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A consultation with genetic information about obesity decreases self-blame about eating and leads to realistic weight loss goals in obese individuals ☆

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Abstract

Objective: This study tested the effects of a consultation using genetic information about obesity on attitudes relating to weight loss goals, self-blame about eating, and weight-related coping in obese individuals. Furthermore, the study sought to explore possible predictors for weight gain/loss. **Method:** A total of 411 obese individuals were randomly assigned to two standardized consultations, with and without genetic information about obesity, and a control group without any intervention. After a 6-month follow-up, 253 obese individuals of the intervention groups and 98 individuals of the control group had a complete dataset. Data were analyzed regarding the independent variables assessment time, treatment group, and the familial predisposition (at least one obese parent or sibling). As dependent measures, attitudes about weight loss goals, weight-related self-blame, coping, and body shame were assessed via questionnaire or interview. **Results:** Individuals with and without a familial predisposition profited in different ways from a consultation using genetic information about obesity: at follow-up, individuals with a familial predisposition reported mainly a relieving effect (less self-blame about eating). Both groups reported an adjustment to more realistic weight loss goals and a greater satisfaction with a 5% weight loss. Furthermore, the more negative obese individuals felt about their current weight at baseline, the higher the risk that these individuals had gained weight at follow-up. **Conclusion:** A consultation focusing on genetic factors might be helpful for obese individuals regardless of their familial predisposition, but only predisposed individuals showed a decrease in self-blame about eating. Negative thoughts and feelings about current weight might predict future weight gain.

Keywords: Overweight; Coping; Genetic counseling; Genetic susceptibility; Shame

Introduction

This study tested the effects of a consultation using genetic information about obesity on attitudes about weight loss goals, self-blame about eating, and weight-related coping in obese individuals. Based on twin and population studies, genetic factors are estimated to explain between 50% to 90% of the variance in body mass index (BMI) [1,2] and influence differences in BMI throughout the lifespan [3]. Furthermore, there is a growing body of research on genetic markers for obesity [4], making personal risk feedback consultations more likely in the future. Using information about the influence of genetics on the development and maintenance of obesity could encourage an obese person to develop healthier strategies concerning weight management (e.g., to set more realistic weight loss goals) or to improve

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emotional well-being (e.g., less self-criticism about body weight). However, such an approach has to consider the negative connotations attached to the word "genetic," for example, the assumption that a phenomenon with a predominantly genetic origin is not controllable [5].

A consultation focusing on genetic factors aims to convey the message that the heritability of body weight is high, and that the likelihood of losing weight long-term is lowered if an individual shows a familial predisposition to obesity. An obese individual informed about having a familial predisposition might show positive reactions that include a decrease in self-blame about eating and overeating (control attribution to genes). This could be helpful because high levels of self-blame about eating proved to be associated with weight regain [6] and depressive symptoms [7]. Furthermore, the feedback about genetic susceptibility could cause an adjustment to more realistic weight-loss expectations. Exaggerated weight-loss expectations have shown to predict attrition in obese individuals seeking treatment [8], and it is well known that obese individuals overestimate their weight loss capability: in a sample of 128 obese individuals with a mean weight of 99.1 kg (S.D.=12.3), an average weight loss of 17 kg was considered to be disappointing and "not successful in any way", which refers to a 17% weight loss [9]. In contrast, a weight loss of only 5% of initial weight has shown to be associated with improving health [10]. Therefore, more realistic weight loss goals are considered positive for commitment to a weight loss intervention without neglecting health benefits.

The negative reactions to a consultation using genetic information might include feelings of hopelessness and less active coping responses to deal with weight-related issues. Weight-related coping has proven to be an important factor in weight management and emotional adjustment in obesity. Disengaging coping strategies like negative self-talk, wishful thinking, or problem avoidance were significantly associated with measures of negative psychological adjustment [11] and feelings of helplessness [12]. Concerning stability after weight reduction, relapsers reported significantly more disengaging strategies (escape avoidance) than maintainers and individuals of the control group [13]. On the other hand, maintainers and control group individuals reported significantly more engaging coping strategies like problem solving/confronting and seeking social support. Finally, another negative consequence could be the labeling as genetically burdened which might also stigmatize the individual: obese individuals might interpret the familial predisposition as an undesirable characteristic or defect [14].

Existing empirical evidence about the effects of consultations using genetic information on an individual's psychological status is contradictory: the results of a vignette study by Frosch et al. [15] indicated that the effects of receiving the information of an increased risk of becoming obese resulted in stronger intentions to eat a healthy diet. Interestingly, within the genetic test group (vs. the hormone test group), those who were told they were at an increased risk of becoming obese indicated lower perceived behavioral control compared to those who were told they were at average risk. The authors concluded that their results might reflect a sense of fatalism stemming from the belief that genetics are immutable. In contrast, one study concluded that genetic status information has at least no negative effects on obese individuals [16]. The study compared obese individuals who tested positive or negative for the β3-adrenergic receptor (β3AR) gene which was found to influence weight gain and energy expenditure. After receiving information about their genetic status, individuals who tested β3AR-positive were not adversely affected concerning their subjective ability to lose weight or control their eating behavior. In the preliminary analysis of this trial, Rief et al. [17] concluded that the inclusion of genetic information is useful for those participants with a familial predisposition for obesity, while the subjective well-being of obese people without a familial predisposition increased if they received a consultation without genetic information. However, in those preliminary analyses, the relevance of weight-related attitudes, weight-related coping, and self-blame about eating was not analyzed.

Hypotheses

The following main hypotheses were tested: (I) obese individuals with a familial predisposition who receive a consultation with genetic information about obesity, and feedback about their personal familial predisposition, show a decrease in self-blame about eating transgressions, develop more realistic weight loss expectations, but also show a decrease in engagement coping in weight-related situations compared to obese individuals without a familial predisposition; (II) obese individuals without a familial predisposition who receive a consultation with genetic information about obesity, and feedback about their missing personal familial predisposition, show an increase in self-blame about eating transgressions, less adjustment of weight loss expectations, and an increase in engagement coping with weight-related situations compared to obese individuals with a familial predisposition. Furthermore, we hypothesized that (III) the feedback about a familial predisposition could yield to an increase in body shame in individuals with a genetic susceptibility. Finally, the study sought to explore possible predictors for weight gain and weight loss.

Method

Participants

A total of 411 obese individuals were included in the study (see Fig. 1). We randomly selected these individuals from a larger sample of obese individuals who were encouraged by their GPs to participate. Inclusion criteria