



## An etiological model of disordered eating behaviors among Brazilian women



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### ARTICLE INFO

#### Article history:

Received 21 December 2016

Received in revised form

25 April 2017

Accepted 30 April 2017

Available online 4 May 2017

#### Keywords:

Eating disorders

Body image

Body dissatisfaction

Tripartite influence model

Young adults

### ABSTRACT

The Tripartite Influence Model posits that parents, peers and media influences mediated by internalization and appearance social comparison are predictors of body dissatisfaction, a key risk factor for eating disorders. However, the Tripartite Influence Model has not been tested in Brazil where the people are known to have high levels of body image and appearance concerns. This study aimed to test an adapted Tripartite Influence Model of body dissatisfaction and disordered eating behaviors among Brazilian women. A sample of 741 undergraduate students ( $M_{age} = 23.55$  years,  $SD = 4.09$ ) completed measures of sociocultural influences, internalization of body ideal, social appearance comparison, body dissatisfaction, muscularity dissatisfaction, disordered eating and body change behaviors. Structural equation modeling analyses indicated that the proposed etiological model for Brazilian women has good fit indexes ( $\chi^2(2064) = 6793.232$ ;  $p = 0.0001$ ;  $\chi^2/df = 3.29$ ; CFI = 0.82; PCFI = 0.79; RMSEA = 0.056 [IC90% = 0.053–0.057]). Parent and media influences were related with both internalization and social comparison, while peer influence with social comparison. A full mediation model was found, with both internalization and social comparison contributing to body dissatisfaction. Finally, body dissatisfaction was associated with disordered eating behaviors. The findings inform the importance of considering cultural aspects that influence body image and eating behaviors, and highlight the validity of the proposed etiological model for Brazilian women, that can be used for research and clinical purposes.

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### 1. An etiological model of disordered eating behaviors among Brazilian women

Disordered eating can be defined as problematic eating behaviors, compulsive overeating, food restriction, skipping meals and inappropriate methods of losing or controlling weight, which occur less frequently or are less serious than those that meet the diagnostic criteria for an eating disorder, such as anorexia nervosa, bulimia nervosa, binge eating disorder, other specified feeding or eating disorder and unspecified feeding or eating disorder (DSM-5; American Psychiatric Association (APA), 2013; Ortega-Luyando et al., 2015). Although less severe, such behaviors are more

common than eating disorders and can have a negative impact on people's health and quality of life (Ortega-Luyando et al., 2015).

To assess the risk factors associated with the development of disordered eating among women, Thompson, Heinberg, Altabe, and Tantleff-Dunn (1999) developed the Tripartite Influence Model. According to this model, body dissatisfaction and eating behavior are influenced by three primary sociocultural sources (parents, peers, and the media) mediated by two variables: internalization of a body ideal (internalization) and social comparison of appearance (social comparison). Internalization is the process of adopting a body ideal created by society as one's own standards and body goal (Karazsia, van Dulmen, Wong, & Crowther, 2013; Thompson et al., 1999), while social comparison denotes the frequent behavior of self-evaluation using other individuals as a basis of comparison (Karazsia & Crowther, 2010).

Parents, peers, and the media are sources of direct and indirect influence that transmit information about the body ideal, eating,

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and other aspects related to caring for one's body and physical appearance. Internalization leads to body dissatisfaction since the ideal promoted by society is unrealistic and for the most part unattainable. Furthermore, there is a tendency to compare oneself to others, which also leads to body dissatisfaction. Body dissatisfaction in turn leads to the adoption of dysfunctional eating behaviors in the attempt to lose weight or attain the ideal physical appearance dictated by society. It is worth noting that the body dissatisfaction is one of the main risk factors for the development of eating disorders (Stice, 2001, 2002; Stice, Marti, & Durant, 2011).

Although there are various etiological models directed toward understanding disordered eating, the Tripartite Influence Model is one of the most used both in the field of research and clinical practice (Swami, 2015). Indeed, this model has been validated for use with various population groups, such as undergraduate college women from U.S. (Johnson, Edwards, & Gidycz, 2015; van den Berg, Thompson, Obremski-Brandon, & Covert, 2002; van den Berg et al., 2007), Australia and France (Rodgers, Chabrol, & Paxton, 2011) and Japan (Yamamiya, Shroff, & Thompson, 2008).

However, the Tripartite Influence Model has yet to be validated for use with young Brazilian women. The validation of the model by the above-cited studies does not exempt it from testing for use with the Brazilian population. The incidence and extent of body dissatisfaction and disordered eating are culturally specific and therefore specific attention should be paid to cultural characteristics in the evaluation of these variables (Rodgers et al., 2011). For example, in a study involving young American women, Johnson et al. (2015) found that the peer influence → internalization path was nonsignificant; only parents and the media influenced internalization, while there was a direct relationship between peers and body dissatisfaction. Rodgers et al. (2011), in a study with young Australian and French women, demonstrated that peer influence did not influence internalization: there was a direct relational path between peers and body weight dissatisfaction, bulimia, and social comparison among the Australian women, while among French women peers directly influenced dissatisfaction with weight and drive for thinness (Rodgers et al., 2011). In this sense, although the model is robust and valid in different cultural realities, specific aspects regarding the association between the variables of the model should be evaluated in specific cultures.

The obsession with having the perfect body is notorious among Brazilian women and has become a lifestyle (Oliveira & Hutz, 2010). Thinness is associated with the female image of success, bodily perfection, and sexual attractiveness – as in other countries (Oliveira & Hutz, 2010). The concern with thinness is evident in the statistics on consumption of anorectic substances in the country. Brazil has already appeared in the list of countries with the largest consumption per capita of these substances (Osava, 2008). For Brazilians, the body is a symbol of social status and physical appearance is an essential element of the construction of the national identity (Edmonds, 2007, 2009; Goldenberg, 2010). Brazil is second in the world ranking of number of plastic surgery procedures, and stands above the rest of the world for the number of liposuction, blepharoplasty and rhinoplasty procedures performed (American Society of Aesthetic Plastic Surgery (ASAPS), 2014).

Research shows that 72.7% of young Brazilian women are dissatisfied with their body (Silva, Nahas, de Sousa, Del Duca, & Peres, 2011), while 40.7% of Brazilian women diet to lose weight, 35.6% use diet or compensatory mechanisms, 23.9% skip meals, 12.6% practice liquid-only diets or go without eating to lose weight, and 3.3% practice frequent vomiting (Alvarenga, Lourenço, Philippi, & Scagliusi, 2013). The high rates of body dissatisfaction in Brazil are not surprising. Swami et al. (2010), for example, showed that women in South America and North America displayed more body dissatisfaction than women in Western Europe, Southeast Asia,

Eastern Europe, Oceania, and South and West Asia. With regard to disordered eating, Brazil also seems to stand out in comparison with other countries, including the U.S., presenting similar rates in some behaviors (i.e. restrictive diet and fasting) and high rates in others (i.e. abuse of laxative and abuse of diuretics) (Ortega-Luyando et al., 2015).

Given the importance attached to the body and physical appearance in Brazil, the high percentage of women dissatisfied with their own body, and the high frequency of adoption of eating disorder risk behaviors (Nunes, Barros, Olinto, Camey, & Mari, 2003), there is a clear need to validate an etiological model of disordered eating for use with young Brazilian women in order to facilitate the analysis of this phenomenon. We generally hypothesized that the proposed etiological model of disordered eating would be valid and reliable for use with young Brazilian women.

## 2. Material and methods

### 2.1. Participants

Higher education institutions from Brazil's five regions (South, Southeast, Center-West, North, and Northeast) were contacted in order to obtain a diversified sample of the Brazilian population. Effect size and desired power, the number of observed and latent variables, and significance level were defined in order to determine the adequate sample size (Goodhue, Lewis, & Thompson, 2006; Goodhue, Lewis, & Thompson, 2007; Wolf, Harrington, Clark, & Miller, 2013). An online calculator<sup>1</sup> consisting of an implementation of the guidelines of Westland (2010) was used to determine sample size adopting the following parameters: an effect size of 0.10, power of 0.80, number of latent variables equal to nine, number of observed equal to 78, and 5% significance level. The minimum sample size needed was 666 young women.

### 2.2. Procedures

After evaluating institutions possibly interested in taking part in this research, the academic departments of the respective universities were contacted, outlining the research objectives and inviting professors to participate in data collection.

Data collection was undertaken during class time between September and December 2015. The participants were informed about the objectives of the study and all the procedures of data acquisition. The study was approved by the Research Ethics Committee at the Federal University of Juiz de Fora and all participants signed an informed consent form.

### 2.3. Measurements

#### 2.3.1. Demographic data

Information was collected about age, height, self-reported body mass, color/race, and parents' marital status. The categories suggested by the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística - IBGE*, 2013) were used to classify color/race, while nutritional status was defined based on the World Health Organization classification (WHO, 1995). Economic status was defined using the Brazilian Economic Classification Criteria (*Critério de Classificação Econômica Brasil - CCEB*) produced by the Brazilian Association of Research Companies (*Associação Brasileira de Empresas de Pesquisa - ABEP*, 2014), whereby participants are grouped as follows depending on their score: lower class (C1, C2, D, and E), middle class (B1 and B2), and

<sup>1</sup> Available at <http://danielsoper.com/statcalc3/default.aspx>.

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