

Bariatric Surgery and Bariatric Psychology: General Overview and the Dutch Approach

Gerbrand C. M. van Hout, MSc¹; Anke J. Leibbrandt, MSc¹; Jack J. Jakimowicz, PhD²; J. Frans Smulders, MD²; Erik J. Schoon, PhD³; Jan P. van Spreuwel, PhD³; Guus L. van Heck, PhD⁴

¹Department of Medical Psychology, ²Department of Surgery, ³Department of Gastro-enterology, Catharina Hospital, Eindhoven, the Netherlands; ⁴Tilburg University, the Netherlands

Background: Obesity is a chronic, multifactorially caused disease with serious somatic and psychosocial comorbidity as well as economical consequences. In the Netherlands, between 1993 and 1997, the prevalence of morbid obesity was 0.2% for men and 0.6% for women. Although bariatric surgery generally is an effective intervention, it does not lead to equal results in every patient. The long-term efficacy is predominantly determined by compliance to adequate dietary rules in which psychosocial factors can play a major role.

Methods: Questionnaires were sent to the surgery departments of all hospitals in the Netherlands. Subsequently, a second questionnaire was sent to clinical psychology departments of hospitals which perform bariatric surgery.

Results: In 28 Dutch hospitals (19%), bariatric surgery is being performed, mostly using restrictive procedures. Almost all hospitals have a multidisciplinary selection-process, and all surgeons and psychologists use multiple selection-criteria. Regarding these criteria, there is more consensus between surgeons than between psychologists. In most hospitals, patients are psychologically assessed prior to surgery. However, postoperative assessment is relatively rare, as is preoperative and postoperative psychological treatment.

Conclusion: In the Netherlands, bariatric surgery is still relatively uncommon and mostly limited to restrictive procedures. Irrespective of BMI and eating behavior, the majority of patients will be offered a restrictive procedure. The involvement by the psychological and/or psychiatric discipline is not optimal yet; espe-

cially, postoperative assessment and pre- and postoperative treatment are not frequently performed, in spite of the fact that these programs can enhance the success rate of bariatric surgery.

Key words: Bariatric surgery, medical psychology, bariatric psychology, health-care in the Netherlands, morbid obesity, compliance, selection criteria

Introduction

Obesity is a chronic, multifactorially caused, disease characterized by an excessive storage of fat. Morbid obesity is often accompanied by comorbidities such as cardiovascular diseases, hypertension, diabetes, infertility, sleep apnea, and some types of cancer.¹ Obesity is also often accompanied by serious psychosocial problems. The quality of life of the morbidly obese in general is worse compared with patients with other chronic diseases.² Psychosocial consequences of morbid obesity are, among others, depression, somatization, interpersonal problems, low social adjustment, and low self-esteem.² Within the social domain, people with obesity have to deal with prejudice, discrimination, social isolation, unsatisfactory relations, and occupational problems. Obesity also contributes substantially to health-related costs, in the Netherlands up to 5%.³ In addition, there are personal, societal, and indirect costs, partly related to loss of productivity.

In the Netherlands, between 1993 and 1997, the prevalence of morbid obesity was 0.2% for men and

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Reprint requests to: Gerbrand Van Hout, Catharina Hospital, Department of Medical Psychology, P.O. box 1350, 5602 ZA Eindhoven, The Netherlands. E-mail: gerbrand.v.hout@cze.nl

0.6% for women, in total about 39,000 morbidly obese adults.⁴ This places the Netherlands in between countries with a high prevalence such as the United States and many fast modernizing developing countries and countries with a low prevalence such as China, Japan, and Latin-America.⁵ According to epidemiological studies, the prevalence of obesity is still increasing.⁶

Obesity is believed to be the consequence of the complex interplay of genetic, social, cultural, and environmental factors. Genetic factors determine predominantly whether individuals can get obese, while lifestyle and the environment determine whether they actually do get obese.⁷

There is little optimism about the long-term efficacy of the non-surgical treatment of obesity, such as diets, behavioral modification, exercise, and pharmacotherapy.^{8,9} In individuals who start conservative treatment for their obesity, in 5 years 95% regain their original weight.⁸ Non-surgical treatments are ineffective in reaching medically significant weight loss in the morbidly obese.⁹ Although bariatric surgery does not treat the etiology of morbid obesity, it is an effective intervention, which results in 40 to 60% reduction of excess weight, even after a follow-up period of 8 years.^{10,11} Furthermore, bariatric surgery results in a substantial reduction of somatic and psychosocial comorbidity.^{12,13} After surgical treatment, there is a significant improvement in quality of life, closely related to degree of weight reduction and BMI.¹⁴

However, bariatric surgery does not lead to equal results in every patient. Some patients regain weight, sometimes after developing an eating disorder, report serious reductions in quality of life, or need psychiatric or psychological treatment.⁹ Nevertheless, almost all patients are satisfied with their operation.¹⁵ Although the success of bariatric surgery is not 100%, the results have to be seen in the light of the serious risks for somatic and mental health of untreated morbid obesity.

It is not fully understood why there are differences in the outcomes of bariatric surgery. It is assumed that, besides medical-somatic and surgical-technical factors, the long-term effect is determined by the extent of successful adjustment of eating patterns. Some studies report 36% noncompliance to postsurgical treatment regimes.¹⁶ Here, psychosocial factors can play a major role.¹⁷ There have been few

systematic studies on the influence of psychosocial factors upon bariatric surgery outcomes. No consistent and reproducible predictors have been found. Consequently, there is no firm ground for the assignment of patients to different types of treatment.^{2,9} A number of possible predictors have been considered, such as motivation, depression, self-esteem, psychiatric disorders, rigidity, and eating disorders. However, the results of studies are far from conclusive and sometimes even contradictory.

The surgical treatment of morbid obesity can be divided in three groups: malabsorptive surgery, restrictive surgery, and a combination of the two. For a long period, in the Netherlands, vertical banded gastroplasty was the most performed bariatric operation. Adjustable silicone gastric banding has become more common since the beginning of the '90s. Beyond these restrictive procedures, few other types of bariatric surgery have been performed.¹⁸

Methods

A survey was conducted on how often morbid obesity in the Netherlands is treated surgically, what surgical techniques are used, and by which disciplines surgery is indicated. A few Dutch hospitals have published descriptions of their procedures.^{19,20} However, a total overview, to reach a consensus between the relevant disciplines and improve the interplay between bariatric surgery and bariatric psychology, is not yet available.

At the end of 2000, questionnaires were sent to the surgery departments of all hospitals in the Netherlands. Surgeons were asked about bariatric surgery, especially techniques employed, number of operations, selection-criteria for patients, and the other disciplines involved. Altogether, 147 questionnaires were sent, of which 146 were returned. At the end of 2000 and the beginning of 2001, a second questionnaire, focussing on the tasks of psychologists in a multidisciplinary approach to bariatric surgery, was sent to the clinical psychology departments of those hospitals where bariatric surgery was performed. The questionnaire was also sent to one psychologically trained surgeon and two psychiatrists who worked in this area. The questionnaire primarily focussed on pre- and postoperative assess-

ment, criteria for the selection of patients, outcome measures, and psychological or psychiatric treatment. Thirty-one departments were asked to participate in the study; 29 responded.

Results

Operation Techniques

Bariatric surgery is being performed in 28 Dutch hospitals (19%), about 600 operations annually (with a total of 39,000 morbidly obese adults), varying between five and 50 operations per hospital. Within these hospitals, four types of operations are performed. Most hospitals (19) use only one operation; nine employ two or three different procedures. Restrictive procedures are mostly used: adjustable gastric banding in 15 hospitals, vertical banded gastroplasty in eight hospitals, and in five hospitals both procedures. Adjustable gastric banding is performed more than twice as often as vertical banded gastroplasty. Seven hospitals also use, on a limited scale, Roux-en Y gastric bypasses (in total about 20 procedures). One hospital reported bilio-pancreatic diversions (five procedures).

Patient Selection

Almost all hospitals have a multidisciplinary selection process. In addition to the surgeon, an internist/gastroenterologist, a dietician, and, in 19 hospitals, a psychologist are involved. All surgeons reported multiple selection criteria. They all mentioned major obesity as a criterion, mostly a BMI ≥ 40 . Seven surgeons mentioned a minimal BMI of 35 in case of comorbidity. Other reported criteria concerned history of dieting, age, motivation, psychological/psychiatric variables, and eating behavior. The minimum age varied between 18 and 23 years, and the maximum age between 50 and 60 years. Concerning weight- and dieting-history, surgeons reported a period of obesity of ≥ 5 years and multiple attempts at weight reduction. One-third of the surgeons required proof of preoperative weight reduction, the degree varying between 2 kg and half of the excess weight. In 21 hospitals, patients were psychologically assessed prior to surgery. This was done by 19 psychologists, one psychiatrist, and one

psychologically trained surgeon.

The psychological assessment in 15 hospitals consisted of a combination of an interview and questionnaires. Five respondents used only an interview, one only questionnaires. Almost every interview focussed on weight history, motivation for weight reduction, motivation for bariatric surgery, eating behavior, functions of eating, past or present psychosocial or psychiatric problems, and expectations with respect to the operation (Table 1).

Questionnaires were used by 16 psychologists. Altogether, 29 different tests were reported with a mean of six questionnaires per psychologist. The most frequently administered questionnaires measure eating behavior, eating pathology, personality, actual symptoms, and coping. Table 2 contains the most frequently used questionnaires, some of which are Dutch versions of original English or American Questionnaires, such as the Symptom Checklist,^{21,22} Eating Disorder Inventory,²³ and the Minnesota Multiphasic Personality Inventory-2.^{24,25} One of the originally Dutch questionnaires, the Dutch Eating Behaviour Questionnaire, is also available in an English version.^{26,27}

Selection criteria are used to make well-considered decisions for bariatric surgery, to reduce the risk for complications, and to increase the chance for success. On average, respondents stated that they use five selection criteria, mostly regarding psy-

Table 1. Most frequently discussed subjects in the pre-operative psychological interview

Subject	Number of interviewers discussing the subject (N=20)
Weight-history, motivation for weight-reduction, motivation for bariatric surgery, eating behavior, function of eating, expectations, psychosocial or psychiatric problems.	19-20
Dieting history, attitude from the social environment on bariatric surgery, influence from weight on: medical health, mood, psychological well-being, social life and relationship-building.	15-17
Influence from weight on personality and on actual and former (sexual) relation(s).	11-13

Table 2. Most frequently used questionnaires in preoperative psychological assessment

Questionnaire	Number of respondents using this questionnaire (N=16)
Personality Questionnaires	
Dutch Personality Questionnaire ^{28*} (Nederlandse Persoonlijkheidsvragenlijst; NPV)	12
Amsterdam Biographical Questionnaire ²⁹ (Amsterdamse Biografische Vragenlijst; ABV)	6
Dutch Short MMPI ³⁰ (Nederlandse Verkorte MMPI; NVM)	5
Minnesota Multiphasic Personality Inventory-2 ^{24,25}	4
Eating Questionnaires	
Dutch Eating Behavior Questionnaire ^{26,27} (Nederlandse Vragenlijst voor Eetgedrag; NVE)	12
Eating Disorder Inventory (EDI) ^{23,31}	4
Intelligence Questionnaire	
(short) Groningen Intelligence Test ³² (verkorte), Groninger Intelligentie Test; GIT	7
Coping Questionnaire	
Utrecht Coping List ³³ (Utrechtse Coping Lijst, UCL)	9
Symptom Questionnaire	
Symptom Checklist (SCL-90) ^{23,24}	9

*The NPV is a Dutch adaptation of the California Psychological Inventory

chopathology, overweight and motivation, and to a lesser extent comorbidity, age, eating-behavior, dieting-history, personality traits, weight history, and preoperative weight loss. Regarding the selection criteria, there was only limited consensus among psychologists: they mentioned many criteria, and most agreed on only one-fourth of the criteria. Five respondents considered the advice based on psychological assessment, mandatory in the multidisciplinary selection process. According to 15, their advice should be considered as a proposal, not an order. Seven of them, however, said that the advice is almost always implemented.

Postoperative psychological assessment was rela-

tively rare. Only in six hospitals were patients assessed postoperatively. In three hospitals, postoperative assessment consisted of an interview, in one hospital only of questionnaires, and in two hospitals a combination of the two. The interview evaluated the postoperative period concerning weight-reduction, changes in eating-behavior, and changes in the influence of weight on health status, mood, and psychosocial well being. Where questionnaires were used in postoperative assessment, ten different questionnaires were employed, with a mean of four per psychologist. Questionnaires mentioned were, among others, the Dutch Eating Behaviour Questionnaire^{26,27} the Eating Disorder Inventory^{23,28} the RAND-36 Health Survey,^{34,35} and the Minnesota Multiphasic Personality Inventory-2.^{24,25}

Since the ultimate purpose of weight reduction is increasing medical health as well as psychosocial well-being, the amount of weight reduction is an insufficient indicator of the effect of bariatric surgery.³⁶ For assessing success of the operation, psychologists reported the use of a diversity of outcome measures, on average five per psychologist. Most of the respondents mentioned reduction of excess weight and BMI, as well as changes in eating behavior. Less frequently, they referred to adherence to dietary rules, increase in quality of life, and changes in personality characteristics. In the literature, one can find a diversity of effect measures. The evaluation of bariatric surgery lacks uniform standards and uses different parameters for weight reduction, and different definitions of success and failure.³⁷

Psychological Treatment

Preoperative psychological or psychiatric treatment is a preparation for surgical intervention and its consequences, and aims at increasing the effect of bariatric surgery. Especially when assessment points out risks for limited success, preoperative treatment is indicated. Some potential candidates for bariatric surgery have psychopathological complications, such as social inhibition, hostility and impulsiveness, which, untreated, can lead to poor results.³⁸ Preoperative treatment can also be indicated because of psychosocial co-morbidity.² However, we found that only in nine hospitals preoperative treatment was offered: in eight hospitals by psychologists and in one hospital by a psychiatrist.

Indications for treatment were, among others, disturbed eating behavior, depression, and unrealistic expectations of the operation.

Multidisciplinary counselling should focus on the adjustment to a new lifestyle that supports permanent weight reduction. Despite the fact that some patients need psychological treatment after the operation, postoperative psychological treatment was offered in only 12 hospitals. The treatment was mostly cognitive behavior therapy. Indications for postoperative treatment most frequently are problems in adjustment, non-compliance with dietary rules, and deviant eating behaviors.

Discussion

Because of the increasing prevalence of obesity, the risks to medical health and quality of life, and the poor long-term results of conventional treatments for morbid obesity, more patients are undergoing bariatric surgery. In the Netherlands, bariatric surgery is still uncommon. There are long waiting lists, occasionally 2 to 3 years. Consequently, patients often go to private hospitals or health-care institutions abroad.

In the Netherlands, the most frequent bariatric operations are adjustable gastric banding and vertical banded gastroplasty, which are also preferred in the rest of Europe. This is in contrast to the USA where gastric bypass is the common operation. Most Dutch hospitals perform restrictive procedures, irrespective of BMI and eating behavior, although certain patients such as the super-obese, patients with eating-disorders and patients with high consumption of sweets, are reported to have better results with procedures which include malabsorption.³⁹

Patients who have bariatric surgery when there is little experience generally have poorer results than patients who are operated in a later stage of experience. This learning curve concerns not only the surgical procedure, but also patient-selection, and medical and psychological care before and after the operation.⁴⁰ In the Netherlands most hospitals have a multidisciplinary selection process before performing bariatric surgery. The team should consist of a surgeon, an internist, a nurse, a psychotherapist

and a dietician. The involvement of a surgeon and an internist is obvious. The involvement of a psychologist and/or a psychiatrist can be understood by the findings that long-term effects of bariatric surgery are to a large extent explained by adjustment to a new dietary regime. Not only eating behavior and dietary compliance, but also psychosocial functioning and psychological variables influencing compliance are important.^{9,17} Although we did not perform an outcome study, it appears that in the Netherlands, involvement by the psychological or psychiatric discipline is not yet optimal. Postoperative assessment and pre- and postoperative treatment are infrequently performed, in spite of increasing knowledge that postoperative assessment is essential to provide adequate after-care in case of unwanted consequences, such as eating disorders, excessive alcohol consumption, relationship problems, and depression. Pre- and postoperative treatment could enhance the success of bariatric surgery, by treating psychopathology and/or helping the patient adjust to dietary requirement.

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