



Validation of a questionnaire to measure the willingness to try new foods in Spanish-speaking children and adolescents



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ABSTRACT

Food neophobia seems to be related to nutritional, emotional, and family problems during childhood and adolescence. However, a specific measure to assess food neophobia in this population group is lacking in Spain. The aim of this study was to develop and validate a culturally appropriate Spanish version of the self-report Food Situations Questionnaire (FSQ) published by Loewen and Pliner in 2000. Items were translated into Spanish by means of the forward–backward translation procedure, using age-appropriate and simple vocabulary. The Spanish Food Situations Questionnaire (SFSQ) was then administered to a community sample of 831 participants (368 males and 463 females) aged between 8 and 16. The internal structure (dimensionality), internal consistency, and temporal stability of the instrument were examined, as were its convergent and external validity. The results of exploratory and confirmatory factor analyses revealed, as in the original FSQ, a two-factor structure (Low Stimulation and High Stimulation). These dimensions showed adequate internal consistency and temporal stability. The results also provide some evidence of convergent validity. External validation data were obtained based on the negative relationship between food neophobia and the sensation-seeking personality trait. Overall, the present work offers researchers and professionals interested in this area of study a valid and reliable tool for assessing food neophobia in Spanish-speaking children and adolescents.

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1. Introduction

Food neophobia refers to the unwillingness to eat—or avoidance of—new foods (Pliner & Hobden, 1992). Rozin (1976) explained the omnivore's dilemma in terms of adaptation, highlighting the need for every omnivore to be neophobic so as to avoid eating food that could be poisonous. The same author (Rozin, 1990) subsequently noted that culture also had much to do with humans' selection of food. Children grow up in environments subject to social influences such as those of parents, family, and peer group, and they learn to prefer typical foods of their culture (Birch & Fisher, 1995). Although a child's culture is formed by individuals around him or her, other forces such as television (Halford, Gillespie, Brown, Pontin, & Dovey, 2004) or geography (e.g., urban or rural environment) (Flight, Leppard, & Cox, 2003; Tuorila, Lähteenmäki, Pohjalainen, & Lotti, 2001) can also play an important role in the choice of food. Therefore, culture should be taken into account when studying food neophobia.

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The behavior of rejecting new foods has been considered to be a typical stage of children's development (for a review, see Dovey, Staples, Gibson, & Halford, 2008). When they are between two and three years old, children are usually averse to trying new foods, although their neophobia generally diminishes around age five. One of the reasons for this is that exposure to food increases over time, and as a result, fewer foods are new. Neophobia usually continues to decrease across childhood, adolescence, and adulthood. However, a child experiencing food neophobia also shows signs of distress and anxiety, and this neophobic behavior may be maintained even into adulthood (Sarría & Fleta, 2009). This could explain why Milton (1993) identified food neophobia as an intrinsic and adaptive personality trait. Nevertheless, it should be pointed out that correlations between age and food neophobia are slightly inconsistent throughout childhood and adolescence. Nicklaus, Boggio, Chabanet, and Issanchou (2005) found a decline in neophobia between the 4–7 and 8–12 age groups and between the 8–12 and 13–22 age groups. Furthermore, a diminution in neophobia was observed between the ages of 7–14 and 15–20 (Koivisto-Hursti & Sjoden, 1996), and between the 7–9 and 11–17 age groups (Koivisto-Hursti & Sjoden, 1997). Despite these

findings, differences were not found between 2 and 6 years (Cooke, Wardle, & Gibson, 2003; Pelchat & Pliner, 1986) or between the ages of 5, 8, and 11 (Pliner, 1994). Generally speaking, it seems that the level of neophobia might decrease with age but it is not clear when it begins to diminish.

Food neophobia has a direct impact on the consumption of different foods (Cooke et al., 2003, 2004; Galloway, Lee, & Birch, 2003). In particular, neophobic children eat less fruit and vegetables, and they have less varied diets than do their neophilic peers (Cooke, Carnell, & Wardle, 2006; Falcioglia, Couch, Gribble, Pabst, & Frank, 2000; Maiz, Maganto, & Balluerka, 2014; Nicklaus et al., 2005). This suggests that neophobic children have, on average, less healthy diets than do their neophilic peers. In recent years, unhealthy diets have been related with various cardiovascular risk factors, including obesity (Bradlee, Singer, Qureshi, & Moore, 2010), high blood pressure (Niinikoski et al., 2009), diabetes (Davis et al., 2007), and raised cholesterol (Royo-Bordonada et al., 2006). Relevant to this is the fact that childhood is the most opportune moment to develop healthy eating habits that could reduce the probability of suffering from chronic diseases in adulthood (Dietz, 1998; Kelder, Perry, Klepp, & Lytle, 1994; Mikkilä, Räsänen, Raitakari, Pietinen, & Viikari, 2005).

Children's food problems are often associated with a decrease in the emotional and psychological wellbeing of parents (Blissett, Meyer, & Haycraft, 2007). Furthermore, considering that many families experience non-clinical food problems and, therefore, do not receive professional help, parenting problems are less likely to be identified and properly treated (Mitchell, Farrow, Haycraft, & Meyer, 2013). In general, parents tend to control what, how much, and when their children eat (Mitchell et al., 2013), and they often press their children to try new foods. The pressure exerted due to frustration when the food is rejected can adversely affect the emotional state of the child, and these feelings may then be attributed to the new food. As a consequence, future presentations of the food will be associated with the anger or irritation of the parents, and the child will continue to reject the food (Pliner & Loewen, 1997). Numerous studies have demonstrated that pushing children to eat is associated with higher levels of neophobia (Fisher, Mitchell, Smiciklas-Wright, & Birch, 2002; Galloway, Fiorito, Lee, & Birch, 2005; Galloway, Fiorito, Francis, & Birch, 2006; Wardle, Carnell, & Cooke, 2005).

In view of the above, when food refusal implies physiological or psychological problems such as weight loss, nutritional deficiency, dependence on dietary supplements, or important psychosocial interferences, then treatment of the disorder should be considered. Regarding diagnosis, the rarely used Feeding Disorder of Infancy and Early Childhood described in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 2000) has been renamed as Avoidant/Restrictive Food Intake Disorder (ARFID) in DSM-5 (American Psychiatric Association, 2013). In ARFID the diagnostic criteria have been broadened to include adults, rather than it being a disorder exclusive to children and adolescents. The latter suggests that more research should be carried out to clarify the development of food neophobia throughout childhood, adolescence and adulthood.

In order to measure children's food neophobia in English-speaking countries two scales have been widely used, namely the Children's Food Neophobia Scale (CFNS), developed by Pliner (1994), and the Food Situations Questionnaire (FSQ), created by Loewen and Pliner (2000). However, neither of these instruments has been validated for Spanish language and culture. The CFNS includes 10 items focused on food consumption, and the higher the score, the higher the degree of food neophobia. It should be noted, however, that the level of food neophobia shown by the

child is based on parental rather than self-report. The FSQ is also a 10-item questionnaire that explores children's willingness to try new foods in different situations. The items of the FSQ differ from one another in terms of how the new food is described: (a) just as a "new" or "different" food, (b) using an unfamiliar name (e.g., kirschenkeks), or (c) using an unknown name but mentioning the food type (e.g., chocolate cake with frangelico icing). Moreover, the situations described in the items differ with regard to whether (a) the food is presented at home or elsewhere, (b) the presenter of the food is one of the parents or not, and (c) the occasion is mundane or festive. Combining the way of describing the new food and the situations led to the development of the two subscales in the questionnaire: Low Stimulation (e.g., "If your Mom served a new kind of vegetable for dinner, how would you feel about eating that?"), and High Stimulation (e.g., "If dessert at your friend's house was cannoli with chocolate sauce, how would you feel about eating that kind of dessert?"). Importantly, the FSQ is a self-report instrument designed specifically for children between the ages of 7 and 12, since it has been observed that neophobic behavior is better estimated by children's own reports than by parental ones (Loewen & Pliner, 2000). The use of children's self-reports in the FSQ avoids the social desirability bias that parents of neophobic children might present (Cooke et al., 2006). In addition, the items of this questionnaire are able to ascertain the level of food neophobia using an implicit wording instead of asking directly about the neophobic behavior, which is important since the use of direct questions could also increase the social desirability of children and adolescents. It should also be noted that the latest validation processes of scales to measure food neophobia in Italian and French children have been based on self-reports (Laureati, Bergamaschi, & Pagliarini, 2015; Rubio, Rigal, Boireau-Ducept, Mallet, & Meyer, 2008).

A number of studies have examined the relationship between food neophobia and willingness/unwillingness to approach novel, exciting, and complex stimuli in general. The Sensation Seeking Scale (Zuckerman, 1979) is one of the most widely used instruments for studying the sensation-seeking personality trait. A number of studies have shown that one or more of its subscales are negatively related to measures of food neophobia (Pliner & Hobden, 1992; Raudenbush, Van der Klaauw, & Frank, 1995).

As we have already mentioned, reliable assessment tools for measuring food neophobia are available in English, and similar instruments have recently been validated in some Mediterranean countries (Laureati et al., 2015; Rubio et al., 2008). However, there is currently no reliable and valid tool for measuring this construct among Spanish children and adolescents. To address the need for such a tool, and taking into account the impact that food neophobia has on both public health and community nutrition departments, the aim of the present study was to develop and validate a culturally appropriate Spanish version of the self-report Food Situations Questionnaire (FSQ). The FSQ was chosen due to the fact that (a) it is a self-report questionnaire, (b) the age range of the sample could be extended, enabling food neophobia in adolescence to be assessed, and (c) neophobic behavior is measured by means of implicit wording.

2. Material and methods

2.1. Participants

The main sample comprised 831 participants (368 males and 463 females) aged between 8 and 16 ($M = 12.22$; $SD = 2.38$). All of them had Spanish as their mother tongue, and during the academic year 2011–2012 they were enrolled in either elementary

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