



## Research report

Eating behaviour among undergraduate students. Comparing nutrition students with other courses <sup>☆</sup>Rui Poínhos <sup>a,\*</sup>, Diogo Alves, Elisée Vieira, Sílvia Pinhão <sup>a,b</sup>, Bruno M.P.M. Oliveira <sup>a,c</sup>, Flora Correia <sup>a,b,d</sup><sup>a</sup> Faculdade de Ciências da Nutrição e Alimentação, Universidade do Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal<sup>b</sup> Centro Hospitalar de São João, E.P.E., Alameda Prof. Hernâni Monteiro, 4200-319 Porto, Portugal<sup>c</sup> Laboratório de Inteligência Artificial e Apoio à Decisão, Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência, Rua Dr. Roberto Frias, 378, 4200-465 Porto, Portugal<sup>d</sup> Unidade de Investigação e Desenvolvimento de Nefrologia, Faculdade de Medicina, Universidade do Porto, Alameda Prof. Hernâni Monteiro, 4200-319 Porto, Portugal

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## ABSTRACT

Our main aim was to compare eating behaviour between Portuguese undergraduate nutrition students and students attending other courses. Several eating behaviour dimensions were compared between 154 nutrition students and 263 students from other areas. Emotional and external eating were assessed by the Dutch Eating Behavior Questionnaire, dietary restraint was measured using the flexible and rigid control of eating behaviour subscales, binge eating was measured using the Binge Eating Scale, and eating self-efficacy using the General Eating Self-Efficacy Scale. Higher levels of flexible and rigid control were found in nutrition students from both sexes when compared to students from other courses. Female nutrition students also presented higher binge eating levels than their colleagues from other courses. To our knowledge no other work has previously assessed all eating behaviour dimensions considered in the current study among nutrition students. Besides the results by themselves, the data obtained from this study provide several clues to further studies to be developed regarding the still rarely approached issue of eating behaviour among nutrition students.

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## Introduction

Several studies suggest that eating disorders or the risk for disordered eating behaviour are more prevalent in dietetic or nutrition students when compared with students from other courses (Drake, 1989; Fiates & Salles, 2001; Gonidakis et al., 2009; Kolka & Abayomi, 2012; Laus, Moreira, & Costa, 2009; Reinstein et al., 1992; Worobey & Schoenfeld, 1999). In some studies, although the differences were not significant, the results suggest a higher prevalence of risk of eating disorders among nutrition students (Dos Santos, Meneguci, & De Mendonça, 2008; Fredenberg, Berglund, & Dieken, 1996; Stipp & de Oliveira, 2003). Nevertheless, results from other studies suggest

that nutrition and dietetic students are not different regarding disordered eating behaviour from other courses (Johnston & Christopher, 1991; Kiziltan & Karabudak, 2008; Mealha et al., 2013; Swezda & Thorne, 2002) or groups (Torresani, 2003) or even that nutrition students have lower risk of disordered eating behaviour when compared to pre-med students (Mehr et al., 2005).

Even considering data indicating that students of nutrition and dietetics present a higher prevalence of eating disorder behaviour, the causal relationship still remains unknown (Korinth, Schiess, & Westenhoefer, 2009; Morgan, Vecchiatti, & Negrão, 2002). While some authors suggest that the selection of a nutrition or dietetics course is influenced by own personal experiences regarding food and weight control (Drake, 1989; Hughes & Desbrow, 2005; Magalhães & Motta, 2012; McArthur, 1995) or by a prior tendency to those behaviours (Stipp & de Oliveira, 2003), others suggest that the contact with food issues and the belief that a good appearance will be important for future professional success may be favourable to a higher incidence of eating disorders in nutrition students (Fiates & Salles, 2001; Penz, Dal Bosco, & Vieira, 2008).

Despite the recognition of its importance (Drummond & Hare, 2012; Houston, Bassler, & Anderson, 2008; Korinth et al., 2009), studies focusing on eating behaviour among nutrition and

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dietetics students and professionals mostly study the prevalence or risk of eating disorders, and few evaluate eating behaviour dimensions.

For instance, both emotional and external eating are eating behaviour dimensions associated with overeating, weight gain and higher body mass index (BMI; [Elfhag & Linné, 2005](#); [Koenders & Strien, 2011](#); [Van Strien, Herman, & Verheijden, 2012](#)). While emotional eating corresponds to the tendency to overeat as an inappropriate response to negative emotions and distress ([Elfhag & Morey, 2008](#); [Heatherton, Herman, & Polivy, 1991](#); [Van Strien et al., 2012](#)), external eating refers to eating in response to external food-related cues, such as seeing or smelling food ([Elfhag & Morey, 2008](#); [Van Strien et al., 2012](#)). Another dimension related to overeating is binge eating, which is characterized by the occurrence of episodes of consumption of a large amount of food in a brief period of time and a sense of lack of control during those episodes ([American Psychiatric Association, 2013](#); [Wolfe et al., 2009](#)).

Somewhat opposing these three dimensions, dietary restraint implies conscious attempts to reduce food intake in order to control body weight ([Elfhag & Morey, 2008](#); [Van Strien et al., 2012](#)). [Westenhoefer \(1991\)](#) distinguished two types of restriction: while the rigid control of eating behaviour is characterized by dichotomous attitudes regarding which foods to exclude, and is related to higher disinhibition and higher food consumption after preload, flexible control corresponds to a less strict type of restriction, being therefore associated to lower disinhibition ([Viana, 2002](#); [Westenhoefer et al., 1994](#)).

Self-efficacy has shown to be a good predictor of eating behaviour ([Conn, 1997](#); [Streicher et al., 1986](#)). Self-efficacy refers to the beliefs in the ability to organize and implement the action plans needed to achieve a certain result and the feeling of control over the behaviours and environment ([Bandura, 1997](#)), being specific for each task or domain, as for example eating self-efficacy ([AbuSabbah & Achterberg, 1997](#); [Bandura, 1997](#); [Hofstetter, Sallis, & Hovell, 1990](#)). The perception of one's own eating efficacy may be related to particular eating behaviour dimensions: it has been opposed to disinhibition and bulimic-related eating behaviours ([Verstuyf et al., 2012](#)), and a binge eating episode implies a sense of lack of control over eating ([American Psychiatric Association, 2013](#); [Wolfe et al., 2009](#)), which might be related to low eating self-efficacy.

Given some discrepancies in previous research and the lack of work studying eating behaviour dimensions among students from nutrition vs. other courses, our main aim was to compare several eating behaviour dimensions between undergraduate nutrition students and students from other courses. In the female subsample we simultaneously studied the effect of the course's year of attendance on the results.

## Methods

### Sample

The study was conducted on two convenience samples of Portuguese higher education students: a sample of students attending the undergraduate course of Nutrition and Food Sciences at the Faculty of Nutrition and Food Sciences of the University of Porto ("Nutrition students"), and a sample of undergraduate students from other areas in Portuguese public and private institutions ("Other courses"). The inclusion criteria for both samples were being a student between 18 and 27 years of age, and free from dependency conditions that could constrain free and informed decision-making regarding their participation were included. The exclusion of students over 27 years aimed to reduce socio-demographic heterogeneity. Due to the small sample size of students attending the third and fourth years, these were combined, after verifying the absence of significant differences in all eating behaviour

dimensions between students from the two years. Moreover, in the sample of students from other courses, 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.

The students from both samples were approached within the institutions where they attended their courses, mainly during classes and after previous contact with the responsible teacher. For the Nutrition students sample 215 students were approached, from which 3 (1.4%) refused to participate. The sample of students from other courses came from a larger sample which included students attending the fifth years of their courses; as refusals were not registered by year, the participation rate is reported for this broader sample, being of 91.9% (362 from 394 approaches). A total of 344 (95.0%) of these students were attending the first to fourth year of their course, being therefore included in the sample. Due to incompleteness of the questionnaires, data from 58 participants in the Nutrition students' sample (27.4%) and from 81 students attending other courses (23.5%) were not analysed. Hence, we analysed data from 154 nutrition students and from 263 students from other courses (Basic education:  $n = 55$ ; History:  $n = 48$ ; Psychology:  $n = 45$ ; Dental Medicine:  $n = 40$ ; Electrotechnical Engineering:  $n = 27$ ; History of Art:  $n = 20$ ; Political Science:  $n = 18$ ; Geography:  $n = 8$ ; Architecture:  $n = 2$ ).

The overrepresentation of females in both subsamples is in line with the greater proportion of females in the Portuguese higher education ([Direção-Geral de Estatísticas da Educação e Ciência, 2013](#)). Nevertheless, as sex differences in eating behaviour are reported by several authors ([Elfhag & Morey, 2008](#); [Konttinen et al., 2009](#); [Póinhos, Oliveira, & Correia, 2013](#); [Póinhos, Rowcliffe, et al., 2013](#); [Van Strien, Herman, & Verheijden, 2009](#); [Van Strien et al., 2012](#); [Viana & Sinde, 2003](#)), all the analysis was performed separately for the subsamples of females and males.

### Procedure

This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving human participants were approved by the ethics committee of Centro Hospitalar de São João, E.P.E. (Porto, Portugal). Data were collected between February and July 2012. All procedures were standardized prior to data collection. 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 all students willing to participate. Participants then answered a socio-demographic and anthropometric questionnaire, where they self-reported their sex, age, education, height, and current weight (without shoes and clothing; BMI [ $\text{kg}/\text{m}^2$ ] was afterwards calculated as weight divided by squared height). Finally, eating behaviour questionnaires were answered. All questionnaires were self-administered in a written format, in the presence of an investigator.

### Measures

The Dutch Eating Behavior Questionnaire (DEBQ; [Van Strien et al., 1986](#)) was used to measure emotional and external eating. DEBQ's restraint scale was not used, as we considered separately the flexible and rigid control of eating behaviour. Both the emotional eating (13 items) and the external eating (10 items) DEBQ scales showed good internal consistency in the Portuguese version of DEBQ (Cronbach's alpha of 0.94 and 0.81, respectively; [Viana & Sinde, 2003](#)).

The flexible and rigid controls of eating behaviour were measured using the subscales proposed by [Westenhoefer, Stunkard, and Pudel \(1999\)](#), recently adapted and validated for Portuguese adults ([Póinhos, Rowcliffe, et al., 2013](#)). The Portuguese version of these

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