

Validation of the *Child Feeding Questionnaire* in Spanish Parents of Schoolchildren

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ABSTRACT

Objective: To test the reliability and factorial validity of the *Child Feeding Questionnaire* (CFQ) within a Spanish sample.

Design: Cross-sectional study.

Setting: All schools in a Spanish Mediterranean city of about 100,000 inhabitants.

Participants: From a potential population of 1,623 children (mean age, 8.5 years), 960 parents (459 fathers and 501 mothers) of 515 children participated (32% response).

Main Outcome Measure(s): The Spanish version of the CFQ was completed by both parents. Body mass index of the children was obtained from measured heights and weights. Parents reported their anthropometric and employment data.

Analysis: Reliability was assessed using Cronbach α . Factorial validity was examined by Procrustes semi-confirmatory factor and confirmatory factor analyses.

Results: Seven major factors with loadings similar to those in the original questionnaire were found: perceived responsibility, perceived parent weight, perceived child weight, concern about child weight (CN), pressure to eat (PE), monitoring, and restriction. Reliability was adequate for each factor and overall CFQ ($\alpha = .86$). Goodness of fit indexes for confirmatory factor analysis solutions was acceptable. Item loadings ranged from 0.30 to 0.92. The factor of CN was associated with restriction [multivariate coefficient (R^2) = 0.14; $P < .001$] and PE ($R^2 = 0.36$; $P < .001$). Child's body mass index showed a negative association with PE ($R^2 = 0.11$; $P < .001$) and a positive association with CN ($R^2 = 0.25$; $P < .001$) and factors related to feeding control (monitoring and restriction, $R^2 = 0.04$ and $R^2 = 0.09$, respectively; $P < .001$).

Conclusions and Implications: Results support the reliability and validity of the CFQ for a Spanish population, allowing for comparisons across cultures. The CFQ may be useful to identify parental feeding attitudes that can contribute to preventing risky eating behaviors in their children.

Key Words: Body mass index, *Child Feeding Questionnaire*, parenting practices, Spanish *Child Feeding Questionnaire* (*J Nutr Educ Behav.* 2016; ■:1-9.)

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INTRODUCTION

Over the past 3 decades, obesity in developed countries has reached epidemic dimensions. The prevalence of childhood overweight and obesity ranges from about 10% in countries such as

Denmark to 32% in Spain and 39% in Greece.¹ Childhood obesity is associated with an increased likelihood of obesity and disability in adulthood, and obese children also have multiple physical problems and psychological disturbances.²⁻⁵ Globalization along with

changes in eating habits and family lifestyles may contribute to the increase in childhood overweight and obesity in Spain, as in other countries. Obesity may therefore be prevented through intervention in psychosocial and environmental factors related to eating attitudes and physical activity patterns.⁶

It is widely accepted that parents have an important role in the development of their children's eating habits and have considerable control over their diet.⁷⁻⁹ However, more research exploring the mechanisms involved in parent feeding practices and children's eating behaviors is required to apply effective preventive interventions.^{10,11} Parental control over children's eating behavior, such as pressuring children to eat and restricting the intake of palatable foods, have been associated with children's inability to regulate

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their own food intake.¹²⁻¹⁴ This has led to an imbalance in children's eating habits and a possible increase in overweight and obesity, and other eating disorders during development. Larsen et al¹¹ recently provided a conceptual model that describes parental influences on children's dietary behavior and body mass index (BMI) via their own dietary behavior and their parenting food practices. These parental attitudes influence the child's food availability at home and provide a model of feeding, which in turn mediates the child's own feeding behavior. Likewise, parenting styles may moderate the effects of parental food practices, whereas children's individual differences may moderate their eating behavior.

The *Child Feeding Questionnaire* (CFQ¹⁵) is one of the most widely used measures of parental feeding practices

and attitudes. The CFQ was influenced by the Model of Obesity Proneness,¹⁶ which describes how parental control of children's eating disrupts a child's natural ability to self-regulate energy intake. Parental feeding behaviors as assessed by the CFQ are correlated with children's weight, which makes it a useful tool for recognizing inappropriate parental behaviors that can be changed. Table 1 shows the original version of the CFQ's items by factors. The restriction subscale (RST) from the CFQ includes behaviors that limit the type and amount of food that may be eaten and is positively associated with food responsiveness,¹⁰ BMI,¹⁷ and disinhibited eating in girls.¹² Likewise, CFQ-concern for child's weight (CN) is related to higher child weight¹⁵ and total fat mass.¹⁸ On the other hand, the CFQ-monitoring scale (MN), which is

related to a responsive way of limiting intake, is not associated with food responsiveness¹⁰ but is associated with healthier BMI and healthy eating behavior.¹⁹ As for CFQ-pressure to eat (PE), several authors have shown an inverse association with weight measures in the child: namely, lower BMI,¹⁷ lower total fat mass,¹⁸ and greater satiety responsiveness.¹⁰

Previous studies analyzed the CFQ validation in several populations.^{7,15,20-23} These studies found that the original model presented by Birch et al¹⁵ was not sufficiently clear for their population samples and that RST was a problematic subscale. Consequently, each study proposed its own factor structures (Table 2). In the original confirmatory factor analysis (CFA) conducted by Birch et al, and in the majority of previous studies, the RST3A and RST3B

Table 1. Description of *Child Feeding Questionnaire* Items by Factor

Subscale	Question
Perceived responsibility (PR)	(PR1) When your child is at home, how often are you responsible for feeding her?
	(PR2) How often are you responsible for deciding what your child's portion sizes are?
	(PR3) How often are you responsible for deciding whether your child has eaten the right kind of foods?
Perceived parent weight (PPW)	(PPW1) Your childhood (5–10 years old)
	(PPW2) Your adolescence
	(PPW3) Your twenties
	(PPW4) At present
Perceived child weight (PCW)	(PCW1) Your child during the first year of life
	(PCW2) Your child as a toddler
	(PCW2) Your child as a preschooler
	(PCW3) Your child from kindergarten through second grade
	(PCW4) Your child from third through fifth grade
(PCW5) Your child from sixth through eighth grade	
Restriction (RST)	(RST1A) I have to be sure that my child does not eat too many sweets (candy, ice cream, cake, or pastries).
	(RST1B) I have to be sure that my child does not eat too many high-fat foods.
	(RST1C) I have to be sure that my child does not eat too much of her favorite foods.
	(RST2) I intentionally keep some foods out of my child's reach.
	(RST3A) I offer sweets (candy, ice cream, cake, and pastries) to my child as a reward for good behavior.
	(RST3B) I offer my child her favorite foods in exchange for good behavior.
	(RST4A) If I did not guide or regulate my child's eating, she would eat too many less-healthy foods.
	(RST4B) If I did not guide or regulate my child's eating, she would eat too much of her favorite foods.
Pressure to eat (PE)	(PE1) My child should always eat all of the food on her plate.
	(PE2) I have to be especially careful to make sure my child eats enough.
	(PE3) If my child says "I am not hungry," I try to get her to eat anyway.
	(PE4) If I did not guide or regulate my child's eating, she would eat much less than she should.
Monitoring (MN)	(MN1) How much do you keep track of the sweets (candy, ice cream, cake, pies, or pastries) that your child eats?
	(MN2) How much do you keep track of the snack food (potato chips, Doritos, or cheese puffs) that your child eats?
	(MN3) How much do you keep track of the high-fat foods that your child eats?

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