



# Perception of food patterns among adults using restrictive diets: a prospective observational cross-sectional study

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## Abstract

**Introduction:** Obesity is a disease of increasing prevalence among adults in Brazil. It is an undesirable condition both from a health and an aesthetic point of view. The cult of the thin body sometimes motivates the adoption of restrictive diets, which significantly limit the menu. However, the use of this type of diet may be associated with unhealthy repercussions on food, well-being, and weight loss. **Objective:** To evaluate the perception of the dietary pattern of adult users of restrictive diets in a city in the northwest of São Paulo.

**Methods:** Prospective observational cross-sectional study, carried out through an online questionnaire, with 108 subjects of both genders who perform/have already performed restrictive diets. **Results:** Predominance of female individuals (84.3%) aged between 18 and 21 years (49.1%). Regarding the Body Mass Index (BMI), 48.1% were classified within the normal range and 31.5% as preobese. In the period before the diet, 72.2% of the participants believed they were overweight. The beginning of the diet was motivated mainly by the desire to lose weight (87%) and its accomplishment happened, in most cases, without professional supervision (58.3%). Excessive eating episodes during the diet period were significant (only 14.8% never experienced it), with feelings of guilt associated in 71.3% of the cases. Conscious control during meals to avoid weight gain occurred with high frequency in 72.3% of cases. **Conclusion:** A portion of the population presents problematic perceptions about the experience with restrictive diets, which are associated with eating and psychological disorders.

**Keywords:** Diet therapy. Western Diet. Binge eating disorder.

## Introduction

Obesity is a disease of multifactorial etiology whose incidence is currently increasing in both developed and developing countries, to the detriment of the socioeconomic level. In Brazil, according to data from the Brazilian Institute of Geography and Statistics (IBGE), the proportion of obese people aged 20 years and over more than doubled in the country between 2003 and 2019, from 12.2% to 26.8% [1]. It is a disease that is difficult to control, with high percentages of therapeutic failures and relapses, which can have serious organic and psychosocial repercussions, especially in more severe forms [2].

In addition to being a health problem, obesity is currently socially undesirable because it is an aesthetic problem since Western society values an ideal of beauty associated with thinness. There is a sociocultural imposition that bodies, especially female ones, must be thin to be physically attractive – which, in general, requires weight loss [3]. With the advent of social networks, there was an amplification of the cult of the thin body, which is associated with messages of success, control, acceptance, conquests of love, and psychological stability [4]. Therefore, the non-acceptance of the body can lead to the control of food intake through restrictive diets, neglecting nutritional needs.

Restrictive diets are characterized by the significant limitation of the menu, which occurs by the withdrawal of some nutrients or types of food, or by the drastic reduction in the number of calories ingested. The present work starts from the central hypothesis that the effects of restrictive diets are not fully satisfactory, neither from the point of view of the search for a healthy

body nor of the search for a thin body. In the literature, there is evidence of a prospective relationship between dietary restriction and disordered eating habits, eating disorders, and/or weight gain in the long term – despite presenting positive results in the short and medium term [5,6].

One of the principles of food restriction (restrained eating) is to limit food even before satiety, keeping the individual in a constant state of hunger [3]. It is evident, for example, that in diets with low carbohydrate intake, increased hunger may occur. In addition, studies have shown that people who do not restrict food consumption (unrestrained eaters) or who do not diet (non-dieting) naturally compensate for a high-energy snack by eating less afterward. However, people who restrict food consumption (restrained eaters) tend to eat more after a high-energy snack, as this acts as a trigger for the inhibition of cognitive control over eating. This situation can result in episodes of binge eating, alternating with periods of energy restriction [2].

Therefore, if restrained eaters used to avoid meals that brought a feeling of satiety to lose weight, now they must also avoid them to avoid gaining weight. In the long run, this can become a difficult task, which results in a constant feeling of guilt [3]. Thus, although there is evidence that points to the possible benefits of restrictive diets on various health markers (such as blood pressure, blood glucose, insulin, cholesterol, etc.) [5], it is necessary to consider its use because of the possible harms to the psychological health and self-esteem of the individual who adheres to its application.

Because of the above, the present research aimed to evaluate, through an electronic questionnaire, the perception of the dietary pattern in restrictive diets among adults in a city in the northwest of São Paulo.

## Methods

### Study Design and Participants

This work followed the STROBE rules for a prospective observational cross-sectional study, carried out in the city of Catanduva (Sao Paulo), between June and July 2021. The study population was 226 adult residents (between 18 and 60 years old) from the municipality of Catanduva, and the sample *n* had 108 subjects of both genders who perform or have already performed restrictive diets.

### Data Collect

For data collection, an electronic questionnaire was applied through the "Google Forms" platform, consisting of questions related to sociodemographic variables (age and sex), and health conditions (weight, height, and weight perception before the restrictive diet), frequency

of diet use, professional supervision, and motivation to perform them and associated results and effects.

With the data obtained concerning body mass and height, the nutritional status of the participants was evaluated. For this purpose, the Body Mass Index (BMI) was used, which is obtained by dividing the weight in kilograms by the height in meters squared ( $\text{kg/m}^2$ ). For the classification of BMI results, the following criteria were used: thinness grade III ( $\text{BMI} < 16.0$ ); grade II thinness ( $16.0 \leq \text{BMI} \leq 16.99$ ); grade I thinness ( $17.0 \leq \text{BMI} \leq 18.49$ ); normal ( $18.5 \leq \text{BMI} \leq 24.99$ ); pre-obesity ( $25.0 \leq \text{BMI} \leq 29.99$ ); grade I obesity ( $30.00 \leq \text{BMI} \leq 34.99$ ); grade II obesity ( $35.0 \leq \text{BMI} \leq 39.99$ ) and grade III obesity ( $\text{BMI} \geq 40.00$ ). Thus, the BMI of each participant was calculated and considered together with the analysis of the other survey responses.

### Ethical Approval

The present work complied with Resolution 466/12 of the National Health Council and was approved by the Ethics Committee of the Centro Universitário Padre Albino - UNIFIPA, under opinion No.4.787.500, each participant expressed their desire to participate in the study.

## Results

The research sample consisted of 226 participants, 47.8% of whom reported the previous contact with some type of restrictive diet. Among these individuals, the predominant gender was female, with 84.3% of responses, while male was present in 15.7% of the responses. Regarding age, the survey had participants aged between 18 and 56 years, with 49.1% of individuals aged between 18 and 21 years.

With the mass and height data collected, the participant's Body Mass Index (BMI) was calculated: 48.1% were classified as normal weight, 31.5% were pre-obese, 11, 1% had grade I obesity, 3.7% had grade II obesity, 2.8% had grade III obesity and 2.8% had grade I underweight. There were no individuals within the grade II and grade III underweight classification.

Concerning the period before the diet, 72.2% of the individuals believed they were overweight, 25% reported being at a normal weight and 2.8% believed they were underweight. As for the frequency of performing restrictive diets, 38% rarely performed them (1 or 2 times), 31.5% occasionally performed them (3 or 4 times), 23.1% usually performed them (5 or 6 times) and 7.4% always performed them (7 or more times). 58.3% of these diets were done without professional supervision.

It was possible to observe that 87% of the participants sought the diet as a way to lose weight,

while the motivation of the other 13% was varied - such as avoiding weight gain, improving quality of life, or weight gain. Regarding the way of accessing information about the diet practiced, 41.7% were informed through magazines, television, or the internet, 34.3% sought information from nutritionists, and 14.8% were informed through health professionals. another area and 9.3% got information from friends.

As for the length of time, the weight was reached after the diet, 24.1% of the participants answered that it was short (between 1 and 3 months), 21.3% answered that it was long (between 6 months and 1 year), 19.4 % responded that it was very long (more than 1 year), 18.5% responded that it was medium (between 3 and 6 months) and 16.7% responded that it was very short (less than 1 month). In addition, during the period before the diet, 49.1% of the participants considered that there was a reduction in food intake, 30.6% considered that there was an increase in food intake and 20.4% reported that there was no change. During the diet period, 59.3% of the participants noticed a weight change; 40.7% did not consider that there was any variation.

Regarding excessive food intake during the diet, 33.3% of the participants experienced episodes occasionally, 27.8% experienced episodes at least once a week, 24.1% rarely experienced them and 14.8% never experienced them. After this excessive intake, 39.8% of the individuals always felt guilty, 33.3% felt guilty most of the time, 13.9% rarely felt guilty and only 13% never felt guilty.

Also, regarding satiety during the restrictive diet, 48.1% of the participants felt satiated after meals, 37% felt partially satiated and 14.8% did not reach satiety. In addition, during meals, 13% of the participants always consciously controlled themselves to avoid weight gain, 59.3% controlled themselves most of the time, 21.3% controlled themselves a minority of the time, and 6.5% controlled themselves. they were never in control.

## Discussion

Regarding the results obtained in an online questionnaire, some considerations must be made. First, it is worth noting the discrepancy between the number of female and male participants who perform, or have already performed, some type of restrictive diet. Associated with this, it should be noted that the vast majority of participants opted for this type of diet to lose weight. Therefore, it can be inferred that women use restrictive diets as a means of weight loss more frequently than men, among whom physical exercise is the most common practice for weight control [7].

Although most of the participants considered themselves overweight in the period before the diet, most had a BMI within normal parameters at the time of data collection. In this sense, it is valid to question the reliability of the participants' body image, drawing attention to possible distortions, given the universal nature of the search for the "ideal" body which is not restricted to overweight and obese people [8]. Furthermore, this data is consistent with evidence that, among individuals with eating disorders, those of normal weight more often use a range of healthy and unhealthy strategies to control body weight [9].

On the other hand, it is worth mentioning the considerable number of participants whose BMI was above normal parameters at the time of data collection which is consistent with the prospect of an increase in obesity cases among adults in Brazil [1]. Furthermore in the case of a sample composed mostly of female individuals it is possible to argue that the search for interventions motivated by overweight is more common among women [7]. As also proposed in the initial hypotheses, the imposition of thinness is not outside the scope of gender issues [3].

It was observed that most participants perform, or have already performed, a restrictive diet without the supervision of a qualified professional. Among these, a considerable portion used magazines, television, and/or the internet as a means of information about the chosen diet. Because of this, the growing and controversial influence of the communication media on daily habits is evident, including concerning food. It is known that the media play a key role in the dissemination of aesthetic values and the normalization of unreal bodies; thus, the media can be considered an important risk factor for body dissatisfaction [8]. At this point, it may be interesting to distinguish between health-focused weight management and appearance-focused weight management; studies suggest that, comparatively, food restriction guided by the search for health has more positive repercussions [10]. However, the results suggest the preponderance of aesthetic concerns in the population studied.

It is worth mentioning that a frequent practice among most participants, to avoid weight gain, is the conscious control of food intake during meals. Thus, the meal becomes a calculated activity, in which the previously established limits should not be extrapolated. This excessive control in addition to revealing an almost obsessive relationship with food would be closely related to the feeling of guilt when eating more than planned [11]. The vast majority of participants reported a constant feeling of guilt after overeating. Given the above, it can be inferred that, in users of restrictive diets, there is a progressive deterioration of the social,

cultural, affective, and symbolic meaning of the act of eating, which becomes a source of anguish, regret, guilt, and judgment [8,12].

It should be noted that episodes of excessive food intake were common among the participants, and were even considerably frequent in the presence of restrictive diets. From this, it is possible to deduce an association between the use of this type of diet and the development of unidentified binge eating conditions. Although not well established in the literature, it is believed that the limitations imposed by food restriction would be able to induce compensatory episodes of compulsion [3]. However, more recent studies suggest that this causal relationship is mediated by factors before food restriction, such as social anxiety and perfectionism – which would be better predictors of binge eating disorder [13]. In this sense, excessive preoccupation with weight and physical shape would be more directly related to episodes of binge eating than the use of diets or the practice of counting calories [14-17].

The present study did not obtain, as initially projected, consistent results regarding the influence of restrictive diets on the weight of its users, a limitation that may be related to the sample size. Furthermore, this research provides for the realization of future works involving the fields of psychology, nutrology, and nutrition.

## Conclusion

From the analysis of the data collected, it is concluded that a portion of the adult population of Catanduva (Sao Paulo) presents perceptions that can be questioned about the experience with the use of restrictive diets, reiterating the initial thesis that the realization of this type diet, in certain circumstances, may be related to more harm than good. It is interesting to note that the use of restrictive diets, sometimes without the accompaniment of an appropriate professional, can be associated with both eating disorders - such as binge eating and image distortion - and psychological disorders - such as anxiety and excessive perfectionism. In this way, providing knowledge on the subject among the population can allow more efficient preventive approaches by health professionals.

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## Ethics approval

The present work complied with Resolution 466/12 of the National Health Council and was approved by the Ethics Committee of the Centro Universitário Padre Albino - UNIFIPA, under opinion No.4.787.500, each participant expressed their desire to participate in the study.

## Informed consent

The patient signed the consent form.

## Data sharing statement

No additional data are available.

## Conflict of interest

The authors declare no conflict of interest.

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