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Falling in the traps of your thoughts: The impact of body image-related cognitive fusion on inflexible eating

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ABSTRACT

Literature has shown that young women present high rates of body dissatisfaction, independently of their weight. Therefore, dieting may emerge as a strategy to control one's body image. Nonetheless, it also seems to be a source of great suffering rather than a solution.

The aim of the present study was to explore what variables explain the inflexible engagement in eating rules. Our hypothesis is that an inflexible eating pattern results not exclusively from weight and body dissatisfaction and shame but mainly from emotional regulation processes (such as body image-related cognitive fusion).

The sample of the present study comprised 659 female college students, aged between 18 and 25 years old, who completed self-report measures.

Results revealed that the majority of the normal-weight participants desired to lose weight and to have a thinner body shape. Findings from the path analyses demonstrated that the effects of weight dissatisfaction and shame on the inflexible adhesion to eating rules were fully mediated through the mechanism of body image-related cognitive fusion. Furthermore, the effect of body dissatisfaction was partially operated by this process. This model was controlled by BMI and explained a total of 36% of inflexible adhesion to eating rules.

In conclusion, these findings suggest that it is when a woman gets fused and entangled with her body image-related thoughts that these unwanted inner events most impact on her eating rules. This study thus offers important new data for research and clinical practise in the field of body image and eating difficulties.

1. Introduction

Literature has shown that young women present notable high rates of dissatisfaction with their body image, independently of their weight (e.g., Rozin, Bauer, & Catanese, 2003). A recent study has documented that almost 87% of women report some level of body shape dissatisfaction and weight concerns, and nearly 40% presented moderate to high body dissatisfaction (Mond et al., 2013). Although this unfavorable self-perception seems to be "normative" in modern Western societies (e.g., Rozin et al., 2003), it has a marked impairment on women's quality of life (Mond et al., 2013). Body dissatisfaction is also associated with poor mental health (e.g., Mond, Rodgers, Hay, & Owen, 2011), specifically with eating psychopathology (e.g., Pinto-Gouveia, Ferreira, & Duarte, 2014; Stice, Marti, & Durant, 2011). Furthermore, feeling dissatisfied with one's body is often associated with feelings of inferiority and inadequacy which are part of the shame phenomenon (Gilbert, 2002).

Shame is conceptualized as a self-conscious and socially focused emotion which encompasses evaluations that certain personal characteristics are perceived by others as unattractive, making one vulnerable to criticism or rejection (Gilbert, 2000). The relationship between body dissatisfaction and shame is supported by literature (e.g., Goss & Allan, 2009; Pinto-Gouveia et al., 2014), what may be due to the social valorization of a thin body shape. In fact, thinness currently represents female attractiveness and, beyond that, positive features such as health, success, and happiness (e.g., Strahan, Wilson, Cressman, & Buote, 2006). In contrast, overweight and obese women are often negatively judged and stigmatized (e.g., Puhl, Moss-Racusin, Schwartz, & Brownell, 2008). In this line, dieting may emerge as a strategy to control one's weight and body image in order to become physically closer to the socially ideal figure and to be valued by others (e.g., Burkle, Ryckman, Gold, Thornton, & Audesse, 1999). Dieting however often holds paradoxical outcomes and seems to be a source of greater suffering rather than a solution (Polivy, Herman, & McFarlane, 1994). Several accounts have shown that individuals who frequently diet are more vulnerable to overweight problems and eating psychopathology (Stice, Presnell, Shaw, & Rohde, 2005). A recent study showed that the inflexible adhesion to eating rules, without considering external and internal contingencies, is a central factor to understand eating psychopathology (Ferreira, Trindade, & Duarte, submitted for publication). Nonetheless,

Abbreviations: CFQ-BI, measure of body image-related cognitive fusion; IEQ, measure of inflexible adhesion to eating rules; BMI, body mass index; WD, weight dissatisfaction; BD, body dissatisfaction; OAS, measure of external shame.

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the variables that explain the engagement in these eating behaviors are yet to be explored.

According to ACT (Hayes, Strosahl, & Wilson, 1999), we may hypothesize that when a woman gets fused with her body image-related unwanted thoughts, she might engage in inflexible eating rules aiming to control these experiences (Ferreira, Palmeira, & Trindade, 2014). This process is named body image-related cognitive fusion and is defined as the entanglement with thoughts' verbal content, considering them the truth rather than interpretations of reality. Our hypothesis is therefore that an inflexible eating pattern results not exclusively from weight dissatisfaction, body dissatisfaction, and external shame, but mainly from emotional regulation processes (such as body image-related cognitive fusion) that mediate the impact of these negative events.

2. Material and methods

2.1. Participants

This study's sample included 659 female college students, aged from 18 to 25 years old ($M = 20.30$; $SD = 1.73$).

The subjects' body mass index (BMI) ranged from 16.8 to 35.2 kg/m^2 ($M = 21.80$; $SD = 2.94$). Seventy participants (10.62%) were underweight (BMI < 18.5), 498 (75.57%) had a normal weight (18.5 ≥ BMI ≤ 25.0), and 91 (13.81%) were overweight (BMI > 25) (WHO, 1995), which reflects the BMI distribution of the Portuguese general population (Poínhos et al., 2009).

2.2. Measures

BMI was calculated from the Quetelet Index from participants' self-reported height and weight (kg/m^2).

Weight dissatisfaction (WD) is a measure of the discrepancy between current and desired weight.

Figure rating scale (FRS; Thompson & Altabe, 1991; Ferreira, 2003). Participants were presented with 9 silhouettes with different sizes and asked to select the ones that best represent their current and desired body shape; the discrepancy between these silhouettes reflects the degree of *body dissatisfaction*. The FRS has presented good psychometric characteristics.

Other as Shamer-short (OAS-short; Matos, Pinto-Gouveia, Gilbert, Duarte, & Figueiredo, 2015). This is a shorter measure of external shame, i.e., the overall negative perception of how others see the self (e.g., "I think other people look down on me"). This scale has shown good psychometric properties in its original validation study ($\alpha = .85$).

Cognitive Fusion Questionnaire: Body Image (CFQ-BI; Ferreira, Trindade, Duarte, & Pinto-Gouveia, 2014). The CFQ-BI is a 10-item self-report measure of body image-related cognitive fusion (e.g., "I tend to get very entangled in my thoughts concerning my body or body image"). This questionnaire presented very good psychometric properties in the original study ($\alpha = .97$).

Inflexible Eating Questionnaire (IEQ; Ferreira, Pinto-Gouveia, Duarte, & Martinho, in preparation). This 11-item scale assesses the inflexible adhesion to eating rules (e.g., "I rather follow my eating rules than eating in function of the context or my hunger or will"). The IEQ exhibited good psychometric characteristics ($\alpha = .95$) in its original study.

Table 1 presents the Cronbach's alphas of these measures for this study.

2.3. Procedure

The study protocol was approved by the ethics committees of the institutions enrolled in the research. Participants were informed about the confidentiality and voluntary nature of their participation, as well as of the purpose of the study, and signed an informed consent.

Table 1
Means (*M*), standard deviations (*SD*), Cronbach's alphas, and intercorrelation scores on self-report measures ($N = 659$).

	a	*M*	*SD*	1	2	3	4	5	6
1_BMI	–	21.80*	2.94	1					
2_WD	–	3.50	5.17	.81***	1				
3_BD	–	.66	.97	.58***	.69***	1			
4_OAS_s	.92	5.73	5.06	.02	.11**	.14***	1		
5_CFQ_BI	.97	23.17	12.21	.20***	.29***	.33***	.47***	1	
6_IEQ	.95	27.03	9.78	.25***	.34***	.42***	.24***	.54***	1

BMI = body mass index; WD = weight dissatisfaction; BD = body dissatisfaction; OAS_s = Other as Shamer (short version); CFQ-BI = Cognitive Fusion Questionnaire-Body Image; IEQ = Inflexible Eating Questionnaire.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

2.3.1. Analytic strategy

Descriptive analysis and *product–moment Pearson correlation analyses* were conducted (Cohen, Cohen, West, & Aiken, 2003).

To estimate the presumed associations between study variables in the theoretical model, a series of *path analyses* were performed using AMOS (v.21, IBM Corp). It was tested whether the associations between BMI, WD, BD and OAS (exogenous variables) and inflexible adhesion to eating rules (endogenous variable) would be mediated by body image-related cognitive fusion (endogenous mediator variable). To examine the significance of the regression coefficients and to calculate fit statistics, the maximum likelihood estimation method was used. To analyze the plausibility of the model, a set of goodness-of-fit indices were used. Moreover, the Bootstrap resampling method, with 2000 samples and 95% bias-corrected confidence intervals (CI) around the standardized estimates of the effects, was used to analyze the significance of the paths.

3. Results

3.1. Preliminary data analyses

Preliminary data analyses indicated that data followed the assumptions of normality, linearity homoscedasticity, independence of errors, and demonstrated the absence of multicollinearity and extreme outliers (Kline, 2005).

3.2. Descriptive analyses

Results revealed that 60.24% of the total participants were dissatisfied with their body image and 70.56% desired to lose weight.

Specifically, regarding the underweight participants, results showed that 11.5% reported desiring to lose weight, 32.8% to maintain their current weight, and 55.7% to gain weight. Concerning body dissatisfaction, 37.1% of the underweight females reported wanting to maintain their current body shape, while 11.5% and 51.4% desired to present a thinner or larger figure, respectively.

Interestingly, 74.3% of the normal-weight participants reported desiring to lose weight, 14.8% to maintain, and 10.9% to gain weight. Body dissatisfaction was also very incidental among normal-weight women, as 60.6% of them reported desiring to have a thinner figure, and 8.7% to have a larger body shape. Of the women in this BMI interval, 30.7% were satisfied with their current figure.

All of the overweight participants reported weight and body dissatisfaction, desiring to lose weight and to have a thinner figure.

3.3. Correlations

Results indicated that inflexible adherence to eating rules (IEQ) presented positive correlations with all study variables. Specifically, it