

## ORIGINAL ARTICLE

## Complexity of attrition in the treatment of obesity: clues from a structured telephone interview

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**Objectives:** To investigate the causes of attrition reported by obese patients treated by medical centres.

**Design:** Observational study.

**Setting:** Obese patients enrolled in a long-term study involving 18 Italian medical centres.

**Participants:** A total of 940 obese patients (727 female; mean age, 49 years; mean BMI, 38.6 kg/m<sup>2</sup>).

**Measurements:** Causes of attrition reported by dropouts during a structured telephone interview.

**Results:** After a median observation period of 41 months (range, 25–50), 766 of 940 patients (81.5%) discontinued treatment. Sixty-two per cent of total dropout occurred in the first year of follow-up. Seventy-four per cent of dropouts reported a single primary reason for treatment interruption. Two primary reasons were reported by 22.4% of patients, and three reasons by 3.4%. Practical difficulties, alone or in combination, were reported by more than half of dropouts (55%), and were the leading cause of attrition followed by perceived failure of treatment. Among practical difficulties, family problems or problems at work and logistics, coupled with health problems other than obesity, were the most frequent reasons of attrition, but also a perceived sense of abandonment or a bad interaction with therapists were frequently reported.

**Conclusion:** Practical difficulties and psychological problems are the most important reasons of attrition reported by patients. A therapeutic alliance addressing these issues has a large potential to reduce treatment interruption and to improve outcome in obesity.

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**Keywords:** obesity treatment; continuous care; attrition; telephone interview

## Introduction

Non-adherence to long-term treatment programmes and unilateral interruption of the professional relationship with the therapists are common behaviours of obese patients. In obesity trials, the attrition rates range from 10 to 80%,<sup>1</sup> and vary from study to study according to clinical setting, experimental design (randomized vs observational study) and type of treatment (drugs, behaviour, bariatric surgery). Adherence to the planned programme is a key component of long-term success,<sup>2,3</sup> and strategies are needed to reduce dropout rates. These strategies can only rely on a precise identification of factors leading to premature programme termination.

A few predictors of attrition have been identified on the basis of basal characteristics. In a 1992 review, Wadden and Letizia<sup>4</sup> concluded that binge eating, significant life stress (including financial problems) and small weight loss in the early phase of treatment were the most important predictors of attrition, but subsequent studies were conflicting. Attrition was negatively associated with binge eating,<sup>5</sup> was both positively<sup>6</sup> and negatively<sup>7</sup> associated with depression, was negatively associated with previous dieting,<sup>8</sup> was positively associated with emotional disturbance,<sup>8</sup> full-time job<sup>7</sup> and recently with greater weight loss expectations.<sup>3,9</sup>

Very few studies are available on the reason for attrition as reported by obese patients during structured interviews after dropout. The most frequently reported reasons were personal problems, lack of motivation or moving into another treatment plan,<sup>10</sup> various family-related problems,<sup>11</sup> lack of time, dissatisfaction with the programme or the staff, personal life issues and health limitations.<sup>9</sup> All these studies were carried out on limited samples treated in specific settings, and no firm conclusions can be drawn.

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We developed a structured telephone interview to ask patients directly the reason(s) for dropout. This strategy was applied within the context of a large observational Italian study on obesity.

## Materials and methods

The QUOVADIS (QUality of life in Obesity: eVALuation and DIsease Surveillance) study planning and protocol were described in details in a previous paper.<sup>12</sup> QUOVADIS is an observational study on quality of life, psychological distress and eating behaviour in obese patients seeking treatments at medical centres accredited by the Italian Health Service for the treatment of obesity. Twenty-five centres scattered throughout Italy participated in the study. The study is purely observational. Accordingly, the participating centres were expected to treat patients along the lines of their specific programmes, including dieting, cognitive behavioural therapy, drugs and bariatric surgery (less than 2% of patients).

All obese subjects (body mass index (BMI)  $\geq 30$  kg/m<sup>2</sup>) consecutively seeking treatment were eligible for the study, provided they were not on active treatment at the time of enrolment, were in the age range between 25 and 65 years, agreed to fill in a package of self-administered questionnaires and signed an informed consent to participate. Patients were enrolled from January 2000 to December 2001, and were followed up till December 2004. Data were stored in a large database, accessed by individual centres through an extranet system and electronic forms.

In the course of 2003, a group of experts prepared a semistructured telephone interview to classify reasons for dropouts. The group included psychologists, clinicians and epidemiologists. A lot of information regarding clinical and weight history after enrolment, satisfaction with treatment programme, time and reasons for dropout were considered. After an introductory note to explain the scope of the interview, patients were asked to answer 54 questions, exploring weight control, weight cycling, the present strategy used by patients to control their weight, the general health status and the psychological well being. A specific section was devoted to investigate the cause(s) of attrition, with several detailed questions with closed or open response fields. This section is shown in Table 1. The patient was asked to select all the answers that described best his/her situation. While in progress, the questionnaire was tested on a limited number of patients in the coordinating centre, and the final version and its application manual was approved in December 2003. Eighteen out of the 25 centres agreed to participate in this telephone follow-up and 1280 patients were searched by phone. Seven centres did not adhere to the telephone programme for practical reasons, unrelated to the philosophy of the study.

**Table 1** Questionnaire section dealing with reasons for treatment interruption

*Your contact with the obesity centre was interrupted sometime ago. Could you please help us to understand why?*

1. You disagreed with the treatment plan
2. You were satisfied with the treatment results
3. You were confident to lose additional weight without professional help
4. You had practical difficulties:
  - a. Living far from the medical centre
  - b. Problems at work
  - c. Family problems
  - d. Financial problems
  - e. Health problems other than obesity
  - f. Holidays
  - g. Other reasons (please specify)
5. The results were unsatisfactory. Could you please specify why?
  - a. Unsatisfied with weight loss
  - b. Unable to keep to the treatment programme
6. You were not motivated enough
7. Other reasons (please specify)

All patients enrolled in the QUOVADIS study had signed an informed consent to a contact interview during follow up by any means, including telephone interview. The study was approved by the ethical committees of the participating centres, after approval by the committee of the coordinating centre (University of Bologna).

## Statistical analysis

A descriptive analysis was carried out using mean and standard deviation of parametric variables and prevalence of item responses. Comparison between patients who interrupted unilaterally the relation with the medical centres during follow-up (dropouts) and those who maintained this relation (Continuers) was carried out by unpaired *t*-test, Fisher exact test or  $\chi^2$  test. The significance limit was set at  $P < 0.05$ .

## Results

The baseline characteristics of the whole QUOVADIS sample were described in detail in a previous report.<sup>12</sup>

The present analysis is based on the complete telephone records of 940 patients who agreed to answer the phone questionnaire out of the 978 cases who were successfully traced by the investigators. Only 38 patients refused (3%), 302 cases (24%) were not traced.

The number of dropouts during a median observation period of 41 months (range, 25–50) was 766 (81.5%). There were no significant differences between Continuers and dropouts with regard to age, gender distribution, BMI, civil status, education and job category (Table 2). Only the

**Table 2** Comparison between Continuers and Dropouts

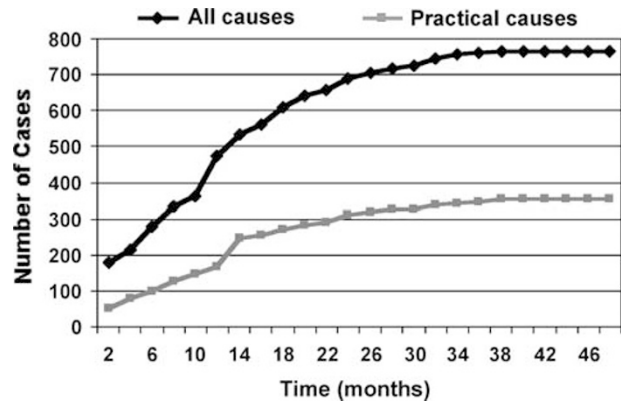
Features	Continuers (n = 174)	Dropouts (n = 766)
Female gender (%)	76.4 (69.3–81.9)	77.5 (74.4–80.3)
<i>Civil status</i>		
Single (%)	16.7 (11.6–22.6)	22.7 (19.8–25.7)
Married (%)	78.2 (71.1–83.4)	72.3 (69.0–75.3)
Widowed (%)	5.2 (2.5–9.2)	5.0 (3.6–6.7)
<i>Education</i>		
Primary (%)	19.0 (13.6–25.1)	16.2 (13.7–18.9)
Secondary (%)	32.8 (26.0–39.7)	34.6 (31.2–38.0)
High school (%)	32.2 (25.4–39.1)	41.0 (37.5–44.4)
Degree (%)	13.2 (8.7–18.7)	6.4 (4.8–8.3)*
Other (%)	2.3 (0.7–5.4)	1.8 (1.0–3.0)
<i>Employment status</i>		
Student (%)	2.9 (1.1–6.2)	1.6 (0.9–2.6)
House wife (%)	17.8 (12.6–23.9)	22.3 (19.5–25.3)
Blue collar (%)	9.2 (5.5–14.1)	9.7 (7.7–11.9)
White collar (%)	23.6 (17.6–30.1)	23.4 (20.4–26.4)
Self-employed (%)	10.3 (6.4–15.4)	12.5 (10.3–15.0)
Unemployed (%)	4.0 (1.8–7.7)	3.3 (2.2–4.7)
Retired (%)	18.4 (13.1–24.5)	12.0 (9.8–14.4)
Other (%)	13.8 (9.2–19.4)	15.3 (12.8–17.9)
Age (years)	50.7 (10.7)	48.7 (10.5)
Weight (kg)	102.9 (19.6)	102.2 (20.0)
Body mass index (kg/m <sup>2</sup> )	38.9 (7.0)	38.5 (6.4)

Data are expressed as prevalence (95% confidence interval) or as means (s.d.). There were no differences between groups, with the exception of university education, which was more prevalent in Continuers. \**P* vs Continuers = 0.004, Fisher's exact test.

percentage of subjects with university education was significantly higher in Continuers. Sixty-two per cent of total dropout occurred in the first year of follow-up and almost 90% within 2 years from enrolment (Figure 1). Seventy-four percent of dropouts reported a single reason for premature programme termination; two reasons were given by 22.4% of patients, and three or more by 3.5%.

Practical difficulties accounted for almost half of the primary causes for attrition (45%) followed by unsatisfactory results (14%), scarce motivation (12%), and confidence in the ability to lose additional weight without professional help (9%). Forty-four patients (8%) gave open answers among the term 'other reasons'. Within this subset, we counted seven pregnancies, six cases of 'personal problems', four surgical interventions, three cases of depression, and a number of single different causes. Satisfaction with the results achieved during treatment was the reason for interrupting the contact with the obesity centre in 7% of cases (37 patients), and disagreement with the treatment plan in 5%.

One hundred and seventy-one patients gave differently combined causes for attrition. The most common combinations were (a) unsatisfactory results associated with non-adherence and (b) practical difficulties associated with lack of motivation or other reasons.

**Figure 1** Cumulative prevalence of dropouts from all causes and dropouts owing to practical difficulties during the follow-up period.**Table 3** Practical reasons for attrition in the study group, as reported by phone interview

Reason <sup>a</sup>	No (%)
Family problems	151 (30)
Problems at work	143 (28)
Living far from the medical centre	104 (21)
Health problems other than obesity	58 (11)
Financial problems	17 (3)
Holidays	1 (0)
Other reasons	34 (7)
Total	507 (100%)

<sup>a</sup>Note that patients could report more than one reason.

In general, practical difficulties were the most frequent cause for premature programme termination. Two hundred and fifty-eight patients described one or more practical reason for attrition (Table 3). They included family problems (nearly 30%), problems at work, distance problems (all linked with time constraints) and health problems other than obesity. In addition, there were many open descriptors under the heading 'other causes' of Table 1. The most prevalent reason was the feeling of being abandoned by the clinical personnel after an initially intensive programme, or an unsatisfactory interaction with the therapists (Table 4).

In general, we counted over 140 different causes or combinations selected by patients to describe the reasons of their premature programme termination, which could be assembled in at least 30 different prototypes (Table 5). Family or job problems and logistics, variably coupled with health problems other than obesity were reported in more than half of dropouts (55%), and were the leading cause of attrition followed by perceived failure of treatment. Having achieved satisfactory results with treatment, the only positive reasons for programme termination was the eighth reason of attrition, reported by less than 8% of patients.

Since practical difficulties represented the most frequent primary cause for attrition, we analysed the cumulative percentage trends of this cause of dropout. There was no

**Table 4** Other causes of attrition, free description

<i>Causes of attrition not codified</i>	<i>No</i>
Lack of encouragement, sense of abandonment	23
Bad interaction with health personnel	10
Personal health problems	8
Choice of other treatments/centres	6
Shame for being unable to cope with prescriptions	6
Programme too difficult to follow	5
Administrative problems barriers	5
Problems in taking appointments	4
Health problems of husband	2
Turn around of medical personnel	2
General practitioner influence	2
Other reasons	16
<b>Total</b>	<b>89</b>

**Table 5** Final ranking of the 10 most frequent causes for attrition, alone or in combination, as reported by Dropouts

	<i>No of reports<sup>a</sup></i> <i>(% of cases)</i>
Unsatisfactory results (treatment did not work)	172 (22.4)
Family problems	151 (19.7)
Problems at work	143 (18.7)
Living far from the medical centre	104 (13.6)
Lack of motivation	99 (12.9)
Confident to lose additional weight without professional help	89 (11.6)
Unsatisfactory results (unable to keep adherence to treatment plan)	84 (11.0)
Satisfactory results	59 (7.7)
Disagreement with the treatment plan	59 (7.7)
Health problems other than obesity	58 (7.6)

<sup>a</sup>Note that most patients reported more than one cause.

relation between time to dropout and the percentage prevalence of practical difficulties. Practical difficulties played a major role both in early and in late dropout (Figure 1).

## Discussion

The first message of the report is that it is possible to retrieve a sizable amount of information regarding obese patients lost to follow-up by means of a structured telephone interview from 3 to 4 years after treatment stops. Over 75% of patients were traced and most of them were collaborative with the interviewer, acknowledged the importance of reporting frankly the reason(s) for dropout, and agreed to answer the 54 questions of the interview. Obese patients are considered a category particularly prone to dropout, as also observed in the QUOVADIS study, where nearly 80% of patients were lost to follow-up in a continuous care model of

treatment.<sup>3</sup> The possibility to retrieve information also in this specific, highly problematic setting could be of relevance also for other fields of medicine. Telephone contacts have been used in several areas of medicine as preventive counselling strategies to enhance adherence, like cancer-screening programmes,<sup>13,14</sup> but have been rarely utilized for in-depth review of the possible causes of non-adherence. In obesity, phone interventions have been used to deliver weight loss programmes to large numbers of people<sup>15</sup> and to determine long-term weight loss maintenance,<sup>16</sup> but the use of a structured phone interview to determine the reason(s) for attrition is novel. This study opens new possibilities to fill in this gap in contexts in which long-term adherence is considered a specific issue.

The second message is that more than half of non-adherence to follow-up was apparently linked to practical problems. Logistics as cause of primary non-participation to health programmes has previously received a lot of interest in cancer-screening programmes,<sup>17</sup> and interviews were used to develop programmes to reduce non-attendance.<sup>18</sup> Our study and the medical literature confirm that practical problems are among the most important factors associated with attrition in chronic diseases and in community living patients. These problems arise from organizational or physical barriers, which are often overlooked in clinical medicine. Owing to time constraints, the specialists spend most of their time in the clinical evaluation. The social and familial environments are rarely considered a relevant part of the interview and there is a poor cultural attitude to carefully evaluate this fundamental aspect of patients' life. Devoting some time of the office consultation to understand and/or to remove barriers could improve the patients' compliance to treatment.

The third message of our study is the importance of a careful evaluation of psychological processes during treatment, since patients attribute them a casual role in attrition. Lack of motivation, dissatisfaction with the results, self-confidence in the ability to lose additional weight without professional help, and sense of abandonment are the four most important psychological reasons reported by patients.

Lack of motivation as primary reason for attrition has been previously reported in the treatment of obesity.<sup>11</sup> The importance of maintaining motivation lead some authors<sup>19</sup> to suggest an integration of traditional weight loss programmes with Motivational Interviewing (MI),<sup>20</sup> with conflicting results. Three sessions of MI added to a behavioural weight control programme for patients with Type 2 diabetes produced a significant improvement in adherence to treatment and a better glucose control, but not a greater weight loss.<sup>21</sup> In patients with hypertension, a lifestyle modification programme integrated with MI produced a significantly greater weight loss and a larger blood pressure fall.<sup>22</sup> Wilson and Schlam<sup>23</sup> have recently suggested that MI could be used as a separate intervention throughout the course of treatment when the motivation of the obese patients decreases.

Dissatisfaction with the results is another important psychological process involved in attrition. The degree of dissatisfaction/satisfaction with the results is largely dependent on the weight loss expectancies of patients. In the whole QUOVADIS sample, dream weight corresponded to a 32% weight loss, and maximum acceptable weight to a 23% loss.<sup>24</sup> These unrealistic weight loss expectations were the strongest predictors of attrition at long-term follow-up in subjects under continuous care.<sup>3</sup> A subgroup of patients, however, reported that the interruption of treatment was motivated by the satisfactory results achieved with treatment. This reason for premature programme termination is definitely not a treatment failure, since these patients reported an even larger mean weight loss than Continuers.<sup>3</sup> Other studies had already underlined the positive role for weight loss satisfaction in long-term weight maintenance.<sup>25,26</sup>

Confidence in the ability to lose additional weight without professional help' is a psychological construct close to Bandura's concept of self-efficacy, which refers to a person's belief that he/she is capable of holding on to a specific behaviour.<sup>27</sup> Also, subjects confident to lose additional weight without help achieved a larger mean weight loss than Continuers.<sup>3</sup>

The fourth psychological process associated with attrition was the lack of encouragement, perceived by several obese patients as a sort of 'abandonment syndrome' following an initially intensive programme. We speculate that this psychological process derives from the social stigma of obesity.<sup>28</sup> Obese patients are reminded by contacts with family members, peers, healthcare providers, and any person they meet during their everyday life, that their body frame deviates from social norms. Accordingly, they experience a pattern of denigration and condemnation also reported as 'civilized oppression'.<sup>28</sup> The role of this perceived abandonment as a cause of attrition needs to be investigated more deeply.

The study has three major strengths. Firstly, it evaluated the reasons of attrition in the 'real world' of 18 medical centres scattered throughout Italy with heterogeneous programmes of treatment. Secondly, the patients directly reported the reasons for attrition, as they had perceived them at the time of treatment interruption. The structured questionnaire included both personal problems and problems arising from contact with therapists and the medical centre. The follow-up time is both strength and weakness. In all subjects, it was long enough to avoid the typical answer bias observed in interviews done at the time of attrition, where patients may report any kind of reasons with the specific purpose of avoiding the return to treatment.<sup>7</sup> In a few cases, it was probably too long. Although we did not observe during the phone interview any difficulties in answering precisely the questionnaire, we cannot exclude some memory bias from 3 to 4 years after the initial visit.

The weakness of the study lies in the very high number of dropouts, at the highest rates reported in the literature,

possibly arising from the observational nature of the study and the different treatment programmes planned in the various centres. The dropout rate was indeed different between centres and ranged from 61 to 98% ( $P < 0.0001$ ,  $\chi^2$  test),<sup>3</sup> suggesting that centre-associated reasons might also be involved and should be investigated in future studies.

The study has relevant implications for both research and treatment of obesity. For researchers, our data show that a simple and inexpensive structured telephone interview makes it possible to collect valuable information regarding the reason(s) for dropout in obese patients lost to follow-up. For clinicians, our study suggests that attrition may be reduced by paying attention to the practical and psychological problems of patients and to the sense of abandonment they sometime perceive. A therapeutic alliance addressing these issues is a challenge for obesity centres,<sup>29</sup> and the resolution of these problems is a must. It has a large potential to reduce attrition and improve outcomes in this chronic condition and in subjects free living in the community.

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