Parent-Child Behavioral Interactions During Pediatric Immunizations in a Latino Sample

Ifigenia Mougianis

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ABSTRACT

Pediatric procedural distress has been linked to a number of short- and long-term negative outcomes for the patient. A body of literature has found that one of the strongest predictors of children’s medical distress or coping is parents’ behavior. The majority of this research has been conducted on predominately Caucasian samples. The purpose of this study was to explore the types and frequencies of parent and child behavior, as well as the associations between parent behavior and child distress and coping in a sample of Spanish-speaking Latino parent-child dyads. The findings suggest that there may be differences in Latino parent and child behavior when compared to the extant literature. This study is a first step in exploring parent and child behaviors in this vastly growing and understudied population. Additional studies with larger sample sizes are warranted in order to further explore if existing interventions are culturally appropriate for this population.

INDEX WORDS: Immunizations, Children, Coping, Distress, Parents, Procedural
PARENT-CHILD BEHAVIORAL INTERACTIONS DURING PEDIATRIC IMMUNIZATIONS IN A LATINO SAMPLE

by

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A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Arts in the College of Arts and Sciences Georgia State University 2014
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DEDICATION

To my yiayia Effie; while your formal education was unjustly limited based on gender, culture, and historical context, your immeasurable wisdom and unwavering encouragement have supported me in pursuing mine.
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1 INTRODUCTION

1.1 Pediatric Pain during Medical Procedures

Immunizations are arguably the single most important advance in medicine for the prevention of disease (Schechter et al., 2007). The World Health Organization (WHO) recommends that all children be vaccinated against tuberculosis, hepatitis B, poliomyelitis (polio), diphtheria, pertussis, tetanus, haemophilus influenzae type b, pneumococcal, rotavirus, measles, rubella, and human papillomavirus, which results in 20-30 vaccinations by six years of age (WHO, 2012). Additional vaccines for encephalitis, yellow fever, typhoid, cholera, meningococcal, rabies, mumps, and influenza are recommended for certain geographic locations and high risk populations (WHO, 2012). The high volume of these recommended vaccinations – the majority are administered via intramuscular injections – makes immunizations the most frequently occurring invasive procedure in the medical setting. Unfortunately, these injections can be anxiety provoking and painful for the pediatric patient, and this distress can lead to negative repercussions.

A growing body of literature documents the deleterious effects of untreated distress associated with needle procedures (Schechter et al., 2007; Taddio et al., 2009). Immediate negative aspects of pediatric immunizations are heightened anxiety and pain (e.g., Jacobsen et al., 2001; Schechter et al., 2007) with children engaging in twice the rate of distressing behaviors (crying, screaming, verbal expression of pain, verbal expression of fear, etc.) compared to coping behaviors (deep breathing, non-procedural related talk, humor, etc.) (Frank, Blount, Smith, Manimala, & Martin, 1995). Further, Blount et al. (1992) found that 56% of children require physical restraint during routine immunizations. Data suggests that distress surrounding immunization injections is related to detrimental effects, such as subsequent vaccine non-adherence (Taddio et al., 2009). Additional repercussions of this heightened anxiety and pain are negatively distorted memories and anticipatory anxiety around future injections (Cohen, Blount, Cohen, McClellan, Bernard, & Ball, 2001). Additional delayed negative effects may include heightened fear and pain during future medical procedures and avoidance of healthcare (Kennedy et al., 2008). In summary,
children experience many immunization injections, which can have immediate and delayed adverse repercussions.

1.2 Parent and Child Behavior during Pediatric Medical Procedures

Given the immediate and delayed consequences of untreated pediatric immunization distress, interventions are warranted. Fortunately, a rich base of assessment work has helped identify predictors of children’s procedural distress, which provides a foundation for treatment development (Blount et al., 2009). The variable that has been identified as accounting for the most variance in children’s medical distress and coping is parent behavior. In a study of 4- to 7-year-olds receiving routine immunization, Frank, Blount, Smith, Manimala, and Martin (1995) found that parents’ overall behavior – comprised of a combination of discrete coded behaviors (e.g., humor directed to child, nonprocedural talk to child, criticism, reassuring comment, apology, empathy) – explained 53% of the variance in child distress behavior (cry, scream, verbal resistance, request emotional support, verbal fear, verbal pain, verbal emotion, and information seeking) and 25% of the variance in child coping behavior (making coping statements, nonprocedural-related talk, audible deep breathing, and humor by the child). Similarly, Cohen, Bernard, Greco, and McClellan (2002) found that parent behavior accounted for 25% of the variance in child distress during immunization and 40% of the variance in child coping.

Fine-grained analyses have identified specific parent behaviors that are associated with distress and coping in children during medical events. In one of the first studies, Blount et al. (1989) examined relations among discrete parent behavior and child behavior (ages 5 to 13 years old) during pediatric oncology bone marrow aspirations and lumbar punctures using the Child-Adult Medical Procedure Interaction Scale (CAMPIS). The CAMPIS is an observational measure that allows for the quantification and categorization of adult and child verbalizations during a medical procedure. Some examples of adult vocalizations include reassuring comment, nonprocedural-talk, apology, empathy, and command to use coping strategy, and some example of child vocalizations include cry, scream, verbal fear, and verbal pain. (See Blount at al., 1989 for a complete list of coded vocalizations). Reassuring comments were the most
frequent adult behavior directed toward the child, followed by notice of procedure to come, and non-procedural talk to child. The most frequent child behaviors were cry, followed by verbal pain, and emotional support. Correlational analyses suggested that parent apology, reassuring comment, criticism, and giving control to the child were positively associated with child distress (composite of cry, scream, verbal resistance, request emotional support, verbal fear, verbal pain, verbal emotion, and information seeking, child informs about status, requests for relief from nonprocedural discomfort, makes assertive procedural verbalizations, and child discusses his/her general condition), and that parent nonprocedural talk to the child and humor directed toward the child were positively associated with child coping (composite of nonprocedural talk by the child, humor by the child, audible deep breathing, and making coping statements) (Blount et al., 1989).

Manne et al. (1992) found similar results in an analysis of child and adult behaviors during venepuncture in an outpatient cancer treatment center. Specifically, findings suggested that adult explanation is significantly correlated with child momentary distress (.42 in preparation phase, .62 during the procedure, and .52 post-procedure). Adult distraction was the only adult behavior that was correlated negatively with child distress and positively with child coping. Adult behaviors of giving praise, criticism, threats, directives to engage in coping, and explanation were negatively associated with child coping.

Additional studies examining frequencies and relations among parent and child behavior during invasive medical events have generally corroborated the Blount et al. (1989) and Manne et al. (1992) results. For example, in a study of 3- to 6-year-olds, Manimala, Blount, and Cohen (2000) examined the effects of parental reassurance and distraction on child distress and coping during immunization. Observable parent and child behaviors were coded using the revised Child-Adult Medical Procedure Interaction Scale (CAMPIS-R; Blount, Sturges, & Powers, 1990). Based on the sequential analysis of the original CAMPIS (Blount et al., 1989), the vocalization codes were combined into 6 different categories. The adult codes were grouped into adult neutral, coping promoting, and distress promoting. The child codes were grouped into child neutral, coping, and distress (see Tables 1 and 2 of Blount et al., 1990, for groupings of original codes.) The most common adult behavior was reassuring comment, followed by distrac-
tion, and the most common child behavior was cry, followed by verbal pain, verbal resistance, and scream. Analyses suggested that parental reassurance was associated with higher child distress (comprised of the following codes: cry, scream, verbal resistance, request emotional support, verbal fear, verbal pain, verbal emotional, and information seeking) during immunizations.

Cohen, Manimala, and Blount (2000) further examined the correlations between parent and child behavior during immunization using the CAMPIS and the CAMPIS-R in a sample of preschool-aged children. The most frequent parent behavior was reassurance, followed by nonprocedural talk, empathy, and praise. There were three parent behaviors that correlated significantly with child behavior: parental apology, empathy, and reassurance all correlated positively with child distress.

Within the pediatric procedural distress literature, few studies have examined whether girls and boys are treated differently by parents during medical procedures. In one of the only studies focusing on children’s gender, Chambers, Craig, and Bennett (2002) found that girls are more susceptible to parent behavior than are boys during an experimental pain task. Specifically, girls whose mothers were assigned to the pain-promoting verbalization condition (e.g., reassurance, criticism) reported the most pain, followed by the control group, which in turn was followed by the girls whose mothers were assigned to the pain-reducing verbalization group (e.g., distraction). This effect was not found with boys. The authors suggest that boys may be socialized to be more stoic and less susceptible to maternal influence. This finding has been shown in parents’ response to their children’s illness behavior. For example, Walker and Zeman (1992) found that girls report receiving more sympathy and encouragement of illness behavior (e.g., gastrointestinal symptoms, cold symptoms) than did boys.

In summary, specific parent behaviors of distraction, humor, praising good behavior, playing, nonprocedural talk, and commands to cope have been consistently identified as negatively correlated with child distress and positively correlated with child coping (e.g., Blount et al., 1989; Blount, Piina, Cohen, & Cheng, 2006; Cohen, 2008; Mahoney, Ayers, & Seddon, 2009; Manne et al., 1992; Powers, 1999). Parent behaviors positively correlated with child distress and negatively correlated with child coping are typically reassurance, apologizing, giving control, criticizing, providing information, and empathy (e.g.,
Mahoney at al., 2009; Manne et al., 1992). A number of pediatric procedural pain management programs (e.g., training parents to distract and minimize reassurance during pediatric immunizations) have been developed based on these assessment findings (for a review, see Blount et al., 2009).

### 1.3 Culture-Specific Parent and Child Behavior during Pediatric Medical Procedures

Children’s procedural anxiety and pain is experienced in a cultural context, and therefore culture is pertinent to the study of pediatric medical procedural distress (Batista et al., 2012; Cohen, Fortier, Anderson, & Kain, 2009; MacLaren, & Lim, 2008; Rollman, 2004). Clay (2009) argues that with the increase in minority pediatric populations (data on children in the United States indicate that approximately 50% of children are living in ethically/culturally diverse or low-income homes), it is imperative that the link of cultural variables to pediatric psychology treatment process and outcomes be examined. The impact of cultural variables dictates whether clinicians are able to provide appropriate and ethical care to their clients (Fortier et al., 2009). A literature search yields a dearth of research on the role of culture in the experience of pain and medical procedures in children (Fortier et al., 2009; Kristjánsdóttir, Unruh, McAlpine, & McGrath, 2012). The progress of applying evidence-based practice to diverse populations in pediatrics has been slow, which can be accounted for by the fact that initial discussions were centered on how to deal with randomized clinical trials and internal validity concerns, which is often cited as the “gold standard in research” (Clay, 2009; Clay, Mordhorst, & Lehn, 2002). However, the contexts in which clinical services are provided are often not highly controlled, especially within the context of settings that provide services to diverse populations (Clay, 2009). In addition, typically the research that supports evidence-based practices have been on populations where diversity of sample has not been emphasized (Walders & Drotar, 2000), and in some studies, not even adequately reported (Clay, 2009; Clay, Mordhorst, & Lehn, 2002).

There may be unique parent and child behaviors, and relations among these behaviors during pediatric immunizations across populations from different backgrounds. If this is the case, pain management approaches should be tailored to account for these differences. Although the literature examining parent-
child behavioral interactions during medical procedures is rich, the vast majority of studies have been conducted with Caucasian samples from the United States. When the samples were diverse (e.g., Blount, Bunke, Cohen, & Forbes, 2001; Chambers, Craig, & Bennett, 2002; Cohen, et al., 2000), either no between group analyses were conducted, or just preliminary analyses – that likely lacked adequate power to detect differences among a number of different ethnic or racial groups – were presented.

A literature review revealed only 2 studies examining parent-child behavior during immunizations in populations that were not from the United States or Canada and predominately Caucasian. In a study conducted with Portuguese preschool-aged (3-6 years old) children and their parents, Pedro, Barros, and Moleiro (2010) examined the CAMPIS behavioral codes, but also coded additional adult and child behaviors that were not included on the original CAMPIS. New parent behaviors that occurred with a frequency of 10 or more times were, physical comfort, reward promise, intimidation, “you’re going to seriously harm yourself,” rationalization, and inappropriate or confusing order (statements with confusing information, that transmit uncertainty, or suggest a forced, positive emotional expression; e.g., “You can do anything, but move.”; “I’m going to try not to hurt you.”; “Now, you have to laugh.”). No new codes were identified for children’s behaviors. The most frequent parent behavior from the original CAMPIS (Blount et al., 1989) was reassuring comments (22% of all parent behaviors), followed by nonprocedural talk (9% of all parent behaviors), command to use coping strategies (9% of all parent behaviors), and criticism (9% of all parent behaviors). These findings are largely consistent with the extant literature with predominately Caucasian samples in the United States; specifically reassurance and nonprocedural talk have shown to be the most common adult behaviors (Blount et al.,1989; Manimala et al., 2000). Inconsistent with existing literature are the higher rates of parental criticism and commands to use coping strategies (Blount et al., 1989; Manimala et al., 2000). The most frequent new parent behavior was physical comfort (14% of all parent behaviors, which makes it the second most common parent behavior in this study following reassuring comments), followed by inappropriate or confusing order (6% of all parent behaviors). Unfortunately, no correlations between child and adult behavior were conducted in the study. A hierarchical regression was used to explain the variance in the composite codes of child coping (audible
deep breathing, nonprocedural talk by child, humor by child, coping statements by child) and distress (cry, scream, verbal resistance, request emotional support, verbal fear, verbal pain, verbal emotion, information seeking), as originally outlined by Blount et al., (1990). The original CAMPIS codes for parent behavior accounted for 46% of the variance in child distress, with reassuring comments and parents’ criticism emerging as significant positive predictors of child distress. In the second step of the hierarchical regression, the 6 new parent behaviors statistically accounted for an additional 13% of the variance in child distress, with parental intimidation emerging as a significant positive predictor of child distress. Twenty-two percent of the variance of child coping was accounted for by original CAMPIS parent codes, with nonprocedural talk and humor emerging as a positive predictors of child coping. Contrary to the extant literature, parental distraction emerged as a significant negative predictor of child coping. In the second step of the regression, the 6 new codes did not significantly predict child coping. Whereas findings are generally in agreement with the existing literature, results of this study suggest that there are some unique differences that could be attributed to culture within this population.

Mahoney et al. (2010) conducted a study examining the association between parents’ and children’s coping and distress during venepuncture in a sample of children (aged 7 – 16) in the United Kingdom (U.K.). All but one child was from Caucasian European background. Results indicated that the most common child distress behaviors were verbal pain, followed by verbal fear, and the most frequent child coping behavior was nonprocedural talk. The most common parent behavior was nonprocedural talk (60% of the parent sample used this behavior), followed by reassurance (46%), humor (32%), command to use coping strategies (14%), and criticism (12%). Mahoney et al. conducted a hierarchical regression with findings that were consistent with previous research in non-U.K. samples. Specifically, the authors found that parents’ criticism, reassuring comment, giving control to the child, apology, and empathy accounted for 64% of the variance in child distress (crying, screaming, verbal resistance, request emotional support, verbal fear, verbal pain, verbal emotion, and information seeking). The results of the frequencies in child and parent behavior suggest that there are some cultural differences between this U.K. sample and the samples from the United States (U.S.) and Canada. In this sample, humor and nonprocedural talk were
more common than in the American and Canadian samples and behaviors that were more common in samples from the U.S. and Canada (apologizing, criticizing, empathic comments) were rarely used by U.K. parents. Additionally, frequencies suggest that U.K. children were more likely to engage in verbal pain and verbal fear than children from the U.S. and Canada. These findings highlight a possible cultural component in parent-child behavior that warrants further investigation.

1.4 Parent and Child Behavior in Latino Families

The studies by Pedro et al. (2010) and Mahoney et al. (2010) suggest that there might be important cultural differences in parent-child behavior during immunizations. Currently, there are no studies in this area with Latino populations. However, a small handful of studies have looked at cross-cultural comparison between Latinos and other cultural groups in the United States with regard to parent and child outcome in pediatric medical procedures (Kristjánsdóttir et al., 2012). Bauchner, Vinci, and Waring (1989) found that black parents are more likely than Hispanic or white parents to prefer to be present during their child’s painful medical procedure. In similar research, Jones, Qazi, and Young (2005) found that English-speaking Hispanic parents were less likely to want to remain present during a critical resuscitation, although overall there were few ethic differences in parents’ desire to be present during medical procedures. In a study examining perioperative analgesic treatment in Latino and non-Latino pediatric patients, Jimenez et al. (2010) found that although there were no differences with regard to ethnicity in child median peak pain score, perioperative pain treatment in children was correlated with the patient’s ethnicity, where Latino participants received 30% less opioid analgesics than Caucasians. Alternatively, Karpman, Del Mar, and Bay (1997) as well as Yen et al (2003) found that Hispanics were not likely to be undermedicated for fracture reduction compared with whites. In a study examining improving pain assessment and management for a multiethnic group of children, Jordan-Marsh et al. (1994) found no significant differences between ethnicities in child self-reported pain intensity. Pfefferbaum, Adams, and Aceves (1990) examined whether cultural heritage and acculturation influence the perception and expression of pain and anxiety in Anglo and Hispanic children, and found that children from both groups had
remarkably similar behavioral responses. Hispanic parents, however, reported significantly higher levels of anxiety than Anglo parents. Flores et al. (2000) underscore the significant impact that culture has on pediatric care through pediatric case studies from the Latino community. In summary, this handful of studies presents a varied and inconclusive body of evidence that demonstrates the need for further research with this cultural group within the context of pediatric medical procedures.

According to the 2010 United States (U.S.) Census, the term “Latino” is a broad categorization referring to “a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race (Humes, Jones, & Ramirez, 2010).” The U.S. Bureau of the Census National Population Projections (2008) states that the Latino population of the U.S. is projected to nearly triple, from 46.7 million to 132.8 million between 2008 and 2050. According to these projections, by 2050, nearly one in three U.S. residents will be Latino. In addition to the increase in this population, health disorders and outcomes have been linked to race, ethnicity, and culture (Adler & Rehkopf, 2008). Furthermore, there has been documented general medical mistrust and dissatisfaction with healthcare service and provider communication amongst racial and ethnic minorities in the United States (Haynes & Smedley, 1999; Thompson, Valdimarsdottir, Jandorf, & Redd, 2003).

The growth of the Latino population combined with minority health disparities and dissatisfaction with healthcare and provider communication (Fuemmeler, Moriarty, & Brown, 2009; United States Census Bureau, 2008) underscores the importance of providing culturally competent interventions and care to this population in the U.S. Thus, rather than assuming that the extant literature and linked interventions are applicable to Latino families, it is critical to identify and examine parent and child behavior and their associations in this population to provide culturally competent medical care and interventions.

Studies of parenting practices and behaviors provide some indications of relevant Latino cultural constructs that may affect parent-child interactions. However, studies that examine parenting practices among Latino parents often homogenize a heterogeneous population (De Von Figueroa-Moseley, Ramey, Keltner, & Lanzi, 2006; Harwood, Leyendecker, Carlson, Asencio, & Miller, 2002; Pina & Silverman, 2004). With that said, there appear to be empirically-supported overarching cultural components that
permeate the heterogeneous Latino population of the United States (Guilamo-Ramos et al., 2007; Harwood et al., 2002; Julian, McKenry, & McKelvey, 1994; Vega, 1990). Latino families tend to uphold an integral nature of family with strong and nurturing kinship bonds, referred to as *familismo* (De Von Figueroa-Moseley et al., 2006; Guilamo-Ramos et al., 2007; Méndez, 2006). Long et al. (2013) found cultural differences in emotion expression and communication between Latino and Non-Latino siblings of children with intellectual disabilities, where Latino siblings tend to de-emphasize negative emotions about a family member which reflect Latino values of *familismo* and interrelatedness. Parents instill this value system with the cultural construct of *respeto* which describes an adherence to authority, deference, and decorum, as well as *personalismo* which is the valuing and building of warm interpersonal and friendly relationships (Cazalda, Fernandez, Cortes, 2010; Guilamo-Ramos et al., 2007; Harwood et al., 2002; Santiago-Rivera, Arredondo, & Gallardo-Cooper, 2002). *Simpatía* is the maintenance of harmony, with an expectation to avoid conflict, and be polite and agreeable towards others (Guilamo-Ramos et al., 2007).

Stoicism, specifically with regards to pain is culturally valued, and both Durrett et al. (1975) and Julian et al. (1994) found that Hispanic fathers reported more emphasis on child control of emotions (not crying, hiding anger) than Euro-American mothers or fathers.

Traditional Latino culture generally adheres to a strict gender binary system, where males and females are required to relate to others based on culturally accepted gender roles (Guilamo-Ramos et al., 2007; Harwood et al., 2002; Vega, 1990), although this has been called into question as traditional gendered division of labor and male family supremacy has been challenged (Méndez, 2006). Females may be expected to adhere to *marianismo* (named after the Virgin Mary), and are to be socialized to be in her likeness, as empathic and stoic caregivers (Guilamo-Ramos et al., 2007). Males may be socialized with the gender role construct of *machismo*, where they are expected to be aggressive, confident, and personable, decision-making leaders, both in the home and in the community (Guilamo-Ramos et al., 2007). Thus, there may be differences in the way Latino parents model and expect their children to behave based on gender.
In summary, the literature to date has identified specific parent behavior that is associated with and might play a causal or exacerbating role in child distress. However, the majority of this research has been conducted on predominantly Caucasian samples in the United States. There is a paucity of work examining whether these parent-child associations are found in other populations. The two published studies suggest that there are some similarities and some unique aspects of how parents interact with their children during distressing medical events (Mahoney et al., 2010; Pedro et al., 2010). Studies of Latino parenting practices suggest that children are culturally expected to be stoic in the face of pain, to respect authority, such as medical staff, and to maintain harmony and avoid conflict in social situations, thus Latino children may show less distress than Caucasian children during painful medical procedures. Also, Latino parents behaviors may differ based on child gender, due to gender roles in the Latino culture. In order to develop culturally-sensitive and appropriate immunization pain-management interventions for Latino children in the United States, researchers must examine parent-child behaviors in this population.

1.5 Study Purpose and Aims

The purpose of the current study is to explore the parent behavior and child distress and coping in a sample of Latino parent-child dyads. Specifically, the first aim is to detail the frequencies of commonly recognized adult and child behaviors during child immunizations within a Latino population. It is expected that due to the cultural value of stoicism in the face of pain, and due to the cultural constructs of respeto and simpatía, Latino children are socialized to inhibit their reactions to pain, and to respect authority, maintain harmony, and avoid conflict in social situations, thus Latino children will show low frequencies of distress behaviors (crying, screaming, verbal resistance, request emotional support, verbal fear, verbal pain, verbal emotion, information seeking).

Latino mothering is characterized by the cultural construct of marianismo, which means mother behavior is socialized to be empathic, warm, and nurturing. Since the majority of the parent sample in this study are mothers (95%), it is expected that the parent behaviors that align with marianismo will be reassurance, empathy, and physical comfort, which will occur with the highest frequency.
The second aim is to explore the associations between parent behavior and child behavior in this Latino sample. Pedro et al. (2010) and Mahoney et al. (2010) provide some support that similar parent-child behavior associations might exist despite culture difference. It is expected that relations in this sample will mirror the literature, where parent behaviors that will positively predict child distress and negatively predict child coping will be reassurance, giving control, apology, criticism, and expressing empathy. Parent behaviors that will negatively predict child distress and positively predict child coping will be distraction, humor, praising good behavior, playing, and nonprocedural talk.

The third aim is to examine whether parent behavior directed toward boys is significantly different than parent behavior directed toward girls. It is expected that parent behaviors towards daughters will mirror the existing literature of high frequencies of reassurance, empathy, and physical comfort (Blount et al., 1989; Cohen et al., 2000; Pedro et al., 2010), but parent behaviors towards sons will have higher frequencies of commands to cope and criticism. This difference in parent behavior is informed by the cultural constructs of Latino gender roles.

2 METHOD

2.1 Participants

The current study was part of a larger treatment outcome study examining children’s immunization distress. Institutional approval was acquired before initiation of the study. The study participation rate at this clinic was 77%, and the most frequent reasons parents sited for not wanting to participate were not having enough time to participate, not feeling comfortable with participating in a study, not feeling comfortable being video recorded, not interested in the study, and being worried that their child would be too distressed to participate. Participants were not monetarily compensated for participation. Participants were 19 caregivers accompanying their children during preschool immunization at a pediatric primary care center located in a metropolitan city in the Southeastern United States. The center itself is located in a neighborhood with a large Latino population. All staff and medical providers at the center are bilingual
in Spanish and English, and the vast majority of patient families are Latino. All 19 caregivers completed measures in Spanish. Caregivers included 18 mothers and 1 grandfather with ages ranging from 23 to 39 ($M = 29$ years, $SD = 4.6$ years) (3 caregivers did not report their date of birth). All caregivers identified their ethnicity as Latino. Mexico was the most common nation of origin (10 caregivers, 53% of the sample). In addition, there was one parent from each of the following countries: Dominican Republic, El Salvador, Guatemala, and Honduras. The remaining 26% (5 caregivers) chose not to report their nation of origin. Caregivers reported having lived in the United States for an average of 9 years ($SD = 3.1$, range = 6-16 years, 32% of the sample not reporting). Fifteen (79%) were either married or in a common law relationship and had an average annual income of $18,800 (annual income ranged from $6,000 to $36,000, $SD = 9,091$, with 6 caregivers [32%] not reporting). The average caregiver education level was 8.3 years ($SD = 4.3$ years), with 21% of the sample not reporting. Regarding the pediatric patients, 10 were female and 9 were male. The children were 95% Latino and 5% Non-Latino (one child). Children’s ages ranged between 4 years to 6 years ($M = 4.4$ years, $SD = 7.3$ months).

2.2 Measures

The baseline demographic questionnaire was translated and back-translated by a native Spanish-speaking co-investigator and double-checked by a native Spanish-speaking research assistant.

2.2.1 Baseline Demographics

Demographic information for the parent (i.e., relation to child, parent country of origin, years in the United States, age, gender, educational level, family income, and marital status) and child (age of child and child gender) was assessed using a questionnaire (Appendix A for Spanish and Appendix B for English).

2.2.2 Child-Adult Medical Procedure Interaction Scale (CAMPIS)

Parent and child behavior during the immunization was recorded using a camcorder. Observed behaviors were coded using the Child-Adult Medical Procedure Interaction Scale (CAMPIS; Blount et al.,
1989) (Appendix C). Parent behaviors coded include nonprocedural talk, procedural talk, humor, playing, praising, encouraging deep breathing, distraction, command to cope, reassurance, empathy, physical comfort, apology, and criticism. Child behaviors were nonprocedural talk, info seeking, humor, deep breathing, engaging in distraction, other coping, cry, scream, grimace, flail, verbal resistance, physical resistance, request support, verbal fear, verbal pain, negative emotion, restraint of child, and medical watch.

The CAMPIS is a behavior rating scale of children’s and parents’ procedural behavior during children’s medical events. The number of 5-second intervals in which a target behavior occurred was divided by the total number of 5-second intervals occurring during the procedure to develop ratios of occurrence of behavior.

Initially, bilingual Spanish-and English-speaking coders were trained to criteria using videotape data from a prior study, as well as given written instructions for the coding procedure (Appendix D). Once interrater agreement was achieved (i.e., Cohen’s Kappa of .80), coding of the study data commenced. Consistent with previous studies in this area (e.g., Manimala et al., 2000), coding spanned from 3 minutes prior to cleaning of the skin until 3 minutes following removal of the needle. A randomly selected twenty percent of the data was coded by both coders to evaluate interrater agreement. Kappa statistics for all behaviors were .80 or higher demonstrating good interrater reliability.

2.3 Procedure

Data collection was carried out by trained bilingual (fluent in English and Spanish) research assistants (RAs). RAs approached families after entering the medical facility. At this time, informed consent was attained and background information was collected. After parents and children were escorted to the treatment room, videotaping began. Videotaping ended once the immunization was complete. Families were not financially compensated for participation in this study.
3 RESULTS

3.1 Preliminary Analyses

Preliminary analyses were conducted to examine if coded behavior variables were normally distributed using the Shapiro-Wilk’s test. Parent reassurance and child cry were normally distributed ($p > .05$); all other behavioral variables were positively skewed and not normally distributed ($p < .05$). Square root transformations were conducted, yet only parent physical comfort became normally distributed. The parent behavior of encourage deep breathing was not displayed by any parent in the sample, and thus was excluded from subsequent analyses. In addition, many parent and child behaviors had very low base rates of occurrence (Table 1).

Table 1. Frequencies, Means, Standard Deviations, Ranges, and Number of Participants Engaging in Coded Parent and Child Behaviors

<table>
<thead>
<tr>
<th></th>
<th>Boys M (SD)</th>
<th>Girls M (SD)</th>
<th>Total M (SD)</th>
<th>Range</th>
<th>Number of Participants Engaging in Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Behaviors:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical comfort*</td>
<td>.056 (.070)</td>
<td>.272 (.237)</td>
<td>.170 (.207)</td>
<td>.72</td>
<td>15</td>
</tr>
<tr>
<td>Reassure</td>
<td>.187 (.154)</td>
<td>.146 (.111)</td>
<td>.165 (.131)</td>
<td>.52</td>
<td>17</td>
</tr>
<tr>
<td>Nonprocedural talk</td>
<td>.016 (.023)</td>
<td>.057 (124)</td>
<td>.038 (.091)</td>
<td>.40</td>
<td>9</td>
</tr>
<tr>
<td>Procedural talk</td>
<td>.032 (.033)</td>
<td>.033 (.033)</td>
<td>.032 (.032)</td>
<td>.10</td>
<td>11</td>
</tr>
<tr>
<td>Criticism</td>
<td>.018 (.022)</td>
<td>.030 (.043)</td>
<td>.024 (.034)</td>
<td>.11</td>
<td>10</td>
</tr>
<tr>
<td>Distraction</td>
<td>.011 (.032)</td>
<td>.021 (.045)</td>
<td>.016 (.038)</td>
<td>.11</td>
<td>3</td>
</tr>
<tr>
<td>Command to cope</td>
<td>.011 (.022)</td>
<td>.014 (.026)</td>
<td>.013 (.024)</td>
<td>.07</td>
<td>6</td>
</tr>
<tr>
<td>Praising</td>
<td>.016 (.032)</td>
<td>.008 (.017)</td>
<td>.012 (.025)</td>
<td>.09</td>
<td>5</td>
</tr>
<tr>
<td>Empathy</td>
<td>.019 (.038)</td>
<td>.003 (.010)</td>
<td>.011 (.028)</td>
<td>.12</td>
<td>4</td>
</tr>
<tr>
<td>Humor</td>
<td>.000 (.000)</td>
<td>.018 (.036)</td>
<td>.009 (.027)</td>
<td>.11</td>
<td>3</td>
</tr>
<tr>
<td>Behavior</td>
<td>Mean1 (SD1)</td>
<td>Mean2 (SD2)</td>
<td>Mean3 (SD3)</td>
<td>Mean4 (SD4)</td>
<td>Significance</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Giving control</td>
<td>.001 (.004)</td>
<td>.010 (.018)</td>
<td>.006 (.014)</td>
<td>.05</td>
<td>4</td>
</tr>
<tr>
<td>Apology</td>
<td>.001 (.004)</td>
<td>.007 (.017)</td>
<td>.004 (.012)</td>
<td>.05</td>
<td>3</td>
</tr>
<tr>
<td>Playing</td>
<td>.003 (.010)</td>
<td>.000 (.000)</td>
<td>.002 (.007)</td>
<td>.03</td>
<td>1</td>
</tr>
</tbody>
</table>

**Child Behaviors:**

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Mean1 (SD1)</th>
<th>Mean2 (SD2)</th>
<th>Mean3 (SD3)</th>
<th>Mean4 (SD4)</th>
<th>Significance</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cry</td>
<td>.389 (.227)</td>
<td>.540 (.306)</td>
<td>.464 (.272)</td>
<td>1.00</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Request support</td>
<td>.048 (.091)</td>
<td>.202 (.244)</td>
<td>.123 (.199)</td>
<td>.71</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Medical Watch</td>
<td>.093 (.087)</td>
<td>.131 (.194)</td>
<td>.113 (.150)</td>
<td>.55</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Grimace</td>
<td>.134 (.156)</td>
<td>.023 (.041)</td>
<td>.076 (.122)</td>
<td>.40</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Scream</td>
<td>.045 (.057)</td>
<td>.077 (.112)</td>
<td>.061 (.088)</td>
<td>.29</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Engage in distraction</td>
<td>.111 (.132)</td>
<td>.010 (.032)</td>
<td>.058 (.104)</td>
<td>.33</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Verbal resistance</td>
<td>.060 (.073)</td>
<td>.020 (.047)</td>
<td>.038 (.071)</td>
<td>.22</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Nonprocedural talk</td>
<td>.021 (.027)</td>
<td>.032 (.096)</td>
<td>.023 (.071)</td>
<td>.31</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Flail</td>
<td>.015 (.024)</td>
<td>.016 (.035)</td>
<td>.016 (.029)</td>
<td>.10</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Humor</td>
<td>.023 (.080)</td>
<td>.005 (.011)</td>
<td>.015 (.055)</td>
<td>.24</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Negative emotion</td>
<td>.005 (.010)</td>
<td>.017 (.047)</td>
<td>.011 (.035)</td>
<td>.15</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Information seeking</td>
<td>.021 (.039)</td>
<td>.002 (.005)</td>
<td>.011 (.028)</td>
<td>.12</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Verbal pain</td>
<td>.009 (.022)</td>
<td>.008 (.026)</td>
<td>.009 (.024)</td>
<td>.08</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Deep breathing</td>
<td>.010 (.030)</td>
<td>.003 (.010)</td>
<td>.007 (.022)</td>
<td>.09</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Other coping</td>
<td>.004 (.012)</td>
<td>.000 (.000)</td>
<td>.002 (.008)</td>
<td>.04</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Verbal fear</td>
<td>.000 (.000)</td>
<td>.002 (.005)</td>
<td>.001 (.004)</td>
<td>.02</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* *p < .05* indicating a significant difference between girls and boys.

Due to the low frequencies of behaviors, logarithmic transformations were not feasible as any data that was coded as zero would be transformed into missing data. Thus, violations in assumptions and low statistical power due to small sample size precluded both Pearson’s or Spearman’s Rho tests for associations for all coded behavior variables with the exception of child cry, parent reassurance, and parent physical comfort, each of which occurred with higher frequencies and were normally distributed. In order
to explore associations in a statistically meaningful way for the other coded behavior, data were recoded as dichotomous (0 = behavior did not occur, 1 = behavior occurred) and non-parametric Chi Square analyses were conducted.

Pearson Product Moment correlations were used to evaluate if a relation existed between normally distributed parent or child behaviors (i.e., child cry, parent reassurance, and the square root transformation of parent physical comfort) and parent educational level, number of adults in the home, number of children in the home, parent age, child age, family income, and number of years parent has lived in the United States. These analyses revealed that the number of adults in the home was positively correlated with child cry, $r = .49, p < .05$. The number of adults was controlled for in the subsequent regression analyses.

Analyses were conducted to examine whether demographic variables were related to parent behavior or child behavior. Specifically, Chi Square analyses were used to evaluate if parent behavior or child behavior differences exist as a function of parent gender, parent country of origin, and parent marital status. Mothers made up the vast majority of the sample (95%), and thus a meaningful analysis of parent gender and behavior could not be conducted. Parent country of origin was collapsed into a dichotomous variable (Mexico and other) due to the majority of the sample being from Mexico (14 caregivers, 52% of the sample) and 9 caregivers not reporting (33% of the sample). Neither parent nor child behavior frequencies differed across parent country of origin.

The majority of parents in this sample were partnered (78%), with only five parents reporting being single/separated/other. One parent chose not to disclose their marital status. Neither parent nor child behavior frequencies differed as a function of parent marital status.

### 3.2 Primary Analyses

Descriptive analyses (i.e., means, standard deviations, frequencies) of parent and child behaviors were conducted (Table 1). The most common parent behavior was physical comfort, followed by reassur-
ance, nonprocedural talk, procedural talk, and criticism. The most common child behavior was cry, followed by request support, medical watch, grimace, scream, and engage in distraction.

A series of Chi Square analyses were conducted to determine if dichotomously coded behaviors were associated. There were a number of parent behaviors that were significantly associated with other parent behaviors. Parent distraction was significantly positively associated with parent command to cope, $\chi^2(1) = 7.72, p = .02; \phi = 0.64, p = .01$. Parent distraction approached significance with both parent humor, $\chi^2(1) = 6.94, p = .05$, and parent apology, $\chi^2(1) = 6.94, p = .05$. There were also significant positive associations between parent praise and parent nonprocedural talk, $\chi^2(1) = 7.54, p = .01; \phi = 0.63, p = .01$, and parent praise and parent empathy, $\chi^2(1) = 6.19, p = .023; \phi = 0.57, p = .01$. Finally, the association between parent humor and parent apology approached statistical significance, $\chi^2(1) = 6.94, p = .05$. The only child behaviors that were intercorrelated were child scream and child verbal resistance, $\chi^2(1) = 12.44, p = .01, \phi = 0.81, p < .01$.

There were a total of two significant associations between parent and child behavior: parent praise was associated with child nonprocedural talk, $\chi^2(1) = 7.36, p = .02; \phi = 0.60, p = .01$; and parent empathy was associated with child nonprocedural talk, $\chi^2(1) = 10.98, p = .01; \phi = 0.76, p < .01$. Two associations approached significance: parent apology and child grimace, $\chi^2(1) = 4.90, p = .06$; and parent nonprocedural talk and child grimace, $\chi^2(1) = 4.23, p = .06$.

The second aim – to examine parent-child behavioral relations – involved regression analyses to determine if either discrete or groups of parent codes predict child coping or distress (discrete behavioral codes or groups of codes). Due to low base rates of coded behaviors as well as very few associations between coded behavior variables, behavioral codes could not be combined into conceptually meaning groups. The small sample size in addition to low base rate of behaviors precluded the majority of regression analyses, due to the fact that regressions would have been severely underpowered. Thus, the only behaviors that could be analyzed due to higher frequencies and normal distribution were parent reassurance, child cry, and the square root transformation of parent physical comfort. Separate regressions were conducted for each of these codes. In the first step of the regression, number of adults in the home was
entered. The next step included parent reassurance predicting child cry. Neither the model with parent reassurance nor the one with parent physical comfort predicted child cry. Step one of the model indicated that number of adults in the home statistically significantly predicted child cry, $F(1,15) = 4.63, p < .05$ accounting for 18.5% of the variability in child cry.

In order to examine the third aim, independent-samples $t$-tests were used to determine if there were differences in parent behavior as a function of child gender. The only parent behavior that differed between child gender was physical comfort. There were no outliers in the data, as assessed by inspection of a boxplot. Physical comfort frequencies for each level of gender were normally distributed, as assessed by Shapiro-Wilks test ($p > .05$). Homogeneity of variances was not violated, as assessed by Levene’s Test for Equality of Variances ($p > .05$). Parents engaged in more physical comfort with girls ($M = 0.45, SD = 0.29$) than boys ($M = 0.18, SD = 0.17$), a statistically significant difference, $M = -.27, 95\% CI [-0.52, -0.01], t(14) = -2.23, p = .04$.

4 DISCUSSION

The extant literature indicates that the parents’ distracting, joking, praising good behavior, playing, talking about nonprocedural topics, and commands to cope have been consistently identified as being negatively correlated with children’s distress and positively correlated with children’s coping during acute medical procedures (e.g., Blount et al., 1989; Blount, Piina, Cohen, & Cheng, 2006; Cohen, 2008; Mahoney, Ayers, & Seddon, 2009; Manne et al., 1992; Powers, 1999). Parents’ reassuring, apologizing, giving too much control, criticizing, providing information, and empathizing comments have been found to correlate positively with children’s distress and negatively with children’s coping (e.g., Mahoney at al., 2009; Manne et al., 1992). Furthermore, the most frequently occurring parent behavior is typically reassuring, and the most frequently occurring child behavior is crying (Blount et al., 1989; Blount, Piina, Cohen, & Cheng, 2006; Cohen, 2008; Mahoney, Ayers, & Seddon, 2009; Manne et al., 1992; Powers, 1999). Based on these findings, a number of pediatric procedural pain management programs (e.g., train-
ing parents to distract and minimize reassurance during pediatric immunizations) have been developed (for a review, see Blount et al., 2009). To date, the majority of this research has been conducted on predominately Caucasian samples; it is not clear whether these same parent-child behavioral relations would be found in other populations.

The growth of the Latino population combined with minority health disparities underscore the importance of providing culturally competent interventions and care to this population in the United States. Rather than assuming that the current pediatric procedural distress literature and derived interventions are applicable to Latino families, it is critical to identify and examine parent and child behavior and their associations in this population. This study explored frequencies and associations of commonly recognized adult and child behaviors during child immunizations within a Latino population.

First, the low base rates of coded behavior should be discussed. Given that the codes were ones derived from the published non-Latino samples (e.g., Blount et al., 1989), it is possible that our Latino sample is engaging in other, non-coded, behavior. Pedro et al. (2010) identified 6 parent behaviors (e.g., intimidation) in a Portuguese sample that are not included in existing published measures, such as the CAMPIS. Similarly, Mahoney et al. (2010) suggested that CAMPIS-R behavioral groupings might not be as relevant or reliable in a UK sample. Thus, it is important that qualitative or other observational methodology is used to identify any unique and potentially important behaviors displayed by Latino children and their parents during distressing medical procedures. The low base rates of parent behaviors may be further explained by the Latino cultural construct of *respeto*. In a commentary on the importance of cultural competence on pediatric healthcare, Flores (2000) described *respeto* as appropriate deferential behavior on the basis of authority, age, and social position, which may mean that Latino parents mute their behaviors as they defer to medical providers who are interacting with their children. Thus, *respeto* engenders a hierarchical nature that may elucidate the low frequencies of parent behaviors. In understanding the low base rate of parent behavior in this sample, the cultural importance of management of pain as well as the beliefs around management of pain is important to consider. Although very few published studies have focused on the perception and management of pain within culture groups in children in the United
States, the small body of literature that does exist point to potential cultural differences (Fortier, Anderson, & Kain, 2009). Thus, a direction of future empirical work may focus on the beliefs around as well as the importance of Latino parent management of child pain.

Consistent with the extant literature, the most common child behavior in this sample was crying, followed by requesting support, watching the medical procedure, grimacing, screaming, and engaging in distraction. However, ninety percent of the children in this sample cried, and children cried on average for about half (46%) of the duration of the procedure. This high magnitude of distress was not expected and is higher than what is commonly seen with non-Latino samples. For example, using similar methodology, Blount et al. (1990) and Manimala et al. (2000) each found less than half the level of crying (20% of the procedure) exhibited in our sample. Further, given the cultural constructs of respeto, simpatía, and stoicism in the face of pain, it was hypothesized that Latino children might display low frequencies of distress.

It is possible that the high rate of medical distress in this sample reflects a general medical mistrust and dissatisfaction with healthcare service and provider communication, which has been documented to be the case in racial and ethnic minorities in the United States (Haynes & Smedley, 1999; Thompson, Valdimarsdottir, Jandorf, & Redd, 2003). Morales et al. (1999) found that Spanish-speaking Latinos have greater dissatisfaction with provider communication than non-Latino whites as well as English-speaking Latinos. Thus, the parents and children might be apprehensive and more easily distressed in a medical setting.

Another potential explanation for children’s high distress might be that these children were not adequately soothed by their mothers, who primarily engaged in physical comfort. First, Latino children might be accustomed to frequent physical affection and comfort in their daily lives. In a study comparing Mexican and non-Latino American mothers, Solís-Cámara and Fox (1995) argue that Mexican mothers of young children nurture by engaging in affection (e.g., hugging, kissing) whereas non-Latino American mothers nurture in different ways, such as reading and playing (Cardona, Nicholson, & Fox, 2000; Solís-Cámara & Fox, 1995). Thus, during a distressing event, the Latino mothers’ physical affection might not
have provided novel soothing for the children. The higher rate of child distress may also be a consequence of the overall low frequency of parent behaviors. Parents may be engaging in fewer behaviors as they defer to medical providers (consistent with the culture construct of *respeto*). Another explanation might related to children’s expectations. Specifically, these children might be accustomed to high rates of parent soothing, and when this does not occur, the children might subsequently have elevated distress. Second, data – albeit with non-Latino populations – suggest that distraction effectively lowers children’s immunization distress (Schechter et al., 2007). In our sample, only 16% of caregivers used distraction 1.6% of the time. In comparison, Manne et al. (1992) reported that 80% of the caregivers used distraction in their study, and in Manimala et al. (2000), caregivers used distraction 7% of the time. The low rates of distraction might help explain the high distress in our study.

It is importance to note possible historical confounds that may have contributed to the high distress. On April 17, 2006 the Georgia Security and Immigration Compliance Act, which required that all public employers comply with the federal work authorization program to verify employee work eligibility (e.g. documentation of U.S. residency or citizenship), was signed into law, and went into effect on July 1st, 2007 (Georgia Security and Immigration Compliance Act, 2006). This study began recruitment on March 29th, 2007 – a few months shy of the implementation of the law. This new legislature promoted a sense of wide spread trepidation in Georgia’s estimated 475,000 Latino immigrants without legal documentation of residency or citizenship (Lovato, 2008; Passel & Cohn, 2008). For example, undocumented immigrants had to think twice before seeking support or services at hospitals or clinics because of laws that require them to prove their legal status before receiving many state benefits. Thus, this generalized climate of fear, uncertainty, and anxiety may have contributed to heightened overall distress in this sample.

It was hypothesized that the most frequently occurring parent behaviors in this sample would be reassuring, empathizing, and providing physical comfort, which align with the Latino cultural construct of *marianismo*, where females are socialized to be nurturing caregivers (Guilamo-Ramos et al., 2007). Results revealed that Latino parents comforted their children physically (holding, rocking, patting) or via
verbal reassurance (“It’s alright,” “You’re ok”) more than any other behaviors, and more frequently than is typically cited in the literature with Caucasian samples. With regard to reassurance specifically, parents in this study reassured twice as long as parents in a study by Cohen et al. (2000), who reported parents’ reassuring with a mean of 10%, and Blount et al. (1990), who reported a mean of 8% for parents’ reassuring. The high rate of providing physical comfort in this population is consistent with the cultural construct of physically affectionate nurturing (Cardona et al., 2000; Solís-Cámara & Fox, 1995). As previously noted, the literature indicates ethnic minorities in the United States have a general medical mistrust and dissatisfaction with healthcare service and provider communication (Haynes & Smedley, 1999; Morales et al., 2003; Thompson, Valdimarsdottir, Jandorf, & Redd, 2003). Thus, the high rate of reassurance may serve the purpose of reassuring both the parent and the child in the context of the medical setting.

Very few significant associations were found between behaviors, which may have been a function of the small sample size and low base rates of coded behavior. Research with larger samples is warranted to further explore associations. The only two child behaviors that were inter-correlated were screaming and verbally resisting, which is consistent with existing literature as these are both indicative of child distress (Blount et al., 1989; Blount et al., 1990).

In terms of parent behaviors that were associated with one another, distracting was associated with giving commands to cope, and praising was associated with both talking about nonprocedural topics and empathizing. The correlations between giving commands to cope and distracting as well as praising and talking about nonprocedural topics have been found in the existing literature as behaviors that may promote coping in children (Blount et al., 1989; Blount, Piina, Cohen, & Cheng, 2006; Cohen, 2008; Mahoney, Ayers, & Seddon, 2009; Manne et al., 1992; Powers, 1999). The relation between praising and empathizing may be related to the Latino cultural construct of personalismo, as praising the child and making empathic statements to the child that expresses understanding of feelings is indicative of the cultural importance of warm interpersonal relationships (Guilamo-Ramos et al., 2007; Santiago-Rivera et al., 2002).
Interestingly, parents’ reassuring was not correlated with or predictive of children’s crying or other distress in this study, which is contrary to what has been found repeatedly in the literature (e.g., Blount et al., 1989; Blount, Piina, Cohen, & Cheng, 2006; Cohen, 2008; Mahoney, Ayers, & Seddon, 2009; Manne et al., 1992; Powers, 1999). McMurtry et al. (2006) postulated that reassurance may serve as a warning sign to children that something bad is going to happen, and then once the child becomes distressed, the reassurance may serve as reinforcement to the distress. Due to the lack of connection between reassurance and distress in this study, perhaps the purpose of reassurance in this population may be different from what is common with Caucasian samples. Furthermore, McMurtry at al. (2006) also noted that due to the lack of research focused on reassurance, there might be ways that specific types of reassurance are beneficial to a distressed child or that may have a unique relation with distress. Further research is necessary to explore the function of parent reassurance in this population.

In our sample, parents’ praising and children’s talking about nonprocedural topics were positively associated, which is consistent with the literature (Blount et al., 1990). In a medical environment where Latino parents and children might have some medical mistrust (Haynes & Smedley, 1999; Morales et al., 1999; Thompson, Valdimarsdottir, Jandorf, & Redd, 2003), parents and children might engage in topics that are not related to the medical procedure. Furthermore, two studies examining ethnic differences in parent preference to be present for painful medical procedures have shown that Latino parents are often less likely to prefer to be present (Bauchner, Vinci, & Waring, 1989; Jones, Qazi, & Young, 2005). Thus, parent and child vocalizations may be in an attempt to distance themselves from the medical environment and procedure, and therefore they engage with each other on non-medical topics. Contrary to the literature (Blount et al., 1990), children’s talking about nonprocedural topics was positively associated with parents’ empathizing. Long et al. (2013) found cultural differences in emotional expression between Latino and Non-Latino siblings of children with intellectual disabilities, where Latino children’s communication and emotional expression patterns reflect the construct of familismo, a Latino cultural construct that emphasizes the importance interrelatedness and family loyalty and attachment (Guilamo-Ramos et al., 2007). Thus, this correlation may be indicative of a culturally nuanced communication, where further research is
needed to elucidate the directional relation of these behaviors. Future studies may look to sequential analysis or experimental designs to better understand causal relations.

In the last aim exploring parent behavior as a function of child gender, parents engaged in more physical comfort with girls than boys, which was consistent with hypotheses and expected Latino gender roles (Guilamo-Ramos et al., 2007; Harwood et al., 2002; Vega, 1990). Raffaelli and Ontai (2004) found that in Latino families, mothers do more direct gender socialization of daughters, and fathers do more socialization of sons. Given that our sample consisted of nearly all mothers, this correlation might demonstrate mothers’ more active socialization of their daughters via physical comfort, which is in alignment with Calzada and Eyburg’s (2002) findings that Hispanic mothers of girls reported using more warmth and involvement in parenting than mothers of boys. It has also been suggested that boys are socialized to be stoic in the face of pain; the low physical comfort toward boys in the study may reflect mothers’ efforts to discourage emotional distress in their sons (Bendelow, 2000; Jackson, Iezzi, Gunderson, Nagasaka, & Fritch, 2002).

A strength of this study is the recruitment of Spanish-speaking Latino families from low socio-economic backgrounds, which is an understudied population. Latino groups in general have been underrepresented and often reported in homogenized groups that do not differentiate individuals based on country of origin, time in the United States, or other variables that may impact results. Researchers aiming to include Latino participants often face recruitment barriers that may include mistrust, low research literacy, language barriers, and social/economic time constraints. A limitation of this project is that many caregivers chose not to disclose demographic information about themselves, including country of origin, amount of time in the United States, and income. This may have been due to mistrust in addition to fear regarding documentation status.

Several other limitations in the current study should be noted. First, the small sample size of this study limits generalizability of the results. Second, the low base rate of behaviors together with the small sample size narrowed the range of statistical tests that could be used, due to the fact that many traditional parametric analyses were underpowered or failed to meet assumptions. Thus, despite the rigorous 5-
second interval behavioral coding, many nuances of the data sample were lost due to the dichotomizing of data. Furthermore, although this study explored an understudied group, it also aggregated a very diverse and varied population, where intergroup differences may be missed (De Von Figueroa-Moseley et al., 2006; Harwood, Leyendecker, Carlson, Asencio, & Miller, 2002).

In summary, the findings suggest that there may be differences in child behavior, parent behavior, and child-parent interactions during medical procedures in Latino families when compared to the extant literature. This study is a first step in exploring parent and child behaviors in this vastly growing, underserved, and understudied population. The low base rate of behaviors in this study may indicate that these families engaged in other non-coded behaviors that may be culturally nuanced. Future research may look to qualitative or mixed method approaches, which may be especially useful in identifying and exploring these nuanced behaviors. For example, working closely with Latino community members from an ethnographic or narrative approach to facilitate a richer understanding of parent-child dyadic interplay may provide a more comprehensive analysis, which can inform the cultural sensitivity and potential adaptation of interventions (Creswell, 2014). More traditional quantitative approaches with larger sample sizes may also be utilized in examining if existing interventions are culturally appropriate for this population. The findings of this study suggest that a number of overarching Latino cultural constructs, such as *respeto*, *familismo*, *personalismo*, *simpatía*, and gender roles may be related to parent-child behavior during immunization. Flores (2000) outlined the importance for pediatric health care providers to work from a culturally sensitive framework, and highlighted many ways that culture affects clinical care. This study provides an initial examination into how cultural constructs relate to child distress and coping in immunization, the most routine pediatric medical procedure, and provides empirical momentum in the understudied area of pediatric psychology.
REFERENCES


APPENDICES

Appendix A. Spanish Demographic Self-Report Measure

**Información sobre la Familia**

Por favor llene esta forma. Si tiene preguntas, con gusto las contestaré. ¡Gracias!

1. Parentesco con el niño o la niña: ______ Mamá ______ Papá ______ Abuelo/a Otro parentesco - ¿Cuál? __________________________

2. Usted es ______ Hombre ______ Mujer

3. Su fecha de nacimiento: ______/______/_______

4. ¿Usted es latino? ______ Si ______ No

5. Su raza: ______ Blanco ______ Negro ______ Asiático ______ Indígena ______ Mestizo

6. ¿Cuántos años de escuela completó usted? ______

7. Su estado civil: ______ Soltero/a ______ Casado/Unión libre ______ Otro ¿Cuál? ______
8. ¿Cuántos años de escuela completó su pareja? ______

9. Total de ingresos mensuales aproximados de su familia ________________

10. Usted viene con ______ una niña ______ un niño

11. Fecha de nacimiento del niño o de la niña ______ / ______ / ______

12. ¿La niña o el niño es latino? ______ Sí ______ No

13. La raza del niño o niña: _____ Blanco______ Negro_______ Asiático_______ Indígena ______ Mestizo

14. ¿Cuántos otros niños viven en su casa? ______ ¿Qué edad tienen? ______

15. ¿Cuántos otros adultos viven en su casa? ___ ¿Qué edad tienen?_______

16. ¿Qué medicina ha tomado el niño o la niña hoy (por ejemplo Tylenol)?

17. Este niño o niña ¿ha recibido inyecciones fuera de las que le ponen regularmente?  
Si es así, ¿por qué? ________________________________

18. ¿Este niño o niña tiene una enfermedad crónica (desde hace mucho tiempo) o algún problema médico? ¿Cuál? ________________________________

19. ¿El o ella se está comportando como lo hace siempre? ____ Sí ______ No  
De no ser así, ¿por qué? ________________________________

20. Por favor denos su dirección y numero de teléfono para poderlos contactar en unos 3 meses para completar otro cuestionario.

    Nombre: ________________________________
Dirección: __________________________________________

____________________________________

Teléfono: ____________________________

21. Para asegurarnos que los podemos encontrar en 3 meses, le agradeceríamos que nos diera el nombre y teléfono de alguna persona con quien podamos hablar.

Nombre:___________________________  Parentesco  ________________

________________

Teléfono:___________________________

¡Muchas Gracias!
Appendix B. English Demographic Self-Report Measure

**Family Information Form**

Please take a moment to complete the following forms. If you have any questions, please ask. Thanks!

1. Your Relation to Child: ___Mother ___Father ___Grandparent
   
   If other, describe: ___________

2. Your Gender: ___Male ___Female

3. Your Date of Birth: ____/_____/_____

4. Your Ethnicity: ___Hispanic or Latino ___Not Hispanic or Latino

5. Your Race: ___White ___American Indian or Alaska Native ___Asian ___Black or African American ___Native Hawaiian or Other Pacific Islander

6. The highest education level you completed (Please write a number. For example, 8 = completed middle school, 10 = completed sophomore year of high school, 12 = graduated high school, 13 = completed freshman year of college, 16 = graduated college): ___

7. Your Marital Status: ___Single ___Married ___Separated ___Divorced ___Widowed
   
   If other, describe: ___________
8. The highest education level your partner completed (Please write a number. For example, 10 = completed sophomore year of high school, 12 = graduated high school, 13 = completed freshman year of college, 16 = graduated college): ___

9. Approximate total family income per year ________________________________

10. Child’s Gender: ___Male ___Female

11. Child’s Date of Birth: ____/____/____

12. Child’s Ethnicity: ___Hispanic or Latino ___Not Hispanic or Latino

13. Child’s Race: ___White ___American Indian or Alaska Native ___Asian ___Black or African American ___Native Hawaiian or Other Pacific Islander

14. How many other children live in the home? ___ What are their ages? _____________

15. How many other adults live in the home? ___ What are their ages? _____________

16. What, if any pain medication has your child received today (e.g., Tylenol)? _________

17. Has this child received injections other than the regularly scheduled ones? Y / N
   If so, Why? ________________________________

18. Does this child have a chronic illness or medical condition? Y / N
   If so, What? ________________________________

19. Is this child his/her usual self today?
   If not, Why? ________________________________

20. Please provide your mailing address and phone number so that we can contact you in 3 months to complete one additional questionnaire.

   Address: _____________________________________________________________
21. To make sure we are able to reach you in 3 months, please provide the name and phone number of a person we can contact.

   Name: ______________________________ Relation: ________________________

   Phone: __________________

   Phone: __________________

   Thank you!
### Appendix C. Child-Adult Medical Procedure Interaction Scale (CAMPIS)

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Appendix D. Bear Essentials Coding Instructions

**Coding System Manual for the Bear Essentials Study**

1. Make sure that you are calm and focused. If you feel foggy or rushed, do not attempt to code. Bad coding is worse than no coding. We will be doing reliability checks (recoding) on a randomly selected 20% of subjects and if coding is not reliable, we will have to recode everything. Read this entire manual before beginning coding.

2. Collect the Combined Child and Parent Behaviors Coding Sheets and CD’s with the videos on them located in the BE drawer.

3. Write the subject number, your initials, and the date (that you are coding) on the top of the sheets. Complete the page number sections at the top of the coding sheets throughout coding.

4. Cue the file until you find where the nurse begins cleaning the child’s skin for the immunization. Write this in the “Start of Phase 2” section.

5. Rewind the tape exactly 3 minutes from the beginning of the cleaning. That will be where you will begin coding in phase 1. Round down to the nearest 5 seconds (e.g., If the time is 8:38, rewind to 8:35).

6. Write this time down on the first available spot on the Coding Sheets. In other words, if the time that you will start coding (i.e., 3 minutes prior to cleaning) is 8:35, then fill in ‘8’ to the left of ‘:35’ on the Coding Sheets. You do not need to put 8 next to the following numbers, but do put the next minute down (i.e., 9 next to the ‘:00’). Cross through the blank part of the page above if applicable.

7. From the beginning of coding until the cleaning of the child’s skin is **Phase 1** (remember in point 3 above it says to write the time down). Indicate this on the far left of the page by putting a 1 at the beginning time (i.e., 3 minutes prior to cleaning) and ending times (i.e., cleaning of the skin) for phase 1.

8. Now you are set to begin coding. Focus on one participant at a time. In other words, if you want to code the child first, only code the child. Do not attempt to code the child and parent simultaneously.

9. Watch the child’s behavior, the running clock, and where you are on your page. This takes some practice and you will have to rewind the video several times when you first start coding.

10. Each time the child exhibits one of the coded behaviors, put a 1 on the sheet in the box corresponding to that code and the time interval (if it occurred at 9:28 it would go in the 9:25 box).

11. If a behavior continues for more than 5 seconds, continue to code it for each interval that it occurs.
12. You should also count the # of injections the child receives and record it for each interval that it occurs.

13. It is possible that the child may not be in view of the camera but is in another part of the exam room. Whenever this scenario occurs document on the coding sheet that the child was not in view of camera, and record any verbal behavior or crying that you are able to identify. Be careful that you are not coding siblings – if the child has siblings in the room you may not be able to use the audio when the child is off camera.

14. When the nurse removes the needle from the child for the first injection or last of multiple injections, this indicates the end of **Phase 2**. Record this time at the top of the coding sheet where it says start of Phase 3. Put a 2 to the left of that box (in the phase column). Be sure to round up to the next 5-second block and write a 3 in the box following to indicate the end of Phase 2.

15. You will only code for 3 more minutes after that point or else until the child leaves the room, whichever comes first – this is Phase 3.

16. If the child is in the portable DVD player condition, please indicate when the movie begins on the portable DVD player by placing an asterisk in the movie column (located on the far right of the coding sheets) at the specific time. Place another asterisk in the movie column at the specific time when the movie on the portable DVD player is turned off. If the child is in the typical care condition leave the movie column blank. Also indicate in this column if the movie did not play during certain times or was restarted.

17. Once you have finished coding the child, transfer your time and phase indications to the parent sheet.

18. Now rewind the tape and code the parent behaviors.

19. When finished, indicate this on the signup sheets and put the coding sheets into the proper basket/folders.

20. Relax and give yourself a pat on the back for a job well done.

### Phases

<table>
<thead>
<tr>
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<th>Phases</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Phase 1</strong>: Up to 3 minutes prior to the application of the alcohol or cleaning the child’s skin prior to the immunizations.</td>
</tr>
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</table>

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<tr>
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<th>Phases</th>
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<tbody>
<tr>
<td>2</td>
<td><strong>Phase 2</strong>: From the cleaning of the skin for the immunization until the withdrawal of the needle for the immunization (this may include 1, 2, 3, or more shots).</td>
</tr>
</tbody>
</table>
3. **Phase 3**: From the withdrawal of the last needle until 3 minutes pass, the child leaves the room, or taping ends, whichever comes first.

<table>
<thead>
<tr>
<th>Adult Category</th>
<th>Definition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nonprocedural Talking</strong></td>
<td>Talk or behavior by parent to child that does not pertain to the treatment procedure. This is usually intended to distract the child. It does not involve a distraction stimulus.</td>
<td>Statements/questions about school, pets, siblings, toys, McDonalds, etc. Making funny faces.</td>
</tr>
<tr>
<td><strong>Procedural Talking</strong></td>
<td>Talk by adult that pertains to the treatment procedure.</td>
<td>“Now I’m going to clean your skin.” “This is the last one.” “This is going to keep you from getting sick.” “This will be over soon.”</td>
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<tr>
<td><strong>Joking/Humor</strong></td>
<td>Jokes, laughing, or tickling the child with the intention of improving the child’s mood.</td>
<td>“Look how goofy your mom is.” “I see a smile.” Tickling.</td>
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<tr>
<td><strong>Playing</strong></td>
<td>Much of playing will also be distracting but not all distracting (e.g., look at the movie) will be playing.</td>
<td>Using a toy with child for fun, acting silly (both these would be double-coded as distraction)</td>
</tr>
<tr>
<td><strong>Praising</strong></td>
<td>Verbal acknowledgement that child is doing a good job; positive verbal feedback.</td>
<td>“Great job” “You are trying really hard!”</td>
</tr>
<tr>
<td><strong>Encouraging Deep Breathing</strong></td>
<td>Any orders/suggestions to the child to snake breathe or take deep breaths.</td>
<td>“Let’s take a deep breath.” “Show me how you breathe like a snake.”</td>
</tr>
<tr>
<td><strong>Distracting</strong></td>
<td>Distracting behaviors that are intended to orient the child toward a specific distracting stimulus. Note: this may be the portable DVD player or could be another distraction in the room (e.g., a poster)</td>
<td>“Who’s the good guy?” “Have you seen this movie before?” Pointing to a poster on the wall.</td>
</tr>
<tr>
<td><strong>Commanding to Use Coping Strategies</strong></td>
<td>Any orders/suggestions to the child to engage in a specific coping behavior, other than deep breathing or engaging in distraction.</td>
<td>“Count backwards!” “Pretend you are on a beach” “Repeat after me: I am calm”</td>
</tr>
<tr>
<td><strong>Reassuring</strong></td>
<td>Comment to the child with the intent of reassuring or comforting the child about his/her condition or the course of the procedure…make sure to decide if this comment is anything else (i.e. command to cope or procedural talk).</td>
<td>“It is alright.” “It will be over soon.” “You are okay.” “I am not doing anything yet.”</td>
</tr>
<tr>
<td>Empathizing</td>
<td>Statements to the child that express understanding of or identification with their feelings.</td>
<td>“I know this hurts.” “This must be hard.” “I know this is taking a long time.”</td>
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<tr>
<td>Physical Comforting</td>
<td>Hugging, rocking, or patting the child in order to provide some comfort. Not passive sitting with arms in contact with child.</td>
<td>Hugs, rocking, rubbing, patting, hand holding.</td>
</tr>
<tr>
<td>Giving Control to Child</td>
<td>Any statement to child implying that child has control over some medical procedure related event</td>
<td>“Are you ready?” “Which arm?” “Let me know when you are ready.”</td>
</tr>
<tr>
<td>Apologizing</td>
<td>Any statement to child relating a sense of sorrow or a sense of responsibility for the pain.</td>
<td>“I am sorry.” “I wish we didn't have to do this.” “I am sorry it is taking so long.”</td>
</tr>
<tr>
<td>Criticizing</td>
<td>Criticizing the child either directly or indirectly.</td>
<td>“You didn’t do a good job.” “Your daddy isn’t going to be proud of you today.” “You aren’t going to cry, are you?” “Your little sister did better”</td>
</tr>
<tr>
<td>Anxious Behavior</td>
<td>Verbal or nonverbal anxiety behaviors</td>
<td>Leg tapping or saying, “I am scared/upset/nervous.”</td>
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</table>

### Child Category

<table>
<thead>
<tr>
<th>Definition</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Nonprocedural Talking</td>
<td>Any nonprocedural talk or behavior that the child engages in. This may be in response to nonprocedural talk by others.</td>
</tr>
<tr>
<td>Information Seeking</td>
<td>Asking about the medical procedure. Needs to explicitly involve asking questions about the medical procedure (if questions are about researcher, video, being filmed they are NOT info seeking).</td>
</tr>
<tr>
<td>Joking/Humor</td>
<td>Joking or acting funny by the child in order to amuse others in the room.</td>
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<tr>
<td>Engaging in Distraction</td>
<td>Any behavior that is indicative of the child being oriented toward a distraction stimulus (movie, poster).</td>
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<tr>
<td>Other Coping</td>
<td>Any blatant coping the child engages in besides engaging with the distraction stimulus or deep breath-</td>
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<tr>
<td>Behavior</td>
<td>Description</td>
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<tr>
<td>Crying</td>
<td>Crying sounds. This might be unintelligible and can be double-coded with other categories (e.g., crying and deep breathing). Includes whimpering during situation where one might normally cry.</td>
</tr>
<tr>
<td>Screaming</td>
<td>Vocal expression of pain at high pitch/intensity, usually unintelligible, but can be double coded with verbal categories.</td>
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<tr>
<td>Grimacing</td>
<td>Child’s facial response that indicates discomfort/pain.</td>
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<td>Flailing</td>
<td>Random movements, of arms, legs, or whole body. Often results in restraint.</td>
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<tr>
<td>Verbally Resisting</td>
<td>Any intelligible verbal expression of delay, termination, or resistance.</td>
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<tr>
<td>Physically Resisting</td>
<td>Any visible physical display of termination, delay, or resistance.</td>
</tr>
<tr>
<td>Requesting Emotional Support</td>
<td>Any attempt to solicit hugs, hand holding, physical or verbal comfort by the child (includes leaning in toward parent and reaching for a parent’s hand). Do not code if at least part of statement fits another code (for example, “Mom, get me out of here.” is coded as verbal resistance).</td>
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<tr>
<td>Verbalizing Fear</td>
<td>Intelligible Statement of being apprehensive or in fear.</td>
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<tr>
<td>Verbalizing Pain</td>
<td>Statement (not a question) of pain or being hurt. These statements may occur before, during, or after the shot.</td>
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<tr>
<td>Verbalizing Negative Emotion</td>
<td>Statement other than verbal fear and resistance that express the child’s negative emotional state. Anger, self-pity, resentment are common ones. They are negative emotion statements only.</td>
</tr>
<tr>
<td>Being Physically Restrained</td>
<td>Child is physically restrained with noticeable pressure and/or child is exerting bodily force and resistance.</td>
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tance in response to restraint. Normal positioning of child with arm around mom is not coded as restraint. Child must physically resist procedure and at least part of body be held to prevent movement.

| **Medical Watching** | Anytime that the child is watching the medical procedure or looking at the instruments used. | Watches nurse clean skin. |