to collecting anthropometric data and anamnesis, the operator evaluated the needs and the motivation of patients, providing a diagrammatic representation of the path to be followed.

During the six group sessions active learning methods were used to enable participants to acquire the basic principles for a healthy diet combined with physical activity. This included identifying sustainable choices within participants’ lifestyles. Cognitive-behavioural techniques for management of risk situations, relapse management and problem-solving were taught. After three, six and nine months of the last sessions, the group was called for follow-up. The "individual path" is articulated in a first visit, followed by regular monitoring appointments to be agreed with the individual user. It is recommended that at least one monitoring visit takes place per month, for first six months. Monitoring visits include evaluation of the degree of self-monitoring by the patient (diet and physical activity diary); the change of lifestyle; the difficulties which have arisen; and, finally, the weight loss.
**Objectives**
The goal of this work is a preliminary assessment of the effectiveness of treatment in overweight or obese patients who came to the Centre for Nutritional Education during the period between 03/01/2007 and 10/12/2009, and were included in a course of counselling, both individual and group. It was decided to use, as an indicator of effectiveness, the trend of mean BMI over time, from first visit until the sixth visit, calculated for the four classes of patients (overweight, obese of I, II and III grade) according to their BMI of entry.

**Material and Methods**
We collected the anamnesis (history of family, physiology, pathology, diet, weight, food and lifestyle) and the clinical data (weight, height, waist circumference, blood pressure) related to 941 patients who have had access to the Centre during the period 03/01/2007 to 10/12/2009. Data were entered into a database and processed using software specially created for this purpose.

**Results**

**The features of patients**
During the considered period, we had 2014 accesses, of which 941 first visit, and 15 groups (for a total of 78 participants) were activated. 77.26% (727 of 941) of patients were female, and 22.74% (214 of 941) were male.

62.59% (589 of 941) were housewives, pensioners, students and employees.

The average age was 42.5 years.

52.81% (497 patients out of 941) were quite sedentary.

Breakfast, lunch and dinner were consumed respectively by the 89.48%, 98.08% and 98.72% of the sample.

A morning snack was consumed by 59.62% of cases; an afternoon snack by 68.44%.

The food groups most consumed at lunch and dinner were “Cereals and Potatoes” (respectively by 94.58% and 88.52% of the sample) and “Meat, Fish, Eggs, Legumes Vegetables” (consumed respectively by 70.35% and 92.77% of the sample).

Approximately 78% (734 of 941) of the sample reported consuming fruits and/or vegetables at lunch, which rises to 88.52% at dinner (833 of 941).

The average daily consumption of water was less than 6 glasses (5.69), which was approximately 1 litre.

Of the 941 patients who made a first visit, 388 undertook at least one further monitoring visit.

At first visit, 30% of them were overweight, 33% obese 1st grade, 16% obese 2° grade, 6% obese 3° grade and 14% of normal weight (Image 1)
The effectiveness evaluation of treatment

As indicator of effectiveness of treatment, it was decided to evaluate the reduction in the mean BMI (calculated for each class of BMI) over time, from first visit until the sixth visit.

At the 6th check-up (usually the 5th and 6th month of treatment), the mean BMI for Overweight decreased from 27.53 to 25.89 (-1.64 points of BMI - Image 2); for Obese of I grade from 32.28 to 29.6 (-2.68 points BMI - Image 3) for Obese of II° grade from 36.94 to 35.16 (-1.76 points BMI - Image 4) and for Obese of III° grade from 43.3 to 39.6 (-3.7 points of BMI - Image 5).
Discussion and Conclusions

The analysis of the characteristics of patients who approached the Centre for Nutritional Education of Azienda USL 12 di Viareggio suggests that they are usually women in pre-menopausal age, of lower-middle socio-economic conditions, in more than half the cases quite sedentary, often with a high-calorie diet.

Breakfast, lunch and dinner are the three main meals, with about half of the patients habitually eating additional snacks.

The average daily consumption of water is about 1 liter.

Over half of the sample is completely sedentary.

The observational study showed a decrease in the average BMI of different values depending on the classification of entry of patients.

In particular, if we exclude the group of Obese of III grade, less represented, the greatest impact on BMI of entry occurred in the group of Obese of I grade (- 2.68 points of BMI); the group of Overweight patients had a decrease in BMI average of 1.64 points, Obese of II grade of 1.76 points.

Our conclusion is that when patients participate in a motivational intervention, aimed at improving lifestyle and self-management, this can produce a loss of body weight even though the intervention may not be primarily directed at weight loss or the adoption of a previously established dietary pattern.