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What makes dietary restraint problematic? Development and validation of the Inflexible Eating Questionnaire

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ABSTRACT

This study presents the Inflexible Eating Questionnaire (IEQ), which measures the inflexible adherence to subjective eating rules.

The scale's structure and psychometric properties were examined in distinct samples from the general population comprising both men and women.

IEQ presented an 11-item one-dimensional structure, revealed high internal consistency, construct and temporal stability, and discriminated eating psychopathology cases from non-cases. The IEQ presented significant associations with dietary restraint, eating psychopathology, body image inflexibility, general psychopathology symptoms, and decreased intuitive eating. IEQ was a significant moderator on the association between dietary restraint and eating psychopathology symptoms.

Findings suggested that the IEQ is a valid and useful instrument with potential implications for research on psychological inflexibility in disordered eating.

1. Introduction

Dietary restraint can be defined as the intentional cognitive effort to restrict caloric intake with the aim of losing or maintaining weight (Herman & Mack, 1975; Herman & Polivy, 1980; Wadden, Brownell, & Foster, 2002). Consistent evidence has shown that these dieting behaviours and attempts to control or lose weight are highly prevalent, especially among women (Malinauskas, Raedeke, Aeby, Smith, & Dallas, 2006; Kruger, Galuska, Serdula, & Jones, 2004; Bish et al., 2005). Even though research in men is limited in comparison to women, there has been a growing interest in the study of body image problems and disordered eating in men (Dakanalis et al., 2015; Masuda, Hill, Tully, & García, 2015; Orellana et al., 2016). In fact, both women and men face similar pressures in our current modern environment to control eating behaviour and to achieve specific body types (e.g., avoid fatness and pursuit a slender and fit body). However, in this environment there is an easy access to abundant and high caloric food. This may have consequences for one's ability to maintain healthy eating behaviours and weight (Polivy & Herman, 2006; Stubbs, Gale, Whybrow, & Gilbert, 2012).

Given the current epidemic rates of excess weight and obesity and its comorbidities (World Health Organization, 2014), the ability to reduce and control food intake may be an adaptive behaviour. Nonetheless, findings on the benefits of dietary restraint are mixed (for a review see Schaumberg, Anderson, Anderson, Reilly, & Gorrell, 2016). While there is research that relates successful dietary restraint with positive health outcomes (e.g., Avenell et al., 2004; Phelan et al., 2009), other authors suggest that dieting is not only ineffective, but can create greater problems (De Witt Huberts, Evers, & De Ridder, 2012). Research has shown that dietary restraint prospectively predicts increased risk for future weight gain (French, Perry, Leon, & Fulkerson, 1995; Mann & Ward., 2001; Mann et al., 2007; Neumark-Sztainer et al., 2006) and obesity (Field et al., 2003; Klesges, Isbell, & Klesges, 1992; Stice, Presnell, Shaw, & Rohde, 2005), with this association being stronger for women than for men (e.g., van Strien, Herman, & Verheijden, 2014). Moreover, dietary restraint is an important risk factor for disordered eating (Fairburn, 2008; Stice, 2002; Stice, Marti, & Durant, 2011; Stice, Presnell, & Spangler, 2002). Etiological models of

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eating psychopathology, namely bulimic behaviours, suggest that dietary restraint may increase one's perceptions of deprivation and lead to counterregulatory eating, predicting the onset and development of these disorders (Fairburn, 2008; Stice, 2001). Thus, research leaves open the question of what in dietary restraint makes it a risk factor for difficulties in regulating eating behaviour and weight (De Witt Huberts et al., 2012; Mann & Ward., 2001).

Dietary restraint seems to be a complex construct that involves distinct facets and that cannot be categorized as entirely beneficial or detrimental (Schaumberg et al., 2016). Westenhoefer (1991) proposed that dietary restraint involves two dimensions: i) rigid restraint, which is characterized by a dichotomous, rigid all-or-nothing mentality to eating; and ii) flexible restraint, which entails a more graduated flexible approach to eating, in which the individual limits the quantities of certain foods (instead of entirely excluding them) and eats them without feeling guilty. There is evidence that these two approaches to eating may have different outcomes. Rigid restraint is associated with disordered eating behaviours, such as binge eating, increased body mass index (BMI) and weight management difficulties, whereas a flexible approach to eating is associated with better eating and weight-related outcomes (Westenhoefer, Stunkard, & Pudel, 1999; Westenhoefer et al., 2013). Other studies show that the rigid adherence to restrictive eating rules is associated with increased concerns about eating and pathological dietary behaviours (Brown, Parman, Rudat, & Craighead, 2012; Eiber, Mirabel-Sarron, & Urdapilleta, 2005; Mann & Ward, 2001). Studies also suggest that inflexible dietary restraint is associated with lower intuitive eating, that is, the ability to recognize and respond to one's internal hunger and satiety cues to flexibly regulate food intake (Tylka & Kroon Van Diest, 2013; Tylka, Calogero, & Daníelsdóttir, 2015).

It is plausible that dietary restraint may become problematic when associated with psychological inflexibility (Hayes, 2004; Hayes, Strosahl, & Wilson, 2011; Lillis & Kendra, 2014). Psychological inflexibility involves the rigid dominance of cognitions and emotions over one's values and contextual cues. Psychological inflexibility has been associated with general psychopathology indicators (e.g., depression, anxiety and stress symptoms; Hayes, Luoma, Bond, Masuda, & Lillis, 2006) and eating-related difficulties (Ferreira, Pinto-Gouveia, & Duarte, 2011; Hill, Masuda, & Latzman, 2013; Masuda, Boone, & Timko, 2011; Merwin & Wilson, 2009; Merwin et al., 2011; Sandoz, Wilson, Merwin, & Kellum, 2013). In particular, body image inflexibility — the inflexible adherence to body image-related cognitions and rigid behavioural patterns, which are disconnected from one's values — has been identified as a core dimension of body image and eating-related difficulties (e.g., Sandoz et al., 2013). Despite the efforts made to adapt psychological inflexibility measures to specific areas (e.g., body image in the Body Image Acceptance and Action Questionnaire; BI-AAQ), a measure that specifically addresses psychological inflexibility focused on eating behaviour remained inexistent. Recently, Duarte, Pinto-Gouveia, Ferreira, and Silva (2016) developed the Cognitive Fusion Questionnaire - Food Craving, a measure that assesses the tendency to become fused with cognitions about food and urges to eat. Nonetheless, none of the existing measures capture an inflexible adherence to eating rules.

There are several measures available to assess dietary restraint — such as the Restraint Scale (Herman & Polivy, 1980); the Dietary Intent Scale (Stice, 1998); the Dutch Restraint Eating Scale (van Strien, Frijters, van Staveren, Defares, & Deurenberg, 1986); the Restraint subscale of the Eating Disorder Examination (Fairburn & Beglin, 1994); and the Cognitive Restraint subscale of the Three Factor Eating Questionnaire (Stunkard & Messick, 1985), which distinguishes flexible control and rigid control (Westenhoefer, 1991). Despite the fact that these are widely used and validated measures, they are focused on the cognitive effort or attempts to restraint caloric consumption, and not on the psychological process underlying such attempts. Therefore, a new measure was developed to measure psychological inflexibility focused on eating behaviour: the Inflexible Eating Questionnaire (IEQ).

The IEQ aims at capturing psychological inflexibility focused on eating, involving the inflexible adherence to eating rules, without meeting internal (e.g., hunger or satiety cues) or external (e.g., certain social contexts) contingences, a sense of control when meeting such rules and distress when perceiving failures in meeting such rules. Recent studies have shown that this construct contributes to a wider understanding of the correlates of eating psychopathology. In fact, research conducted with young women from the community demonstrated that psychological inflexibility focused on eating, as measured by the IEQ, was highly linked with other psychological processes that are central for psychological adjustment and disordered eating. Ferreira, Trindade, and Martinho (2015) demonstrated that body image and weight dissatisfaction and unfavorable social comparisons significantly predicted women's levels of psychological inflexibility focused on eating, mediated by the mechanism of body image inflexibility. Duarte, Ferreira, Trindade, and Pinto-Gouveia (2015), in a sample of adolescent girls, found that psychological inflexibility focused on eating was a significant predictor of eating psychopathology. Moreover, preliminary evidence show that IEQ presents good internal consistency and construct validity, being significantly associated with increased BMI, general psychopathology and eating psychopathology (Duarte et al., 2015). Thus, this measure seems to be an important contribution for the assessment of forms of psychological inflexibility relevant for the study of eating behaviours. Nonetheless, until now the factor structure and psychometric properties of the IEQ were not systematically examined.

The current study examined the factorial structure and psychometric properties of this measure in a large sample of the general community. Research on the role of dietary restraint and psychological inflexibility on disordered eating has focused mainly on female populations, as women comprise a more vulnerable group for body image and eating disturbances (Sandoz et al., 2013). Nonetheless, recent research show that these problems are also relevant among men (e.g., Masuda et al., 2015; Orellana et al., 2016). Therefore, the IEQ factor structure was investigated in both men and women.

The construct validity of the IEQ was examined through associations with measures of dietary restraint (Fairburn & Beglin, 1994; Stice, 1998) and psychological flexibility focused on the body image dimension (Sandoz et al., 2013). Moreover, we examined the associations between IEQ and a measure of intuitive eating, which assesses the ability to guide one's eating behaviours considering internal cues of hunger and satiety rather than external cues or rigid rules (Tylka & Kroon Van Diest, 2013). We also examined the associations between IEQ and general psychopathology and body mass index. Finally, this study examined whether IEQ moderates the association between dietary restraint and eating psychopathology. Research demonstrates that dietary restraint per se is not inherently beneficial or detrimental. We hypothesize that the relationship between dietary restraint and eating psychopathology is exacerbated by psychological inflexibility focused on eating behaviour.

2. Method

2.1. Participants

Sample 1. IEQ was developed and analysed in a sample of 805 women from the community recruited in different institutions (e.g.,