Epidemiological research on parent–child conflict in the United States: subgroup variations by place of birth and ethnicity, 2002–2013

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ABSTRACT

Background. Chronically escalated parent–child conflict has been observed to elicit maladaptive behavior and reduced psychological well-being in children and youth. In this epidemiological study, we sought to estimate the occurrence of escalated parent–child conflict for United States (US) adolescent subgroups defined by (a) ethnic self-identification, and (b) nativity (US-born versus foreign-born).

Methods. US study populations of 12-to-17-year-olds were sampled, recruited, and assessed for the National Surveys on Drug Use and Health (NSDUH), 2002–2013 (n = 111,129). Analysis-weighted contingency table analyses contrasted US-born versus foreign-born who self-identified as: (a) Hispanic, (b) non-Hispanic African-American, (c) non-Hispanic Asian, and (c) non-Hispanic White.

Results. Frequently escalated parent–child conflict was most prevalent among US-born non-Hispanic White adolescents, from 18% at age 12 (95% CI [17.6%, 18.9%]) to 29% at age 17 (95% CI [28.3%, 29.7%]), followed by US-born Hispanic and non-Hispanic Asian children. Estimated prevalence proportions were markedly lower for African-American children, from 8% at age 12 (95% CI [6.8, 8.5]) to 16% at age 17 (95% CI [14.3, 16.7]). Broad and sometimes overlapping CI indicate that larger sample sizes are needed for complete evaluation of an apparent excess occurrence of frequent parent-child conflict among US-born versus foreign-born. Nonetheless, in the larger subgroups, the US-born show a clear excess occurrence of frequent parent-child conflict. For example, US-born Mexican children have 1.7 times higher odds of experiencing frequent parent-child conflict than foreign-born Mexican children (OR = 1.7, 95% CI [1.5, 2.0], p-value < 0.001).

Discussion. The main discovery from this multi-ethnic sample investigation is a rank-ordering of parent-child conflict prevalence estimates from high (non-Hispanic White) to low (non-Hispanic African-American). The pattern also suggests a possibly generalizable excess associated with US-born sub-groups. The epidemiological estimates presented here merit attention in future cross-cultural research focused on parent-child conflict.

Subjects Epidemiology, Public Health

Keywords Parent–youth conflict, Multi-ethnic, Parent–child conflict, Parenting, Norms
INTRODUCTION

In epidemiology, there is a long tradition of research on disease rates before and after migration from one country to another, as well as rural–urban migration within a country. Generally, the intent has been to estimate the degree to which cultural and social environmental processes (e.g., change in diet) might affect general and mental health, as well as successful adaptation, maladaptation, longevity, and case fatality rates (Syme, 1971). For example, many epidemiological studies with immigrant populations have examined the role of diet, lifestyle, and culture as etiological determinants of heart disease (Holmboe-Ottesen & Wandel, 2012; Yano et al., 1979). These themes continue to be prominent in contemporary public health research and epidemiological field studies that integrate cultural, social, and interpersonal influences on health-related behaviors, as well as investigations of how social capital might change or differ across migrant groups (Miranda et al., 2011; Velderman et al., 2015; Alarcón et al., 2016). Recently, Acevedo-Garcia et al. (2012) proposed a cross-national framework for the study of immigrant health, and incorporated constructs from epidemiology with those of economics and other social sciences. The present research inquiry, based on recent large sample epidemiological surveys conducted in the United States (US), was designed as a contribution to this tradition of research on health and adaptation of foreign-born immigrants as compared to homeland-born peers. By design, the size and diversity of the US epidemiological field survey samples have given the study an interesting capacity to make contrasts of the foreign-born versus the US-born within a limited number of sub-population strata defined by ethnic self-identification and by age.

The relevance of the current study can be situated at the intersection of epidemiology and public health research. Specifically, within the field of public health, a pair of inter-related mental hygiene and child guidance movements of the early 20th century combined to foster multiple lines of family studies on effective parenting. Resulting evidence draws attention to supportive and nurturing parent–child relationships and their influences on successful adolescent development, well-being, and academic success, with reduced risk for child internalizing and externalizing disturbances (Bjorknes & Manger, 2013; Dishion & Kavanagh, 2003; Kaminski et al., 2008; Lundahl, Nimer & Parsons, 2006; Seedall & Anthony, 2013).

Parent–child conflict

At normative levels, parent–child conflict seems to foster successful adaptations, an increased definition of self, and essential life skills (e.g., negotiation with authority), among other important developmental milestones (Fuligni, 2012; Moed et al., 2015). When parent–child conflict is inappropriately managed, outcomes can include escalating conflict and hostility, sometimes concurrent with maladaptive adolescent behavior and reduced psychological well-being (Bradford, Vaughn & Barber, 2008; Patterson, Reid & Eddy, 2002; Timmons & Margolin, 2015).

The study of parent–child conflict has been historically situated in the fields of sociology, psychology, and human development (Laursen, Coy & Collins, 1998; Updegraff et al., 2012). Prominent among these lines of investigation are studies focused on understanding the influence of parent–child conflict on the development of maladaptive behavior in children.
and youth. Among existing theoretical frameworks, the coercion model has been identified as highly influential (Forgatch et al., 2009; Forgatch & Domenech Rodríguez, 2016).

The origins of the coercion model can be traced back to mid-1960s research focused on understanding origins of persistent child aggression and antisocial behavior (Dishion et al., 2016). Whereas many parent–child conflict studies had been sociological in nature, the Oregon group developed research more focused on behavior analysis of observed parent–child interactions in an effort to increase research objectivity (Dishion et al., 2016). One result was the coercion model, according to which harsh and ineffective parenting can shape a child’s risk for antisocial behaviors and development of socially maladaptive behavior (Wachlarowicz et al., 2012).

In essence, the coercion model postulates that “ineffective parenting and deviant peer association are the prime mechanisms of changes in forms of deviancy” (Forgatch et al., 2009, p. 640). Central to the coercion model are ineffective parenting practices, increasing occurrence of parent–child conflict interactions characterized by negative reciprocity (i.e., mutual criticisms), aversive behaviors (e.g., yelling, negative comments) and escalation of conflict (i.e., arguments leading to increased verbal exchanges). The coercion model postulates that children are at greater risk for developing maladaptive behaviors if they are frequently exposed to parenting that includes frequent parent–child conflict.

Multiple prevention and clinical intervention studies have confirmed utility of the coercion model as a framework for understanding and improving deleterious parent–child interactions and for improvement of protective parenting practices (Dishion & Andrews, 1995; Dishion et al., 2016). This study is focused on one specific element of the coercion model—namely, frequent parent–child conflict.

**Cross-cultural parent-child conflict**
Origins of the idea that ethnicity, nativity, and immigration status might affect parent–child conflict and later mental health or behavior can be traced back to early anthropological and sociological studies of culture, personality, social structure, and migration as summarized by Mead (1947) and Merton (1949), as well as more recent theoretical formulations and empirical evidence on topics such as ‘acculturation stress’ experienced by adolescents and parents in immigrant families (e.g., see Sluzki, 1979; Acevedo-Garcia et al., 2012; Warner & Swisher, 2015; Alarcón et al., 2016; Szapocznik, Kurtines & Fernandez, 1980). This background of evidence set the stage for the current contribution of new epidemiological evidence on parent–child conflict as viewed from the adolescent’s perspective.

The current investigation responds to a call for research on cross-cultural similarities and differences of parent–child interactions (Dmitrieva et al., 2004). Multi-ethnic studies in this domain may be particularly relevant when parent–child interactions such as frequent conflict are shaped by differences across cultures or ethnicities (Uji et al., 2014; Updegraff et al., 2012). For example, recent studies contrasting Asian families suggest multi-ethnic variations in the combination of strict parental directives and control with a warm and nurturing relationship (Lau & Fung, 2013; Tran & Birman, 2010).

Empirical estimates from the present study draw strength from recently completed epidemiological field surveys with nationally representative samples of community
populations within the United States (US), primarily intended to illuminate child and adult drug involvement and health. In aggregate, these surveys produced samples large enough for statistically precise estimates of parent–child conflict among adolescents distinguished by ethnic self-identification and to some extent by place of birth (‘nativity’). A review of previously published parent–child conflict studies shows very few estimates from epidemiologically and nationally representative samples of ethnically diverse families (e.g., see Moed et al., 2015; Cain & Combs-Orme, 2005; Hughes et al., 2006; Juang & Umana-Taylor, 2012). Partially as a reflection of sample availability, the opportunities for between-group comparisons have been limited (Fuligni, 2012; Juang & Umana-Taylor, 2012; Chung, Flook & Fuligni, 2009).

Growing interest in public health research focused on multi-ethnic samples

Growing global interest in public health research has prompted researchers to call for investigations of cross-cultural differences and similarities in developmental processes, with attention to fundamental structures of parent-adolescent relationships, family dynamics, and parenting practices that might vary according to ethnicity (Acevedo-Garcia et al., 2012; Dmitrieva et al., 2004). A focus on multi-ethnic samples within the United States can be motivated without difficulty when one appreciates recent dramatic changes and increased diversity in the US population structure and composition (United States Census Bureau, 2012).

In addition, multi-ethnic studies with a focus on parent–child conflict have importance to the extent that traditional conceptions of parent–child relationships are subject to cross-cultural influences (Dmitrieva et al., 2004; Updegraff et al., 2012). For example, in many US studies to date, emphasis has been given to ‘acculturation stress’ or ‘acculturation gap-distress’ hypotheses, according to which cultural differences between immigrant parents and children can create or modulate parent–child conflict (Lau et al., 2005; Updegraff et al., 2012). Partial support for these hypothesized relationships can be seen, but recent studies illustrate a need to refine basic conceptualizations (Updegraff et al., 2012). That is, possibilities for parent–child conflict might be enhanced for immigrant families of one ethnic subgroup, but might be dampened for other ethnic subgroups (Shearman & Dumlao, 2008; Yu & Singh, 2012).

The quality of the parent–child conflict data in our current public health research on families is quite limited and cannot be used to settle debates about the acculturation gap-distress hypothesis or any other complex cross-cultural theory that might account for observed relative frequency of parent–child conflict. In keeping with the tradition of public health surveillance operations in general, epidemiological surveys are designed for practicality and brevity. The survey assessment modules provided detailed coverage of drug use, but faced tight constraints on assessments of other topics such as parenting practices. Nevertheless, we discovered that the survey’s multi-ethnic samples were large enough to shed light on a single basic facet of parent–child conflict as it is distributed across mutually exclusive ethnic subgroups, with exploration of age-specific contrasts between
12-to-17-year-olds born in the US versus the foreign-born, and with statistical adjustments for expected male–female differences.

Purpose of the study
Against this rich background, this study’s main aim was to estimate occurrence of frequent parent–child conflict within a nationally representative and ethnically diverse sample of 12-17 year olds residing in US communities. Of special interest was variation in frequent parent–child conflict in relation to child ethnic self-identification (i.e., non-Hispanic African American, non-Hispanic Asian, Hispanic, non-Hispanic White) and country of origin (i.e., US vs. foreign born). The resulting estimates are especially relevant due to the nationally representative and multi-ethnic group sampling design. Prior parent–child conflict studies of this type have not been epidemiological in nature and have had a limited representation of ethnic minority groups (Moed et al., 2015; Juang & Umana-Taylor, 2012). Thus, this investigation is situated at the under-studied intersection of epidemiology and public health research with research on parent–child interactions pertinent to child health and development.

Before turning to a description of materials and methods, we should clarify that the ‘frequent parent–child conflict’ construct, as studied here, should not be assumed to signify ‘inept parenting’ or any consequence of inept parenting. Instead, frequent parent–child conflict of this type might be regarded as a ‘surveillance signal’ of potential public health importance. In this respect, the study’s estimates for frequent parent–child conflict might serve well as population norms when US family counselors, pediatricians, and other clinicians seek to compare an individual patient’s parent–child conflict frequency with a population reference group of similar age, ethnic background, and immigration status. We return to these issues in our Discussion section.

With regards to study hypotheses, we thought that we might see more frequent parent–child conflict in the subgroup of non-Hispanic White adolescents, irrespective of US-born or foreign-born status, perhaps traceable to greater value assigned to child autonomy in Euro-American cultures. As for children self-identifying as Hispanic or as Asian, we anticipated lower parent–child conflict values, due to what others have characterized as a greater respect for parental authority and hierarchy in these subgroups. Nevertheless, we also wondered about whether there might be more parent–child conflict among the US-born Hispanic and Asian adolescents, as they might bid for greater autonomy, as compared to their peers in the foreign-born first generation immigrant adolescent subgroups. Finally, racial socialization literature on parenting practices in African American families informed our expectation for lower levels of parent–child conflict for these adolescents, associated with promotion of respect to family structure and parental authority.

METHOD
Research design, probability sampling, and sample size
In this investigation, the cross sectional survey design was set up to yield nationally representative estimates for the US federal government’s program known as the National Surveys on Drug Use and Health (NSDUH), 2002–2013, with study populations
encompassing all non-institutionalized US civilian community residents age 12 years and older during the survey years. That is, each year’s study population included 12-to-17-year-olds in non-institutional community dwelling units, irrespective of whether they were attending school (i.e., with no ‘school survey’ restriction to children still in school). The survey population is defined to exclude relatively small segments of the current US non-institutionalized population of 12-to-17-year-olds such as homeless children who do not reside in shelters and children living on military bases. In addition, child residents of institutional group quarters such as long-stay psychiatric hospitals also are excluded.

Participation in the NSDUH is not restricted to drug users or to individuals with psychiatric or behavioral disorders. Because respondents are not asked about their US citizenship or immigration naturalization status, it is not possible to bring those US Census variables into play.

Each year’s samples were drawn using multi-stage area probability sampling in all 50 states and the District of Columbia. Parental consent and child assent was obtained via protocols approved by cognizant institutional review boards for human subjects protection. In addition, approval for this investigation was obtained from the Michigan State University IRB.

The federal government has made available a large subset of the survey data and variables in the form of a public use dataset known as the NSDUH Restricted-Use Data Analysis System (RDAS). Major advantages of the RDAS public use datasets are (1) detailed variables on US- versus foreign-born status, and (2) pre-constructed analysis weights for aggregate analyses of the pooled 2002–2013 NSDUH survey data. The only exclusions were based on age (with parent–child conflict assessed only for 12-17-year-olds) and non-missing values for age, sex, US-born versus foreign-born, and ethnic self-identification. The result is a large sample size for each of the four subgroups under study, with enhancement of statistical precision and external validity of the study estimates. The effective sample size for this investigation (\( n = 111,129 \) 12-to-17-year-olds) was determined by the Vsevolozhskaya-Antony method (Vsevolozhskaya & Anthony, 2014). Table 1 shows adolescent subgroup cell counts for the study estimates.

Assessments

Participants chose either an English or Spanish language version of the NSDUH audio computerized self-interview (ACASI) or a paper-and-pencil option. The parent–child conflict assessment was in a module positioned midway through the 60–90 min NSDUH session, with the following introduction: “...the next question asks about your parents. By parents, we mean either your biological parents, adoptive parents, stepparents, or adult guardians who live in your household.” The parent–child conflict item was: “During the past 12 months, how many times have you argued or had a fight with at least one of your parents?” with an ordered gradient of responses from 0 times, 1–2 times, 3–5 times, 6–9 times, and 10 or more times during the past 12 months. For this surveillance report, we characterized the ‘10 or more times’ response as ‘frequent parent–child conflict.’ A disadvantage of the RDAS public use dataset is that the use of any general or generalized linear model is not an option for analysis; RDAS permits only frequency distributions,
Table 1  Characterization of US-born and foreign-born 12-to-17-year-olds in the nationally representative sample. Approximate unweighted numbers for self-identified ethnic groups (racial/ethnic heritage) by male–female and US/foreign-born origin. Data from the Restricted-use Data Analysis System (RDAS), National Surveys on Drug Use & Health, United States 2002–2013.

|                          | US-Born (n = 102,379) | Foreign-Born (n = 8,750) |
|--------------------------|-----------------------|--------------------------|
|                          | Estimated number and percentages with frequent parent–child conflict |                          |
|                          | Yes (n = 23,795)(%)    | No (n = 78,584)(%)       | Yes (n = 1,397)(%)       | No (n = 7,353)(%)       |
| Non-Hispanic White       | 17,625 (74.06)        | 50,690 (64.50)           | 518 (37.07)              | 2,495 (33.92)           |
| Non-Hispanic African American\(^b\) | 2,100 (8.83)        | 12,583 (16.01)           | 67 (4.80)                | 405 (5.51)              |
| Hispanic:                |                       |                          |                          |
| Mexico origin            | 2,070 (8.70)          | 8,438 (10.74)            | 270 (19.33)              | 1,860 (25.30)           |
| Non-Mexican origin       | 1,413 (5.94)          | 4,574 (5.82)             | 269 (19.26)              | 1,339 (18.21)           |
| Hispanic:                |                       |                          |                          |
| Non-Hispanic Asian:      |                       |                          |                          |
| China origin             | 175 (0.74)            | 621 (0.79)               | 64 (4.58)                | 205 (2.79)              |
| Non-Chinese origin       | 412 (1.73)            | 1,678 (2.14)             | 209 (14.96)              | 1,049 (14.27)           |

Notes.
\(^a\) The RDAS system does not disclose actual cell counts, but Vsevolozhskaya & Anthony (2014) provide a method that can be used to derive unweighted effective sample size values as shown here.
\(^b\) Within-subgroup analyses were not calculated due to small sample sizes (e.g., Non-Hispanic African Americans of Caribbean origin vs. African origin).

bivariate tables, and multi-way contingency table analyses. For this reason, we had to choose one threshold value and were unable to model the responses using a generalized linear model for discrete ordered responses.

Statistical analysis
A standard “explore, analyze, explore” cycle started with Tukey-style exploratory analyses that shed light on underlying distributions, followed by an initial RDAS analysis/estimation step to produce analysis-weighted multi-way contingency tables, from which graphical display was generated. RDAS variance estimation uses the Taylor series ‘delta’ method (Lohr, 2009).

Our attempt to produce sex-specific estimates was thwarted by RDAS non-disclosure constraints described by Vsevolozhskaya and Anthony, but we were able to use the Vsevolozhskaya-Anthony method to derive effective sample sizes for each cell of a series of sex-specific multiway contingency tables based on the following variables: place of nativity (US-born versus foreign-born), sex (male versus female), units of age (from 12 through 17) (Vsevolozhskaya & Anthony, 2014). We then fashioned Cochran-Mantel-Haenszel analyses to estimate the degree to which being US-born might be associated with greater odds of frequent parent–child conflict (as compared to the foreign-born reference category), with sex and age held constant (Cochran, 1954; Mantel & Haenszel, 1959). For this analysis/estimation step, it was possible to derive statistically adjusted odds ratio estimators for the US-born versus foreign-born, specific to: (1) Hispanic adolescents of Mexican heritage, (2) Hispanic adolescents of non-Mexican heritage, (3) Asian adolescents of Chinese heritage, (4) Asian adolescents of non-Chinese heritage, (5) non-Hispanic Black/African-American adolescents, and (6) non-Hispanic White adolescents, as shown in Table 2.
Table 2  Estimated covariate-adjusted odds ratio linking US-born status with odds of frequency of parent–child conflict, by self-identified ethnic groups. Data from the United States National Surveys on Drug Use and Health, 2002–2013.a

| Ethnic Group                              | AOR (95% CI)  | p-value |
|-------------------------------------------|--------------|---------|
| Non-Hispanic White:                       |              |         |
| All NHW children                          | 1.7 (1.5, 1.9) | <0.001 |
| Hispanic:                                 |              |         |
| Mexican heritage                          | 1.7 (1.5, 2.0) | <0.001 |
| Non-Mexican heritage                      | 1.6 (1.4, 1.8) | <0.001 |
| Non-Hispanic Asian:                       |              |         |
| Chinese heritage                          | 0.9 (0.6, 1.2) | 0.708   |
| Non-Chinese heritage                      | 1.3 (1.1, 1.5) | 0.011   |
| Non-Hispanic African-American:            |              |         |
| All NHAA children                         | 0.8 (0.7, 1.1) | 0.229   |

**Notes.**
aDescription of the study sample is provided in the Methods section.
bAdjusted odds ratio, AOR, with foreign-born as reference subgroup (covariates = age in years, sex: male versus female). CI, Confidence interval.

**RESULTS**

Before application of the analysis weights to the sample, the sample size for this study encompassed 111,129 12-to-17 year-old survey respondents. An estimated 92% of the participants self-identified as US-born versus 8% foreign-born. Among US-born participants, 67% self-identified as non-Hispanic White, 14% as non-Hispanic African American, 16% as Hispanic, and 2.8% as non-Hispanic Asian. Among the foreign-born participants, 34% self-identified as non-Hispanic White, 5.4% as non-Hispanic African American, 43% as Hispanic, and 17.5% as non-Hispanic Asian.

Overall, foreign-born adolescents were somewhat older than the US-born (e.g., 39% of foreign-born age 16–17 versus 33% of US-born). For both US-born and foreign-born adolescents, almost all lived with the mother (~90%), and about 75% lived with the father, with no appreciable nativity difference in terms of single-parent versus dual-parent families (data not shown in a table; available upon request).

Figure 1 displays age-specific and ethnicity-specific estimates for the US-born 12-to-17-year-olds, showing a general tendency of an increase, age stratum by age stratum, in the proportion with ‘frequent parent–child conflict’ (i.e., 10 or more times in the past 12 months), and with clear separation of the US-born non-Hispanic White children versus US-born non-Hispanic African-American children, as well as non-Hispanic Asian children. In contrasts with the larger estimates seen for US-born non-Hispanic Whites (from 18% at age 12 to 29% at age 17), the Hispanic and Asian subgroups are intermediate, although at age 14 and at age 16, the non-Hispanic White and Asian children do not differ appreciably. Moreover, studied age by age, the US-born Hispanic children and the US-born non-Hispanic Asian children do not differ appreciably. Except for the US-born in the earliest years of adolescence, it is the non-Hispanic African Americans who are always observed with the smallest estimates for prevalence of frequent parent–child conflict.
(from 8% at age 12 to 16% at age 17). Except as noted above, among the US-born, the non-Hispanic Asian child and the Hispanic child clearly have intermediate estimates, and the non-Hispanic White children are most likely to have frequent parent–child conflict.

As shown in Fig. 2 and as might be expected with much smaller sample sizes for the foreign-born 12-to-17-year-olds spread over six age values and four subgroups, there is considerable overlap of the 95% confidence intervals. Nevertheless, in these estimates for foreign-born children, it is possible to see a tendency for increases in the proportions with frequent parent–child conflict, age stratum by age stratum, as well as a general preservation of the rank ordering of top and bottom point estimates seen in Fig. 1 for Whites and African-Americans of non-Hispanic heritage. Among the foreign-born, the non-Hispanic Asian children and Hispanic children generally display point estimates of intermediate rank.

The male-to-female ratio for US-born adolescents is 1.04 and is 1.06 for foreign-born adolescents, based on the NSDUH study estimates, and we observed some age differences when contrasting nativity status, as described in this section’s first paragraph. Accordingly,
we turned the Cochran-Mantel-Haenszel approach to derive age-, and sex-adjusted odds ratio estimates of the study associations, with an expectation that the odds of frequent parent–child conflict might be greater for the US-born across each of the subgroups under study. The resulting CMH odds ratio estimates are presented in Table 2, starting with a clearly excess odds of frequent parent–child conflict observed for US-born non-Hispanic White 12-to-17-year-olds relative to the foreign-born (odds ratio, OR = 1.7; 95% confidence interval, CI [1.5, 1.9]; Table 2).

Hispanic children with self-identified Mexican heritage were the largest subgroup among the Hispanics in the NSDUH sample. In the contrast of US-born versus foreign-born in this subgroup, the odds ratio estimate was 1.7 (95% CI [1.5, 2.0]; Table 2). As for the US-born foreign-born odds ratio contrast for children of non-Mexican heritage, the US-born again had greater odds of frequent parent–child conflict (OR = 1.6; 95% CI [1.4, 1.8]). It is noteworthy that these first three OR estimates are not appreciably different from one another and the 95% CI overlap considerably.
The corresponding covariate-adjusted odds ratio estimate for US-born versus foreign-born among non-Hispanic Asian child of Chinese heritage is null (OR = 0.9; 95% CI [0.6, 1.2]; \( p = 0.708 \)). However, among non-Hispanic child of non-Chinese heritage, a non-null association is observed (OR = 1.3; 95% CI [1.1, 1.5]; Table 2).

There were too few foreign-born non-Hispanic African-American children to form separate strata for place of birth (e.g., Africa, Caribbean region, South America). When the subgroup of non-Hispanic African-American adolescents is considered in aggregate, the odds of frequent parent–child conflict did not vary across US-born versus foreign-born status (OR = 0.8; 95% CI [0.7, 1.1]; \( p = 0.229 \)).

**DISCUSSION**

The current study constitutes a contribution to the existing knowledge base of epidemiological and public health studies focused on migration, with a special focus on differences in family functioning according to ethnic and nativity variations. The main findings of this investigation may be summarized succinctly. First, viewed cross-sectionally among US-born children, there is a general age-associated increase in the presence of frequent parent–child conflict, age stratum by age stratum, irrespective of ethnic self-identification. In general, the subgroup of US-born non-Hispanic White 12-to-17-year-olds has the largest prevalence estimates for frequent parent–child conflict. Relative to this subgroup, the US-born non-Hispanic African-American adolescents have generally lower prevalence of frequent parent–child conflict; the US-born Hispanic and non-Hispanic Asian subgroups had intermediate prevalence estimates. Second, these same general relationships were seen in age-specific estimates for foreign-born children, but there was considerable overlap of confidence intervals. Third, with covariate adjustments for sex and age based on the CMH approach, the US-born in each multi-ethnic subgroup generally were found to have greater odds of frequent parent–child conflict, as compared to the foreign-born, with two exceptions among non-Hispanic children: (1) the Asian children of Chinese heritage, and (2) the African-American children.

Before any detailed discussion of these findings, a review of important strengths and limitations is needed. Strengths include the nationally representative multi-ethnic samples, as large or larger than others have studied, as well as the standardized ACASI assessment approach. Based on the cross-sectional nature of the investigation, the study estimates for foreign-born children invite questions about whether the parent–child conflict originated before immigration or afterward, but this is an issue best resolved in future longitudinal research that can use this study’s estimates to set Bayesian priors for what might be expected if and when the cross-sectional research can be extended longitudinally. The assessment of frequent parent–child conflict also is a limitation that can be improved upon in future research, perhaps by asking both the adolescents and their parents about the nature and frequency of parent–child conflicts, as well as the extent to which distressing emotions are associated with such interactions. We cannot mount a strong counter-argument to those who might claim that the observed differences are an artifact of this study’s use of an assessment approach based strictly upon the adolescent report. Finally, it is possible
that some readers would prefer a balancing of the NSDUH sample and analysis-weighted distributions to the US Census counts and distributions for US native-born or naturalized citizens, permanent residents, and others. However, the NSDUH does not draw its sample with respect to these ‘citizenship’ variables, nor does it ask respondents whether they are native-born or naturalized citizens or non-citizen residents of US communities.

We can note that our original plan was to produce estimates for additional US-born versus foreign-born subgroups, but the large NSDUH sample sizes were insufficient to the task. An illustration involves our intent to contrast US-born African-American children versus those born overseas in the non-US Caribbean versus Africa and other places (e.g., Brazil). This intent was undermined when the initial study estimates disclosed age-specific variations too large to ignore. Furthermore, odds ratio estimates for ethnic sub-groups were limited to comparing the largest represented sub-group for each category against remaining sub-groups (e.g., Mexican-origin vs Non Mexican-origin). This approach was needed due to insufficient sample size across all sub-group categories. Notwithstanding an array of study limitations, the study produced novel discoveries that can be pursued in future investigations.

Place of birth and parent-child conflict

The level of frequent parent–child conflict identified for US-born children is of interest and may reflect cultural differences of a type described previously, including a description by Szapocznik & Kurtines (1993), who were the first to hypothesize this origin for parent–child conflict in US Hispanic families, particularly among Hispanic immigrant families with US-born children. That is, the non-US-born parents of US-born children may experience relationship difficulties due to contrasting levels of acculturation, preferred cultural values, traditions, and ethnic identifications (Schwartz et al., 2010; Harwood et al., 2002). This phenomenon was originally termed as the “acculturation gap distress hypothesis” based on clinical research with Hispanic immigrant families from Cuba (Szapocznik & Kurtines, 1993). Whereas the hypothesis has been confirmed in cross-sectional studies (Félix-Ortiz, Fernandez & Newcomb, 1998; Unger et al., 2009), additional empirical studies have suggested a need for refinements when the task is to understand or predict parent–child conflict and other youth outcomes such as drug use (Elder et al., 2005; Lau et al., 2005; Martinez, 2006; Smokowski, Rose & Bacallao, 2008; Alarcón et al., 2016).

Parent-child conflict across ethnic groups

Current findings indicate a relatively low occurrence of high-frequency parent–child conflict among non-Hispanic African-American 12-to-17-year-olds, with no marked US-born versus foreign-born variations. This finding deserves more focused inquiry, especially because it tends to call into question deficit-based perspectives about this subgroup’s family dynamics (McAdoo, 2002).

One consequence of more detailed investigation might be the disclosure of assets in these families that often are neglected in the popular press. These assets already have been covered in prior scholarly evaluation of racial socialization theories about African-American parenting practices—including a need to prepare children for success in a racially stratified
society, with complements in traditional values of respect for parental authority and family structure (Burke, 2008; Burton et al., 2010; Peters, 1985). Here, prior contributions have noted racial socialization practices associated with increased family cohesion, deference to parental authority, and positive child outcomes (Elmore & Gaylord-Harden, 2013). Extension of these lines of research in a multi-ethnic society creates opportunities for study of contextual influences that can include imbalanced frequencies of official contacts with US police, prosecutors, judiciary, and criminal justice facilities, as well as general and mental health disparities (Elmore & Gaylord-Harden, 2013; Tamis-LeMonda et al., 2008; Mooradian, 2010; Burgess et al., 2007; Washington et al., 2015).

With respect to non-Hispanic Asian adolescents, we note a possibility that these families might tend to adopt a parent–child conflict resolution style characterized by a “vertical in-group orientation” in which compliance or avoidance are used to resolve family conflicts. As such, whether US-born or foreign-born, parent–child conflict might increase in intensity but not frequency among Asian immigrant families when there are strong parental expectations of high academic achievement and respect (Hwang, 2000; Qin et al., 2012; Costigan & Dokis, 2006).

As noted above, some recent studies have drawn attention to the combination of rigorous discipline and control in Asian families with warmth and nurturing parent–child emotional bonds (e.g., see Tran & Birman, 2010). Lau & Fung (2013) characterize the parenting approach in these Asian families as one that offers “a holistic attention to the children’s social, moral, and personality development.” Here, we confess our disappointment that the aggregate NSDUH samples were not large enough to study variations in frequent parent–child conflict across sub-groups of Asian-heritage families. This deficiency of the current investigation can be remedied as more NSDUH samples become available for study.

As for Hispanic adolescents, this study’s observations are generally consistent with prior empirical findings and confirmation of Hispanic parent preferences for parenting practices conducive to family harmony and parent–child bonding (Domenech Rodriguez, Donovick & Crowley, 2009). The mid-range occurrence of high-frequency parent–child conflict observed in this study’s Hispanic families also might signify prominent Latino cultural values with emphasis upon close and nurturing family relationships (i.e., familismo), respect (i.e., respeto), and the importance of interpersonal relationships (i.e., personalismo) (Falicov, 2014). These values may also indicate the children’s reluctance to engage in more open communication and disagreement with their parents. For these reasons, more research is needed if we are to develop a more complete understanding of conflict management in US families of Hispanic heritage (Cookston et al., 2012), particularly when cultural and contextual influences are prominent (Calzada et al., 2012; Romero, Gonzalez & Smith, 2015; Kempf-Leonard, 2007; Walker et al., 2004). In the work of Pantin, Schwartz, and colleagues, with samples of Hispanic youths, a number of acculturation challenges with Parent–youth cultural disagreements have been noted, with potential maladaptive behaviors as a result (Pantin et al., 2003; Schwartz et al., 2012). Exact mechanisms linking these challenges and disagreements with maladaptation in Hispanic immigrant families remain unclear (Pasch et al., 2006; Unger et al., 2009). In addition, context may matter, as suggested in a
recent study that found different parent–child acculturation issues when Hispanic families were contrasted across two metropolitan areas of the US (Miami versus Los Angeles, in Schwartz et al., 2012). Here, again, capacity of this investigation to shed light on sub-groups within the overall ‘Hispanic’ category was limited. More epidemiological research on these within-Hispanic category variations should increase the value of the empirical estimates for eventual application in prevention and clinical interventions targeted to Hispanic populations in the US (Bornstein, 2012).

The marked excess odds of high frequency parent–child conflict in non-Hispanic White families might reflect tolerance of disagreement within these families, relative to expectations about parenting styles and child autonomy (Barber, 1994). One preferred authoritative parenting style in this subgroup places stress on parental guidance, in balance with considerations for the child’s individuality and autonomy (Bornstein, Putnick & Lansford, 2011). As such, normative processes of parent–child conflict can reflect the adolescent’s greater freedom of expression and dissent, as compared with what is seen for adolescents of other ethnic groups, but current investigations fall short in many respects. For example, as Moed and colleagues (2015) have noted when examining patterns of interaction of Parent–youth conflict, “how long the conflicts were and who eventually ended them were characteristics of conflicts most linked with the resolution of conflicts and with adolescent problem behavior” (p. 1617). These processes have been neglected in the current epidemiological survey work, but might help explain our estimates for non-Hispanic Whites.

CONCLUSION

To sum up, we observed interesting patterns of parent–child conflict in these initial nationally representative multi-ethnic sample depictions of one facet of parent–child conflict in the 21st century United States, with clear evidence of US-born versus foreign-born imbalances in several subgroups of interest. At this time, we choose to delay a discussion of specific implications of this research for clinical or public health practice due to the methodological limitations of the study. However, we do note that future extensions of this line of research, building from these initial findings, may be important in prevention and intervention practices that are responsive to emerging cultural shifts within US multi-ethnic subgroups, family structures, and dynamics (Bornstein, 2010; Bornstein, 2012; Kagitcibasi, 2013). In addition, as noted by Sluzki (1979), pediatricians and other clinicians who work with US-born or foreign-born immigrant adolescents in child guidance or pediatric contexts may find this study’s nationally representative age-specific study estimates to be useful as population norms when they observe frequent parent–child conflict in their patients or client-families. That is, the results presented here should prove to be useful to United States clinicians who wish to compare an individual patient’s parent–child conflict frequency with a population reference group, and to US-based researchers making plans for new research in which frequent parent–child conflict is under study.
**ADDITIONAL INFORMATION AND DECLARATIONS**

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**Competing Interests**
The authors declare there are no competing interests.

**Author Contributions**
- Jose Ruben Parra-Cardona conceived and designed the experiments, performed the experiments, contributed reagents/materials/analysis tools, wrote the paper, reviewed drafts of the paper.
- Hsueh-Han Yeh conceived and designed the experiments, performed the experiments, analyzed the data, contributed reagents/materials/analysis tools, wrote the paper, prepared figures and/or tables, reviewed drafts of the paper.
- James C. Anthony conceived and designed the experiments, contributed reagents/materials/analysis tools, wrote the paper, reviewed drafts of the paper.

**Human Ethics**
The following information was supplied relating to ethical approvals (i.e., approving body and any reference numbers):
Data for this study was administered by the US federal government’s program known as the National Surveys on Drug Use and Health (NSDUH). The link below provides direct access to all the information regarding human subjects approval, including consent process, associated with these surveys: https://nsduhweb.rti.org/respweb/confidentiality.html.
An exempt IRB approval was requested from Michigan State University as data for this study was directly accessed from the RDAS online system. Thus, we did not collect any data, neither obtained consent from participants as well only had access to de-identified data. The MSU IRB exempt approval number is IRB# 16-137/APP#i050607. This application was approved by the MSU IRB and determined to be Non Human Subject Research.

**Data Availability**
The following information was supplied regarding data availability:
This study was conducted with data from the National Surveys on Drug Use and Health data from 2002–2013, available to the public via Inter-university Consortium for
Political and Social Research websites (e.g., http://www.icpsr.umich.edu/icpsrweb/content/NAHDAP/about.html).

ICPSR also hosted the NSDUH online data analysis system known as the Restricted-Use Data Analysis System (R-DAS). R-DAS also can be used to produce our study estimates. R-DAS makes NSDUH data available via an online analysis interface designed to enable analysis-weighted contingency tables, but protects research participants by disabling data download features. For this reason, others can replicate our R-DAS analyses, but neither we nor others (outside government) have access to the confidential raw data.

The federal government recently announced its re-enablement of the R-DAS in a series of steps that is beginning with release of the P-DAS (Public-Use Data Analysis System). This is the URL link to the P-DAS, from which the future R-DAS URL links will be issued: https://www.datafiles.samhsa.gov/article/news/pdas-ready-use-nid16890.

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REFERENCES

Acevedo-Garcia D, Sanchez-Vaznaugh EV, Viruell-Fuentes EA, Almeida J. 2012. Integrating social epidemiology into immigrant health research: A cross-national framework. Social Science & Medicine 75:2060–2068 DOI 10.1016/j.socscimed.2012.04.040.

Alarcón RD, Parekh A, Wainberg ML, Duarte CS, Araya R, Oquendo MA. 2016. Hispanic immigrants in the USA: social and mental health perspectives. Lancet Psychiatry 3:860–870 DOI 10.1016/S2215-0366(16)30101-8.

Barber BK. 1994. Cultural, family, and personal contexts of parent-adolescent conflict. Journal of Marriage and Family 56:375–386 DOI 10.2307/353106.

Bjorknes R, Manger T. 2013. Can parent training alter parent practice and reduce conduct problems in ethnic minority children? A randomized controlled trial. Prevention Science 14:52–63 DOI 10.1007/s11121-012-0299-9.

Bornstein MH. 2010. Handbook of cultural developmental science. New York: Taylor & Francis.

Bornstein MH. 2012. Cultural approaches to parenting. Parenting: Science and Practice 12:212–221 DOI 10.1080/15295192.2012.683359.

Bornstein MH, Putnick DL, Lansford JE. 2011. Parenting attributions and attitudes in cross-cultural perspective. Parenting: Science and Practice 11:214–237 DOI 10.1080/15295192.2011.585568.

Bradford K, Vaughn LB, Barber BK. 2008. When there is conflict—Interparental conflict, parent–child conflict, and child problem behaviors. Journal of Family Issues 29:780–805.

Burgess D, Van Ryn M, Dovidio J, Saha S. 2007. Reducing racial bias among health care providers: lessons from social-cognitive psychology. Journal of General Internal Medicine 22:882–887 DOI 10.1007/s11606-007-0160-1.
Burke M. 2008. *International encyclopedia of the social sciences*. Detroit: Thmoson Gale.

Burton LM, Bonilla-Silva E, Ray V, Buckelew R, Freeman EH. 2010. Critical race theories, colorism, and the decade’s research on families of color. *Journal of Marriage and Family* 72:440–459 DOI 10.1111/j.1741-3737.2010.00712.x.

Cain DS, Combs-Orme T. 2005. Family structure effects on parenting stress and practices in the African American family. *Journal of Sociology & Social Welfare* 32:19–40.

Calzada EJ, Huang KY, Anicama C, Fernandez Y, Brotman LM. 2012. Test of a cultural framework of parenting with latino families of young children. *Cultural Diversity and Ethnic Minority Psychology* 18:285–296 DOI 10.1037/a0028694.

Chung GH, Flook L, Fuligni AJ. 2009. Daily family conflict and emotional distress among adolescents from Latin American, Asian, and European backgrounds. *Developmental Psychology* 45:1406–1415 DOI 10.1037/a0014163.

Cochran WG. 1954. Some methods for strengthening the common chi-square test. *Biometrics* 10:417–451 DOI 10.2307/3001616.

Cookston JT, Olide AF, Adams MA, Fabricius WV, Parke RD. 2012. Guided cognitive reframing of adolescent-father conflict: who Mexican American and European American adolescents seek and why. *New Directions for Child and Adolescent Development* 2012:83–103 DOI 10.1002/cd.20005.

Costigan CL, Dokis DP. 2006. Relations between parent–child acculturation differences and adjustment within immigrant Chinese families. *Child Development* 77:1252–1267 DOI 10.1111/j.1467-8624.2006.00932.x.

Dishion TJ, Andrews DW. 1995. Preventing escalation in problem behaviors with high-risk young adolescents. *Journal of Consulting and Clinical Psychology* 63:538–548 DOI 10.1037/0022-006X.63.4.538.

Dishion TJ, Forgatch M, Chamberlain P, Pelham WE. 2016. The Oregon model of behavior family therapy: from intervention design to promoting large-scale system change. *Behavior Therapy* 47(6):812–837 Advanced online DOI 10.1016/j.beth.2016.02.002.

Dishion TJ, Kavanagh K. 2003. *Intervening in adolescent problem behavior: a family-centered approach*. New York: Guilford Press.

Dmitrieva J, Chen CS, Greenberger E, Gil-Rivas V. 2004. Family relationships and adolescent psychosocial outcomes: converging findings from Eastern and Western cultures. *Journal of Research on Adolescence* 14:425–447 DOI 10.1111/j.1532-7795.2004.00081.x.

Domenech Rodriguez MM, Donovick MR, Crowley SL. 2009. Parenting styles in a cultural context: observations of “protective parenting” in first-generation Latinos. *Family Process* 48:195–210 DOI 10.1111/j.1545-5300.2009.01277.x.

Elder JP, Broyles SL, Brennan JJ, Zuniga de Nuncio ML, Nader PR. 2005. Acculturation, parent–child acculturation differential, and chronic disease risk factors in a Mexican-American population. *Journal of Immigrant Health* 7:1–9 DOI 10.1007/s10903-005-1385-x.
Elmore CA, Gaylord-Harden NK. 2013. The influence of supportive parenting and racial socialization messages on african american child behavioral outcomes. Journal of Child and Family Studies 22:63–75 DOI 10.1007/s10826-012-9653-6.

Falicov CJ. 2014. Latino families in therapy. 2nd edition. New York: The Guilford Press.

Félix-Ortiz M, Fernandez A, Newcomb MD. 1998. The role of intergenerational discrepancy of cultural orientation in drug use among Latina adolescents. Substance Use & Misuse 33(4):967–994 DOI 10.3109/10826089809056251.

Forgatch MS, Domenech Rodriguez MM. 2016. Interrupting coercion: the iterative loops among theory, science, and practice. In: Dishion TJ, Snyder JJ, eds. Oxford handbook of coercive relationship dynamics. New York: Oxford University Press, 194–214.

Forgatch MS, Patterson GR, DeGarmo DS, Beldavs ZG. 2009. Testing the Oregon delinquency model with 9-year follow-up of the Oregon Divorce Study. Development and Psychopathology 21:637–660 DOI 10.1017/S0954579409000340.

Fuligni AJ. 2012. Gaps, conflicts, and arguments between adolescents and their parents. New Directions for Child and Adolescent Development 2012:105–110 DOI 10.1002/cd.20006.

Harwood RL, Leyendecker B, Carlson V, Asencio M, Miller A. 2002. Parenting among Latino families in the US. In: Bornstein HM, ed. Handbook of parenting: social conditions and applied parenting. Mahwah: Lawrence Erlbaum Associates, 21–46.

Holmboe-Ottesen G, Wandel M. 2012. Changes in dietary habits after migration and consequences for health: a focus on South Asians in Europe. Food & Nutrition Research 56:1–13 DOI 10.3402/fnr.v56i0.18891.

Hughes D, Rodriguez J, Smith EP, Johnson DJ, Stevenson HC, Spicer P. 2006. Parents’ ethnic-racial socialization practices: a review of research and directions for future study. Developmental Psychology 42:747–770 DOI 10.1037/0012-1649.42.5.747.

Hwang KK. 2000. Chinese relationalism: theoretical construction and methodological considerations. Journal for the Theory of Social Behaviour 30:155–178 DOI 10.1111/1468-5914.00124.

Juang LP, Umana-Taylor AJ. 2012. Family conflict among Chinese- and Mexican-origin adolescents and their parents in the U.S.: an introduction. New Directions for Child and Adolescent Development 2012:1–12.

Kagitzbasi C. 2013. Adolescent autonomy-relatedness and the family in cultural context: what is optimal? Journal of Research on Adolescence 23:223–235 DOI 10.1111/jora.12041.

Kaminski JW, Valle LA, Filene JH, Boyle CL. 2008. A meta-analytic review of components associated with parent training program effectiveness. Journal of Abnormal Child Psychology 36:567–589 DOI 10.1007/s10802-007-9201-9.

Kempf-Leonard K. 2007. Minority children and juvenile justice: disproportionate minority contact after nearly 20 years of reform efforts. Child Violence and Juvenile Justice 5:71–87 DOI 10.1177/1541204006295159.
Lau AS, Fung J. 2013. On better footing to understand parenting and family process in Asian American families. *Asian American Journal of Psychology* 4:71–75 DOI 10.1037/a0032120.

Lau AS, McCabe KM, Yeh M, Garland AF, Wood PA, Hough RL. 2005. The acculturation gap-distress hypothesis among high-risk Mexican American families. *Journal of Family Psychology* 19:367–375 DOI 10.1037/0893-3200.19.3.367.

Laursen B, Coy KC, Collins WA. 1998. Reconsidering changes in parent–child conflict across adolescence. *Child Development* 69:817–832 DOI 10.1111/j.1467-8624.1998.00817.x.

Lohr SL. 2009. *Sampling: design and analysis.* 2nd edition. Pacific Grove: Duxbury Press.

Lundahl BW, Nimer J, Parsons B. 2006. Preventing child abuse: a meta-analysis of parent training programs. *Research on Social Work Practice* 16:251–262 DOI 10.1177/1049731505284391.

Mantel N, Haenszel W. 1959. Statistical aspects of the analysis of data from retrospective studies of disease. *Journal of the National Cancer Institute* 22:719–748.

McAdoo HP. 2002. African American parenting. In: Bornstein MH, ed. *Handbook of parenting: social conditions and applied parenting.* Mahwah: Lawrence Erlbaum Associates, 47–58.

Mead M. 1947. The implications of culture change for personality development. *American Journal of Orthopsychiatry* 17:633–646 DOI 10.1111/j.1939-0025.1947.tb05048.x.

Merton RK. 1949. *Social theory and social structure.* New York: Free Press.

Miranda PY, Schulz AJ, Israel BA, González HM. 2011. Context of entry and number of depressive symptoms in and older Mexican-origin immigrant population. *Journal of Immigrant Minority Health* 13:706–712 DOI 10.1007/s10903-010-9317-9.

Moed A, Gershoff ET, Eisenberg N, Hofer C, Losoya S, Spinrad TL, Liew J. 2015. Parent-adolescent conflict as sequences of reciprocal negative emotion: links with conflict resolution and adolescents’ behavior problems. *Journal of Child and Adolescence* 44:1607–1622 DOI 10.1007/s10964-014-0209-5.

Mooradian JK. 2010. Breaking the lock: addressing ‘disproportionate minority confinement’ in the United States using a human rights approach. *Journal of Social Work* 12:37–50.

Pantin H, Coatsworth JD, Feaster DJ, Newman FL, Briones E, Prado G, Schwartz SJ, Szapocznik J. 2003. Familias Unidas: the efficacy of an intervention to promote parental investment in Hispanic immigrant families. *Prevention Science* 4:189–201 DOI 10.1023/A:1024601906942.

Pasch LA, Deardorff J, Tschan JM, Flores E, Penilla C, Pantoya P. 2006. Acculturation, parent-adolescent conflict, and adolescent adjustment in Mexican American families. *Family Process* 45:75–86 DOI 10.1111/j.1545-5300.2006.00081.x.

Patterson GR, Reid JB, Eddy JM. 2002. *Antisocial behavior in children and adolescents: a developmental analysis and model for intervention.* Washington, D.C.: American Psychological Association.

Peters MF. 1985. *Black children: social, educational parental environments.* Beverly Hills: Sage.
Qin DB, Chang TF, Han EJ, Chee G. 2012. Conflicts and communication between high-achieving Chinese American adolescents and their parents. *New Directions for Child and Adolescent Development* 2012:35–57 DOI 10.1002/cd.20003.

Romero AJ, Gonzalez H, Smith BA. 2015. Qualitative exploration of adolescent discrimination: experiences and responses of Mexican-American parents and teens. *Journal of Child and Family Studies* 24:1531–1543 DOI 10.1007/s10826-014-9957-9.

Schwartz SJ, Unger JB, Des Rosiers SE, Huang S, Baezconde-Garbanati L, Lorenzo-Blanco EI, Villamar JA, Soto DW, Patarroyo M, Szapocznik J. 2012. Substance use and sexual behavior among recent Hispanic immigrant adolescents: effects of parent-adolescent differential acculturation and communication. *Drug and Alcohol Dependence* 125S:S26–S34 DOI 10.1016/j.drugalcdep.2012.05.020.

Schwartz SJ, Unger JB, Zamboanga BL, Szapocznik J. 2010. Rethinking the concept of acculturation: implications for theory and research. *American Psychologist* 65:237–251 DOI 10.1037/a0019330.

Seedall RB, Anthony JC. 2013. Risk estimates for starting tobacco, alcohol, and other drug use in the United States: male–female differences and the possibility that ‘limiting time with friends’ is protective. *Drug and Alcohol Dependence* 133:751–753 DOI 10.1016/j.drugalcdep.2013.06.035.

Shearman SM, Dumlao R. 2008. A cross-cultural comparison of family communication patterns and conflict between young adults and parents. *Journal of Family Communication* 8:186–211 DOI 10.1080/15267430802182456.

Sluzki CE. 1979. Migration and family conflict. *Family Process* 18:379–390 DOI 10.1111/j.1545-5300.1979.00379.x.

Smokowski PR, Rose R, Bacallao ML. 2008. Acculturation and Latino family processes: How cultural involvement, biculturalism, and acculturation gaps influence family dynamics. *Family Relations* 57:295–308 DOI 10.1111/j.1741-3729.2008.00501.x.

Syme SL. 1971. Contributions of Social Epidemiology to the study of medical care systems: the need for cross-cultural research. *Medical Care* 19:203–213.

Szapocznik J, Kurtines W. 1993. Family psychology and cultural diversity: opportunities for theory, research, and application. *American Psychologist* 48:400–407.

Szapocznik J, Kurtines W, Fernandez T. 1980. Bicultural involvement and adjustment in Hispanic-American youths. *International Journal of Intercultural Relations* 4:353–365 DOI 10.1016/0147-1767(80)90010-3.

Tamis-LeMonda CS, Briggs RD, McClowry SG, Snow DL. 2008. Challenges to the study of african american parenting: conceptualization, sampling, research approaches, measurement, and design. *Parenting: Science and Practice* 8:319–358 DOI 10.1080/15295190802612599.

Timmons AC, Margolin G. 2015. Family conflict, mood, and adolescents’ daily school problems: moderating roles of internalizing and externalizing symptoms. *Child Development* 86:241–258 DOI 10.1111/cdev.12300.

Tran N, Birman D. 2010. Questioning the model minority: studies of Asian American Academic performance. *Asian American Journal of Psychology* 1:106–118 DOI 10.1037/a0019965.
Uji M, Sakamoto A, Adachi K, Kitamura T. 2014. The impact of authoritative, authoritarian, and permissive parenting styles on children’s later mental health in Japan: focusing on parent and child gender. *Journal of Child and Family Studies* 23:293–302 DOI 10.1007/s10826-013-9740-3.

Unger JB, Ritt-Olson A, Soto DW, Baezconde-Garbanati L. 2009. Parent-child acculturation discrepancies as risk factor for substance use among Hispanic adolescents in Southern California. *Journal of Immigrant Minority Health* 11:149–157 DOI 10.1007/s10903-007-9083-5.

United States Census Bureau. 2012. US census bureau projections show a slower growing, older more diverse nation a half century from now. Washington, D.C. Available at https://www.census.gov/newsroom/releases/archives/population/cb12-243.html (accessed on 15 June 2016).

Updegraff KA, Umana-Taylor AJ, Perez-Brena NJ, Pflieger J. 2012. Mother-daughter conflict and adjustment in Mexican-origin families: exploring the role of family and sociocultural context. *New Directions for Child and Adolescent Development* 2012:59–81 DOI 10.1002/cd.20004.

Velderman K, Dusseldorp E, Van Nieuwenhuijzen M, Junger M, Paulussen TGWM, Reijneveld SA. 2015. Cultural, social, and intrapersonal factors associated with clusters of co-occurring health-related behaviours among adolescents. *European Journal of Public Health* 25:31–37 DOI 10.1093/eurpub/cku051.

Vsevolozhskaya OA, Anthony JC. 2014. Confidence interval estimation in R-DAS. *Drug and Alcohol Dependence* 143:95–104 DOI 10.1016/j.drugalcdep.2014.07.017.

Wachlarowicz M, Snyder J, Low S, Forgatch MS, DeGarmo DS. 2012. The moderating effects of parent antisocial characteristics on the effect of Parent Management Training –Oregon (PMTO). *Prevention Science* 13:229–240 DOI 10.1007/s11121-011-0262-1.

Walker N, Senger JM, Villarruel F, Arboleda A. 2004. Lost opportunities: the reality of Latinos in the US criminal justice system. Washington, D.C.: National Council of La Raza.

Warner TD, Swisher RR. 2015. Adolescent survival expectations by race, ethnicity, and nativity. *Journal of Health and Social Behavior* 56:478–494 DOI 10.1177/0022146515611730.

Washington T, Rose T, Colombo G, Hong JS, Coard SI. 2015. Family-level factors and African American children’s behavioral health outcomes: a systematic review. *Child and Child Care Forum* 44:819–834 DOI 10.1007/s10566-015-9308-z.

Yano K, Blackwelder WC, Kagan A, Rhoads GG, Cohen JB, Marmot MG. 1979. Childhood cultural experience and the incidence of coronary heart disease in Hawaii Japanese men. *American Journal of Epidemiology* 109:440–450.

Yu SM, Singh GK. 2012. High parenting aggravation among US immigrant families. *American Journal of Public Health* 102:2102–2108 DOI 10.2105/AJPH.2012.300698.