



## Applied nutritional investigation

Eating behavior in Portuguese higher education students:  
The effect of social desirabilityRui Póinhos M.Sc.<sup>a,\*</sup>, Bruno M.P.M. Oliveira Ph.D.<sup>a,b</sup>, Flora Correia Ph.D.<sup>a,c,d</sup><sup>a</sup> Faculdade de Ciências da Nutrição e Alimentação, Universidade do Porto, Porto, Portugal<sup>b</sup> Laboratório de Inteligência Artificial e Apoio à Decisão, Instituto de Engenharia de Sistemas e Computadores–Tecnologia e Ciência, Porto, Portugal<sup>c</sup> Centro Hospitalar de São João, Porto, Portugal<sup>d</sup> Unidade de Investigação e Desenvolvimento de Nefrologia, Faculdade de Medicina, Universidade do Porto, Porto, Portugal

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## ABSTRACT

**Objectives:** The aim of this study was to relate social desirability with eating behavior dimensions among higher education students in Portugal, and to assess the effect of social desirability on the association between pairs of eating behavior dimensions.**Methods:** Data from 266 higher education students (62.8% women) aged between 18 and 27 y were evaluated. Social desirability and several eating behavior dimensions (emotional and external eating, flexible and rigid restraint, binge eating, and eating self-efficacy) were assessed.**Results:** In both women and men, social desirability showed negative associations with emotional, external, and binge eating, and positive associations with eating self-efficacy. For the majority of the correlations, the control for social desirability led to a decrease in the strength of the association: Social desirability showed a greater effect on the associations between external and binge eating, external eating and eating self-efficacy, binge eating and eating self-efficacy, and emotional and external eating.**Conclusion:** This study demonstrated that social desirability should be considered when assessing the dimensions of eating behavior, namely eating self-efficacy and dimensions related to overeating.

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## Introduction

Eating behavior refers to quantitative and qualitative features of the selection and decision of what foods to eat [1]. Three of the most commonly assessed dimensions of eating behavior are emotional eating, external eating, and dietary restraint. Emotional eating refers to the tendency to overeat as an inappropriate response to negative emotions and distress [2–4]. External eating corresponds to eating in response to external food-related cues,

such as seeing or smelling food [2,4], and derives from the theory of externality [5]. Dietary restraint implies conscious attempts to reduce food intake to control body weight [2,4]. Because the organism cannot discriminate between restraint and low food availability, this eating behavior dimension may lead to eating disinhibition [1,4,6–8].

Several studies have found a positive association between emotional and external eating [2,4,8–10]. Although they respond to different situations, both types of eating correspond to a relative insensitivity to internal hunger and satiety signals. Nevertheless, these eating behavior dimensions may manifest independently, and some individuals are more prone to one or the other kind of overeating [8,11]. Research also reports a positive association between restraint and emotional eating [2,4,8,9,12,13]. The association between restraint and external eating also has been described [2,4,8,12], although it has not been found in all studies [9,13].

Two types of restriction have been distinguished [14]: Although the self-imposed norms that define rigid control of eating behavior correspond to dichotomous attitudes regarding, for example, which foods to exclude, and are related to higher

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disinhibition and higher food consumption after preload, flexible control corresponds to a less strict type of restriction, therefore associating with lower disinhibition [1,15]. Nevertheless, a positive association between the two types of restriction is usually found [16–21].

Binge-eating disorder (BED) corresponds to the occurrence of binge-eating episodes on average at least twice per week for a period of 6 mo, with some specifications regarding lack of control, in the absence of compensatory behaviors and being accompanied by marked distress [22]. The main features of a binge-eating episode are the consumption of a large amount of food in a brief period of time and a sense of lack of control over eating during that episode [23]. Despite being considered a unique nosologic entity, in which overvaluation of shape and weight may be important features, BED is related to higher levels of emotional and external eating in both clinical and nonclinical samples [12,24].

Self-efficacy refers to beliefs in the ability to organize and implement the action plans needed to achieve a certain result and the feeling of control over behaviors and environment [25]. This definition implies that self-efficacy is specific for each task or domain, as for example eating self-efficacy [25–27]. Self-efficacy determines the initiation, maintenance, and cessation of strategies or behaviors [28,29], and has proven to be a good predictor of eating behavior [30,31]. Therefore, and although not being formally an eating behavior dimension, eating self-efficacy is a key construct that should be assessed simultaneously with eating behavior dimensions, as some these are related to the feeling of control over one's eating. Globally, self-efficacy has been opposed to disinhibition, binge eating, and bulimic-related eating behaviors [22,23,32]. Also, the lower level of disinhibition associated with flexible control [1,15] may lead to a higher perception of control regarding food consumption, as opposed to rigid control.

Social desirability is defined as the tendency to transmit a culturally accepted image, according to social norms. Individuals with high social desirability search for approval and avoid criticism in testing situations [33–37]. Therefore, social desirability may bias parameters evaluated in scientific research, especially self-reported parameters, leading individuals to provide answers believed to be socially accepted, and to avoid an association with opinions or behaviors that are not socially approved [33,34,37,38]. Social desirability may influence the negative affect-induced eating: Participants who respond in a more socially desirable way report lower emotional eating levels [39]. In one [40], social desirability was not associated with the scores in the Eating Obsessive-Compulsiveness Scale, which primarily focuses on obsessive food rumination but also assesses compulsive eating behavior. Globally, social desirability has not been clearly related to overeating, as its relationships may depend on the specific eating behavior assessed, as well as on the sample's characteristics. We were unable to locate studies relating external eating to social desirability. The results from one study [41] suggested that eating restraint is independent of social desirability. Another study reported weak correlations between social desirability and restraint (negative for the Restraint Scale and positive for the restraint subscales of the Dutch Eating Behavior Questionnaire and of the Three-Factor Eating Questionnaire) [42]. We also were unable to find studies reporting the association between general eating self-efficacy and social desirability. Some studies report a positive association between social desirability and self-efficacy related to specific eating behaviors (e.g., one study reported a significant association between fruit and vegetable self-efficacy and social desirability [43]). It is therefore expected that social desirability is positively associated with general eating self-efficacy.

Few studies have focused on the effects of social desirability on eating behavior evaluations. Moreover, the results from these studies led us to assume that social desirability is likely to explain partially the relationships found between eating behavior dimensions. However, to our knowledge, there are no studies specifically on the effect of social desirability on the relationships between eating behavior dimensions.

The aims of this study were to assess the relationships between social desirability and eating behavior dimensions among higher education students in Portugal, and to assess the effect of social desirability on the association between pairs of eating behavior dimensions.

## Methods and participants

### Participants

This study was conducted with a convenience sample of higher education students in Portugal. Inclusion criteria were age between 18 and 27 y, and the absence of dependency conditions that could constrain free and informed decision making regarding participation. The exclusion of students >27 y aimed to reduce sociodemographic heterogeneity. Potential participants with complete or incomplete academic training in the areas of nutrition and dietetics were not included, and only students attending undergraduate or integrated master degrees were considered.

We invited 394 students to participate in the study. Of these, 32 (8.1%) refused to participate. Data from 96 participants (26.5%) were not analyzed as questionnaires were incomplete. Hence, we analyzed data from 266 participants, of whom 167 (62.8%) were women. This overrepresentation of women is in line with the greater proportion of women in Portuguese higher education [44]. Nevertheless, as the literature reports sex differences in eating behavior [2,4,8,13, 18,45], all the analyses were performed separately for the subsamples of women and men.

### Procedure

The study was approved by the ethics committee of Centro Hospitalar de São João, E.P.E. (Porto, Portugal). Data was collected between February and July 2012. Before data collection, all procedures were standardized, namely regarding answers to possible queries. Students were invited to participate, and a written document with the study's conditions of participation, aims, and overall description was provided. After clarifying doubts, written informed consent was obtained from those students willing to participate. Participants then answered a sociodemographic and anthropometric questionnaire, in which they were asked about their sex, age, education, height, and current weight (without shoes or clothing). Finally, questionnaires aiming to assess eating behavior dimensions and social desirability were answered. All questionnaires were self-administered in a written format.

### Measures

The Dutch Eating Behavior Questionnaire (DEBQ) [46] was used to assess emotional and external eating. The DEBQ is composed of 33 items forming three scales. The restraint scale of the DEBQ was not used, as we considered separately the flexible and rigid control of eating behavior. In the Portuguese version of DEBQ [13], both the emotional eating (13 items) and the external eating (10 items) scales showed good internal consistency (Cronbach's  $\alpha = 0.94$  and  $0.81$ , respectively).

**Table 1**  
Eating behavior dimensions and social desirability: Comparison between sexes

Construct	Women (n = 167) Mean (SD)	Men (n = 99) Mean (SD)	P-value*
Social desirability	17.65 (4.13)	17.73 (4.91)	0.891
Emotional eating	2.07 (0.83)	1.53 (0.63)	<0.001
External eating	2.76 (0.64)	2.70 (0.58)	0.422
Flexible control	5.42 (2.78)	4.10 (2.60)	<0.001
Rigid control	5.03 (3.16)	3.80 (2.79)	0.001
Binge eating	3.94 (1.35)	2.99 (1.20)	0.043
Eating self-efficacy	12.43 (3.74)	13.92 (3.67)	0.002

\* Comparison between sexes (independent samples *t* test).

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