



Original article

Socioeconomic deprivation remains a significant barrier in the choice of bariatric surgery even when full medical expense coverage is present

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Abstract

Background: The prevalence of obesity is increasing in the socioeconomically deprived sector of the French population.

Objectives: Our objective was to assess whether the presence of a socioeconomic gradient could affect access to bariatric surgery in a publicly funded healthcare system with full medical expense coverage.

Setting: The study was conducted at a general hospital and a health examination center.

Methods: We prospectively included 100 patients who were admitted to the hospital for a pre-operative bariatric surgery evaluation. As a reference group, we included 578 patients from the same area with body mass index (BMI) values ≥ 35 kg/m² who visited the health center for regular medical, cardiovascular checkups. The patients were required to complete the Evaluation of Pre-cariousness and Health Inequalities in Health Examination Centers (EPICES) questionnaire to investigate deprivation (deprivation cutoff ≥ 30.17).

Results: A total of 94 patients had complete data, with a mean EPICES score of 37.7 ± 19.1 ($P < .001$). Patients were younger (mean age 39.2 ± 12.7 years, $P < .001$), had a stronger female predominance (87%, $P = .030$), and higher mean BMI (43.3 ± 6.9 kg/m², $P < .001$) than the reference group and were less socioeconomically deprived (64% versus 82% in the reference group, $P < .001$). No significant correlations existed among BMI, participant age, and deprivation score. In a subsequent age- and BMI-matched analysis, bariatric surgery candidates exhibited lower levels of deprivation.

Conclusions: The presence not only of material (e.g., coverage for medical expenses) but also social support is an important step toward the acceptance of bariatric surgery by morbidly obese patients. (Surg Obes Relat Dis 2016;■:00–00.) © 2016 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Keywords:

Morbid obesity; Bariatric surgery; Deprivation; EPICES

Morbid obesity is now considered a chronic disease and can be treated with a bariatric surgery procedure [1]. Bariatric surgery remains the most effective way to reduce the development and progression of metabolic and

cardiovascular complications, as well as mortality [2]. Bariatric surgery is also the most cost-effective solution to obesity, as the reduction in medical care costs with a given percentage reduction in body mass index (BMI) increases in proportion to the heaviness of the obese individual [3].

Increased rates of obesity and weight biases stigmatize persons with obesity mainly through the attribution of negative stereotypes [4]. Discriminatory behavior can occur in the workplace [4] or may lead to inequities in obesity treatment

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with respect to access and quality care [5]. Although there is strong public support for obesity-prevention measures, public funding for bariatric surgery may be less well accepted because there is a strong belief that patients with morbid obesity are personally responsible for their plight [6].

Many indicators have been used to measure socioeconomic status and may represent different dimensions of the socioeconomic position [7], such as occupation, education, income, and residential area, as an index of deprivation [8]. Socioeconomic position also encompasses other dimensions, such as social support and relationships, childhood/adult life events, and accommodation status. Rather than being interchangeable determinants of health, studies have shown that these indicators are either independent or partially interdependent determinants of health [9].

In France, an increasing prevalence of obesity has been observed in the most deprived population [10]. Through the French national health system, access to bariatric surgery is free of charge for morbidly obese patients who decide to undergo the surgery if they fulfill the necessary criteria [1]. The aim of this study was to examine whether a socioeconomic gradient exists between morbidly obese candidates for bariatric surgery and other morbidly obese patients living in the same geographic area.

Methods

Study population

The study was conducted at the Internal Medicine Department of the Delafontaine Hospital, Seine-Saint-Denis, from January 1 to June 31, 2013. We prospectively included 100 consecutive morbidly obese patients ($\text{BMI} \geq 35 \text{ kg/m}^2$) who provided informed consent and agreed to participate. These patients were candidates for bariatric surgery and had been admitted to the hospital for preoperative evaluation. All bariatric surgery candidates fulfilled the French criteria for bariatric surgery: $\text{BMI} \geq 35 \text{ kg/m}^2$ with at least one co-morbidity (e.g., hypertension, diabetes, sleep apnea, dyslipidemia, severe rheumatologic disease) or $\text{BMI} \geq 40 \text{ kg/m}^2$ with at least 6 months of follow-up by a dietician or nutritionist and no underlying active psychiatric disorders [1]. The decision to perform surgery was made by a multidisciplinary team that included a bariatric surgeon, endocrinologist, anesthesiologist, clinical psychologist, and clinical dietician. Patients completed a questionnaire used to estimate deprivation, the Evaluation of Precariousness and Health Inequalities in Health Examination Centers Score (EPICES). The French Health System covered all necessary medical expenses during the preoperative and postoperative periods (see the EPICES questionnaire in the Supplementary Material).

We compared bariatric surgery candidates with a reference group comprising a cohort of patients issued from the database of a Health Examination Center in Bobigny from

January 1 to December 31, 2013. Reference group patients resided in the same area and underwent “scheduled routine” checkup examinations during the aforementioned period in the context of the National Social Security Cardiovascular Disease Prevention Program. The initial selection was made from among 9409 patient files in the Bobigny Health Center database. Initially, selected patients were older than 18 years, had completed an EPICES questionnaire, and had available BMI data ($n = 7812$). The final subset of 578 patients had a $\text{BMI} \geq 35 \text{ kg/m}^2$ and an EPICES score. These patients represented the reference group. Anthropometric data, age, sex, and BMI were registered.

Deprivation score: EPICES

The EPICES score is a single indicator of economic insecurity that takes into account the multidimensional nature of deprivation. Initially, the EPICES score was built using a socioeconomic survey and comprised 42 questions. The score is computed by summing the constant scores assigned for each question to which the answer is “yes.” The minimum and maximum possible total scores are 0 and 100, and a higher final score indicates a more deprived patient. This approach was validated in 2002 in a cohort of 197,389 persons [11] examined at 58 French Health Examination Centers. A reduced set of 11 questions containing 5 socioeconomic items was validated and used in the present study. The following items were included and found to explain 90.7% of variance of deprivation (Supplementary Material, EPICES questionnaire): marital status (1 question), health insurance status (1 question), economic status (3 questions), family support (3 questions), and leisure activity (3 questions). Although the EPICES score can be considered a continuous variable, most studies that assess health conditions using this score set the threshold for deprivation at ≥ 30.17 when defining patients in a precarious situation [12].

Statistical analysis

All analyses were performed using the Statistical Package for the Social Sciences (SPSS, version 13.0; SPSS, Inc., Chicago, IL). Variables are expressed as mean \pm standard deviations or as percentages. The Pearson correlation coefficient was used to measure associations between continuous variables. Continuous data were compared with either Student's *t* test or an analysis of variance; the Bonferroni correction was used for further post hoc analyses.

The Mann–Whitney *U* test was used when the variances were not homogeneous even after transformation. The χ^2 test or Fisher's exact test was used for categorical variables.

The impact of the unequal gender distribution was examined using a general linear model with the EPICES score as the dependent variable. We created 2 models; the first model adjusted for age and sex, whereas the second adjusted for age, sex, and patient group.

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