

UC Irvine

UC Irvine Previously Published Works

Title

The Role of Ethnicity and Acculturation in Preoperative Distress in Parents of Children Undergoing Surgery.

Permalink

<https://escholarship.org/uc/item/8fp297gw>

Journal

Journal of immigrant and minority health, 19(3)

ISSN

1557-1912

Authors

Stevenson, Robert S
Rosales, Alvina
Fortier, Michelle A
[et al.](#)

Publication Date

2017-06-01

DOI

10.1007/s10903-016-0357-7

Peer reviewed



HHS Public Access

Author manuscript

J Immigr Minor Health. Author manuscript; available in PMC 2018 June 01.

Published in final edited form as:

J Immigr Minor Health. 2017 June ; 19(3): 738–744. doi:10.1007/s10903-016-0357-7.

The Role of Ethnicity and Acculturation in Preoperative Distress in Parents of Children Undergoing Surgery

Robert S. Stevenson,

Department of Anesthesiology and Perioperative Care, University of California-Irvine, USA

Alvina Rosales,

Department of Anesthesiology and Perioperative Care, University of California-Irvine; Department of Pediatric Psychology, CHOC Children's, Orange, CA

Michelle A. Fortier,

Department of Anesthesiology and Perioperative Care, University of California-Irvine; Department of Pediatric Psychology, CHOC Children's, Orange, CA

Belinda Campos,

Department of Chicano/Latino Studies, University of California-Irvine, USA

Brenda Golianu,

Department of Anesthesiology and Perioperative Medicine, Stanford University School of Medicine, USA

Jeannie Zuk,

Children's Hospital Colorado, University of Colorado School of Medicine, USA

Jeffrey Gold, and

Department of Anesthesiology and Pediatrics, University of Southern California School of Medicine, USA

Zeev N. Kain

Department of Anesthesiology and Perioperative Care, University of California-Irvine; Departments of Pediatrics and Psychiatry & Human Behavior, University of California, Irvine; Child Study Center, Yale University School of Medicine, USA

Abstract

Background—This study examined the effects of acculturation on anxiety and stress in Latino and non-Latino-White parents of children undergoing outpatient surgery.

Methods—Participants included 686 parent-child dyads from four major children's hospitals in the United States.

Results—Latino parents who grew up in the U.S. reported higher levels of anxiety ($p = 0.009$) and stress ($p < 0.001$) compared to parents who grew up in a Latin American country.

Additionally, English-speaking Latino parents reported higher anxiety and stress compared to both

Spanish-speaking Latino and non-Latino White parents (p 's < 0.05), whereas Spanish-speaking Latino and non-Latino White parents reported similar levels of stress and anxiety.

Discussion—Results of the current study were consistent with the immigrant health paradox in that more acculturated Latino parents reported higher levels of anxiety and stress than less acculturated Latino and non-Latino-White parents, supporting the need for culturally tailored interventions in the perioperative environment.

Keywords

stress; anxiety; acculturation; parental preoperative distress

Introduction

Surgery can be an overwhelming experience and has been found to produce stress for families, especially parents of young children (1-3). Parents have been found to experience significant distress and anxiety during the preoperative period (2-5). For example, parent's reports of clinically significant increases in anxiety before their child's surgery have been associated with increases in child anxiety and adverse postoperative outcomes in children including increased pain, agitated emergence from anesthesia (emergence delirium) and maladaptive behavioral changes (3, 6, 7). In order to reduce these and other adverse perioperative health outcomes, it is important to understand factors contributing to parental stress and anxiety.

Literature to date on parental perioperative anxiety has documented the experiences of non-Latino White populations (1-3). As the U.S. becomes more ethnically diverse; however, it is important to understand the experiences of various populations of parents. This is particularly true for Latinos, one of the largest ethnic groups in the U.S. [8], for who generalizability of existing research may be limited. Accordingly, examining whether perioperative experiences of Latino parents who have a child undergoing outpatient surgery are comparable to that of Non-Latino White parents is needed.

There is currently a significant dearth of literature on perioperative stress and anxiety in Latino populations; however, examination of larger trends in Latino health may highlight meaningful trends. Latino individuals are at higher risk for experiencing social and economic inequities (e.g., lower education and higher poverty) that increase susceptibility to health disparities (8). Studies have found that compared to immigrants, U.S. born Latinos have higher morbidity rates, poorer health outcomes and higher levels of risky health behaviors (10). It has been argued that mechanisms underlying these trends include the experience of acculturation to U.S. society. While the process of acculturation may include inherent benefits (e.g., acquiring new language skills) it may also include acculturative stress (9-11). Conversely, Latino immigrants are particularly vulnerable to social inequities, especially immigrants facing additional barriers related to documentation status (e.g., difficulty accessing medical care and health insurance) (12). Studies using nativity and age of immigration as proxies of acculturation have found that less acculturated Latino individuals (i.e., those born outside of the U.S. and those who immigrated at an older age), tend to fare better on various mental health outcomes, including anxiety, compared to U.S.-

born Latinos, despite having fewer economic and social resources (13, 14). These positive health outcomes, mostly found in Mexican-American Latinos, are commonly referred to as the *immigrant or Hispanic paradox* (15, 16). However, these positive outcomes tend to degrade the longer Latino immigrants live in the U.S and are presumably more acculturated (17).

There is a dearth of research examining cultural factors such as acculturation that may impact parental anxiety and stress, particularly within the medical setting. Therefore, the aim of the current study was to examine stress and anxiety within a diverse sample of non-Latino white and Latino parents of children undergoing outpatient surgery. Furthermore, we aimed to examine the association of acculturation on parental anxiety within Latino parents. We hypothesized that Non-Latino White parents would endorse significantly lower levels of perioperative stress and anxiety than Latino parents. Since documented evidence has shown that Latinos face chronic stressors related to language, discrimination, financial barriers to healthcare, acculturative stress, etc., (13, 14, 18) we also hypothesized that Latino parents would endorse significantly more stress than the non-Latino white parents due to the additional stress of surgery. Based upon the immigrant health paradox, we also expected that a within-group examination of Latino parents would reveal significant group differences, such that parents with lower acculturation would endorse less stress and anxiety compared to parents who reported higher acculturation levels (i.e. defined by language, country of origin, and age of immigration). The time of immigration is important as it is believed that immigration at an older age may be helpful because people tend to have health behaviors more solidified within their lifestyle [13].

Methods

Participants

The institutional review board from each study site approved this study and informed consent and assent were obtained from parents and children respectively as appropriate. Data collected for this study were drawn from an ongoing larger Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)-funded multi-site randomized controlled trial, which examined the efficacy of a health care provider behavioral intervention for pediatric preoperative anxiety (R01HD048935). There were 1304 eligible patients for the larger study. Of these, 393 declined and 82 consented but then withdrew consent. Of the 829 participants who completed baseline data in the larger study, 686 fit criteria for inclusion in the present study (White/Latino, English- or Spanish-speaking). The larger sample of 829 parent-child dyads was collected prior to randomization from four major children's hospitals in the U.S (CHOC-University of California Irvine, Stanford University, Colorado Children's Hospital, Children's Hospital of Los Angeles). Participants included in the current study were Non-Latino White and Latino parents from each site (n = 686 parent-child dyads). Children were between 2- to 15 years of age and scheduled to undergo outpatient tonsillectomy and/or adenoidectomy (T&A). We chose, tonsillectomy and/or adenoidectomy as they are the most common pediatric surgeries, are minimally invasive, conducted primarily with healthy patient populations (ASA I-II) and associated with significant postoperative pain (19). Moreover, focusing on these surgeries

provided a more homogenous patient sample. Inclusion criteria included families that were either English- or Spanish-speaking and had a physical health status between I and III under the American Society of Anesthesiologists (ASA) physical health classification. Exclusion criteria included patients with a history of developmental delay, chronic illness, and premature birth (less than 32 weeks gestational age). The exclusion criteria were employed because emotional and physical impairments can contribute to variations in emotional response to surgery and pain severity.

Data Collection

Parents completed study measures within the preoperative area and in the waiting area while their child was undergoing surgery at all sites. All measures were completed before parents were aware of the status of their child's surgery.

Measures

Demographics & Acculturation—Parents completed a questionnaire assessing demographic information such as gender, age, ethnicity, parental education, household income and parental occupation. Acculturation is a complex non-linear process involving numerous factors (e.g., language, dress, food, etc.). Given the complexity of fully capturing acculturation, health studies often rely on use of acculturation proxies (20) such as language, time spent in host country or country of origin, age of immigration, etc. Acculturation proxies have been found to be strongly associated with scale measures of acculturation (21). In the current study the following acculturation proxies were collected: country of origin (defined as where parent grew up), preferred language, and if applicable, the age that the parent moved to the U.S. rather than direct questions about where the parents were born, when they immigrated into the U.S., and documentation status due to consideration of sensitivity towards issues related to immigration and assessment in a clinical environment.

Parental Stress—Parental stress was measured using the Perceived Stress Scale (PSS), a 14-item self-report measure of perceived stress (22, 23). The PSS was designed to measure the degree to which respondents considered their lives to be uncontrollable, unpredictable, and overloaded and consisted of statements measuring current levels of experienced stress. Participants were asked how they felt in the last month for each statement (e.g. *felt nervous and “stressed”*, *been able to control irritations in your life*) and items were rated on a 5-point Likert-type scale ranging from 0 (Never) to 4 (Very Often). Total scores were calculated by summing all 14 items, with higher scores indicating higher levels of stress. The PSS has been found to have adequate psychometric properties (22, 23). The Spanish version of the PSS was validated for use and shown to have good internal consistency within a sample from Spain and a sample from Mexico (24, 25). In this study the PSS demonstrated good internal consistency.

Parental Anxiety—Parental anxiety was measured using the State-Trait Anxiety Inventory (STAI) which is a self-report questionnaire of state (situational) and trait (baseline) anxiety (26). Questions are scored on a 4-point Likert-type scale and analyzed by using the total score, which is the sum of all items. Higher scores indicate higher levels of anxiety. The STAI has been found to have good validity and reliability, including acceptable to good test-

retest reliability (26). With that, the Spanish version of the STAI also been found to have good to excellent internal consistency (27). In the current study, the STAI demonstrated good internal consistency.

Statistical Analysis

Because language has been found to be a strong and reliable predictor of acculturation (28), parents were categorized into three different groups based on language preference and ethnicity/race: English-speaking Non-Latino White, English-speaking Latino, or Spanish-speaking Latino. The English-speaking Latino and Spanish-speaking Latino groups were determined by assessment of parents' preferred language, either English or Spanish, which was self-reported reported by parents at the time of recruitment. Descriptive statistics were used to describe the demographic data of the sample. Demographic data included age of parent and child, parental education, household income, and parent and child gender. Normally distributed demographic data (i.e. parent age, child age, and parental education) were presented as means and standard deviations (SD). Ranges were reported for household income, and percentages were used to report child and parent gender. Preliminary analyses were conducted using Pearson product-moment correlations to examine the relationship between demographic variables (household income and education) and parent stress (PSS) and anxiety (STAI- State and Trait). Household income was identified as a potential confounding variable via preliminary correlation analyses, and thus included as a control variable in the primary analyses outlined below.

In order to examine group differences in parental stress and anxiety (PSS and STAI), we conducted analysis of variance (ANOVA) tests between non-Latino white, English-speaking Latinos, and Spanish-speaking Latino parents. We also conducted two hierarchical regression analyses to examine whether acculturation proxies (country of origin and age at time of immigration) predicted parental stress and anxiety within Latino parents. In order to control for the effect of demographic differences in the analyses, household income was entered in the first step and acculturation proxies were entered in the second step.

Results

A total of 686 participants were included in this study (non-Latino white = 227, English-speaking Latino = 240, Spanish-speaking Latino = 219). Demographic data of study participants are reported in Table I. Participants primarily consisted of mothers (88%), English was the primary language (68%), and children were primarily male (52%) with a mean age of 6.03 ± 2.87 years. Because mothers overwhelmingly participated (88% participating parents were mothers), the small sample size of fathers did not allow us to examine for potential gender differences. Within the Latino sample (both English- and Spanish-speaking), 51% were first generation (born outside of the U.S.), and among these parents, the majority (82%) reported originating from Mexico. Other countries that were represented within the sample were El Salvador (n=17), Guatemala (n=15), Colombia (n=1), Argentina (n=2), Honduras (n=3) Belize (n=2), and Peru (n=1). The Latino subgroups were not examined for within group difference due to small samples sizes and lack of power.

There were significant differences in education and household income among groups in this sample that are consistent with regional demographics (see Table I).

Group Differences in Anxiety and Stress

An ANOVA test was conducted to examine potential group differences in parental stress (PSS) while controlling for household income (see Table II). There was a main effect of group for stress, $F(2, 637) = 8.93, p < 0.001$. Post hoc comparisons revealed that English-speaking Latino parents reported significantly higher levels of stress compared to non-Latino white ($p = 0.007$) and Spanish-speaking Latino ($p < 0.001$) parents. Additionally, there was no difference between the non-Latino white and the Spanish-speaking Latino groups ($p = 0.123$).

An ANOVA test also revealed significant differences by group based on parental state anxiety (STAI-S), $F(2, 636) = 4.19, p = 0.016$. Post hoc comparisons showed that the English-speaking Latino parents reported higher levels of state anxiety compared to the non-Latino white ($p = 0.048$) and Spanish-speaking Latino ($p = 0.005$) parents. There was no significant difference between the non-Latino white and Spanish-speaking Latino groups. Finally, the effect of group on parental trait anxiety (STAI-T) was significant, $F(2, 626) = 3.10, p = 0.045$. English-speaking Latino parents reported higher levels of trait anxiety compared to non-Latino white ($p = 0.045$) and Spanish-speaking Latino ($p = 0.024$) parents. However, no difference in was found between non-Latino white and Spanish-speaking Latino parents. Results of the ANOVA analyses are presented in Table II.

The Effect of Acculturation Proxies (Country of Origin and Age at Immigration) on Anxiety and Stress Among Latino Parents

Hierarchical linear regression analyses revealed that Latino parents who grew up in the U.S. reported higher stress levels than Latino parents who grew up in a Latin American country ($F(2, 569) = 13.766, p < 0.001$). This same finding was observed with trait anxiety levels ($F(2, 569) = 6.861, p = 0.009$). However, country of origin did not predict parental state anxiety ($F(2, 569) = 1.394, p = 0.238$). Results of the regression analyses are presented in Table III.

Lastly, hierarchical linear regression analyses revealed that parent age at time of moving to the U.S. from a Latin America country was not a significant predictor of parental stress ($F(2, 212) = 1.933, p = 0.166$), state anxiety ($F(2, 212) = 0.080, p = 0.777$), or trait anxiety ($F(2, 212) = 0.089, p = 0.765$).

Discussion

The primary aim of the present study was to examine levels of stress and state and trait anxiety in a sample of English- and Spanish-speaking Latino and non-Latino White parents of children undergoing outpatient surgery. The secondary aim of this project was to examine whether parent stress and anxiety among Latino parents varied as a function of parent acculturation (i.e., Language, Country of Origin, Age at Immigration). We found that more acculturated Latino parents reported higher levels of stress than less acculturated Latino parents and non-Latino White parents. Findings were consistent with the immigrant health

paradox—more acculturated Latino parents' had higher anxiety and stress while less acculturated Latino parents' had lower levels of stress and anxiety; moreover, these levels were more comparable to those of non-Latino white parents. Within the Latino sample, parents who grew up in the U.S. tended to report higher levels of stress and anxiety on the day of their child's surgery compared to parents who grew up in a Latin American country and immigrated to the U.S. However, parent age upon immigration into the U.S. was not associated with degree of stress or anxiety. Variation in findings based on type of acculturation proxy variables has also been documented by others (17, 29). Overall, results suggest that more acculturated Latino parents are at higher risk for having elevated levels of stress and anxiety in general and in the presence of a stressor such as pediatric surgery.

Our findings support similar research which has demonstrated that Latinos who were presumably less acculturated (Spanish-speaking Latinos) tended to report lower levels of stress and anxiety compared to Latinos who were more acculturated (English-speaking Latinos) (14). Interestingly, English-speaking Latino parents fared worse in the terms of perioperative distress when compared to the non-Latino white and Spanish-speaking Latino parents. Despite having less access to resources (e.g., income and education) and lower English language skills, the Spanish-speaking Latino parents in the current study still tended to fare better than English-speaking Latino parents. Although beyond the scope of this study, it is possible that Spanish-speaking Latinos are more likely to continue benefiting from a limited exposure to social stressors (e.g., discrimination, less access to health care) [13], which can promote better health outcomes including lower stress and anxiety. Conversely, poorer outcomes for more acculturated Latino parents may be a factor of acquiring unhealthy behaviors over time (e.g., substance use and poorer nutrition habits) in the U.S. (14, 30) as well as social stressors including acculturative stress (9-11). It is possible that this phenomenon is an effect of higher levels of mental health problems (14). With more time spent in the U.S., these stressors and changes in health behaviors may lead to distressed mental states (9-11, 28). Acculturative stress has been linked to forming part of a disadvantaged and often marginalized social group. It is possible that the longer immigrants live in the U.S. and with each generation that follows, the more they are exposed to discrimination, separation from family, lack of community (18) which are in turn predictive of poor and risky health behaviors (15). Overall, the process of acculturation is multifactorial and depends on both individual (e.g., socioeconomic status) and larger system factors including social expectations and sociopolitical contexts in the new society of residence. As such, the process of acculturation varies from person to person. It can be stressful in the context of discriminatory experiences and institutional barriers (e.g., barriers to health care). Factors such as perception of discrimination (12) and acculturative stress, including stress related to legal status (31) can potentially contribute to increased stress in the medical setting.

Health care providers should consider that despite having fewer economic and language barriers to health care (e.g., language, access, insurance) relative to their immigrant counterparts, U.S. Born/more acculturated Latino parents may be at risk for daily stress and anxiety. This may negatively impact physical and mental health which can increase vulnerability in the face of a situational stressor, such as children's surgery. Furthermore, groups at risk for higher anxiety and stress may also have an increased burden of poorer

postoperative health outcomes (e.g., increased pain, emergence delirium, negative behavioral changes) (32-35). Health care providers should consider tailoring their practices to address salient barriers based on varying levels of acculturation within the Latino population. It is conceivable that such tailored interventions that address the specific concerns that parents have during their child's surgery experience can help reduce child perioperative anxiety, and subsequently postoperative pain.

Despite the information provided by the current study, it was not without limitations. One limitation includes lack of formal assessment of language skills. It is likely that some parents were bilingual and had relatively equal language proficiency between English and Spanish. Also, while acculturation proxies have been helpful and widely used to understand the role of acculturation on Latino health, proxies are unidimensional measures that assume acculturation increases upon immigration or based on language acquisition. However, research to date has found acculturation more complex and often bidimensional in nature (28). Despite support for the use of acculturation proxies (29), studies systematically examining formal measures of acculturation and mechanisms through which acculturation can impact parent mental health are needed. In addition, future studies should examine cultural aspects that promote positive health behaviors and outcomes which in turn will continue to address health disparities in Latino communities.

Conclusion

In conclusion, the present study provides evidence that parental perioperative anxiety and stress may be impacted by ethnicity, language, and acculturation. Consistent with the immigrant paradox, Latino parents who are more acculturated to U.S. culture, as evidenced by preference for English language and longer time spent in the U.S. may actually fare worse in terms of anxiety prior to children's surgery compared to Latino parents who are less acculturated. Given that parental anxiety and stress are associated with children's preoperative anxiety and postoperative recovery, these findings highlight the clinical importance of creating culturally tailored interventions targeted at reducing parental stress and anxiety in ethnically diverse populations of parents. Such interventions have the potential to reduce suffering in children undergoing surgery.

Acknowledgments

Financial Support: Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) - R01HD048935.

Clinical Trial Registry: ClinicalTrials.gov. Registration Number: NCT01878747. Principal Investigator: Dr. Zeev N. Kain. Date of Registration: 2/8/2013.

References

1. Wang SM, Gaal D, Maranets I, Caldwell-Andrews A, Kain ZN. Acupressure and preoperative parental anxiety: a pilot study. *Anesthesia & Analgesia*. 2005; 101(3):666–9. [PubMed: 16115972]
2. Caumo W, Schmidt AP, Schneider CN, Bergmann J, Iwamoto CW, Bandeira D, et al. Risk factors for preoperative anxiety in adults. *Acta Anaesthesiologica Scandinavica*. 2001; 45(3):298–307. [PubMed: 11207465]

3. Kain ZN, Caldwell-Andrews AA, Mayes LC, Weinberg ME, Wang SM, MacLaren JE, et al. Family-centered preparation for surgery improves perioperative outcomes in children: a randomized controlled trial. *Anesthesiology*. 2007; 106(1):65–74. [PubMed: 17197846]
4. Kain ZN. Perioperative information and parental anxiety: the next generation. *Anesthesia & Analgesia*. 1999; 88(2):237–9. [PubMed: 9972732]
5. Litman RS, Berger AA, Chhibber A. An evaluation of preoperative anxiety in a population of parents of infants and children undergoing ambulatory surgery. *Paediatric anaesthesia*. 1996; 6(6): 443–7. [PubMed: 8936540]
6. Kain ZN, Wang SM, Mayes LC, Caramico LA, Hofstadter MB. Distress during the induction of anesthesia and postoperative behavioral outcomes. *Anesthesia & Analgesia*. 1999; 88(5):1042–7. [PubMed: 10320165]
7. Kain ZN, Caldwell-Andrews AA, Maranets I, McClain B, Gaal D, Mayes LC, et al. Preoperative anxiety and emergence delirium and postoperative maladaptive behaviors. *Anesthesia & Analgesia*. 2004; 99(6):1648–54. [PubMed: 15562048]
8. Bureau USC. U.S. Census Bureau Projections Show a Slower Growing, Older, More Diverse Nation a Half Century from Now 2012. Available from: <http://www.census.gov/newsroom/releases/archives/population/cb12-243.html>
9. Gil AG, Vega WA, Dimas JM. Acculturative Stress and Personal Adjustment among Hispanic Adolescent Boys. *J Community Psychol*. 1994; 22(1):43–54.
10. Crockett LJ, Iturbide MI, Stone RAT, McGinley M, Raffaelli M, Carlo G. Acculturative Stress, Social Support, and Coping: Relations to Psychological Adjustment Among Mexican American College Students. *Cult Divers Ethn Min*. 2007; 13(4):347–55.
11. Hovey JD. Acculturative stress, depression, and suicidal ideation in Mexican immigrants. *Cultur Divers Ethnic Minor Psychol*. 2000; 6(2):134–51. [PubMed: 10910528]
12. Farley T, Galves A, Dickinson LM, Perez Mde J. Stress, coping, and health: a comparison of Mexican immigrants, Mexican-Americans, and non-Hispanic whites. *Journal of immigrant health*. 2005; 7(3):213–20. [PubMed: 15900422]
13. Alegria M, Sribney W, Woo M, Torres M, Guarnaccia P. Looking Beyond Nativity: The Relation of Age of Immigration, Length of Residence, and Birth Cohorts to the Risk of Onset of Psychiatric Disorders for Latinos. *Research in human development*. 2007; 4(1):19–47. [PubMed: 19412354]
14. Vega WA, Sribney WM, Aguilar-Gaxiola S, Kolody B. 12-month prevalence of DSM-III-R psychiatric disorders among Mexican Americans: nativity, social assimilation, and age determinants. *J Nerv Ment Dis*. 2004; 192(8):532–41. [PubMed: 15387155]
15. Teruya SA, Bazargan-Hejazi S. The Immigrant and Hispanic Paradoxes: A Systematic Review of Their Predictions and Effects. *Hispanic Journal of Behavioral Sciences*. 2013; 35(4):486–509. [PubMed: 26120244]
16. Vega WA, Rodriguez MA, Gruskin E. Health disparities in the Latino population. *Epidemiol Rev*. 2009; 31:99–112. [PubMed: 19713270]
17. Campos B, Schetter CD, Walsh JA, Schenker M. Sharpening the focus on acculturative change - ARSMA-II, stress, pregnancy anxiety, and infant birthweight in recently immigrated Latinas. *Hispanic Journal of Behavioral Sciences*. 2007; 29(2):209–24.
18. Caplan S. Latinos, acculturation, and acculturative stress: a dimensional concept analysis. *Policy, politics & nursing practice*. 2007; 8(2):93–106.
19. Stewart DW, Ragg PG, Sheppard S, Chalkiadis GA. The severity and duration of postoperative pain and analgesia requirements in children after tonsillectomy, orchidopexy, or inguinal hernia repair. *Pediatric Anesthesia*. 2012; 22(2):136–43. [PubMed: 22023485]
20. Marin G, Gamba RJ, Marin BV. Extreme Response Style and Acquiescence among Hispanics - the Role of Acculturation and Education. *J Cross Cult Psychol*. 1992; 23(4):498–509.
21. Kasirye OC, Walsh JA, Romano PS, Beckett LA, Garcia JA, Elvine-Kreis B, et al. Acculturation and its association with health-risk behaviors in a rural Latina population. *Ethn Dis*. 2005; 15(4): 733–9. [PubMed: 16259501]
22. Cohen S. Contrasting the hassles scale and the perceived stress scale: who is really measuring appraised stress? *Am Psychol*. 1986; 41:716–8.

23. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav.* 1983; 24:385–96. [PubMed: 6668417]
24. Ramirez MT, Hernandez RL. Factor structure of the Perceived Stress Scale (PSS) in a sample from Mexico. *The Spanish journal of psychology.* 2007; 10(1):199–206. [PubMed: 17549893]
25. Remor E. Psychometric properties of a European Spanish version of the Perceived Stress Scale (PSS). *The Spanish journal of psychology.* 2006; 9(1):86–93. [PubMed: 16673626]
26. Spielberger, CD. *Manual for the State-Trait Anxiety Inventory (STAI : Form Y).* Palo Alto, CA: Consulting Psychologists Press; 1983. p. 4-26.
27. Novy DM, Nelson DV, Smith KG, Rogers PA, Rowzee RD. Psychometric comparability of the English- and Spanish-language versions of the State-Trait Anxiety Inventory. *Hispanic Journal of Behavioral Sciences.* 1995; 17:209–24.
28. Lara M, Gamboa C, Kahramanian MI, Morales LS, Bautista DE. Acculturation and Latino health in the United States: a review of the literature and its sociopolitical context. *Annu Rev Public Health.* 2005; 26:367–97. [PubMed: 15760294]
29. Carter-Pokras O, Zambrana RE, Yankelovich G, Estrada M, Castillo-Salgado C, Ortega AN. Health status of Mexican-origin persons: do proxy measures of acculturation advance our understanding of health disparities? *J Immigr Minor Health.* 2008; 10(6):475–88. [PubMed: 18470618]
30. Neuhaus ML, Thompson B, Coronado GD, Solomon CC. Higher fat intake and lower fruit and vegetables intakes are associated with greater acculturation among Mexicans living in Washington State. *J Am Diet Assoc.* 2004; 104(1):51–7. [PubMed: 14702584]
31. Finch BK, Kolody B, Vega WA. Perceived discrimination and depression among Mexican-origin adults in California. *J Health Soc Behav.* 2000; 41(3):295–313. [PubMed: 11011506]
32. Fortier MA, Del Rosario AM, Martin SR, Kain ZN. Perioperative anxiety in children. *Paediatr Anaesth.* 2010; 20(4):318–22. [PubMed: 20199609]
33. Power NM, Howard RF, Wade AM, Franck LS. Pain and behaviour changes in children following surgery. *Arch Dis Child.* 2012; 97(10):879–84. [PubMed: 22806233]
34. Agostini F, Monti F, Neri E, Dellabartola S, de Pascalis L, Bozicevic L. Parental anxiety and stress before pediatric anesthesia: a pilot study on the effectiveness of preoperative clown intervention. *Journal of health psychology.* 2014; 19(5):587–601. [PubMed: 23456215]
35. Kain ZN, Mayes LC, O'Connor TZ, Cicchetti DV. Preoperative anxiety in children. Predictors and outcomes. *Arch Pediatr Adol Med.* 1996; 150(12):1238–45.

Table 1

Participant Demographic Characteristics

	English-speaking Non-Latino White (n = 227)	English-speaking Latino (n = 240)	Spanish-speaking Latino (n = 219)	p - value	Group Differences
Child					
Age (Mean ± SD)	5.8 ± 3.0	6.1 ± 3.0	6.1 ± 2.6	0.423	n/a
Gender n (%)				0.291	n/a
Male	112 (49.3)	135 (56.3)	111 (50.7)		
Female	115 (50.7)	105 (43.8)	108 (49.3)		
Parent					
Age in years, (Mean ± SD)	37.3 ± 6.3	32.9 ± 6.9	34.1 ± 6.5	0.000	NLW>SSL>ESL
Gender [n (% mothers)]	189 (83.3)	214 (89.2)	199 (90.9)	0.051	n/a
Education (Mean Years ± SD)	15.8 ± 2.5	13.3 ± 2.6	10.0 ± 3.2	<0.001	NLW>ESL>SSL
Family Income (Median)	100–200,000	21–30,000	11–20,000	<0.001	NLW>ESL>SSL

Note: Household income was assessed as categorical ranges, thus the median category range is presented. SD: Standard Deviation; NLW: Non-Latino White; ESL: English Speaking Latino; SSL: Spanish Speaking Latino

Table II
Stress and Anxiety Among Groups

	NLW Mean ± SD	ESL Mean ± SD	SSL Mean ± SD	<i>p</i> value	Group differences
Stress (PSS)	20.99 ± 8.02	21.97 ± 6.93	18.97 ± 7.02	0.000	ESL > NLW** ESL > SSL*** NLW = SSL
State-Anxiety (STAI_S)	40.22 ± 10.76	42.16 ± 10.47	39.33 ± 9.65	0.016	ESL > NLW* ESL > SSL** NLW = SSL
Trait-Anxiety (STAI_T)	35.29 ± 7.95	36.87 ± 8.66	35.03 ± 7.97	0.045	ESL > NLW* ESL > SSL* NLW = SSL

Note. NLW: Non-Latino White; ESL: English-speaking Latino; SSL: Spanish-speaking Latino; PSS: Perceived Stress Scale; STAI: State-Trait Anxiety Inventory; SD: Standard Deviation.

* *p* < .05;

** *p* < .01;

*** *p* < .001.

Table III
Hierarchical Regression Analysis for Variables Predicting Stress and Anxiety

	Stress (PSS)			State-Anxiety (STAI-S)			Trait-Anxiety (STAI-T)		
	β	SE	p	β	SE	p	β	SE	p
Income	-0.19	0.15	$p < 0.001$	-0.02	0.21	0.54	-0.16	0.16	$p < 0.001$
Country of Origin	-0.17	0.72	$p < 0.001$	-0.05	1.00	0.23	-0.12	0.80	$p < 0.01$
F(df, df)	10.963	(2,569)		0.702	(2,569)		7.053	(2,569)	
R ² (p-value)	0.034	($p < 0.001$)		0.002	(0.238)		0.024	(0.009)	