



Research report

Development and validation of a scale to measure Latino parenting strategies related to children's obesigenic behaviors. The parenting strategies for eating and activity scale (PEAS)

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ABSTRACT

Research has shown that children's dietary and activity-related behaviors are shaped by the family environment and parenting behaviors. The present study describes the development and validation of a bilingual (Spanish and English) scale assessing parenting strategies associated with children's dietary and activity-related behaviors in the home. Items were generated from focus groups with Latina mothers and a review of the literature, and two different samples were used to assess the scale's psychometric properties, including an examination of predictive validity using measured child body mass index. Factor analysis of the first sample ($N = 91$) yielded a 5-factor solution (limit setting, monitoring, discipline, control and concern) and accounted for 65% of the variance. Confirmatory factor analyses on a second sample of Latina mothers recruited into a childhood obesity prevention study ($N = 714$) showed that a 26-item 5-factor solution (limit setting, monitoring, discipline, control and reinforcement) provided the best fit for the data. Parenting strategies characterized as controlling were associated with a lower BMI among children. After using multiple samples and establishing its validity, the parenting strategies for eating and activity scale (PEAS) was found to be valid and reliable in measuring Latino parenting strategies related to children's dietary and activity-related behaviors.

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Introduction

Family influences play an important role in the formation of children's dietary and activity-related behaviors. With respect to dietary behaviors, parents model food preferences, dietary restraint and possibly dietary disinhibition (Birch & Fisher, 1998). Maternal control and restriction have been shown to play a role in the development of children's food preferences. For example, some child-feeding strategies that encourage children to consume a particular food increase children's dislike of that food (Birch, Marlin, & Rotter, 1984). On the other hand, maternal restriction of foods has been shown to increase girls' consumption of those same foods in an unrestricted setting (Fisher & Birch, 1999). Among Mexican-Americans in the US, acculturation influences the development of these feeding strategies. Kaiser and colleagues found that when compared with more acculturated mothers, less acculturated mothers were more likely to offer their

children other foods when they refused to eat, to view bribes, threats, and punishment as effective ways to encourage eating, and to take their children out to eat as a reward for good behavior (Kaiser, Melgar Quinonez, Lamp, Johns, & Harwood, 2001). Costanzo and Woody (1985) developed a model to explain how excessive parental control in feeding can result when (1) parents are particularly invested in their children's eating, (2) children are perceived as being at risk for developing eating problems, weight problems or both and (3) parents have trouble controlling their own food intake and therefore assume that their children will have difficulty as well.

In examining the relationship between maternal feeding practices and obesity, studies have found that a high degree of maternal control over the feeding interaction of children from middle to upper class White families increased the child's risk for obesity (Satter, 1996). Research also has found that the relative weight of preschool children is greater when parents report more restriction of children's access to snack foods (Fisher & Birch, 1999). Among Mexican-American children, Sherman, Alexander, Dean, and Kim (1995) found that adult over- or under-involvement in the child's eating and more persons involved in feeding the child

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were risk factors for childhood obesity. Greater maternal involvement was observed in the Mexican-American versus Anglo sample, and greater family involvement was associated with a higher skin-fold ratio (Sherman et al., 1995). This type of parental control may prevent the child from developing the ability to regulate his/her own food intake and appetite when left alone and may leave him/her at greater risk for obesity. Interestingly, Sherman and colleagues (1995) did not find a significant relationship between the child's BMI and mother's overall score on the maternal feeding practices questionnaire. Clearly, more research is needed to determine the prevalence of controlling or restrictive feeding practices in diverse populations and the extent to which these feeding practices are related to the risk for obesity. This research requires the use of validated measures of these constructs, particularly measures that are relevant to minority populations.

The family also plays an influential role in fostering children's physical activity. Research on the relationship between physical activity in children and parental behavior has focused on the direct effects of parental physical activity and support for physical activity (Davison, Cutting, & Birch, 2003; Jeffery, Baxter, McGuire, & Linde, 2006; Sallis, Prochaska, & Taylor, 2000; Strauss, Rodzilsky, Burack, & Colin, 2001). One study examining parenting styles and their influence on health behaviors found that mothers who demonstrated an authoritative parenting style (e.g., being responsive while having the ability to communicate and enforce expectations of behavior with appropriate levels of parental control) have children who report higher levels of physical activity and lower levels of sedentary behavior (Jackson, Henriksen, & Foshee, 1998; Schmitz et al., 2002). Broader aspects of parental influences such as parental monitoring remain understudied perhaps due to a paucity of measurement tools that have been developed to assess this construct. This is important given that time spent viewing TV and playing video games are associated with the prevalence of child overweight as defined by a BMI above the 85th percentile (Dennison, Erb, & Jenkins, 2002). Having the ability to monitor and assess changes in parental influences on children's weight status is essential for the development and implementation of family-focused interventions targeting physical activity, and ultimately to prevent obesity in children.

Little research has focused on the systematic measurement of general patterns of feeding among ethnically diverse populations. Hughes, Power, Fisher, Mueller, and Nicklas (2005) developed the Caregivers' feeding styles questionnaire (CFSQ) to determine the parental feeding style (authoritarian, authoritative, indulgent and uninvolved) of African-American and Hispanic caregivers. Hispanic parents were more indulgent than their African-American counterparts, and indulgent parents were found to have children with higher BMI measures (Hughes et al., 2005). The child-feeding questionnaire (CFQ) has been used to measure parental attitudes, beliefs, and behaviors related to child feeding in Hispanic and African-American parents (Anderson, Hughes, Fisher, & Nicklas, 2005). Anderson et al. (2005) explored the cross-cultural equivalence of the CFQ in low-income African-American and Hispanic parents. Preliminary results showed poor model fit of the original CFQ factor structure resulting in the deletion of several items and constructs. The modified scale functioned adequately in both groups and demonstrated the differential influence of parent education and perceived responsibility for feeding among Hispanic and African-American parents. Furthermore, although previous studies with predominantly White samples have found positive correlations between restriction of foods and concern about weight, the findings of Anderson et al. (2005) showed that high ratings on the restriction subscale were related to lower concern about child's weight in the African-American sample but not in the Hispanic sample. These results highlight the influence of the

socio-cultural context on parental feeding behaviors. Parental motives for restriction may vary across cultures and having English and Spanish-language instruments that consider these cultural factors are vital to advance the field and gain knowledge about how culture informs parental feeding behaviors.

The present study describes the development of a culturally appropriate scale measuring Latino parenting strategies related to children's diet and physical activity, the parenting strategies for eating and activity scale (PEAS). Specifically, the study focuses on Latina mothers' parenting strategies given traditional gender roles related to child rearing. Measurement development and validation of the scale were completed in three phases. Phase One involved the use of focus group methodology to identify the types of culturally specific parenting strategies that mothers use in the home pertaining to their children's diet and activity-related behaviors. Phase Two consisted of a small pilot study to assess the scale's initial validity, reliability, and factor structure. Phase Three involved administration of the scale to parents recruited to participate in a randomized controlled trial examining the efficacy of an environmentally centered obesity prevention intervention for Latino children and their families. The San Diego State University Institutional Review Board approved all study protocols.

Methods

Recruitment of participants

Phase One participants consisted of Latina mothers recruited from parent to teacher associations affiliated with several schools in South San Diego County to participate in a focus group. Thirty women (mean age = 36 years, 63% married, 43% homemakers and mean number of years living in United States = 15) participated in one of five focus groups, three of which were moderated in Spanish. The women who participated in the focus groups had an average of three children under the age of 18 living in their household (mean age = 7 years). Women were asked to imagine a 5–8-year-old child when answering the focus group questions. No formal acculturation measure was administered during the focus groups, but self-reported place of birth and language preference were used to assess acculturation consistent with previous research (Abraido-Lanza, Armbrister, Florez, & Aguirre, 2006). In this study, 76.7% of the women were born in Mexico versus the US and 70% of the women participated in Spanish- versus English-language focus groups. In addition, only four (13.3%) participants reported speaking English exclusively with their children at home. The women received food and drinks during the focus groups, as well as a \$10 incentive, for their participation.

Phase Two participants consisted of Latina mothers who were recruited from several community centers and elementary schools in South San Diego County using active (direct solicitation) and passive (posting flyers) methods to complete a one-time survey. Women were eligible to participate if they were at least 18 years of age, able to read and write in either Spanish or English, and had a child in kindergarten to second grade given our target population for Phase Three. Ninety-one Latina mothers were recruited and 75% of the women completed the survey in Spanish. Table 1 presents this sample's demographic characteristics.

Phase Three participants consisted of parent–child dyads recruited to participate in a childhood obesity prevention intervention—*Aventuras para Niños*. This study was a 2×2 factorial intervention designed to test the efficacy of a *promotora*-mediated intervention to effect change within participants' homes, schools, and communities. Parents whose children attended one of thirteen public elementary schools in three Southern California communities

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