

REVIEW PAPER

Health policy strategies for the treatment of obesity: a systematic review

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ABSTRACT

Introduction: The phenomenon of obesity has nowadays become an epidemic, as it seems to greatly affect the populations of both developed and developing countries. General issues involving the evaluation of the phenomenon, its consequences and the health policies that can be used to confront it, are discussed.

Objectives: The objectives of this paper were to critically discuss and analyze the relation between obesity and major diseases of the western societies such as cancers and diabetes mellitus. Furthermore its aim was to demonstrate the direct relation between various prevention strategies and the reduction of the phenomenon.

Method: An online search in Medline, Pumed and the Cochrane Database of peer-reviewed Systematic Reviews and meta-analysis was conducted. Retrieved studies were screened to meet certain inclusion criteria, i.e. relevance, significant meanings in correspondence with this paper's objectives and of interest to an international health-professional readership.

Results: There is a clear demonstration of the direct relation between obesity and a series of diseases such as cancer, diabetes and coronary disease. Obesity also seems to be directly related to an increased incidence of caesarian sections and gestational diabetes mellitus. Reduced smoking rates during pregnancy and an increased time of breastfeeding seem to have a protective role. The importance of physical training, of a "healthy nutritional model" adopted by the parents, and of the Mediterranean diet are shown to be fundamental in the confrontation of the phenomenon. Additionally, family doctor interventions, cognitive-behavioral therapy and internet-mediated actions seem to sufficiently aid in its prevention.

Conclusion: There is a clear proof that certain primary and secondary prevention strategies along with the the increase of health-conscience in communities may lead to the decrease in the rates of obesity and its undoubtedly harmful consequences.

Key words: obesity, overweight, Body Mass Index (B.M.I), interventions, health education, treatment strategies

INTRODUCTION

In contemporary modernized societies obesity, has become an uncontrollable epidemic. Its consequences impact on all parts of human activity and induce a number of severe diseases and disabilities. More than important is the

comprehension of the huge dimension of this phenomenon, which makes the development of new health policy strategies essential, in order to prevent and this epidemic.

The development of new strategies against obesity applies to all periods of a person's life, as this phenomenon seems to affect all age

groups, while special emphasis needs to be given when it comes to childhood ages during which the structure of eating habits are built, as well as the overall understanding of a person on how to deal and promote one's health.

METHOD

The search was restricted to peer-reviewed articles published in English and Greek languages during the period of 2001 to 2009. The search strategy for the literature review was carried out according to the standard Cochrane systematic review methodology. 37 systematic reviews and meta-analysis from Greece, various countries of the European Union, the USA and Australia, were thoroughly reviewed. All the studies concerned the topic of obesity and 12 of them in particular, concerned childhood obesity. Retrieved studies were screened to meet certain inclusion criteria, i.e. relevance, significant meanings in correspondence with this paper's objectives and studies of interest to an international health professional readership. The following internet sources were used: PubMed, Medline, Cochrane Library. Further, the following keywords were used: "prevention of obesity", "health education on obesity", "health policies for obesity prevention", "childhood obesity", "strategies for treatment of obesity".

RESULTS

It has been observed that, nowadays, obesity is shaping to be an international epidemic, the incidence of which will continue to increase and consequently affect significantly the increase of the incidence of diabetes type 2 as well as other chronic diseases (Darnton - Hill et al. 2003).

In particular, a review study from the USA reveals that the incidence of obesity increased between 1960 and 2004 from 13% to 32% respectively, while 66% of the adult population of the USA is either overweight or obese.

Furthermore, emphasis needs to be given upon the substantial annual increase of the Incidence of obesity. It is estimated by the review that until the year 2015, 75 % of the population of the USA will have an increased body weight

and 48% will be obese (Wang and Beydoun, 2007).

Greece currently holds the first place among other European countries as 35% of men and 31 % of women are currently considered to be overweight, while 8.7% and 13% respectively to be obese. One out of 100 children is obese and 20% overweight. Obesity among children is an essential factor of danger for the adult life, as the percentage of 25-30% of obese children or juveniles continue to be obese in their adult life (Fachantidou, 2002).

What constitutes an alarming fact, is the considerable underestimation of the real body weight which is common among obese people. According to estimations, obese men referred their weight to be 26.1% lower than their actual weight- obese women however, estimated a 30% lower weight (Visscher et al., 2006).

The primary-health care prevention of childhood obesity is a worldwide priority. Childhood obesity is directly connected to the increased danger of cardiovascular diseases in adult life. There was an increased danger of cardiovascular diseases among the Finnish population, in cases of obese adults that were overweight during childhood. A Princeton study showed an increase of 24% of cardiovascular diseases with every 10%-increase of the BMI (Morrison et al, 2007).

It has been proved however, that an increase of the percentage especially that of childhood obesity is related to the existence a "modern" environment which fosters the development of obesity and which results from the increased consumption of food of high caloric and low nutritional value, decreased physical activity within the scope of school as well as the absence of other extracurricular activities. The direct relation of childhood obesity to cardiovascular diseases, insulin resistance, type 2 diabetes as well as orthopedic problems has been proved. (Kaur et al., 2005).

Emphasis needs to be placed on the fact that obesity increases the danger of type 2 diabetes of the general population by 9 times, while it also increases the danger of coronary diseases by 6 times (Anderson et al, 2006).

Another systematic study and meta-analysis indicated the direct relation of an increased BMI to the development of certain types of

cancer. In particular, within the European Union 5% of all cancers (3% of men and 6% of women) is the result of an increased body weight. More precisely, 27.000 young men and 45.000 young women of the EU countries suffer yearly of cancer due to obesity. Outstanding are the numbers with respect to cancer of the large intestine (21.500 new cases), followed by endometrial cancer (14.000 cases) and breast cancer (12.8000 cases). It is estimated that a 50% -reduction of obesity within the EU would lead to an annual decrease of the above mentioned cases by 36.000 cases (Bergström et al., 2001).

Significant is also the impact of the time period of pregnancy and breast-feeding, as a meta-analysis showed a direct connection of obesity among people of ages 3-33, whose mother used to smoke during pregnancy (Oken, 2008).

Another study shows the protective effect of breastfeeding and the decrease of obesity at a later stage of life of the children. According to the same study, it is estimated that every further month of breast feeding reduces the probability of a later obesity by 4% (Harder et al., 2005).

A new meta-analysis study showed a 20% decrease of the risk obesity at childhood age with breastfed babies, compared to babies that were not breastfed and received the infant formulas offered on the market. Further, the same study shows that a reduction of proteins in infant formulas leads to the children's body development similar to that of a breastfed child. The present is a strong indication as to the reexamination of the composition of infant formulas. (Koletzko et al., 2009)

Furthermore, other studies show the direct relation of obese pregnant women and the appearance of gestational diabetes to be a 2.14 times higher with over-weighted and 3.56 times higher with obese women compared to those who have a normal body weight (Chu et al., 2007). Further, an increased number of Caesarean sections performed upon obese women compared to woman with a normal body weight has been noticed, where the numbers are 1.41 times higher on women with overweight and 1.75 higher on obese women (Chu et al, 2007).

Within the framework of strategies that cope with the phenomenon of obesity and

consequently the promotion of the population's health, in particular, the parents' attitude and nutrition habits of the family, the study shows that the correct education of the parents with concern to the right nutrition and eating habits improved their own as well their children's body weight. In addition, there were more efficient behavioral interventions that were targeted at the parents and children or at the children individually (Golan et al., 2007).

A second study proves the definite relation between the nutrition habits of parents and the respective eating habits of the children, while an important role seems to take the easy access to food with high nutritional value (dietary fibers, high amounts of nutrients) that parents make available to their children (Ritchie et al, 2003).

Two additional studies connect the parental intervention with the nutritional behaviors of the child and the management of the body weight. The first study could not deliver safe results due to the short implementation period of the study (Horodyski et al., 2005).

The second however, was conducted in a period of 16 weeks and refers to a medical intervention in forty American families. This intervention led to the decrease of the children's body weight (Daniels et al., 2006).

A cutting-edge study which was published in 2009 with the title: "Become active, eat right" referred to an intervention program at fifteen-year -old children. The duration and frequency of their physical education, extracurricular activities, the fact of how often they had breakfast, the consumption of sweets, the duration of watching TV as well as the use of electronic games were compared and examined. Children with chronic diseases were not included in the study, while national and cultural differences were taken into account. The programme's duration was 24 months. The result was that children who adopted healthy nutrition habits as well as a healthy way of life had lost body weight (Veldhuis and Strujik, 2009).

In addition according to several studies it is estimated that the parent's restriction of food is a completely ineffective measure for the reduction of the children's weight, on the

contrary, the impact of childhood obesity increases (Clark et al., 2007).

With respect to strategies that promote the health education of the general population, the study clearly stresses the beneficial effect of maintaining one's regular weight based upon the consumption of the number of meals per day, which should be more than three (Louis-Sylvestre et al, 2009).

Further, the methodical review showed a clear decrease in the number of obese patients suffering of cardiovascular diseases or cancer, if their nutrition followed the Mediterranean Diet (Serra-Majem et al., 2006).

The significant impact of exercise when it comes to the reduction of body weight, blood pressure, triglycerides, fasting glucose seems to be undisputable. The increase of exercise in combination with an improved nutrition seems to increase substantially the loss of weight as well as the result of the other parameters (Shaw et al, 2006).

When it comes to prevention against gaining weight after smoking cessation, a review emphasizes, according to the statistics, upon the maintenance of the body weight at persons which had a cognitive behavioural therapy and drug therapy (antidepressants, appetite-suppressants), in relation to persons with no kind of intervention in order to keep their weight or with people whom a simple psychological counseling was provided for (Parsons et al, 2009).

The importance of the cognitive behavioural therapy at the maintenance of the body weight is also underlined by another systematic study. At the weight-losing stage, the cognitive behavioral therapy, beyond the emphasis on the diet and increased body activity, focuses upon the emotional and behavioral change at other important personal fields (e.g. appearance, self-confidence, quality of relations, physical well-being), thus achieving a better maintenance of body weight (Simos, 2009).

With respect to obesity among children at school age and the intervention in health education of preschoolers and adolescents, the review emphasizes that in order to avoid the decrease of weight at already underweighted people or people who suffer under unhealthy losing weight habits, and to also avoid the

stigmatization of children that are already overweight, any intervention that is targeted to children need to focus on healthy nutrition, active live and positive self-confidence than on the loss of weight (Flynn et al, 2006).

The body activity is a substantial element of any intervention concerning the decrease of children's body fat. The decrease of time wasted upon activities that require no body action (TV, video games) are also considered to be a very promising method (Doak et al, 2006).

A recent Greek study demonstrates the dimension of the problem in Greece. In particular, the same study that was also implemented upon 11-year old children it showed that 10,7% of the pupils were obese, 12.5% had central obesity. 29.5% of the girls showed increased intake of fat and saturated fatty acids. The respective results for the boys amount to 19% and 36.2%. The percentage of boys with an increased intake of cholesterol (>300 mg/day) was considerably higher compared to the girls (16.7%). A significant difference between boys and girls could be noticed at the percentage that did not fulfil the guidelines for the participation at physical activities of high intensity > 30 minutes a day (96.3% compared to 58.6% respectively). Further, 69% of the girls and 7.07% of the boys showed poor performances at the cardio-respiratory condition test (Christodoulos et al. 2009).

Another systematic study upon various interventions of health education at schools of the USA prove that interventions that target upon nothing but obesity- and not those who resent many targets, as for example obesity and smoking at the same time- and with a small duration are clearly more effective when it comes to the reduction of body weight. As a matter of fact the same study demonstrates the important role of the voluntary participation of children in the various interventions (Stice and Marti, 2006).

Finally, a study that examined the College Juniors of the USA showed that at the critical for the later development of obesity period of transition, from adolescent to grown-up live, electronic intervention of health education

through the Internet accounted important results.

In particular, a combination of electronic support intervention in combination with the reduction of calorie-supply as well as the systematic record keeping of weight by the participating students showed an effective strategy for the decrease of their weight (Gow et al, 2009).

The role of the general practitioner in the support of a healthy condition as well as in health education is important. The family doctor has been trained during his specialization on the main diseases, identifying causes and suggesting optimal methods of treatment.. More than 80% of the Australian population consults with its general doctor at least once a week.

The above stated data in combination with the immense economic cost that arises through Obesity (2.4 Billion per year in Australia) make the identification of new prevention and deterrence methods against obesity absolutely necessary (Lavelle, 2007).

Family doctors usually knows the medical history of their patients (personal or family) while they also act as main health counselors, trusted by their patients when it comes to dealing with one's body weight.(Tham and Young, 2008).

Within the scope of a Dutch study, the role of the family doctor has to be supported by a group of professional health specialists in order to manage the body weight. The personal trainer, psychologist, health visitor, special dietician- nutritionist are such examples. The psychologist offers psychological support; the dietician-nutritionist is responsible for the diet of the patient and the personal trainer for the personal body activity (Fransen and Hiddink , 2008).

With respect to dealing with patients of older ages in primary health care, it is certain that the increase of body weight is connected to the appearance of the Metabolic Syndrome at adults and especially at older people, as shown by a pilot study of the primary health care. Body weight regulation in primary health care is principally supervised by the family doctor. More than twice of the amount of obese persons or overweight persons who obtain advice for a

diet and physical activity by their doctor have decreased their body weight in comparison with those who received advice by their dietician-nutritionist (Waring and Roberts, 2009).

The recording of obesity helps in the identification process of the problem as well as during the effort of addressing it. (Waring and Roberts, 2009). In addition, the use of electronic archives, the automatic calculation of the BMI supports the recording and therapy of obesity. Even the use of Internet specialized in obesity (Woolf and Krist, 2006) reinforces the therapy and promotion of health. The creation of special groups that include specialized doctors, dietician-nutritionist, psychologists, trainers and other health specialists helps in the health education of the patients and the understanding of their health condition. (Barud and Marcy, 2006).

Despite of the traditional health care, many alternative methods of obesity prevention have been developed. Obesity has been connected to high economic cost, especially with the use of health care. Little evidence has been found about the use of alternative methods. A study made in 2008 reviewing the use of alternative methods at obese persons in comparison to people with a normal body weight. The study found that adults with obesity use less Yoga while they use the same kind of relaxing techniques, natural weight –reducers, chiropractics, Thai Chi and acupuncture. Existing studies show evidence that alternative medical methods are reliable when applied as therapy of the impact of obesity, as for example low back pain and osteoarthritis (Bertisch and Wee, 2008).

DISCUSSION-CONCLUSION

The development of strategies in the fight against obesity concerns all periods of life of a person, as this phenomenon seems to affect all age groups, while special emphasis should be put to childhood ages as well as to adolescence. Furthermore, the health education of pregnant women, but also the enforcement of the parental role within the promotion of a healthy prototype of life has a significant role in this process.

The separation of meals, the purchase of meals and making them disposable to children, food high in dietary fibers as well as the prevention of forbidden and severe practices from the parent's side play a decisive role in the strategic health education against obesity. In addition, the reinforcement of extracurricular activities as well as the reduction of TV watching and playing electronic games are some simple solutions for the prevention as well as the reduction of cases of obesity.

The measures taken against the phenomenon of obesity seem to target on the various environments in which the person lives (school, work, family) while the basic requirement seems to be that the person acts on an individual initiative.

Further, an important role within the progress of achieving the goal seems to play the professional psychological support as well as the new technologies available, as for example the Internet.

Other than the creation of premature health prototypes for the kids, the promotion of programs for adults seems equally important. The establishment of electronic archives where the medical history of the persons can be registered, which will make the creation of a personal obesity prevention program possible, which will be conform with the personal needs of each and every person.

Another important factor is the creation of Internet pages which provide information on the causes, measures of prevention as well as the deterrence against obesity, which the user can recall upon request.

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