

EATING ATTITUDES OF FEMALE BRAZILIAN UNIVERSITY STUDENTS WITH EATING DISORDER RISK BEHAVIOR

*ACTITUDES ALIMENTARIAS DE ESTUDIANTES UNIVERSITARIAS BRASILEÑAS
CON CONDUCTAS DE RIESGO EN TRASTORNOS ALIMENTARIOS*

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This study was conducted at the Department of Nutrition - Public Health School - University of São Paulo. The authors would like to thank The State of São Paulo Research Foundation (FAPESP) - process 06/56850-9 - for the research grant. Send correspondence to: Marle dos Santos Alvarenga. Rua Cotoxó 303 - sala 127 - Pompéia - Zipe Code 05021-000 - São Paulo - marlealvarenga@gmail.com

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RECEIVED: APRIL 23, 2009

ACCEPTED: OCTOBER 30, 2009

Abstract

Eating attitudes could be defined as beliefs, thoughts, feelings, behaviors and relationship with food. Dysfunctional eating attitudes and eating disorders risk behaviors could be present in the young female population - as university students - and both could have an impact in life quality. Objective: this study aimed to evaluate eating attitudes of a sample of Brazilian university students with eating disorder risk behavior and to assess the correlation of eating attitudes and risk behavior for eating disorders. Method: Female undergraduate students 2489, in Brazil, answered the Disordered Eating Attitude Scale (DEAS) - to evaluate eating attitudes - and the Eating Attitude Test (EAT-26) - to evaluate eating disorders risk behavior. Those that scored ≥ 21 in the EAT-26 were defined as EAT+ (with eating disorders risk behavior). The DEAS score (total and its five subscales) of EAT+ students were compared with DEAS score of EAT- students (without eating disorders risk behavior) using the *t* Student test. Correlation of the DEAS (total and its five subscales) and EAT-26 scores were evaluated by means of Pearson correlation coefficient. Results: from total sample 26.1% presented eating disorders risk behavior and the EAT+ students presented worse eating attitudes (DEAS score 80.2 ± 18.4) than EAT- students (DEAS score 59.0 ± 11.8). EAT-26 scores were positively correlated with DEAS scores. Conclusion: Brazilian female undergraduate students with risk for eating disorders presented worse beliefs, feelings, behaviors and relationship with food. It is believed that to evaluate eating attitudes and properly access it in nutritional and health interventions could help to prevent eating disorder behaviors. Key words: eating attitudes, eating disorders, risk behavior, EAT-26, university students

Resumen

Las actitudes alimentarias pueden ser definidas como creencias, pensamientos, sentimientos, comportamientos y relación con la comida. Conductas alimentarias disfuncionales y comportamientos de riesgo para trastornos de la alimentación pueden presentarse en la población joven femenina – como en estudiantes universitarios - y ambos pueden impactar su calidad de vida. Objetivo: Este estudio evaluó las actitudes alimentarias en una muestra de estudiantes universitarias en Brasil con comportamientos de riesgo para trastornos alimentarios y examino la correlación entre actitudes alimentarias y comportamientos de riesgo para trastornos de la conducta alimentaria. Método: Estudiantes en Brasil del sexo femenino, 2489, respondieron al “Disordered Eating Attitude Scale (DEAS) - para evaluar actitudes alimentarias - y al “Eating Attitude Test” (EAT-26). Aquellas que tuvieron puntuación ≥ 21 en el EAT-26 fueron definidas como EAT+ (con comportamientos de riesgo para trastornos alimentarios). Las puntuaciones de DEAS (totales y sus cinco sub-escalas) de estudiantes EAT+ fueron comparados con las puntuaciones de DEAS con estudiantes con EAT- (sin comportamientos de riesgo para trastornos alimentarios) utilizando la prueba “*t* Student”. La correlación de los DEAS (total y sus cinco sub-escalas) y las puntuaciones EAT-26 fueron evaluadas utilizando el coeficiente de correlación de Pearson. Resultados: De la muestra total 26.1% presentó comportamiento de riesgo para trastornos de alimentación y los estudiantes EAT+ presentaron peores actitudes alimentarias (puntuación DEAS 80.2 ± 18.4) que los estudiantes EAT- (puntuación DEAS 59.0 ± 11.8). Puntuaciones EAT-26 estuvieron correlacionadas positivamente con las puntuaciones DEAS. Conclusión: La población de estudiantes femeninas Brasileñas con riesgo de desarrollo de un trastorno de la alimentación presentó peores creencias, sentimientos, comportamientos y relación con la comida. Se puede decir que evaluar actitudes alimentarias e intervenir apropiadamente en intervenciones nutricionales y de salud pueden ayudar a prevenir comportamientos de trastornos alimentarios.

Palabras clave: Actitudes alimentarias, desorden alimenticio, conducta riesgo, EAT-26, estudiantes universitarios.

Eating attitudes could be defined as beliefs, thoughts, feelings, behaviors and relationship with food (Alvarenga, Scagliusi & Philippi, 2010). It is important to understand eating attitudes to properly evaluate food choices; its comprehension could also help to plan nutritional interventions. Besides that, it is stated that eating attitudes could have an impact in health as a whole (Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999; Rozin, Fischler, Shields & Masson, 2006) and thus evaluating eating attitudes could help people become healthier (Aikman, Crites, & Fabrigan, 2006).

Risk behaviors for eating disorders (ED) are considered commonly as ED symptoms (e.g. food restriction, binge eating, compensatory methods); nonetheless according with Stice (2002) many of the risk factors that are widely accepted for ED have not been empirically supported. However a risk factor could be defined as a variable that has been shown to prospectively predict some subsequent pathological outcome and it is important do distinguish risk factors to proper design prevention programs (Stice, 2002).

ED symptoms are commonly evaluated by means of validated self administrated questionnaires; some of these instruments are the Eating Disorder Inventory, the Eating Attitude Test - EAT- and the Bulimic Inventory Test – BITE - (Garner, Olmsted, & Polivy, 1983; Garner, Olmsted, Bohr, & Garfinkel, 1982; Henderson & Freeman, 1987). The EAT is probably the widely use instrument to evaluate ED behavior with versions in different languages and used in west and east countries (Mintz & O'Halloran, 2000). However, besides its name, the EAT evaluate mainly eating restraint and is useful to identify ED symptoms and diet behavior. The questionnaire was developed in Canada with anorexia nervosa (AN) patients and healthy college students. The original version (EAT-40) was composed by 40 items and latter a shorter version was proposed (EAT-26). It was concluded that EAT does not make possible to diagnose AN but clinic cases in risk population could be detected; the test also identify people with abnormal worries about eating and weight (Garner et al., 1982).

Although EAT measures some food attitudes - such as obsessive thoughts about food and the common feeling among patients that food controls their lives, it fails to measure their relationship with food, and is used as a tool to evaluate risk behavior for ED. There are also other instruments that raise issues different from those included in the EAT, but they conceptualized food attitudes differently (Aikman & Crites, 2007; Aikman et al., 2006) or they do not examine points such as difficulty dealing with hunger, social events and food selection as well as a range of feelings toward food (Rozin et al., 1999). Other scales evaluate specific points that could be considered within the food attitude information bases (Bell & Marshall, 2003; Martins & Pliner, 1998; Pliner & Hobden, 1992; Roininen et al., 2001; Steptoe, Pollard & Wardle, 1995), but they do not focus on food relationship. The Disordered Eating Attitude Scale (DEAS) was developed based on the construct beliefs, thoughts, feelings, behaviors and relationship with food; its primary psychometric evaluation showed a valid scale which could be used to evaluate eating attitudes of clinical and non clinical populations (Alvarenga et al., 2010).

Evaluating risk behavior population, it's important to understand the presence and level of ED symptoms; but it will be also interesting to understand their feelings, beliefs and thoughts about eating, and also their relationship with food. This knowledge could help to elucidate predispose factors and to plan prevention interventions.

In Brazil eating attitudes are not well explored, but some studies evaluated ED risk behavior, mainly in the female population. Souza and Veiga (2008) showed that ED risk behavior was high in low-income Brazilian adolescents: 37.3% presented symptoms of binge eating and 24.7% would go on a strict diet at least once a week. For other side, Moya, Fleitlich-Bilyk, and Goodman (2006) found 1.4% at young people (7-14 years old) at risk for ED in Southeast Brazil – using as parameter people who met one or more Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria for anorexia or bulimia nervosa. Assessing risk behavior for ED using EAT-26 and the BITE scores, Nunes, Barros, Camey, and Olinto (2001) found that 30.2% of women from South Brazil (n=513) had risk behavior and 11.3% had abnormal eating behavior.

All these (and other) Brazilian studies were mostly located at South and Southeast of the country - the more developed regions - and were done with small and variable samples: teenagers, university students, community sample. As far as it is known, any study was done with the same age group in different localities of Brazil do investigate ED risk behavior. In this line of thought, the objective of the present study was to evaluate the eating attitudes of female Brazilian university students from all regions of Brazil that have eating disorder risk behavior; and to assess the correlation of eating attitudes and risk behavior for ED in this population.

Method

Participants

The participants were from 37 different public and private education institutions around the five different regions of Brazil invited for research partnership. They were studying nursing, psychology speech therapy, physical therapy, pharmacy and biomedicine. The inclusion criteria were a) attending the first and second year of college, b) being females, c) aged over 18 and less than 50 d) to sign an informed consent agreeing to participate. Exclusion criteria were a) to be a dietitian or attending undergraduate studies in nutrition, b) being pregnant, c) to inform a health condition that could have an impact in eating attitudes (such as an ED). Dietitians and/or those attending undergraduate studies in nutrition were excluded because studies have showed that nutrition students have different eating behaviors. Overall, 2,925 instruments were sent to the partners (around 80 by institution) and 2,489 properly filled instruments were received (of these 2483 answered properly the EAT-26) and composed the final sample (Alvarenga et al., in press a).

Instruments

Local coordinators at institutions received specific instructions about the questionnaires administration: the DEAS and the EAT-26 (besides others). They were auto completed in the classroom and students were required to provide information such as age, self-reported body weight and height, individual monthly income and education of family head. The nutritional status was classified according with of the World Health Organization (2006) body mass index (BMI) categories.

The DEAS comprises 25 questions scored based on Likert scale, ranging from 37 to 190: the higher the score, the worse the attitude. Cronbach's Alpha was .75 indicating that the scale has good internal consistency (Alvarenga et al., 2010). The DEAS includes five subscales, named as:

-Subscale 1: Relationship with food: evaluate attitudes related to the ways individuals deal with food in terms of food control, food refusal, guilt, anger, desire and shame;

-Subscale 2: Concerns about eating and body weight gain: evaluate concerns about calories, intake control, obsessive thoughts about food and weight gain;

-Subscale 3: Restrictive and compensatory practices: evaluate restriction of food and calories, and attitudes aiming to compensate large or uncontrolled food intake;

-Subscale 4: Feelings toward eating: evaluate feelings concerning pleasure and food memories and how normal one feels to eat, and

-Subscale 5: Idea of normal eating: evaluate rigid nutrition concepts and beliefs.

The EAT-26 is an auto completed questionnaire used to evaluate ED risk behavior. It was validated for Portuguese for Bighetti, Santos, Santos, and Ribeiro (2004) with Cronbach's Alpha equal .82. It has 26 statements and six options for answer, ranging from 0 to 3: always = 3; very often = 2; often = 1; sometimes, almost never and never = 0 – the 25 statement has an inverse score. The individual is considering to have ED risk behavior if the score on the test is ≥ 21 (Garner et al., 1982) - defined as EAT+ in this study (and those that scored < 21 were defined as EAT-).

Procedure

A sample of female Brazilian university students was evaluated in a project about eating attitudes and their relations (Alvarenga, et al., in press a). The sample size was determined and calculations made by OpenEpi software (Dean, Sullivan, & Soe, 2007). The calculations were made considering: a) 80% of power; b) 5% of significance; c) the total population of college women in Brazil, in 2005 - 2.488.927 (Ministério da Educação, 2005) and; d) the hypothesized percentage frequency of the outcome factor in this population - 8.3% (Feio, 2007). Using these parameters it was verified that the necessary sample was 585 subjects nationwide. The outcome factor

used was eating attitudes measure by the EAT-26; the result found by Feio (2007) was chosen because it was found in a study with Brazilian university students in a random sample while others performed in Brazil with university students focus on specific majors, such as nutrition or medicine.

Variables and proceedings

Statistical analyses were conducted using SPSS 12.0 (Statistical Package for Social Science Inc., Chicago, Illinois USA). The significance level adopted was 0.05.

A correlation of the DEAS (total and subscales) with EAT-26 scores was evaluated by means of the Pearson correlation coefficient. The DEAS score (total and subscales) of EAT+ students were compared with DEAS score of EAT- students using the T Student test.

The students signed a free informed consent form and the Research Ethics Committee of Public Health School - University of São Paulo approved the study protocol.

Results

Of the total sample ($N=2489$) there were 1,462 nursing students (58.7%); 376 psychology (15.1%), 305 pharmacy (12.3%), 235 physical therapy (9.4%), 44 biomedicine (1.8%), and 32 speech therapy (1.3%) - information about major was missing for 35 (1.4%).

The majority of subjects (57.1%) reported individual monthly income lower than 2 monthly minimum wages, and most students (46.6%) reported college education (complete or not) for the family head.

Table 1 shows the age and BMI of the students, most of them were at normal range weight (74.6%). The average EAT-26 score was not indicative of risk behavior (Table 1), and the average DEAS total score was 67.3 (Table 1).

Table 1.

Age, Body Mass Index, Eating Attitude Test (EAT-26) and Disordered Eating Attitude Scale (DEAS) scores of Brazilian Female University Students who participated in the Study

Characteristics	Mean \pm s.d. (median)
Age (years)	23.5 \pm 6.1 (21.0)
Body Mass Index (kg/m ²)	22.0 \pm 3.5 (21.4)
EAT-26 total score	15.4 \pm 10.4 (13.0)
DEAS total score	67.3 \pm 17.0 (60.5)

The correlation analysis showed that the eating attitudes (DEAS total and subscales) of the sample positively correlate with EAT-26 scores ($p < 0,000$ for all correlations): moderately for total DEAS score (.64) and subscale 1 (.59), 2 (.58) and 3 (.51) and weakly for subscales 4 (.17) and 5 (.17).

The scores on EAT-26 were evaluated as positive ED risk behavior (EAT+) and negative ED risk behavior (EAT-) and it was found that 26.1% of sample presented risk behavior for ED. Table 2 shows the comparison of the DEAS total and subscales scores between the EAT+ and EAT- students. It was found that the scores were different between the two groups for all the subscales and also for the DEAS total score.

Discussion

The profile of this group of students was similar regarding nutritional status and income of other Brazilian women of similar age, and then this sample could be considered adequate to understand Brazilian young women (Alvarenga et al., in press a).

The frequency of ED risk behavior found in this group is higher than the frequency found by other national and international studies using the EAT-26 in college students (Alvarenga et al., in press b). For example, in Brazil, Souza, Martins, Monteiro, Neto and Ribeiro (2002) found 5.5% in Medicine

students; Bosi, Luiz, Morgado, Costa and Carvalho (2006) found 14.0% in dietetics majors, 6.9% and 6.9% in psychology and physical education majors respectively (Bosi, Luiz, Uchimura & Oliveira, 2008; Bosi, Uchimura & Luiz, 2009).

A possible explanation for the higher values of EAT+ found in the present study could be done by the version of EAT-26 used (Bighetti et al., 2004) instead the older one used in all these other Brazilian studies (Nunes et al., 1994). This older version notwithstanding, showed low validity coefficients (Nunes, Camey, Olinto & Mari, 2005). Evaluating adolescents in Brazil, Bighetti et al. (2004) found 41.6% of ED risk behavior with the same EAT-26 version used at the present study. Another possible factor for the difference in frequency of EAT+ is the cut-off of 20 or 21 used by each study. Nonetheless it has not been assessed if the cut-off point is appropriate for Brazilian samples.

In the United States, the values for EAT+ found range from 10.9% (Hoerr, Bokram, Lugo, Bivins & Keast, 2002) to 19.1% (Anderson, Simmons, Martens, Ferrier & Sheehy, 2006). In the east world, 6.2% was found in China (Makino, Hashizume, Tsuboi, Yasushi & Dennerstein, 2006), 11.3% in Croatia (Ambrosi-Randic & Pokrajac-Bulian, 2005) and 12.0% in Turkey (Celikel, Cumurcu, Koc, Etikan & Yucel, 2008).

Table 2.

Comparison of the Disordered Eating Attitude Scale (DEAS) total and subscale scores between the Brazilian female university students with risk behavior for eating disorders (EAT+) and without risk behavior for eating disorders (EAT-)

	EAT+ Mean \pm s.d. (n=631)	EAT- Mean \pm s.d. (n=1796)	p value
DEAS total score	80.2 \pm 18.4	59.0 \pm 11.8	$p < 0,000$
Subs 1 Relationship with food	29.2 \pm 10.5 (n=648)	18.4 \pm 6.1 (n=1835)	$p < 0,000$
Subs 2 Concerns about eating and body weight gain	10.2 \pm 4.3 (n=648)	6.2 \pm 2.6 (n=1835)	$p < 0,000$
Subs 3 Restrictive and compensatory practices	9.5 \pm 4.6 (n=648)	5.7 \pm 2.9 (n=1835)	$p < 0,000$
Subs 4 Feelings toward eating	4.5 \pm 2.3 (n=648)	3.7 \pm 1.7 (n=1835)	$p < 0,000$
Subs 5 Idea of normal eating	27.0 \pm 6.8 (n=631)	24.9 \pm 6.0 (n=1796)	$p < 0,000$

Note: The number of respondents is different for DEAS total score and subscale 5 since question 1 was left unanswered in some instances. It was opted to keep these subjects in the database so that DEAS subscales that not are related to question 1 (all but Subscale 5) could be analyzed

Considering the differences in sampling, methodology and objectives in these studies, it is not possible to affirm that Brazilian university students have more ED risk behavior than other countries; anyway the dimension of ED risk behavior in these Brazilian students is huge. It is important to stress that the present study was performed with a bigger sample than any other in Brazil, and besides that, evaluated young women from all regions of Brazil – a continental country – and not just a local sample.

The discussion about what is truly a risk factor could be restarted: in his meta analysis, Stice (2002) concluded that body dissatisfaction, negative effect and perceived pressure to be thin are risk factors for ED. The author stressed however that the literature not positioned well to differentiate risk factors that are general for the main ED (AN, bulimia nervosa - BN - and binge eating disorder - BED) from those that are specific to a particular one (Stice, 2002). Nonetheless, it is important to remember that subclinical or atypical ED are much more prevalent than AN, BN or BED - and also called Eating disorders not otherwise specified – EDNOS (American Psychiatry Association, 2006); and that recently another term have been proposed to describe people with eating problems: disordered eating – that according with the American Dietetic Association (2006) and the American Psychiatry Association (2006) includes “the full spectrum of eating-related problems from simple dieting to clinical eating disorders”. Despite this discussion about risk factors, the outcome considered as ED risk behavior in the present study (evaluated by the EAT-26) is used in numerous other studies (Alvarenga et al., in press b).

As expected the EAT+ students presented worse eating attitudes. It was expected once the EAT-26 correlate positively with DEAS (besides the fact that correlation with subscales 4 and 5 was weak). A correlation between the two scales was also found in the validation study (Alvarenga et al., 2010) showing that DEAS could compliment some disordered eating evaluation performed by EAT-26, but also showing that it encompass different aspects (as feelings towards eating and idea of normal eating). The same correlation was found in the English and Spanish version of DEAS (Alvarenga, Pereira, Scagliusi, Philippi, Estima & Croll, 2010; Alvarenga, Francischi, Fontes, Scagliusi & Philippi, 2010). The results of this evaluation showed that young wom-

en with worse eating attitudes in general also have more ED symptoms or risk, therefore to evaluate eating attitudes in general could be a good screening for nutritional deviations in non-clinical populations and is believed that the Disordered Eating Attitude Scale could be used also as an instrument for screening purposes.

To evaluate all spectrum of disordered eating is important to fully understand the ED natural history and to identify etiologic factors. It is also known that partial ED syndromes could evolutes to a total syndrome in 14-46% of the cases, (Shisslak, Crago & Estes, 1995). Instruments focused on ED symptoms (such as EAT-26) could help to evaluate the disordered occurrence, but DEAS, that focus on distorted eating attitudes could be useful to identify people with a bad relationship with food. However the use of DEAS as a possible tool that also indicates risk behavior for ED deserve further studies in order to understand the relevance of this issue in Brazil - and other countries.

Conclusion

Brazilian students with risk for ED presented worse eating attitudes - beliefs, feelings, behaviors and relationship with food; and eating attitudes in general were correlated with ED risk. An inadequate relationship with food could have physical and psychic consequences and must be evaluated by health professionals; thus it is believed that to evaluate eating attitudes and properly access it in nutritional and health interventions could help to prevent ED behaviors.

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