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Psychometric evaluation of the German version of the Intuitive Eating Scale-2 in a community sample

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ABSTRACT

Intuitive eating is based on a strong physical connection with the body, aligned to internal cues of hunger and satiety, and a low preoccupation with food. The aim of this study was to provide a German version of the Intuitive Eating Scale-2 (IES-2) and to examine its psychometric properties with data collected from 532 participants aged 18–91 years. The IES-2 was translated into German following the World Health Organization guidelines (2016). Cronbach's alpha as a measure of internal consistency was 0.89 for the IES-2 total score, as well as 0.73 - 0.92 for the IES-2 subscale scores. For group differences, the results were as hypothesized: men had higher IES-2 scores than women, and participants with under- and average weight showed higher IES-2 scores than participants with overweight and obesity. Participants without a dieting history had higher IES-2 scores than former or current dieters. In line with our hypotheses regarding construct validity, the IES-2 score had negative associations with emotional eating, restraint eating, external eating, binge eating and eating disorder symptomatology, as well as positive associations with self-efficacy and mental health-related quality of life. Second-order confirmatory factor analysis replicated the four-factor solution, with intuitive eating as a higher-order factor. These findings demonstrate that the German version of the IES-2 is a useful tool to assess intuitive eating in the general German population.

1. Introduction

The traditional weight management approach has focused on weight-loss programs using dieting and food restriction as core strategies to lose weight and improve certain health parameters. The beneficial effects of these programs are questionable. Mann et al. (2007) have shown that dieting may cause weight gain over time and does not promote long-lasting healthy weight management. Consequently, in recent years, the focus among some scholars has shifted from weight loss to the adoption of healthy eating behaviors irrespective of weight status (Mensinger, Calogero, Stranges, & Tylka, 2016; Tylka, 2006), namely intuitive eating. Intuitive eating is based on a strong physical connection to the body aligned with internal cues of hunger and satiety and a low preoccupation with food (Tylka & Kroon Van Diest, 2013; Tylka, 2006). It is the innate physiological ability to regulate energy intake for optimal energy balance (Denny, Loth, Eisenberg, & Neumark-Sztainer, 2013).

Correlations between intuitive eating and health outcomes have been investigated in numerous studies (Bruce & Ricciardelli, 2016; van Dyke & Drinkwater, 2014). In cross-sectional surveys, negative correlations between intuitive eating and unhealthy eating styles such as cognitive restraint, emotional eating, uncontrolled eating, or unhealthy weight control were found (Herbert, Blechert, Hautzinger, Matthias, & Herbert, 2013; van Dyck, Herbert, Happ, Kleveman, & Vögele, 2016). Furthermore, intuitive eating correlated negatively with different facets of disordered eating and negative affect (Herbert et al., 2013; Tylka, Calogero, & Daníelsdóttir, 2015). Moderate negative correlations between intuitive eating and BMI were reported in several studies (Augustus-Horvath & Tylka, 2011; Webb & Hardin, 2016). Positive associations were found between intuitive eating and life satisfaction, positive affect and self-esteem (Tylka & Kroon Van Diest, 2013; Tylka, 2006; Tylka et al., 2015). In addition, intervention studies showed that implementing the principles of intuitive eating positively influenced psychological health outcomes like self-esteem, body image, interoceptive awareness and healthy eating attitudes, as well as physical health parameters like systolic blood pressure and cholesterol levels (Bacon, Stern, van Loan, & Keim,

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2005; Mensinger et al., 2016; Provencher et al., 2009). To the best of our knowledge, no research currently exists that examines the relationship between intuitive eating and self-efficacy. Self-efficacy is considered to be a key determinant of healthy eating behavior (e.g., Prestwich et al., 2014; Simmonds, Tinati, Barker, & Bishop, 2016). Intuitive eating and self-efficacy have in common trust in one's ability in order to listen to body signals to regulate food intake or achieve intended goals. Both constructs can serve as a mechanism for regulating behavioral responses (Bandura, 1977; Tribole & Resch, 2012). For this reason, self-efficacy could be positively associated with intuitive eating.

To assess intuitive eating, the Intuitive Eating Scale (IES) (Tylka, 2006) was developed based on the ten principles of intuitive eating (Tribole & Resch, 2003). Due to some limitations of the IES (e.g., predominantly negatively scored items), Tylka and Kroon Van Diest (2013) provided a modified version, the Intuitive Eating Scale-2 (IES-2). The IES-2 consists of 23 items and is divided into four subscales that reflect different aspects of intuitive eating. First, 'Unconditional permission to eat (UPE)' assesses one's readiness to eat when physically hungry and what food is desired at the moment, without categorisation into allowed and forbidden foods (6 items, e.g., "If I am craving a certain food, I allow myself to have it"). Second, 'Eating for physical rather than emotional reasons (EPR)' reflects the tendency to eat to satisfy physical hunger rather than to cope with emotional distress (8 items, e.g., "I find other ways to cope with stress and anxiety than by eating"). Third, 'Reliance on hunger and satiety cues (RHSC)' is the awareness of internal signals of hunger and satiety and trust in them to regulate eating behavior (6 items, e.g., "I trust my body to tell me when to eat"). Fourth, 'Body-food choice congruence (B-FCC)' has been added to the second version of the IES and is aligned with the concept of gentle nutrition. It represents the combination of healthy and tasty nutrition in line with bodily needs (3 items, e.g., "Most of the time, I desire to eat nutritious foods"). Previous validation studies from different countries have supported the reliability and validity of the IES-2 (Camilleri et al., 2015; Carbonneau et al., 2016; Tylka & Kroon Van Diest, 2013).

Although research on intuitive eating is growing in North America, to the best of our knowledge, only two studies have been conducted in Germany (Herbert et al., 2013; van Dyck et al., 2016). First, Herbert et al. (2013) investigated the relationship between intuitive eating, interoceptive sensitivity and BMI in healthy young women. Results showed that interoceptive sensitivity was positively related to the original IES total score as well as to RHSC and EPR, and negatively predicted BMI. Additionally, interoceptive sensitivity fully mediated the negative relationship between RHSC, EPR and BMI. Second, and simultaneously to our validation study, another German IES-2 was recently developed and adapted for the German language area (Germany, Luxembourg, Switzerland, and Austria) (van Dyck et al., 2016). The authors replicated the four-factor structure of the original IES-2 and reported significant negative associations between intuitive eating and disordered eating. Furthermore, women without an eating disorder diagnosis exhibited higher values on all IES-2 subscale and total scores than women with an eating disorder diagnosis. Significant differences on UPE and EPR between women with a diagnosis of binge eating disorder, anorexia nervosa or bulimia nervosa were found.

Several important differences between the previous studies and the current study should be pointed out. Herbert et al. (2013) applied the original IES and only included a small sample of young females, which limited the generalizability of their results. Although van Dyck et al. (2016) validated the German IES-2 in a large sample, their participants were mainly students and from different cultural backgrounds. Previous research has shown that cultural differences do exist, such as those between the United States and European countries regarding e.g. food environment, eating habits and attitudes towards food (López-Guimerà et al., 2013; Rozin, 2005; Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999), and also between the United States and Asian countries regarding intuitive eating (Hawks et al., 2004). Despite the fact that German is the official language of all the countries in which the study was conducted, country-specific differences in intuitive eating cannot be ruled out. In addition, explicit weight- and age-related differences have been neglected so far, and validation of the IES-2 has focussed primarily on pathological eating behavior disregarding positive health outcomes (e.g., health-related quality of life) and other possibly related constructs (e.g., self-efficacy). Most theories in health psychology stress the particular importance of understanding health-related behavior and consider self-efficacy to be a crucial component in interventions. Furthermore, reliability and validity estimates can vary between different samples. For these reasons, it seems promising to extend findings concerning intuitive eating in a culturally more coherent German sample including a broader range of age and socioeconomic backgrounds using the IES-2.

1.1. Aim of this study

With the authorization of the author of the original IES-2, the primary goal of this study was to provide a German version of the IES-2 applicable for research and applied intervention studies. The psychometric properties of the IES-2 were investigated focusing on different positive and negative health aspects that could serve as major starting points for prevention approaches. In a large German community sample, descriptive analyses were conducted and the factor structure was analyzed. Reliability estimates of the IES-2 and its subscales were garnered. Construct validity was examined by comparing different subgroups regarding their intuitive eating scores and by investigating correlations between convergent and divergent constructs.

2. Methods

2.1. Procedure

Data were collected between November 2015 and February 2016 with an online questionnaire and a paper-pencil version. Both versions were congruent except for one item (acceptance of the IES-2), which was only included in the online questionnaire. The online sample was recruited via social networks (e.g., Facebook), on various cooking and nutrition forums and through distribution lists, and the link was published on several health insurance websites. The paper-pencil version was disseminated among sport courses for seniors in order to recruit older people. Because the set of questionnaires was long, a small budget was set aside to compensate older participants for their time and effort (25 × 10 Euros). Only 13.3% ($n = 10$) of the paper-pencil sample participated in the lottery. According to Gosling, Vazire, Srivastava, and John (2004), traditional and web-based methods yield comparable findings. For this reason, both samples were merged. Inclusion criteria required participants to be at least 18 years of age, informed consent to be given, and the entire questionnaire to be completed. This study was approved by the Ethics Committee of the University of Potsdam (date 19/10/15, no. 38/2015).

2.2. Translation process

Following the WHO guidelines (World Health Organization, 2016), two psychologists independently translated the IES-2 into German. After a discussion of the discrepancies between both