Outcome of patients consulting in an outpatient nutrition clinic for excessive body weight

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S U MMARY

Objective: Few data are available concerning long-term outcome of patients after individually consulting a nutrition specialist, without entering a structured program. The objective of the present study was to evaluate outcome and predictors of body weight loss (BWL) after consulting in an outpatient nutrition clinic.

Methods: Phone interview of 95 patients (age 46.1 ± 1.4 years, BMI 33.8 ± 0.7 kg/m²) out of 299 who consulted consecutively for the first time in an outpatient nutrition clinic for excessive body weight.

Results: The mean time interval between first visit and phone interview was 2.1 ± 1.3 years. Average BWL was 6.7 ± 1.2 kg for the entire group. Forty-eight patients (50.5%) had lost more than 5% of initial body weight and were considered to be successful. Initial BMI was associated with % BWL (r = 0.42, p < 0.0001). Underreporting of energy-intake at initial dietary history was positively associated with BWL (– 11.8 ± 1.1 vs. – 5.1 ± 3.9 kg, p < 0.05) as well as the number of visits attended by the patient (p = 0.04). No relation was found between sex, age and physical activity at initial visit, past history of dieting or time elapsed since first or last visit and BWL. In multivariate analysis under reporters had 4.3 times more chances to lose more than 5% of their body weight (p < 0.05).

Conclusion: Visiting a nutrition specialist to receive individual counseling and prescription of a balanced low calorie diet is part of a positive behavior change leading to body weight loss.

Key-words: Obesity • Weight loss • Underreporter • Nutrition • Outcome.


R ÉSUMÉ

Devenir de patients consultant en service de nutrition pour un excès pondéral

Objectifs : Il existe peu de données sur le devenir pondéral à long terme des patients consultant à titre individuel un spécialiste en nutrition. L’objectif de cette étude était d’évaluer le devenir pondéral ainsi que les facteurs prédicatifs de perte de poids après consultation dans un service spécialisé.

Méthodes : Enquête téléphonique auprès de 95 patients (âge : 46.1 ± 1.4 ans; IMC : 33.8 ± 0.7 kg/m²) parmi 222 ayant consulté consécutivement pour la première fois pour excès de poids dans un service spécialisé.

Résultats : Le temps moyen entre la première consultation et l’enquête téléphonique était de 2.1 ± 1.3 ans. La perte de poids moyenne était de 6.7 ± 1.2 kg pour l’ensemble du groupe. Quarante-huit patients (50.5 %) avaient perdu plus de 5 % de leur poids initial et ont été considérés comme un succès sur le plan pondéral. L’IMC initial était corrélé au pourcentage de perte de poids (r = 0.42, p < 0.0001). Les patients sous déclarants à l’enquête alimentaire avaient une perte de poids supérieure aux autres (– 11.8 ± 1.1 vs – 5.1 ± 3.9 kg, p < 0.05). La perte de poids était également associée au nombre de visites de suivi réalisées par les patients (p = 0.04). Aucune relation n’a été retrouvée entre le sexe, l’âge, l’activité physique initiale, les antécédents de régime ou le temps écoulé depuis la dernière consultation et la perte de poids. En analyse multivariée, les sous-déclarants avaient 4.3 fois plus de chances de perdre plus de 5 % de leur poids initial (p < 0.05).

Conclusions : La consultation à titre individuel d’un spécialiste en nutrition comprenant la remise de conseils individualisés et d’un régime hypocalorique équilibré est suivie d’une perte de poids significative pour un nombre important de patients.

Mots-clés : Obésité • Perte de poids • Sous-déclarant • Nutrition • Pronostic.

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With the incidence of overweight and obesity among adults in the developed countries continuing to rise [1, 2], the number of patients seeking advice for weight management is likely to increase. Many primary care physicians are reluctant to treat overweight and obese patients, citing lack of time, patient non-compliance, lack of counseling training, low confidence as barriers to treatment... [3-9]. This drives a number of general practitioners (GPs) to refer patients seeking help for body weight loss to a nutrition specialist. Since free access to the specialist is allowed and reimbursed by the French “Social Security”, a number of patients directly consult a specialist for excess body weight without being referred by a GP, generating additional cost (even though this has not been precisely evaluated for obesity).

Numerous papers have been published on the efficacy of various dietetic regimens on body weight loss. However, most studies report results of structured programs, including only those patients who performed the entire program. Few papers give a description and/or information concerning the dropouts and do thus give a biased view of the real efficacy of the programs. However, dropouts are a problem commonly encountered in obesity care and can reach rates as high as or even higher than 50% in clinical trials [10]. This situation is close to what is seen in current practice, with many patients consulting a nutrition specialist just once or twice and then giving up follow-up. If it is well known that a single nutrition counseling session is seldom sufficient to bring about significant changes in behavior and long-term success in body weight loss, few data are available concerning long-term body weight of patients after individually consulting a nutrition specialist, without entering a structured program.

In the present study, we evaluated body weight of individuals at a mean time interval of 2 years after consulting in an outpatient nutrition clinic. We also evaluated the predictors of successful weight loss.

Methods

The study population consisted of 299 consecutive outpatients who consulted for the first time with one of 3 specialists at the outpatient nutrition clinic at the University hospital of Montpellier (France) for excess body weight. All consecutive adult patients who consulted between January 1997 and June 1999 were included. Subjects who consulted specifically for a complication of obesity (diabetes for example), who presented disordered eating related to a psychiatric disease and with bulimia nervosa were excluded.

Initial evaluation included a medical history and a physical examination. Body weight and height as well as blood pressure were measured. Energy intake (EI) was estimated using a simplified dietary history based on protein intake [11] and specific dietary behaviors such as nibbling, festive meals and consumption of salted entrees, sweet desserts and caloric beverages [12]. Patients with an EI to estimated basal metabolic rate (BMR) ratio < 1.30 were considered as under-reporters of EI [13]. Past history of dieting and family history of obesity were obtained from interviewing the patient.

Physical Activity was evaluated by asking the patients to indicate their usual pattern of physical activity under the headings of regular walking or cycling, recreational activity, and sporting activity. Regular walking and cycling included travel to and from, or at, work. Recreational activity included gardening, pleasure walking, and do-it-yourself jobs. Patients were classified as sedentary if they did not practice any sport and had no regular physical activity either at work or during recreational time. They were otherwise classified as physically active or intermediate.

All patients were prescribed a low calorie diet with a balanced ratio of protein, carbohydrate and fat to provide an EI corresponding to the 2/3 of their total energy expenditure (TEE). TEE was estimated from BMR predicted according to Harris-Benict formula [14] and corrected by a factor of physical activity level. The factors we used were 1.4, 1.6 and 1.8 according to the patients’ physical activity, respectively sedentary, intermediate or physically active [15]. An expert dietician individually explained energy prescribed diet to each patient. Patients were advised to increase their physical activity and encouraged to have follow-up visits with the same physician every two to three months.

During the months of January and February 2000, one of us attempted to phone all 299 patients. Information was obtained on 106 (35.5%) patients and a total of 95 (31.6%) patients were successfully interviewed (follow-up group). Of the remaining patients, 4 failed to provide reliable data, 5 refused to participate, 2 had died, 96 could not be contacted after a minimum of 3 phone calls, and an additional 97 could not be reached because of disconnected phone numbers.

We conducted a structured phone interview in which we explained the purpose of the follow-up study, obtained the patient’s oral agreement to participate, and collected information that included the patient’s health and current weight. Information was also obtained concerning the patient’s additional interventions to lose weight after his last visit to the clinic and his satisfaction regarding the diet and the advice that had been given to him. A group of questions was specifically designed to evaluate the reasons for discontinuation of follow-up in patients who did so.

All reported investigations have been carried out in accordance with the principles of the Declaration of Helsinki as revised in 2000 (http://www.wma.net/e/poling/17-c_e.html).

Statistical analysis

Body weight change was calculated as the difference between body weight measured during the first visit to the
attended a weight loss program.

Statistical analysis was performed using classical tests: comparison of means by student’s t test for variables normally distributed or by Wilcoxon two-sample test otherwise, analysis of variance and CHI-2 test, correlation by Pearson’s correlation coefficient. Logistic regression was performed for multivariate analysis. Descriptive data are presented with ± one standard error.

Results

The follow-up group did not differ significantly from the 204 patients who were not contacted regarding sex ratio, body mass index (BMI), blood pressure, and EI (Tab I). The only significant difference was for age with the group of patients who was interviewed being older (46.1 ± 1.4 vs. 42.7 ± 1.1 years, p = 0.03). The follow up group was therefore representative of the entire group for the main basal variables.

The mean time interval between the first visit and the phone interview was 1.1 ± 1.3 years. 8% of the patients declared to be still followed-up in the clinic at the time of the interview. The mean duration of follow-up for these patients was 1.1 ± 0.1 years; 25% of the patients reported additional interventions to lose weight after their last visit in the clinic: 17% had consulted another nutrition specialist or a dietician and 8% had entered a non-medical supervised weight loss program.

The reported average body weight loss was 6.7 ± 1.2 kg for the entire group (median: 4.2 kg). Forty-eight patients (50.5%) reported they had lost more than 5% of their initial body weight and thus were considered to be successful. The average body weight loss reported in this specific subgroup was 13.3 ± 1.4 kg (median: 10 kg). As a group, patients reporting a body weight loss ≥ 5% did not differ significantly from the others except for the total number of visits they attended (Tab II). Nineteen patients (20%) declared that they had reached their expected body weight at the time of the phone interview (mean weight loss 12.2 ± 1.8 kg).

When first consulting, 28 (29.5%) patients had a BMI below 30 kg/m², 34 (35.8%) had grade I obesity (30 ≤ BMI < 35 kg/m²), 18 (19.8%) had grade II obesity (35 ≤ BMI < 40 kg/m²) and 15 (15.8%) had grade III obesity (BMI ≥ 40 kg/m²). Heavier patients tended to lose more weight and initial BMI was associated with absolute weight loss in kg (r = 0.56, p < 0.0001) as well as with % body weight loss (r = 0.42, p < 0.0001).

Thirty-eight patients (44%) were referred to the clinic by their GP; 57 (56%) were not. 85 patients (89%) had a past history of dieting to lose weight (42 more than 5 times, Thirty-three 2 to 5 times and 10 one time). 22 patients (23%) were underestimating their EI at dietary history. 34 patients (35%) did not have any follow-up visit, 22 (23%) had just one follow-up visit and 38 (40%) had 2 or more follow-up visit in the clinic.

No relation was found between sex, age, and physical activity at initial visit or time elapsed since first or last visit and body weight loss. Neither type of referral, nor past history of dieting was associated with body weight loss. Under-reporting of EI (i.e. having an EI to estimated BMR ratio < 1.30) at dietary history was positively associated with body weight loss (– 11.8 ± 1.1 vs. – 5.1 ± 3.9 kg, p < 0.05) as well as the number of visits attended by the patient (– 4.7 ± 2.0, – 7.0 ± 2.1 and – 8.9 ± 1.5 kg in patients who attended 1, 2 and 3 or more visits respectively; p for trend = 0.04)

Thirty-two percent of the patients who attended 1, 2 and 3 or more visits respectively; p for trend = 0.04). Thirty-eight patients (44%) were referred to the clinic by their GP; 57 (56%) were not. 85 patients (89%) had a past history of dieting to lose weight (42 more than 5 times, Thirty-three 2 to 5 times and 10 one time). 22 patients (23%) were underestimating their EI at dietary history. 34 patients (35%) did not have any follow-up visit, 22 (23%) had just one follow-up visit and 38 (40%) had 2 or more follow-up visit in the clinic.

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Forty-eight patients (48%) were referred to the clinic by their GP; 57 (56%) were not. 85 patients (89%) had a past history of dieting to lose weight (42 more than 5 times, Thirty-three 2 to 5 times and 10 one time). 22 patients (23%) were underestimating their EI at dietary history. 34 patients (35%) did not have any follow-up visit, 22 (23%) had just one follow-up visit and 38 (40%) had 2 or more follow-up visit in the clinic.

Table II
Comparison of the characteristics of the patients who reported a body weight loss ≥ 5% initial body weight and the others.

<table>
<thead>
<tr>
<th>Body weight loss (n = 48)</th>
<th>Body weight loss ≤ 5% (n = 47)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years) 44.1 ± 1.8</td>
<td>42.9 ± 2.1</td>
<td>NS</td>
</tr>
<tr>
<td>Female % 75.0</td>
<td>78.8</td>
<td>NS</td>
</tr>
<tr>
<td>BMI (kg/m²) 34.1 ± 1.1</td>
<td>33.3 ± 0.8</td>
<td>NS</td>
</tr>
<tr>
<td>Energy intake (kcal/day) 2191 ± 112</td>
<td>2296 ± 83</td>
<td>NS</td>
</tr>
<tr>
<td>Past history of dieting (%) 41.7</td>
<td>40.9</td>
<td>NS</td>
</tr>
<tr>
<td>Total number of visits attended 2.3 ± 0.1</td>
<td>1.8 ± 0.1</td>
<td>0.006</td>
</tr>
<tr>
<td>Duration of follow-up 2.3 ± 0.3</td>
<td>2.0 ± 0.1</td>
<td>NS</td>
</tr>
</tbody>
</table>

Table I
Main characteristics of contacted and non-contacted patients.

<table>
<thead>
<tr>
<th>Contacted (n = 95)</th>
<th>Not Contacted (n = 204)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years) 46.1 ± 1.4</td>
<td>42.7 ± 1.1</td>
<td>0.03</td>
</tr>
<tr>
<td>Female % 78.1</td>
<td>81.9</td>
<td>NS</td>
</tr>
<tr>
<td>BMI (kg/m²) 33.8 ± 0.7</td>
<td>33.4 ± 0.5</td>
<td>NS</td>
</tr>
<tr>
<td>Systolic blood pressure (mmHg) 127.0 ± 2.3</td>
<td>129.0 ± 1.5</td>
<td>NS</td>
</tr>
<tr>
<td>Diastolic blood pressure (mmHg) 79.5 ± 1.4</td>
<td>79.2 ± 0.9</td>
<td>NS</td>
</tr>
<tr>
<td>Energy intake (kcal/day) 2250 ± 68</td>
<td>2300 ± 53</td>
<td>NS</td>
</tr>
</tbody>
</table>
to 49% in the group of patients who were not expecting so did not lose weight ($p < 0.05$).

In multivariate analysis, underreporting EI remained significantly associated with body weight loss with that group of patients having 4.3 times more chances to lose more than 5% of their body weight ($p < 0.05$). As a group, underreporters did not differ from the other patients except for EI (Tab III). By contrast, patients who were expecting a hospitalization had 7.3 times less chance to lose weight ($p < 0.01$).

The main reasons for discontinuation of follow up were lack of time and/or personal reasons (25%), achieving weight goal (20%), lack of efficacy of the treatment (16%), not being satisfied of the proposed measures (13%).

**Discussion**

Primary care physicians often have the first opportunity to encourage weight control and primary prevention of weight gain. However, there remains considerable resistance on the part of many GPs to become actively involved with overweight and obese patients despite the rapid increase in prevalence. The reasons for this reluctance are varied, but include perceptions of the causes of obesity, lack of training, insufficient office time to deal with the difficulties patients face, limited staff support, and the perceived poor long-term success rate [3-9]. Consequently, specific interventions to address obesity are infrequent in visits to physicians. Obesity is underreported and interventions are only moderately likely among patients identified as obese [16].

The main finding of our study was that visiting a nutrition specialist in an outpatient clinic is followed by successful lifestyle changes and body weight loss. Results from studies reporting the effect of individual weight-loss programs are generally consistent with our own. Wood [17], in a similar study, contacted at one year 73 patients among 119 patients who lost weight and 157 who consulted in their medical center during a two-year period. The mean weight loss was 4.1 kg and was maintained by 74% of the individuals at one year. The mean weight loss reported in the present study is also in agreement with results of structured weight-loss programs [18, 19] and do thus demonstrate that individual counseling even without integrating such programs can be effective. Hakala et al. [20] studied 60 patients who were randomly assigned to a group-counseling program associated with an initial two-weeks inpatient period and an individual-counseling outpatient program. Results were superior in the individual outpatient program with a mean weight loss at 2 years of 15.6 and 10.4 kg in men and women respectively. These results are superior to ours, which may be compared to those of the placebo groups of drug studies like the two important orlistat studies of Davidson et al. and Sjöström et al. [21, 22]. In the American study of Davidson et al., 43.6% of the 222 placebo treated patients had lost more than 5% of their initial body weight at 1 year and weight regain was generally noted during the second year. In the European study of Sjöström et al., 37.4% of the 102 patients following a two year placebo treatment, had lost greater than 5% of their initial body weight. In these 2 studies, patients benefited from a regular follow-up and dietary advices.

The "Institute of Medicine of the National Academy of Sciences" has proposed that successful weight loss be defined as the reduction in initial body weight of 5% or more and the maintenance of this loss for at least 1 year [23]. The French guidelines have set a weight loss between 5 and 15% as a success [24]. As a group, subjects in the present study reported a weight-loss of 6.7 ± 1.2 kg (6.95 ± 1.02% of body weight) over a mean time interval of 2 years, meeting the established guidelines and 50.5% of the subjects reported a weight-loss of more than 5% of their initial body weight. Even though the findings of the present study are both statistically and clinically significant, the conclusions drawn may overstate the results since they are based on self-reported and not on measured weights. Self-reported weights are commonly underestimated by the patients and mean differences of 2.3 kg have previously been reported in patients who participated in community weight-loss programs [25] even though smaller differences were found in a French cohort [26]. On the other hand, subjects who succeeded in body weight loss responded probably more easily to the phone interview also leading to an overestimation of the results. The group of patients who reported losing more than 5% of their body weight had actually a mean weight loss of 13.3 ± 9.8 kg (13.8 ± 6.9%). Hence, even if correcting for usual underestimation (2 to 3 kg), it remains that these subject lost a significant percentage of body weight.

<table>
<thead>
<tr>
<th>Table III</th>
<th>Comparison of the characteristics of underreporters and non underreporters of energy intake.</th>
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<tbody>
<tr>
<td>Underreporters of EI (n = 23)</td>
<td>Non Underreporters of EI (n = 73)</td>
</tr>
<tr>
<td>Age (years)</td>
<td>46.0 ± 2.51</td>
</tr>
<tr>
<td>Female %</td>
<td>68.2</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>36.4 ± 1.95</td>
</tr>
<tr>
<td>Energy intake (kcal/day)</td>
<td>1563 ± 97</td>
</tr>
<tr>
<td>Past history of dieting (%)</td>
<td>50.0</td>
</tr>
<tr>
<td>Total number of visits attended</td>
<td>1.9 ± 0.2</td>
</tr>
<tr>
<td>Subjects physically active (%)</td>
<td>60.0</td>
</tr>
</tbody>
</table>
Nevertheless, we can not conclude that the weight loss observed at the time of the phone interview is a direct result of the individual counseling at the nutrition clinic. Between the last visit and the phone interview some subjects underwent additional interventions, which may have affected weight changes. However, it is difficult to consider that the marked effects observed in the present study were independent of the individual counseling given at the nutrition clinic.

Predictors of long-term weight-loss have not been clearly identified so far. In our work, we found that classical predictors of outcome like initial BMI and attendance to the follow-up visits were effectively associated with weight-loss. Interestingly, under-reporting EI was also strongly associated with weight-loss. The cut-off value of 1.35 for EI: BMR was suggested by Goldberg [13] as the lowest value for habitual EI of an individual that is compatible with a normal, not bedridden lifestyle. Since in the present work BMR was estimated and not measured, we chose a slightly lower cutoff value of 1.30 for EI: BMR for the definition of underreporting. It has recently been reported that those individuals with a low EI: BMR ratio report eating less energy dense foods and less fat than those with a high ratio [27]. It can be speculated that underreporting individuals have poor quantitative estimation of food consumed, particularly of fat foods and that this could easily be corrected by teaching them the composition of foods. They could thus relatively easily correct their consumption of these energy dense foods. Special attention should also be given to the possibility that gross under-reporters of EI may also be over-reporters of weight loss akin to over reporting of physical activity identified in the overweight and obese patients [28]. Subjects reporting they were expecting a hospitalization had less chances to have lost weight. However, it is difficult to know whether these subjects did really expect a hospitalization at the time of their first visit to the clinic or if this is an a posteriori statement resulting from an absence of satisfactory weight-loss at the time of the phone interview.

One of the limits of our study is the limited sample obtained during the follow-up phase. However, since the subjects who were successfully contacted did not differ significantly from the initial sample and due to the scarcity of published data regarding not structured weight-loss programs, we believe that the present results are of interest.

In conclusion, effective approaches are needed for changes in weight loss to reduce the risks of morbidity and mortality. This study demonstrates that visiting a nutrition specialist to receive individual counseling and prescription of a balanced low calorie diet is part of a positive behavior change leading to body weight loss. The same positive results were noted whether patients were referred to the clinic by a GP or not. Hence, motivation of the patient by GPs driving them to consult a nutrition specialist is followed by positive behavioral changes and should be encouraged. Although carried out in a university outpatient setting, this study was designed to evaluate the interest of a visit in the typical busy specialist’s office practice. There is no reason to believe that the results should not be the same for practitioners working in office based practice, should they give the same advices to their patients. Nutrition specialists can be part of a weight management program by promoting healthy living and prescribing energy restricted diets. Our results are in favor of their integration in healthcare networks to manage obesity in a way similar to that used for other chronic diseases or risk factors [16, 29]. Not structurally programmed weight-loss guidance is a cost effective approach of obesity.

References
