

Poverty, Stress, and Violent Disagreements in the Home among Rural Families



At the Heart of Public Health Policy

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Executive Summary

Introduction

Violence in the home is not an “adults only” issue. Studies have shown that witnessing domestic violence increases a child’s chance of having emotional/ behavioral problems and being in abusive relationships in adulthood, even without co-occurring child maltreatment. The study reported here used information from a large, nationally representative telephone survey of households with children, carried out by the National Center for Health Statistics, to explore the prevalence of violent disagreements in the home. “Violent” disagreements are those that involve hitting or throwing, as opposed to heated argument or calm discussion. We also examined two factors, poverty and parenting stress, hypothesized to be associated with violent disagreement.

Key Findings

Poverty

- 40% or more of minority children were living at or below 100% of the Federal poverty level in 2003.
- Poverty increases as the child’s county of residence becomes more rural.
- In small rural counties, 77% of African American children, 77% of Hispanic children, 73% of “other” children, and 50% of white children lived in households at or below 200% of the Federal poverty level.

Parental Stress

- In general, parenting stress scale values were low, averaging only 4.82 on a scale with possible values from 3 to 12. Among parents in small rural counties, the mean parenting stress score was 4.74; this rose to 4.84 in urban areas ($p < 0.0001$).
- Only one rural group, African American families in medium rural counties, experienced higher stress than urban residents.
- White respondents generally reported lower parenting stress than did minority parents; this effect was consistent across different levels of rurality.
- For Hispanic and White respondents, the effects of poverty on parenting stress are minimal after factors such as family structure and employment are rendered equal.
- For African American and “other” families, reported parenting stress declines as income increases, with a possible threshold effect at the 200 - <400% of poverty income level.

Disagreements

- Nationally, 10.3% of children lived in homes where disagreement is expressed, at least occasionally, by hitting and throwing.
- The prevalence of violent disagreements varied slightly across different levels of rurality, but was lower in homes located in rural counties than in urban homes.
- An additional 31.5% of children live in homes where disagreement is expressed through heated argument and shouting. The prevalence of heated disagreement showed no clear pattern across levels of rurality.

- Parents reporting a high level of reported parenting stress had over 3 times the odds of reporting violent disagreements, that is, hitting or throwing, versus parents reporting less stress (OR 3.17, CI 2.91-3.47). Parents reporting high parenting stress also had the higher odds of heated disagreements (OR 1.99, CI 1.87-2.12), those involving arguing or shouting.
- Because parents were interviewed at a single point in time, we cannot state whether stress leads to violent disagreement, violent disagreement leads to stress, or some other effect is at work. This caveat applies for the link between violent disagreement and stress, and to the associations noted below between other types of problem and stress.

Emotional, Behavioral, and Development (EBD) Problems

- Across US children in 2003, 11.5% were reported to have diagnosed EBD problems, a value that did not vary significantly across levels of rurality ($p = 0.5912$).
 - The proportion of children whose parents reported diagnosed EBD problems was highest among African American children, followed by white children.
 - For whites and Hispanics, the proportion of children with diagnosed EBD problems did not vary across residence categories.
 - For African American children, the prevalence of diagnosed EBD problems was higher in urban and in medium rural counties.
- Parenting stress was positively associated with the presence of diagnosed EBD problems in the child. In families in which the child had a diagnosed EBD problem, parenting stress values averaged 5.96; in other families, the average was 4.67 ($p < 0.0001$). Effects were similar for rural and for urban parents, and for parents of differing race/ethnicity.

School problems

- For 30.01% of school-aged children, the school had contacted an adult in the household about problems the child was having. The proportion ranged from 27.43% among children living in large rural counties to 27.90% in small rural counties, to 30.61% in urban counties.
- African American children had the highest rate of reported school problems, both nationally and within the urban, large rural, and medium rural residence categories.
- Compared to households in which disagreements were discussed calmly, households with violent and heated disagreements were more likely to report children with school problems (Hit, throw: OR 1.62, 95% CI 1.45-1.80; Argue, shout: OR 1.29, 95% CI 1.20-1.38).

Conclusions

Rural children, all things held equal, were less likely than urban children to live in households where disagreements are expressed violently. Similarly, rural children were less likely to live in households with high parenting stress or low reported neighborhood trust. Nonetheless, rural practitioners must still be sensitive to the possibility of exposure to violence. Key factors associated with parenting stress, and thus with violent disagreements, are more prevalent in rural areas. Poverty and low-income were more common among rural than urban children, and affected well over half of rural minority children, in particular. The situation of rural minority children is particularly troubling because so many of them, particularly African

American children, live in high poverty counties where resources available to help individual poor families may be constrained. Further, medical and behavioral health resource availability is markedly constrained for rural children.

Questions for Future Research

- A broad range of programs have been developed to help families manage stress without violence. Research is needed to ascertaining the degree to which services are available in rural areas and ascertaining the degree to which specific interventions are suitable for implementation in rural areas.
- Programs that are efficient and effective in urban areas may not perform similarly in rural communities. Research is needed to determine:
 - Types of worker needed to conduct programs (bachelors versus masters trained social workers, for example, lay intervention staff);
 - Minimum referral services needed, within what distances;
 - Economic break-even points associated with interventions among less concentrated rural populations;
 - The types of networks (school, health care, social services, law enforcement) most suited to rural communities.

Chapter One: Introduction

Background: Violence in the Home and Children

Domestic violence in the home is not an “adults only” issue. Based on police and victim reports, homes where domestic violence occurs are more likely to have children than other homes (Fantuzzo, Boruch et al, 1997). Slightly more than half of female victims of intimate violence live in households with children under age 12 (Straus, Gelles, and Smith, 1990). The presence of children in the home has been found to increase the risk for experiencing violence among young women visiting family planning clinics (Rickert et al 2002). In households of children who had been reported to child protective services, 29.0% of women caregivers had experienced physical violence during the past year, with 11.9% experiencing only less severe forms of violence (Hazen, Connelly et al, 2004). Studies have shown that witnessing domestic violence increases a child’s chance of having emotional/ behavioral problems and being in abusive relationships in adulthood, regardless of co-occurring child maltreatment (Carlson, 1984; Kernic, Holt, Wolf, McKnight, Huebner, Rivara, 2002).

The prevalence of childhood exposure to violence in the home is difficult to ascertain. The National Violence Against Women Survey (NVAWS), a nationally-representative telephone survey, estimated a 12-month prevalence of violence against women at 1.8%, with a lifetime prevalence of 25.5% (Tjaden, Thoennes, 2000). However, the NVAWS did not separately report prevalence within households containing children, nor did it examine outcomes among rural families.

Many demographic, economic and psychosocial factors are associated with domestic violence and/or child maltreatment, including extreme poverty, poor mental and physical health of the parent, lack of social support, limited parental education, parent’s ability to cope with

stressors, and limited knowledge of infant development (Huebner, 2002). In analysis of the NVAWS, rates were found to be lower among college graduates than other groups, higher among divorced or separated women than others, and inversely related to income (Coker et al, 2002). Although poverty is complex and difficult to change, its strong relationship with violence makes it an important subject of study.

Evidence on the prevalence of domestic violence by race is conflicting. The prevalence of intimate partner violence has been found to be similar between Caucasian women and African American women and between urban and rural women (Lee,Thompson, Mechanic, 2002; Bachman, Coker, 1995; Tjaden, Thoennes, 2000). The NVAWS found intimate partner violence (IPV) rates to be lowest among Asian/Pacific Islander men and women and highest among American Indian/Alaska Native women and men, with African American and Hispanic women not differing from white women (Tjaden, Thoennes, 2000). However, studies have found increased rates of family violence or violence witnessing among African American children (Crouch, Hanson, Saunders, Kilpatrick, Resnick, 2000). The same research found significant associations between poverty and violence, but only among White children (ibid).

Little research on rural or minority families is present in the literature; most research focuses on adolescent mothers in urban communities. One study investigated the association between financial resources, parent psychological function, and adolescent school performance and socio-emotional adjustment among rural two-parent African American families (Brody, Stoneman, Flor, McCrary Hastings, Conyers, 1994). The authors found that lack of financial resources was associated with greater depression and less optimism in mothers and fathers and also with less co-caregiving support and more conflict. Problems with parental co-caregiving interfered with the children's academic competence and socioemotional adjustment.

Development of national estimates of the prevalence of childhood exposure to violence is complicated by the range of different instruments used to detect violence and the variety of different populations studied. In addition, domestic violence studies are typically conducted in patient care settings in small geographic areas, such as a single city (Lown and Vega 2004; Fresno, CA), a single county (Murty et al 2003, Keokuk County IA), or a single chain of clinics (Kramer et al 2004; “Midwest”). Further, studies also tend to examine a single type of patient (Dunn, Oths 2004, pregnant women; Mouton et al 2004, post-menopausal women). The diversity of instruments, settings and populations studied makes it difficult to draw accurate conclusions regarding the national prevalence of violent behavior in families with children, or to develop estimates of relative prevalence of the problem across different groups and locales.

Purposes of the Present Study

The study reported here used a large, nationally representative telephone survey of households with children carried out by the National Center for Health Statistics, the 2003 National Survey of Children’s Health (NSCH), to explore the prevalence of violent disagreements in the home. We also examine two associated factors, poverty and parenting stress. Unlike previous studies, the NSCH focuses explicitly on families with children in the general population, rather than patient groups. Thus, it allows for true estimates of the prevalence of problems within the entire US population. Further, the large number of families contacted by the NSCH, over 100,000 families, makes it possible to develop estimates of the prevalence of violence in the home within rural and minority populations. Many national surveys do not include enough rural respondents for good estimation across rural populations. With this data resource, our study explores four key hypotheses:

- The prevalence of poverty, parental stress and violent disagreements in the home will increase with rurality.
- Economic hardships at the individual and community levels are associated with increased parent stress. We hypothesize the effects of economic hardships will be magnified in rural families and decreased for African American, Hispanic, and other race/ethnicity families
- Parent stress will be positively associated with rates of violent disagreements in the home; this relationship will be consistent across all race/ethnicity groups.
- Parenting stress and violent disagreements in the home will be positively associated with the presence of mental health problems in children.

Defining Our Terms

Our study uses specific questions from the National Survey of Children’s Health to create a broad measure of childhood exposure to violent disagreements in the home.¹ Because findings in this sensitive subject area are very highly related to the measures used, we wish to elaborate on our definition of “violent disagreements” before proceeding.

The NSCH included three questions that addressed the level of intensity reached when the family deals with serious disagreement. The survey respondent, generally a parent but for a small number of children, another guardian, was asked “When you have a serious disagreement with your family members, how often do you (1) ...discuss your disagreements calmly; (2) ...argue heatedly or shout; (3) ...end up hitting or throwing things.” For each question, the response choices were “Never”, “Rarely”, “Sometimes”, “Usually”, or “Always”. We defined three levels of disagreement violence based on answers to these questions.

- If a respondent indicated that disagreements involved *hitting or throwing*, even rarely, the household was categorized as having “violent disagreements.” The relatively inclusive cutoff of “rarely” was used on the basis that even a single incident in which

¹ Details concerning all measures used, are provided in Appendix A, Methods.

a child is hit by a person or an object, or witnesses this activity in his/her home, contains the possibility of severe harm. Households in which hitting and throwing were reported are considered households with a high probability that children will be exposed to, or witness, violence.

- If the respondent did not hit or throw, but reported *heated argument and shouting* “sometimes,” “usually,” or “always,” the household was classified as having “heated disagreement.” Such families are considered to rank between “violent” and “calm” families in their potential for exposing children to witnessing violence.
- If the respondent did not hit or throw, and only rarely reported shouting, the household was classified as “calm” in its disagreement style. Such families are considered to have the lowest potential for exposing children to witnessing violence.

It must be noted that the violence screen as we have defined it, while broad, still may not capture all violence exposures. The NCHS questions asked the respondent whether “you” engage in specific behaviors, rather than the more general phrasing, “anyone in your household.” Thus, respondents who did not personally engage in hitting or throwing, but who live with a partner who does exhibit these behaviors, would presumably report “never” to the screening question. As a result, estimates in the report that follows represent a *minimum* estimate of the exposure of children to violence in the household.

Describing Our Population: US Children in 2003

The NSCH used telephone survey techniques to reach parents or guardians for 102,353 children. In our analysis, we excluded children for whom sex or race were missing, or for whom county of residence was not available (2.6%). This left 99,660 children in the study sample. We used weighting techniques outlined by the National Center for Health Statistics to develop estimates for the US population of children, based on the sample. Residence was defined based

on county, using Rural Urban Continuum Codes (RUCC). Metropolitan counties (RUC Codes 1 – 3) are considered “urban” for this report.

US children, like other citizens, resided principally in urban counties (79.5%). Of the one in five children who lived in rural counties, 2.5% lived in small rural counties (RUCC 7-9), 11.6% lived in medium sized rural counties, and 6.3% lived in large rural counties. The children studied were approximately evenly distributed across three age groups, 0-5, 6-11, and 12 – 17 (Table B-1). Proportionately more children resided in the South, and fewer in the Northeast, than in other regions. This was particularly true for small and medium rural counties. Approximately half of children living in small rural counties, for example, live in the South (Table B-1). Non-white children represented a larger proportion of the population in metropolitan than in rural counties. The proportion of children living in families where the primary language used in the home was something other than English was also higher in metropolitan areas.

Other characteristics of the children studied are summarized in Table B-1. Of note, most indicators of disadvantage—low education, unemployment, poverty, lack of private health insurance, and fair to poor parental health—were higher in rural than in urban counties.

Report Format

The organization of material in the remainder of the report follows the order of the hypotheses stated above. We present population estimates of the prevalence of poverty and parenting stress in Chapter Two. These estimates are provided across different levels of rurality, defined using the 1996 Rural Urban Continuum Codes at the county level from the 2003 Area Resource File. Unadjusted estimates indicate the number of persons affected by specific problems. Multivariable analysis of factors associated with parenting stress is also provided.

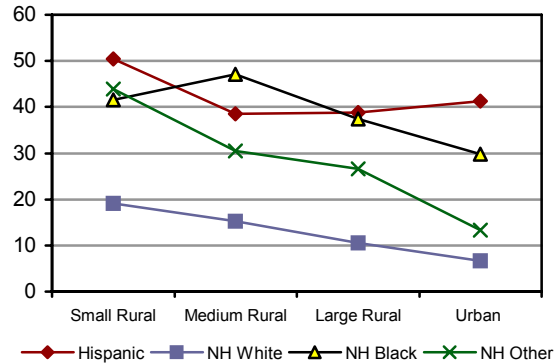
Chapter Three presents unadjusted and adjusted estimates of the prevalence of violent disagreements in the home among rural and minority families, as well as adjusted analysis controlling for other demographic characteristics of the child and the family. We also explore the prevalence of emotional, behavioral, or developmental problems and problems at school among children. We look at the associations of poverty, stress, and disagreements with both of these types of problems. Chapter Four discusses our findings in the context of the literature on childhood exposure to violence. Finally, Chapter Five offers policy and research conclusions and recommendations.

Chapter Two: Poverty, Stress, and Rural Residence

Poverty among Children

Based on previous literature, poverty is an important risk factor for parental stress and childhood exposure to violent disagreements. The chart at right shows the proportion of US children living in poverty in 2003, by race and residence. In general, poverty increases as the child's county of residence becomes more rural. Levels of poverty among rural children reach appalling levels: in small rural counties, 40% or more of minority children were living at or below 100% of the Federal poverty level in

Figure 1. Percent of children living in households <100% of the Federal poverty level, by rurality



2003 (Table B-2). Limited financial resources, defined as a household income of less than 200% of poverty, affects nearly all minority children in small rural counties. In those counties, 77% of African American children, 77% of Hispanic children, 73% of “other” children, and 50% of white children lived in households that earned at or below 200% of the Federal poverty level (Table B-3).

Data were obtained from the 2003 National Survey of Children's Health. This nationally representative telephone survey, conducted by the National Center for Health Statistics of the National Centers for Disease Control and Prevention, reached over 100,000 households with children across the 50 states and the District of Columbia. For the present study, analysis is limited to the 99,660 children for whom race and residence data were available. Rural counties were defined using the 1996 Rural Urban Continuum Codes from the 2003 Area Resource File. These categorize counties as “large rural” if they are non-metropolitan and have an urban population of 20,000 or more; “medium rural” if the urban population was 2,500 – 19,999, and small rural if the urban population was less than 2,500.

Community level poverty was markedly higher for children in rural areas compared to those in urban areas. Among urban children, slightly more than one in four lived in high poverty counties (upper quartile for proportion of families with incomes below poverty level, 13.8% or higher; Table B-3). Among rural children, the proportion living in high poverty counties ranged from 38.5% in large rural counties to 49.6% for small rural counties. This trend was consistent for all race/ethnicity groups, but particularly marked for African American children. While only 40.3% of urban African American children lived in high poverty counties, 63.3% of African American children in large rural counties, 84.6% in medium and 86.1% in small rural counties lived in high poverty communities. Most urban children of “other” race/ethnicity classification are of Asian descent compared to rural “other” children who are primarily American Indian. Thus, comparisons across the “other” category must be made with caution.

Parenting Stress

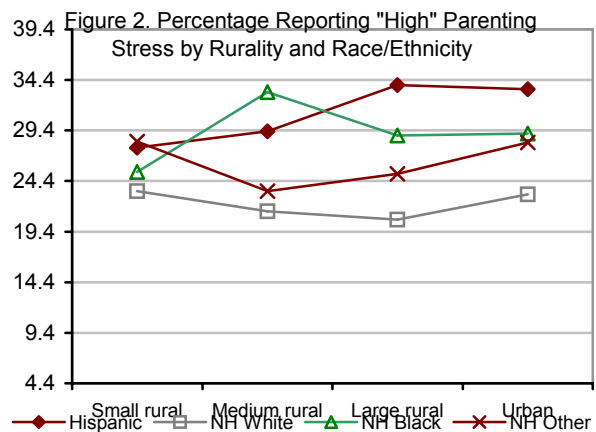
Parenting stress was calculated two ways, based on answers to the stress scale questions, shown at right. First, we calculated mean levels of stress across rurality, race/ethnicity, poverty level, and different characteristics of the family. Second, we dichotomized families into high versus low in parenting stress. Parents with stress scores higher than 5, the 75th percentile value, were considered “high stress.”

Parenting stress was measured using answers to 3 questions:
--In general, how well do you feel you are coping with the daily demands of parenthood?
--In the past month, how often have you felt [your child] is much harder to care for than children his or her age?
--In the past month, how often have you felt angry with him or her?
Answers used a 4-point scale, from “never” to “always.”

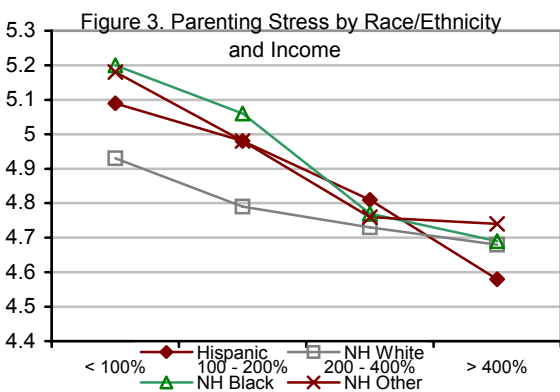
In general, parenting stress scale values reported were low, averaging only 4.82 on a scale with possible values from 3 to 12 (Table B-4). Across all households with children, there were slightly higher mean levels of stress among parents in urban areas ($p < 0.0001$). Among

parents in small rural counties, the mean parenting stress score was 4.74; this rose to 4.84 in urban areas. The effects of rurality on parenting stress were modest among all children but significant differences were not consistently found within each racial/ethnic group (Table B-4). It is interesting that only one rural group, African American families in medium rural counties, experienced higher stress than urban residents. It can also be noted that white respondents generally reported lower parenting stress than did minority parents; this effect was consistent across different levels of rurality.

When results were examined by splitting parents into “high stress” versus “low stress,” results were similar. Among urban parents, 26.4% fell into the high stress category, versus 24.1% through 23.2% in different types of rural counties (Table B-4). Minority parents were more likely to report “high stress” than White parents ranging from a high of 33.1% among Hispanic parents to a low of 22.7% among White parents (Figure 2).



As noted, poverty is common among rural children, particularly rural minority children. Poverty was inversely associated with mean levels of parental stress: the more income available



to the household, the lower the reported level of parenting stress (Table B-5).

Living in increasingly rural areas did not reduce or increase the effects of poverty on parenting stress. However, the effects of income on parental stress differed with race/ethnicity. For

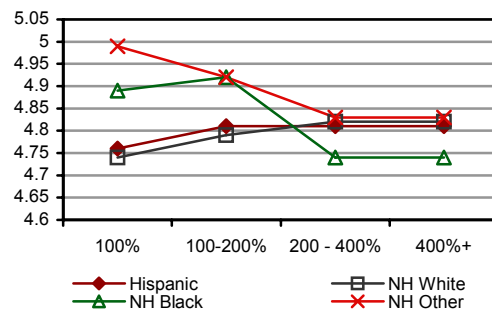
all parents, there was a decrease in reported parenting stress as income rose, but increased income appeared to benefit minority parents more than whites. The difference in mean stress score values between households at or below poverty and those at 400% or more of the poverty level was greater for minority families than for whites, as may be seen in the differing slopes of the lines in Figure 3.

Factors Affecting Parenting Stress in Multivariable Analysis

Results of regression analysis for mean levels of parenting stress are summarized in Table B-6, focusing on rurality and race/ethnicity. Rural residence, defined as any rural county, had a small, but significant, protective effect for parenting stress. Among rural families, parenting stress scale values averaged 4.78, versus 4.82 among urban families ($p = .0249$).

Because the relationship between poverty and stress worked differently across races in bivariate analysis, it was necessary to test for these effects in multivariable analysis using a variable that combined both race and income (Table B-6). Figure 4 illustrates the effects of

Figure 4. Adjusted effects of poverty on stress, by race



poverty on parental stress while holding all other factors constant, by race. For Hispanic and white respondents, the effects of poverty on parenting stress are minimal after factors such as family structure and employment are rendered equal. For African American and “other” families, however, reported parenting stress declines as income increases, with a possible threshold effect at the 200 - <400% of poverty income level.

Virtually all of the child, parent/family and neighborhood characteristics measured by the study had statistically significant effects on reported parenting stress. Most factors contributed in anticipated ways. Parenting stress scale values increased with the child's age, from an adjusted mean of 4.57 among parents of children age 0-5 years, through 4.98 among parents of 12-17 year old children ($p < 0.0001$). Parents of boys reported slightly more parenting stress than parents of girls (adjusted means, 4.86 versus 4.75, $p < 0.0001$). Parents who described their child as being in fair to poor health had the highest adjusted mean values for parenting stress, with an adjusted mean of 5.38 versus 4.79 among parents of children in good to excellent health ($p < 0.0001$).

Parent and family characteristics associated with increased reported parenting stress included family structure, with two-parent biological families having lower levels of stress than two-parent step families, single mother families, or other family arrangements (adjusted means of 4.73 , 4.99, 4.95, and 4.90, respectively; $p < 0.0001$). Poor parental health, high residential mobility, lack of full-time employment, and less than a high school education were other parent characteristics associated with increased parenting stress in adjusted analysis.

Perceived support for parenting in the neighborhood was significantly associated with parenting stress, with parents who characterized their neighborhood as unsupportive having adjusted parenting stress scale means of 5.02, versus 4.78 among other parents ($p < 0.0001$). Parents who perceived poor neighborhood support, along with parents in poor health and parents of a child in poor health, were the only categories of parent to have mean stress scale values over 5 in adjusted analysis.

Of interest, the ecological variables used, percent of county population in poverty and percent owner-occupied housing, were significantly related to parenting stress. Parenting stress scale values decreased linearly as the proportion of the county housing that was owner-occupied

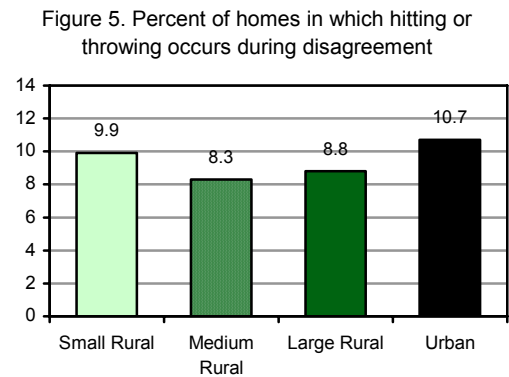
increased, from an adjusted mean of 4.85 in counties at the lowest quartile for owner-occupied housing, to 4.76 among counties in the upper quartile ($p = 0.0036$). However, results for the proportion of the county population in poverty were somewhat difficult to interpret. The crude association between county poverty and parental stress showed a slight increase in stress as the percent poverty increased (4.78 to 4.85, $p=0.0052$). Adjusted mean parenting stress values, which controlled for parent and child characteristics in addition to county poverty, declined as the proportion of population in poverty increased, from 4.85 in families living in counties in the lowest quartile for poverty, to 4.77 in families in the upper quartile, that is, living in counties with the highest proportion of the population in poverty ($p=0.0076$). Because of the very small effect sizes, as well as differences between crude and adjusted findings, we do not feel that parental stress is meaningfully associated with county level poverty. However, we do not exclude the possibility that poverty measured in a smaller geographic area, such as a neighborhood, might be significantly linked with stress.

Chapter Three: Violent Disagreements in the Home

Prevalence of Violent Disagreements

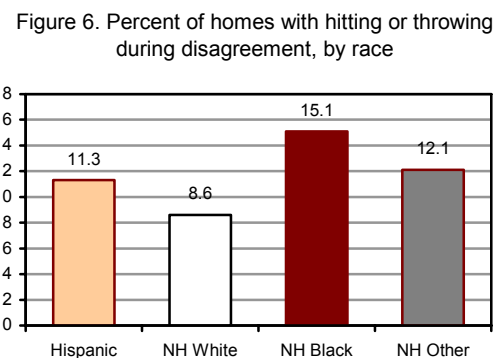
Nationally, 10.3% of children reached by the 2003 National Survey of Children's Health lived in homes where disagreement is expressed, at least occasionally, by hitting and throwing.

The prevalence of violent disagreements varied slightly across different levels of rurality, but was lower in homes located in rural counties than in urban homes (Figure 5, Table B-7). An additional 31.5% of children live in homes where disagreement is expressed through heated argument and shouting.



The prevalence of heated disagreement showed no clear pattern across levels of rurality (Table B-7).

Disagreement style reported by parents differed significantly by race (Table B-7). White parents were least likely to report potentially violent disagreement styles, while African Americans had the highest unadjusted prevalence of these behaviors (See Figure at right). With one exception, differences across races were similar and highly significant within each level of rurality. Race/ethnicity differences were not significant within small rural counties, possibly because of the limited number of observations for Hispanic and African American children in such counties.



In bivariate analyses, virtually all demographic characteristics of the child and his or her family were significantly related to the likelihood that the household would report violent disagreements (Table B-8). In the discussion below, we focus on the characteristics that were most strongly related to the likelihood of violent disagreement.

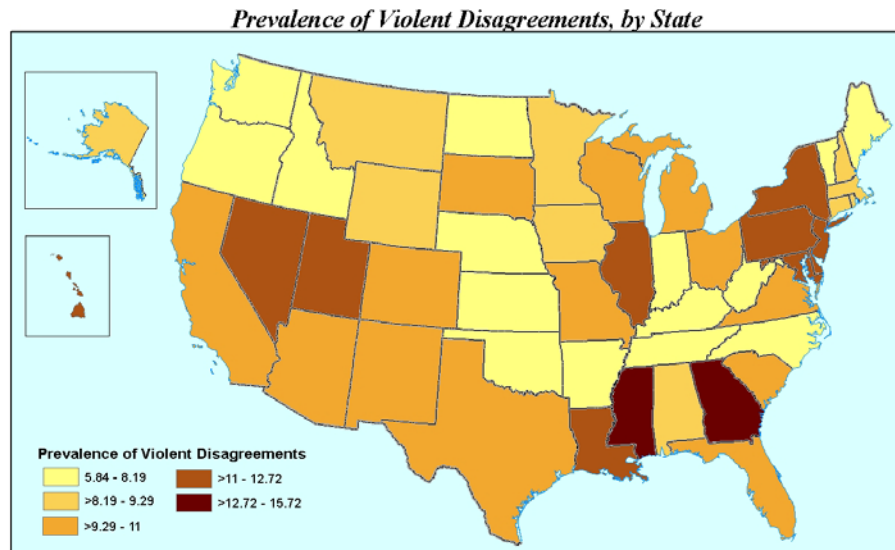
Both child and parent health were related to the prevalence of violent disagreements. Among families in which the studied child's health was fair to poor, 17.1% reported that disagreements entail hitting and throwing, versus 10.1% of families in which the studied child's health was reported to be good to excellent ($p < 0.0001$). Similarly, in households where one or both parents were in fair to poor health, the prevalence of violent disagreements was 15.0%, compared to 9.6% in households in which parents had good to excellent health.

Education and family structure were linked to the potential for violent disagreement. In households where the highest educational level attained by an adult was less than high school, 13.8% of households reported violent disagreements. Among households where an adult has some education past high school, this value drops to 9.6%. Two-parent homes, including both biological and step families, had low levels of violent disagreements when compared to single mother homes (9.0% and 9.2%, respectively, compared to 14.3%). When the number of children increased, on the other hand, so did the reported prevalence of violent disagreements. Among families with 3 or more children in the household, 12.7% reported hitting or throwing, versus 8.7% among families with only one or two children.

The prevalence of families with violent disagreements varied across states, around the national mean of 10.3%. The state with the lowest reported prevalence of violent disagreements in households with children was Maine, with 5.8% of families; the state with the highest

prevalence of violent disagreements was Mississippi, with 13.4% of families reporting violent disagreements (see Figure 7, below).

Figure 7.



Poverty, Parental Stress, and Violent Disagreements in Households with Children

Poverty had a direct relationship to the unadjusted prevalence of violent disagreements in homes with children. Among households earning 100% of the Federal poverty level or less, 13.2% reported hitting or throwing during disagreements. Among households earning 400% of poverty or more, the prevalence decreased to 8.0% (Table B-9).

Parenting stress was also closely related to the prevalence of violent disagreements in homes with children. The positive relationship between parenting stress and violent disagreements was highly significant, and did not differ across race or residence (interaction terms not significant). Among parents reporting high stress, 17.9% reported violent disagreements, where 7.6% of families reporting “low stress” reported violent disagreements. Conversely, “low stress” parents reported discussing disagreements calmly 69.9% of the time, compared to 41.9% of “high stress” parents.

Factors affecting the likelihood of violent disagreements in the home

Generalized logistic regression was used to distinguish the effects of parental stress, race/ethnicity and rural residence on the likelihood of violent disagreements in the home while holding constant other factors, such as poverty and family structure (Table B-10). The model compares the more intense disagreement styles, hitting or throwing (violent) and arguing heatedly and shouting (heated), to the baseline case of non-violent disagreement, or discussing calmly. The use of a model that distinguishes three different disagreement styles allows for a more sensitive analysis than grouping all of the violent or potentially violent disagreement types together. All children living in non-MSA counties are considered “rural” in the analysis. Models for disagreement style were run separately among rural respondents only, but we found no effect across differing levels of rurality. All other effects were essentially the same as those reported for the total population. Thus, the presentation here focuses on national data, with a rural (non-metropolitan) – urban (metropolitan) distinction.

Parental stress

The factor having the highest degree of association with violent disagreement in the home was parental stress. Parents reporting a high level of reported parenting stress had over 3 times the odds of reporting violent disagreements, that is, hitting or throwing, versus parents reporting less stress (OR 3.17, CI 2.91-3.47). Parents reporting high parenting stress also had the higher odds of heated disagreements (OR 1.99, CI 1.87-2.12), those involving arguing or shouting.

Rural residence

Rural residence, holding all other characteristics of the child constant, had a protective effect on the prevalence of violent disagreements compared to those living in an urban area (OR 0.86, 95% CI 0.77-0.95; Table B-10). It must be clarified that a “rural protective effect” does not

mean that rural children are free from risk. However, controlling for race, poverty, and other factors that differ across residence, rural children were less likely to live in homes where violent disagreements were reported. There was no rural effect in regards to homes in which heated disagreement, arguing and shouting, was present.

Race/ethnicity

With poverty, education and other factors that differ by race held constant, African American and “other” children were significantly more likely than white children to live in homes where disagreements can entail hitting and throwing (African American children, OR 1.73, 95% CI 1.51-1.98; Other children, OR 1.38, 95% CI 1.14-1.67; Table B-10). Similarly, African American and Other children were at increased risk, compared to white children, of living in a home where disagreement is expressed through heated argument and shouting (African American children, OR 1.41, 95% CI 1.29-1.54; Other children, OR 1.17, 95% CI 1.04-1.33).

Other characteristics of child and family

Poverty, which was associated with both violent disagreements and parenting stress in bivariate analysis, had only modest levels of association with violence when parenting stress, as well as other factors, were held equal. Compared to the referent category of households at 400% of the Federal poverty level, children in households at 100% to <200% of poverty were at slightly increased risk for violent disagreement (100 to <200%, OR 1.26, 95% CI 1.09 – 1.47).

The child’s health and health insurance status were not significantly related to the likelihood of violent disagreements in the home with other factors held constant. Very young children (age 0 – 5 years) were less likely to live in households with violent disagreement or moderate disagreement, arguing and shouting, than were children age 12 – 17. Male children were slightly more likely to live in homes where heated disagreement takes place.

Several characteristics of the parent and the household were closely associated with the likelihood of violent disagreements in the home. Interestingly, survey respondents other than the child's mother were less likely to report the presence of violent or moderate disagreements than were mothers. The odds that a father, for example, would report violent disagreements were only 0.69 (95% CI 0.61 – 0.80) compared to a mother. Family structure also had unexpected results. As anticipated, single-mother households were more likely than two parent biological families to report both violent disagreement (OR 1.31, 95% CI 1.16-1.48) and heated disagreement (OR 1.15, 95% CI 1.07-1.24). However, two-parent step families were *less* likely to report violent disagreement (OR 0.78, 95% CI 0.66-0.92) than two-parent biological families.

The total number of children in the household was associated with increased odds for violent disagreement, with families of 3 or more children having higher odds for both violent and heated disagreement than smaller families (OR for violent disagreement, 1.57, 95% CI 1.44-1.72, OR for moderate disagreement, 1.19, 95% CI 1.12-1.26). Families in which one or both parents was reported to be in poor health were more likely to report both hitting / throwing and arguing/shouting than other households (OR for violent disagreement, 1.48, 95% CI 1.30-1.68; OR for moderate disagreement, 1.35, 95% CI 1.24-1.47). The association of violent disagreement with larger families and families in which one or more adults have health problems is consistent with a model that sees stress as associated with violent disagreement. Parenting stress was highly associated with violent disagreements. However, the number of children in the home was not meaningfully associated with level of parenting stress reported (Table B-6), suggesting that the association between children and violent disagreement does not work through increasing stress as measured in the present research.

Community characteristics measured at the county level, percent of the population in poverty and percent of housing that is owner-occupied, did not contribute to the prevalence of violent or heated disagreement. However, parent perception of community characteristics, specifically, the degree to which the neighborhood provided support for parenting activities, was related to stress. Parents who did not perceive that they lived in a supportive neighborhood were more likely to report both violent and heated disagreement (OR for violent disagreement, 1.24, 95% CI 1.10 – 1.40; OR for heated disagreement, 1.23, 95% CI 1.14-1.34). The neighborhood, a much smaller geographic unit than the county, may be more relevant to parenting tasks and stress.

Chapter Four: The Prevalence of Problems in Children

Defining Child “Problems”

We looked at the prevalence of emotional, developmental, or behavioral problems in children two ways. First, we looked for parent/guardian response of “yes” to questions ascertaining (1) whether the child had ‘any kind of emotional, developmental, or behavioral problems for which (he/she) needs treatment or counseling,’ or if the parent had been told by a doctor or health professional that the child has (2) “attention deficit disorder or attention deficit hyperactive disorder, that is ADD or ADHD,” (3) “depression or anxiety problems,” or (4) “behavioral or conduct problems.” For convenience, these will be labeled “*diagnosed emotional, behavioral or developmental problems*” or diagnosed EBD problems.

Diagnosed problems are subject to bias, however. Children with limited access to health care may have reduced opportunity to obtain the relevant diagnoses. To tap a more inclusive population, we therefore added a second measure of child problems for children ages 6 through 17, *problems at school*. Problems were defined as a positive response to the question, “In the past 12 months, how many times has [your child’s] school contacted you or another adult in your household about any problems [he/she] is having with school?” This definition is extremely broad, as it could encompass academic, health, or behavioral problems, each of which can be examined separately (eg Hanson, McLanahan and Thompson 1996). Nonetheless, the indicator appears to have value as an index administered across a broad population of children. Only a very small proportion of children in homes reached by the NSCH were home-schooled (1,405 children, or 1.37% of unweighted observations).

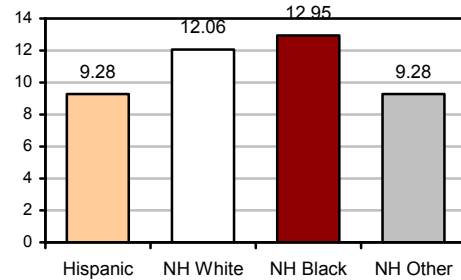
Diagnosed emotional, behavioral and developmental (EBD) problems

Prevalence of EBD problems

Across US children in 2003, 11.5% were reported to have diagnosed EBD problems, a value that did not vary significantly across levels of rurality ($p = 0.5912$; Table B-11).

Nationally, the proportion of children whose parents reported diagnosed EBD problems was highest among African American children, followed by white children (see Figure 8). For whites and Hispanics, the proportion of children with diagnosed EBD problems did not vary across residence categories. For African

Figure 8. Percent of children with a reported EBD problem, by race



American children, the prevalence of diagnosed EBD problems was higher in urban and in medium rural counties (Table B-11). For “other” children, the prevalence of diagnosed EBD problems was markedly higher in rural than in urban counties. In all probability, this represents differences in the racial composition of the “other” category, which is largely Asian/Pacific Islander in urban areas, and American Indian/Alaska Native in rural areas (See Appendix A, Methods).

Parenting stress was positively associated with the presence of diagnosed EBD problems in the child. Across all families, parenting stress scale values averaged 4.82. For families in which the child had a diagnosed EBD problem, this value rose to 5.96; in other families, the average was 4.67 ($p < 0.0001$, Table B-12). Effects were similar for rural and for urban parents, and for parents of differing race/ethnicity. Because the study examines cross-sectional data, it cannot be ascertained whether parental stress arises from children’s problems, or the reverse.

The presence of violent disagreements in the home was also significantly associated with diagnosed EBD problems in the child. Across all households with children, 10.29% expressed disagreements violently. In households containing children with diagnosed problems, this value rose to 16.3%. Expressed in the opposite direction, the subject child had diagnosed problems in 18.2% of homes in which disagreements were expressed through hitting or throwing, versus 14.4% in homes where disagreements entailed heated arguing and shouting, and only 8.8% in homes where disagreements were expressed through calm discussion ($p < 0.0001$). These trends were consistent among rural and urban households and among all race/ethnicity groups. It must be noted that we cannot posit a direction for the relationship from the cross-sectional data available.

Multivariable Analysis: Factors Affecting Diagnosed EBD Problems in Children

Results analyzing the likelihood that parents would report a diagnosed EBD problem in their child are shown in Table B-13. Rural parents were less likely to report diagnosed problems (OR 0.82, 95% CI 0.74-0.91), with all other characteristics of the child held constant.

There was a significant interaction between race/ethnicity and parenting stress, implying that the association between high stress and children's EBD problems varied across race/ethnicity groups. The association between stress and problems was strongest among white parents; the odds that high-stress white parents would report a problem were 4.71 (95% CI 4.30-5.16) compared to low-stress white parents. Among African American parents, the odds ratio associated with high stress was 3.97 (95% CI 3.13-5.05); among Hispanic parents, 2.81 (95% CI 2.17-3.64), and among "other" parents, 3.22 (95% CI 2.27-4.57).

Disagreement style was closely associated with the odds that parents would report a diagnosed EBD problem in their child. Compared to households where disagreements were

discussed calmly, households with hitting and throwing and households with heated argument and shouting were more likely to report diagnosed problems (Hit, throw: OR 1.35, 95% CI 1.19-1.54; Argue, shout: OR 1.19, 95% CI 1.09-1.30). Again, no causal direction may be inferred from this relationship, which was detected in cross-sectional analysis.

Several characteristics of the child were associated with the odds that the parents would report diagnosed EBD problems. The strongest relationship was with fair to poor health in the child, which strongly influenced the odds of reporting a problem, all else held equal (OR 3.77, 95% CI 3.08-4.60). The increased likelihood of diagnosed EBD problems could reflect diagnoses correlated with poor health, or could stem from increased contact with the health care system for a child with poor health, leading to increased probability that behavioral or emotional problems would be detected. Alternatively, the presence of EBD problems may lead the parent to perceive that the child is in poor health more generally. Diagnosed EBD problems were more likely to be reported for boys than for girls (OR 2.07, 95% CI 1.91-2.25). Problems were less likely among younger children than among children ages 12 – 17, perhaps because more time had allowed the emergence and recognition of problems among older children. Publicly insured children were more likely to have diagnosed EBD problems than their privately insured peers (OR 1.57, 95% CI 1.39-1.77), while uninsured children did not differ from the privately insured.

Among parent and family characteristics, the strongest effect size, all things held equal, was for family structure. All forms of household other than two-parent biological or adoptive families were more likely to report a child with a EBD diagnosis, all things held equal (two-parent step, OR 2.01, CI 1.78-2.28; Single mother, OR 1.73, 95% CI 1.56-1.92; Other families, OR 1.93, 95% CI 1.59-2.35). The self-reported health of the parents was also strongly associated with the presence of child problems. Households in which one or more parent was

reported to be in fair to poor health were more likely than others to report that the child had diagnosed EBD problems (OR 1.82, 95% CI 1.62-2.03). Households in which the principal language was not English were considerably less likely than English-speaking households to report problems (OR 0.42, 95% CI 0.33-0.53). The latter effect may be a true difference in prevalence among these households, or may stem from difficulty accessing health care with poor English skills, cultural unwillingness to obtain diagnoses for, and/or to report, behavioral and emotional problems, or other causes.

Persons who perceived low neighborhood support for parenting activities were significantly more likely to report the presence of diagnosed EBD problems in their child (OR 1.34, 95% CI 1.20-1.50). Ecological measures, including county poverty and owner-occupied housing, were not significantly related to the reporting of child problems.

Problems in school

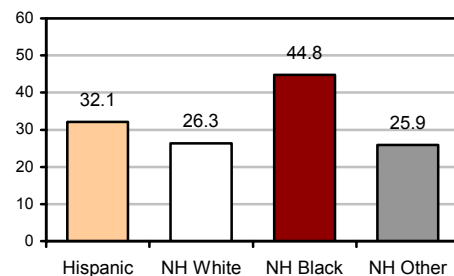
Across all school-aged children, just less than a third of parents (30.01%) reported that their child's school had contacted an adult in the household about problems the child was having (Table B-11). The proportion of children with school

problems was remarkably consistent across rural children, ranging from 27.43% among children living in large rural counties to 27.90% in small rural counties.

The prevalence of school problems was slightly higher in urban counties, at 30.61%. The prevalence of

reported school problems differed markedly by race, as shown in Figure 9. African American children had the highest rate of reported school problems, both nationally and within the urban, large rural, and medium rural residence categories (See Table B-11).

Figure 9. Percent of children (age 6 - 17) with reported school problems, by race/ethnicity



Among families for which violent disagreements were reported, 42.9% of the children had school related problems, compared to 33.7% among families that disagreed heatedly and 24.9% among families that discussed disagreements calmly. Parental stress was higher among parents of children with school problems (5.49) compared to those of children without school problems (4.70, $p < 0.0001$). In addition, 43.8% of parents of children with school problems reported high stress, compared to 20.8% of parents of children without school problems ($p < 0.0001$).

Multivariable Analysis: Factors affecting reported school problems in children

Among children aged 6 – 17, parents of rural children were less likely than their urban peers to report having been contacted by the child’s school regarding problems (OR 0.90, 95% CI 0.83-0.97; Table B-14). Since the analysis was not able to take into consideration staff levels, discipline policies, and other factors that may vary between urban and rural school systems, it cannot be ascertained whether rural children had fewer problems, or rural schools had a lower propensity to contact parents.

As in the preceding analyses, race/ethnicity and parenting stress are expressed as a combined variable in the analysis, to take into consideration the statistically significant interaction between these two characteristics. It should be noted that we do not assume a causal direction when examining the simultaneous relationship between reported parenting stress and a child with problems in school.

The relationship among race/ethnicity, stress and reported presence of school problems was complex. For white parents reporting high stress, the odds of reporting having a child with school problems were 2.81 (95% CI 2.59-3.04) times the same odds among White parents reporting low stress. For African American parents reporting high stress, the odds of reporting a

child with school problems were 2.52 (95% CI 2.12-3.01) when compared to low-stress African American parents. For Hispanics, the odds that high stress parents would report school problems for their child were 1.85 (95% CI 1.52-2.25) when compared to low-stress Hispanic parents. The relationship was similar among parents of “other” race, with high stress parents having higher odds of reporting problems than low stress parents (OR 2.19, 95% CI 2.64-2.93).

Compared to households in which disagreements were discussed calmly, households with violent and heated disagreements were more likely to report children with school problems (Hit, throw: OR 1.62, 95% CI 1.45-1.80; Argue, shout: OR 1.29, 95% CI 1.20-1.38). Again, no causal direction may be inferred from this cross-sectional relationship.

Child characteristics associated with increased odds of having school problems included sex, type of insurance, and health. Parents were more likely to report having been contacted regarding boys than girls (OR 1.91, 95% CI 1.79-2.04). Parents of children with fair to poor health were more likely to report contacts than parents of healthier children (OR 1.78, 95% CI 1.45-2.18), perhaps because “problems” could include calls for health reasons.

Among family characteristics, family structure was strongly linked to the odds that parents would report school problems for the child. As was the case with diagnosed EBD problems, school problems were higher for every form of family other than two parent biological or adoptive families (two-parent step, OR 1.69, CI 1.52-1.88; single mother, OR 1.48, 95% CI 1.35-1.63; other families, OR 1.65, 95% CI 1.41-1.93). Family mobility was also associated with school problems, with children who fell into the highest quartile for residential moves over their lifetime being more likely than others to have school problems (OR 1.54, 95% CI 1.31-1.80). Children in homes where English was not the primary language were less likely to have

had school problems, other factors held equal (OR 0.71, 95% CI 0.60-0.85). Poor parental health increased the odds that school problems would be reported (OR 1.41, 95% CI 1.27-1.55).

Children with public insurance were more likely to have had school problems than privately insured children (OR 1.23, 95% CI 1.06-1.42). Poverty was associated with school problems, with poorer children being more likely than children at 400% of poverty or better having higher odds for such problems, with ORs from 1.12 to 1.33.

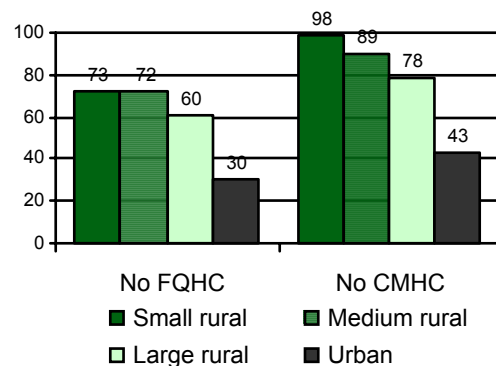
Perceived neighborhood support for parenting and ecological variables were significantly associated with the odds that school problems would be reported, but effect sizes were small. Parents who perceived low neighborhood support were more likely than their counterparts to report school problems (OR 1.19, 95% CI 1.07-1.31). Parents living in the lower three quartiles for percent owner-occupied housing were slightly more likely to report a child with school problems, with ORs ranging from 1.11 to 1.13.

Resource availability for children and families

Rural children exposed to violent disagreements, or children with EBD or school problems, may benefit from general medical or mental health services. Medical service settings provide opportunities for screening regarding family stress and disagreement styles. Mental and behavioral health providers can address identified family or child problems. However, as shown in Figure 10, medical services are not available for

low income families (federally qualified community health centers) for most families that report violent disagreement, and community mental health centers are even less available.

Figure 10. Percent of children in homes with violent disagreement who lack indicated services in county of residence, by rurality



Chapter Five: Conclusions and Recommendations

Conclusions

Prevalence and hypothesis testing

Nationally, adults in one of every ten households with children express disagreement in a potentially violent manner, through hitting and throwing (10.3%). This prevalence is higher than the prevalence of physical violence against women detected by recent population based surveys (e.g., 1.8%, Tjaden, Thoennes, 2000; 2.3%; Vest, Catlin et al 2002, 2.1%, Mouton, Rodabough et al 2004), 6% Weinbaum, Stratton et al 2001). The higher prevalence may stem from differences between previous surveys, which took all women as the population of interest, and the present study, which focuses on families with children. In addition, the measure used, hitting and throwing, is broader than most physical violence measures. The use of a measure of potential violence allowed the present study to define a wide at-risk population, for whom health professionals can develop appropriate interventions.

Our first hypothesis posited that the prevalence of poverty, parental stress and violent disagreements in the home would increase with rurality. This hypothesis was only partially supported. Poverty and near-poverty were more prevalent in rural counties, among both white and minority children. As noted in Chapter Two, the prevalence of poverty among rural minority children, particularly those in small rural counties, is disheartening (Table B-2). Further, most rural minority children, whether or not they themselves live in poverty, live in counties in the upper quartile for community poverty nationally (Table B-3). Thus, both personal and community resources available to these children are severely limited.

While poverty was higher among rural than among urban children, parenting stress and violent disagreements were not. For both of these measures, both crude and adjusted prevalence was slightly higher in urban than in rural households. However, it must be emphasized that

rural/urban differences in these measures, unlike rural/urban differences in poverty, were small. Rural providers still need to be alert for signs that a family may be experiencing stress or expressing disagreement in dysfunctional ways.

Our second hypothesis asserted that economic hardships at the individual and community levels would be associated with increased parent stress, and that these effects would be greater among rural families, but less among minority families. As anticipated, family poverty was associated with increased parental stress (Table B-5), supporting the original hypothesis. However, differences in parenting stress between families in poverty and those at higher income levels were greater, not lesser, among African American and “other” families than among white families (Figures 3 and 4). Among African American and “other” families, however, reported parenting stress declines as income increases, with a possible threshold effect at the 200 - <400% of poverty income level. For Hispanic and white respondents, the effects of poverty on parenting stress were minimal after factors such as family structure and employment were held equal in multivariable analysis. Community-level resource measures were also related to parenting stress, but only at very low levels.

Our third hypothesis stated that parenting stress would be positively associated with rates of violent disagreements in the home and that this relationship would be consistent across all race/ethnicity groups. Supporting the first part of the hypothesis, stress was closely related to violent disagreements, in both unadjusted and multivariable analysis. Among parents reporting high stress, 17.9% reported violent disagreements, while 7.6% of “low stress” parents reported violent disagreements.

Racial differences in the prevalence of violent disagreements should be noted. While stress increased the likelihood of violent disagreements among all parents equally, African

American and “other” parents started from a higher baseline level for violent disagreements. As a result, even with poverty, parental stress and other factors that differ by race held constant, African American and “other” children remained significantly more likely than white children to live in homes where disagreements can entail hitting and throwing (Table B-10). We emphasize that no direction can be inferred from the present study, which examines behaviors and attitudes at a single point in time. We cannot state whether stress leads to violent disagreement, violent disagreement leads to stress, or some other effect is at work.

The final hypothesis stated that parenting stress and violent disagreements in the home would be positively associated with the presence of mental health problems in children. This hypothesis, which does not specify a direction to the relationship, was confirmed. Both high parenting stress and the presence of violent disagreement were associated with a greater likelihood of diagnosed emotional, behavioral or developmental problems in the child. Similarly, these same factors are associated with a greater likelihood that the child’s parents or guardian would have been contacted regarding problems the child was having in school.

Summary

Rural children, all things held equal, were less likely than urban children to live in households where disagreements are expressed violently. Similarly, rural children were less likely to live in households with high parenting stress or low reported neighborhood trust. Nonetheless, rural practitioners must still be sensitive to the possibility of exposure to violence. Key factors associated with parenting stress, and thus with violent disagreements, are more prevalent in rural areas. Poverty and low-income were more common among rural than urban children, and affected well over half of rural minority children, in particular. The situation of rural minority children is particularly troubling because so many of them, particularly African

American children, live in high poverty counties where resources available to help individual families may be constrained. Further, medical and behavioral health resource availability is markedly constrained for rural children. Nonetheless, professional societies and government organizations do offer materials for preventing, detecting and intervening for families with inappropriate patterns of conflict resolution. Prominent programs are summarized in the section below.

Resources for Preventing, Detecting or Intervening to Help Rural Families

Multiple organizations, from the American College of Emergency Medicine through the National Cosmetology Association (Salons Against Domestic Abuse Fund; <http://www.cutitout.org/index.html>) have developed protocols for screening and referral of women in physically abusive relationships. While such efforts are an important part of the treatment process, a public health approach needs to focus on prevention of activities that culminate in violent behavior. Several such programs have been developed and are highlighted below. Rural systems of care should be focused on preventing violent disagreements. There are several programs and educational opportunities currently available that aid families and communities in managing stress and disagreements before they erupt into violence.

Bright Futures is a comprehensive educational program aimed at ensuring appropriate growth, development, and learning for children. Developed by the American Academy of Pediatrics, it is a credible source of education for professionals and families involved in the lives of infants and children. Many Maternal and Child Health Bureau programs, such as Healthy Start, use this curriculum. *Bright Futures* is particularly helpful in that it offers three individual curricula, tailored to meet the needs of families and communities, health care professionals, and public health professionals. While much of each curriculum is focused on healthy growth,

development, and learning, there are modules geared at violence prevention in the home. For the families and communities, there are two specific modules entitled “Handling Anger and Countering Abuse in the Community” and “Problem-Solving Strategy,” both of which address resolving disagreements and disputes. Both professional curricula have additional tools that aid in the screening, early intervention, and treatment of parental depression, substance abuse, and the stress of parenting.

The Children’s Bureau, Office on Child Abuse and Neglect has developed a *Community Resource Packet: Safe Children and Healthy Families Are a Shared Responsibility*, available on the National Clearinghouse on Child Abuse and Neglect Information website. Curriculum materials are available in both English and Spanish. Elements of the curriculum of particular relevance to rural practitioners and community agencies include summaries of how organizations can help develop family strengths, means for delivery effective messages, and most importantly, “tips for building successful collaborations.”

Children with diagnosed emotional, behavioral or developmental (EBD) problems constitute an at-risk population. The President’s New Freedom Commission on Mental Health contained a Subcommittee on Children and Family, recognizing the importance of the family setting to child health. Among the values elucidated by the Subcommittee are home and community based care, family partnerships, early identification and intervention, and coordination of care across the spectrum of possible care delivery agencies and professions. (Subcommittee, 2003, p. 2). The theme of lack of coordination of, or responsibility for, children’s mental health was raised in the New Freedom Commission report. Goal 4 of the Commission, which called for early identification of potential disorders, recommends the involvement of schools in early identification and service referral for children with EBD

problems (President's New Freedom Commission Report, 2003, p. 58). The research in this report found that nearly all school-aged children attend school, with only a small minority of parents choosing home schooling. Thus, the potential for school-based detection and referral is theoretically large. In rural areas, the ability of financially-strapped public school systems to take on additional, non-mission specific tasks is questionable. However, partnerships linking rural schools with local and regional health care providers could be envisioned. Innovative technological approaches, including telemedicine very broadly defined to include e-checkups and e-therapy, deserve consideration.

Several governmental health and education programs contain materials or services that could be used for prevention or detection of domestic violence. The Administration for Children and Families, US Department of Health and Human Services, oversees multiple programs aimed at reducing violence and abuse. Within its Bureau of Children is the *Promoting Safe and Stable Families* program, which houses two efforts that could be helpful for rural communities. The *Community-Based Family Resource Program* assists states in developing, implementing, and improving "community-based, prevention-focused programs and activities designed to strengthen and support families to prevent child abuse and neglect, through networks where appropriate." The *Community-Based Child Abuse Prevention Program*, also within the Bureau of Children, assists Native American Tribes and their organizations, as well as migrant programs, to link these minority and vulnerable populations with the networks developed through the *Community-Based Family Resource Program*. Efforts within the *Community-Based Child Abuse Prevention Program* support more intensive abuse prevention and family strengthening programs with an emphasis on marriage strengthening and father involvement.

Head Start and Early Head Start are also significant potential sources of education and intervention pertaining to violence in the lives of low income families with small children. The Fatherhood Initiative (<http://www.fatherhood.hhs.gov/index.shtml>) is an example of a program that may improve conflict resolution skills within families.

The Healthy Marriage Initiative, directed by the Administration for Children and Families, has sponsored multiple demonstration projects conducive to educating parents and reducing the prevalence of violent disagreements (Administration for Children and Families, 2006). HMI activities focus on educational activities to assist couples to begin and maintain marriage. Specific HMI efforts target African American, Hispanic, and American Indian populations. Certain efforts, notably those in Florida, focus on local capacity building through training of both citizens and professionals in needed skills. However, many of the research and demonstration projects are being conducted in urban areas. Some recommendations, such as offering group classes, using a variety of settings, and providing simultaneous activities for children (ACF, 2004, p. 18-19), may be more difficult to implement in rural areas. Nonetheless, rural schools, community organizations and practitioners are encouraged to review materials available through the Healthy Marriage Initiative as potential sources of ideas and projects for reducing the prevalence of violent disagreements in rural communities. While the Healthy Marriage Initiative contains specific programs for Hispanic and African American populations, there do not appear to be unique programs that address rural populations.

A number of family violence interventions have been developed from a police and protective services perspective. For example, the National Center for Children Exposed to Violence, located at Yale University, originated with funding from the Office of Juvenile Justice

and Delinquency Prevention of the Department of Justice

(<http://www.ncccv.org/us/overview.html>, viewed August 30, 2005). The law enforcement orientation is evident in one of the Center's principal programs, the Child Development-Community Policing Program. Such programs for intervening with families in crisis that come to the attention of law enforcement and other authorities are unquestionably needed. From a public health perspective, however, prevention activities are also essential.

Provider organizations have also addressed the domestic violence issue, from the point of view of specifying needed practitioner competencies. The Task Force on the Family of the American Academy of Pediatrics (Wertlieb, 2003) developed several policy recommendations concerning physician education, and the physician's role in public policy relevant to children potentially exposed to violence. Regarding physician education, the AAP recommended that physicians acquire the ability to screen families for domestic violence (Recommendation 4, p. 1156) and tension in the home (Recommendation 47, p. 1157) and be able to refer parents appropriately for improvement in their conflict management techniques (Recommendation 55, p. 1158)). In a rural context, this ability should be developed by all practitioners, including family medicine physicians, nurse practitioners, and school or health department medical personnel who might encounter children. Continuing medical and professional training to ensure that rural practitioners remain abreast of efficient screening techniques and locally available services is essential. The AAP further recommended that pediatricians be advocates in their community for public policies, such as support for screening activities and insurance coverage of mental health problems, that address the needs of families of children. In the rural context, this AAP recommendation would translate into the need for rural practitioners actively to seek out linkages

that can enhance the use of scarce community resources for parental skills training and other activities that contribute to effective family functioning.

While the proportion of children cared for by pediatricians increased between 1992 and 2002, in rural areas, family physicians remained key providers for children (Goodman, 2005). Recognizing the importance of the family medicine role, the American Academy of Family Physicians (AAFP) has formed a Task Force on the Care of Children. The AAFP had made child and adolescent health its clinical focus for 2006 continuing medical education programs. Commendably, its planned goals include enabling physicians to “list primary and secondary prevention strategies against violence (home, school, and community) including bullying and peer pressure” (<http://www.aafp.org/x34050.xml>, viewed August 29, 2005). Because family practice is the dominant specialty in rural areas, the AAFP emphasis on care for children could be particularly useful to rural communities.

Questions for Future Research

In the preceding section, interventions aimed at helping parents and providers with issues of family conflict and stress were identified. The degree to which any of these interventions have been implemented among rural populations, however, has not been documented. Two research needs emerge from an analysis of current activities: ascertaining the degree to which services are available in rural areas, and ascertaining the degree to which specific interventions are suitable for implementation in rural areas.

Shortages of physical and mental health providers in rural areas are well documented. Thus, it is likely that many of the potential interventions catalogued above—Bright Futures, Promoting Safe and Stable Families, Head Start, and provider education programs—are less accessible in rural communities. Research into the distribution of prevention resources for

family conflict is needed, to identify regional gaps or topic area gaps in materials available for rural families.

A second research question pertains to the suitability of specific prevention, screening or intervention programs for rural communities. Programs that assume the participation of highly trained mental health professionals, for example, would not be practical in most rural communities. Research is needed to define, at minimum:

- Types of workers needed to conduct programs, (bachelors versus masters trained social workers, for example, lay intervention staff);
- Minimum referral services needed, within what distances;
- Economic break-even points associated with interventions among less concentrated rural populations;
- The types of networks (school, health care, social services, law enforcement) most suited to rural communities.

Appendix A: Method

Data Source: The 2003 National Survey of Children's Health

The study used a cross-sectional design, exploring issues among families with children ages 0 to 17. Data were drawn from the 2003 National Survey of Children's Health (NSCH), a telephone survey assessing physical, emotional and behavioral health indicators and measures of children's experiences with the health care system (Blumberg, et al, 2003). The survey was conducted by the State and Local Area Integrated Telephone Survey (SLAITS) at the Center for Disease Control and Prevention (CDC). SLAITS studies are nationally representative telephone surveys conducted by random digit dialing, with weights to account for specific population subgroups that are less likely to have household telephones. One child was randomly selected from all children in each identified household with children to be the subject of the survey. The survey was sponsored by the Maternal and Child Health Bureau of the Health Resources and Services Administration, with additional funding from the National Vaccine Program Office of the CDC's National Center for Infectious Diseases. Special emphasis was placed on topics such as medical home, family interactions and activities, parental health, stress and coping behaviors, school experiences, and perceptions of the neighborhoods in which the children live. The period of data collection was January 2003 to December 2003, with some interviews being completed through July 2004.

The NSCH data set has a total sample size of 102,353 with a weighted overall response rate of 55.3%. Estimates based on the sampling weights are generalizable to the non-institutionalized population of children in each state and nationwide. For the present analysis, children with unknown sex (n=80) or race/ethnicity (n=1416) were excluded. In addition,

children for whom a geographic match could not be completed were excluded. The final data set available for the present study was thus 99,660.

Sample Weighting--To develop population-based estimates, each sampled child for whom an interview was completed was assigned a sampling weight. This weight was used for all analyses. The sampling weight is composed of a base sampling weight, an adjustment for multiple telephone lines within a household, and various adjustments for non-response. The final, adjusted weight was post-stratified so that the sum of the weights for each state equals the number of children in the state, as determined from the July 2003 Census Bureau estimates and the 5% Public Use Microdata Sample (PUMS) files from Census 2000.

Geography—State identifiers were included in all public use files. In addition, an indicator identifying whether or not the household resides inside or outside of a Metropolitan Statistical Area (MSA) was included for some states. This indicator was suppressed in the public use data sets. Because this report focuses on rural children, we conducted all analyses for the report using unmodified data files through the NCHS Research Data Center (RDC). This facility is located in Hyattsville, Maryland.

Independent variables

There are two primary independent variables for the study: race/ethnicity and residence. The NSCH provides information on ethnicity (“Is the child of Hispanic or Latino origin?”) and race (“Is the child White, Black or African American, American Indian, Alaska Native, Asian, or Native Hawaiian or other Pacific Islander?”). Paralleling previous SC RHRC studies, we have followed the National Center for Health Statistics protocol and created four categories of race/ethnicity: Hispanic, non-Hispanic White, non-Hispanic Black or African American, and non-Hispanic Other. Residence was defined based on county of residence, using Rural Urban

Continuum Codes (RUCC) from the 2003 Area Resource Files (1996 codes). Counties are classified as urban (RUCC 1 – 3), large rural (RUCC 4-5), medium rural (RUCC 6-7), and small rural (RUCC 8-9). Depending on the analysis, residence is either dichotomized as urban/rural, or treated as the four categories just listed.

Intermediate Variables

Parental stress: The NSCH contains four parental stress questions (S8Q07—S8Q10), which comprise the Aggravation in Parenting Scale.

- During the past month, how often have you felt [your child] is much harder to care for than children his or her age? (S8Q07)
- During the past month, how often have you felt [he/she] does anything that really bothers you a lot? (S8Q08)
- During the past month, how often have you felt that you are giving up more of your life to meet [child's] needs than you ever expected? (S8Q09)
- During the past month, how often have you felt angry with him or her? (S8Q10)

The scale was derived from the Parental Stress Index (Abidin, 1997) and the Parental Attitudes about Childrearing scale (Easterbrooks and Goldberg, 1984). It was used previously in the Panel Survey of Income Dynamics, the Survey of Income and Program Participation, and the Survey of Program Dynamics.

NSCH documentation noted that “prior research revealed that the Aggravation in Parenting Scale has limited cultural validity among Spanish-speaking Latino parents (Oster, Morales, Anderson, et al 2002). Removal of a single question (S8Q09) from the scale improved the measure for this group.” We examined the 4-variable scale among the NCHS population and

confirmed that, in the 2003 NSCH, the 4-item scale performed less well among Hispanic parents (Cronbach's alpha, raw, 0.52) than among White (Alpha = 0.62), African American (alpha = 0.61) or "other" race/ethnicity respondents (alpha 0.63). A 3-item scale yielded a slight improvement among Hispanic respondents (alpha = 0.54) without adversely affecting alpha values among other groups of respondents, which were unchanged. It should be noted that both the 4-item and the 3-item scale performed poorly among non-English speaking respondents (alphas of 0.47 and 0.49, respectively), so that parenting stress responses need to be interpreted with caution among such individuals. In our analyses, we used the sum of items S8Q07, S8Q08, and S8Q10 for the parental stress scale; therefore, the range for the scale was 3 to 12. All respondents did not complete the scale; values were present for 99,625 families.

In additional, parental stress was dichotomized in some analyses using a cut point of 5, the 75th percentile, to indicate "high" parental stress (5+) or "low" parental stress (<5).

Neighborhood Characteristics: The NSCH asks several questions pertaining to neighborhood characteristics. The primary goal was to capture the respondents' perceptions of their neighborhoods and to determine the degree to which the respondents believed their children were safe in the neighborhood and in school. Parents were asked whether they definitely agree, somewhat agree, somewhat disagree or definitely disagree with the following:

- People in this neighborhood help each other out. (S10Q01)
- We watch out for each other's children in this neighborhood. (S10Q02)
- There are people I can count on in this neighborhood. (S10Q03)
- There are people in this neighborhood who might be a bad influence on my child/children (S10Q04)

- If my child were outside playing and got hurt or scared, there are adults nearby who I trust to help my child. (S10Q05)

The 5-item scale, with reverse coding for item S10Q04, yielded a Cronbach's alpha (raw) or 0.73. However, removing item S10Q04, which dealt with the potential presence ("might") of persons who would pose a "bad influence," raised the alpha level to 0.84 (raw and standardized). The four remaining questions (S10Q01, S10Q02, S10Q03, S10Q05) consider parents' perceived level of neighborhood social capital, with a focus on positive aspects of social capital relating to children (Fields and Smith, 1998) and were used in the present study. Social capital, alternatively called social support, is similar to the concept of "social cohesion and trust," which is related to variations in violence among inner-city neighborhoods (Sampson, Raudenbush, Earls, 1997). These questions were originally developed for the Longitudinal Studies of Child Abuse and Neglect and have also been used for the Survey of Income and Program Participation.

In our analysis, we collapsed the four question responses into a single dichotomous variable (agree / disagree). If the respondent disagreed with 2 or more statements, then the variable was classified as "lacks cohesion and trust" category, otherwise "did not lack cohesion and trust". This variable was set to missing in situations where 3 or more of the 4 questions were missing (n=1,835, 1.79%). These procedures were recommended via correspondence by Stephen Blumberg, Director of the National Children's Health Survey at the National Center for Health Statistics.

Dependent Variables:

Disagreements scale: The NSCH includes several questions about how families deal with serious disagreements. These questions were drawn from the National Survey of Families and Households and from the Early Childhood Longitudinal Survey. They were modified slightly to

refer to all household members. The respondent is asked how often his/her response to disagreement falls in each of these levels (1) just to keep his/her opinions to his/herself; (2) discuss his/her disagreements calmly; (3) argue heatedly or shout; (4) end up hitting or throwing things. For each level of intensity, the response choices are “Never”, “Rarely”, “Sometimes”, “Usually”, or “Always”. We collapsed this variable into three levels as follows:

- (1) High: respondent reported hitting or throwing things “Rarely” to “Always”;
- (2) Medium: the respondent did not report hitting or throwing things and reported argue heatedly or shout “Sometimes” to “Always”;
- (3) Low: all other responses of which 82.3% reported “Usually” to “Always” discuss things calmly, 13% reported “Sometimes” discuss things calmly. The last category includes 1.99% of parents who responded “Rarely” or “Never” to the “discuss calmly” question but did not fall into the high or medium categories. We investigated what predicted this type of response to see if we were misclassifying respondents in a predictable way. Among households where English is the primary language, the rate was 1.43%, but among households where English was not the primary language, it was 8.64%, indicating some lack of interpretability of the questions.

Problems in children--We assessed the prevalence of two sorts of problems in children. First, we determined the prevalence of emotional, developmental or behavioral problems (EDB), defined as a “yes” response to one or more of four questions: “Does child have any kind of emotional, developmental, or behavioral problem for which he/she needs treatment or counseling (S2Q16)?” “Has a doctor or health professional ever told you that child has... ADD or ADHD (S2Q21)...depression or anxiety problems (S2Q22), ...behavioral or conduct problems (S2Q23)?” This prevalence was calculated for all children in the NSCH.

Because the EDB measure is based on reported professional diagnoses, it may fail to detect problems among children whose parents cannot afford services. For a more inclusive, although less specific, measure of child problems, we used positive responses to the question “During the past 12 months, how many times has [child’s] school contacted you or another adult in the household about any problems [he/she] is having with school? (S7Q04).” Prevalence of school problems was only assessed among children age 6 and older (n = 65,485).

Other Variables

A number of demographic characteristics that may be linked to exposure to violence also vary across race and residence. Unless otherwise specified, demographic variables from the NSCH use the categories already created and present in the public use files. Ecological characteristics of county of residence may affect both the prevalence of potential violence and the availability of resources to address it. Variables are defined as follows:

Demographic characteristics of child

- Age of Child
- Sex of child
- Child’s health insurance: defined as having private coverage, public coverage (Medicaid or S-CHIP) or having no health insurance coverage
- Child’s reported health: Response to “How would you describe the child’s health?” dichotomized from Excellent, Very Good, Good, Fair, Poor to “Excellent to Good” and “Fair to Poor”

Family characteristics

- Respondent’s relationship to the child (mother, father, other)

- Primary language in the home. Question S1Q06 contained data on the primary language spoken in the household. Of the 7,912 children living in households with a non-English language as the primary language (PLANGUAGE), 83.3% (n = 6,591) lived in Spanish-language households (NSCH documentation). To protect confidentiality, Spanish-language households could not be distinguished from other non-English-language households in the data file. For this study, we only knew if the primary language was English or not English.
- Region. Region of residence was categorized using state of residence and the region classification found at <http://www.cdc.gov/nchs/dataawh/nchsdefs/region.htm> (Accessed May 23, 2005).
- Highest level of education in household
- Employment: Yes/No response to “Was anyone in the household employed at least 50 weeks out of the past 52 weeks?”
- Family structure. This variable had four levels: 1) two-parent household which includes both a biological or adoptive mother and a biological or adoptive father; 2) two-parent household with both a mother and a father that includes at least one step-parent; 3) one-parent household with a biological, step, foster, or adoptive mother and no father of any type present; 4) all other family structures. Any of these four family structures may include other people who act as parents, such as grandparents, aunts, uncles, or unmarried partners of the parents. Legal guardians were not considered to be mothers or fathers.
- Number of children in household

- Family mobility. This variable was calculated for the study by dividing the number of times the child had moved by the child's age. The resulting rate was dichotomized; children in the highest quartile were designed as being from "high move" families, with all others characterized as "low move."
- Poverty status. Expressed as percent of the Federal poverty level. "Missing" status was retained in multivariate analysis as a categorical variable so as not to sacrifice observations. No attempt was made to impute missing values.
- Parent's health. This variable was designated as "fair to poor" if either parent was reported to be in fair to poor health. All other families constituted the reference category.

Community characteristics

- Perceived neighborhood support (see above)
- Percent county population in poverty, in quartiles. From 2000 Census; source ARF 2003.
- Percent of county housing that is owner-occupied, in quartiles. From 2000 Census; source ARF 2003.

Statistical analysis

We used SAS Callable SUDAAN to perform all analyses because the NSCH comes from a stratified sample of children intended to represent all children ages 0-17 in the United States. Weighting and sampling design were taken into account using SUDAAN software. Initial analysis described rural and urban families' demographic characteristics.

To test the first hypothesis, poverty, parental stress and violent disagreements were examined across rurality in total and stratified by race/ethnicity. Chi-square tests were used for comparisons across rural and urban and across race/ethnicity for poverty and violent disagreements. Parental stress measured from summing items in the NSCH was compared using Analysis of Variance (ANOVA) taking into account the sampling design of the study. Parenting stress as a categorical variable was compared using Chi-square test.

To test the second hypothesis, poverty status was modeled against parental stress using linear regression for the summed measure. We included two tests of interactions, one for race/ethnicity and poverty and another for rural/urban and poverty. These allowed us to test that the associations between poverty and parental stress would not be the same for rural/urban families and different race/ethnicity families.

To address the third hypothesis, we used generalized logit regression models, to assess the association between violent disagreements in the home and parental stress (continuous or categorical). The models contained parental stress, rural/urban residence, race/ethnicity, and the interactions between the family stress and the two other variables (residence and race/ethnicity). The interactions allowed formal testing of whether the associations differed for rural families versus urban and minority families versus non-Hispanic white. Last, the fourth hypothesis was answered by using logistic regression, in which the independent variables were parenting stress and violent disagreements in the home and the dependent variables were presence of any emotional or behavioral problems in the child and school problems.

Once final models were obtained from each hypothesis analysis, the modeling was performed with and without controlling for variables that have been found to be associated with parental stress and violence in the home.

Limitations

The NSCH is a self-report, telephone survey, and thus subject to the limitations associated with both of those characteristics, such as potential under-representation of minorities. In addition, there are distinct limitations in the measures of parenting stress, which paraphrase but do not duplicate the Parenting Stress Index. Therefore, since norms from PSI do not apply, we are using two measures for parenting stress: one summarized measure and one categorized measure. Nonetheless, the NSCH provides a unique national opportunity to assess the domestic and community environment of rural minority children.

Appendix B: Tables

Table B-1. Characteristics of US children by level of rurality. Data Source: 2003 National Survey of Children's Health (NSCH). (Shaded cells indicate that the estimate is based on a small number of observations and may not be reliable.)

| | Total | | Small Rural | | Medium Rural | | Large Rural | | MSA | |
|--|---------|------|-------------|------|--------------|------|-------------|------|---------|------|
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE | Percent | SE |
| Age* | | | | | | | | | | |
| 0-5 | 32.75 | 0.26 | 28.11 | 1.13 | 31.51 | 0.61 | 30.59 | 0.78 | 33.25 | 0.31 |
| 6-11 | 32.97 | 0.27 | 34.39 | 1.28 | 32.44 | 0.62 | 34.15 | 0.85 | 32.91 | 0.32 |
| 12-17 | 34.28 | 0.27 | 37.50 | 1.23 | 36.06 | 0.61 | 35.26 | 0.80 | 33.84 | 0.31 |
| Sex | | | | | | | | | | |
| Female | 48.88 | 0.28 | 50.33 | 1.30 | 49.06 | 0.65 | 47.74 | 0.86 | 48.90 | 0.33 |
| Race/Ethnicity* | | | | | | | | | | |
| Hispanic | 17.38 | 0.23 | 4.75 | 0.61 | 8.43 | 0.42 | 10.56 | 0.62 | 19.64 | 0.28 |
| NH White | 60.92 | 0.28 | 77.51 | 1.21 | 76.77 | 0.58 | 71.15 | 0.83 | 57.26 | 0.33 |
| African American | 14.36 | 0.21 | 12.58 | 1.08 | 10.31 | 0.44 | 10.26 | 0.57 | 15.34 | 0.25 |
| Other | 7.33 | 0.18 | 5.16 | 0.50 | 4.49 | 0.21 | 8.03 | 0.47 | 7.76 | 0.22 |
| Respondent's relation to child | | | | | | | | | | |
| Mother | 80.19 | 0.22 | 80.65 | 1.00 | 80.40 | 0.50 | 79.55 | 0.68 | 80.19 | 0.26 |
| Father | 15.43 | 0.20 | 13.80 | 0.85 | 15.11 | 0.46 | 15.83 | 0.60 | 15.50 | 0.23 |
| Other | 4.38 | 0.13 | 5.56 | 0.62 | 4.49 | 0.26 | 4.62 | 0.37 | 4.31 | 0.15 |
| Primary Language* | | | | | | | | | | |
| Not English | 12.48 | 0.23 | 2.07 | 0.36 | 4.30 | 0.31 | 5.40 | 0.47 | 14.57 | 0.28 |
| Region* | | | | | | | | | | |
| Northeast | 17.38 | 0.11 | 3.51 | 0.53 | 8.13 | 0.37 | 14.44 | 0.63 | 19.41 | 0.15 |
| Midwest | 22.60 | 0.11 | 36.23 | 1.16 | 31.80 | 0.55 | 24.48 | 0.70 | 20.67 | 0.15 |
| South | 36.22 | 0.15 | 50.39 | 1.27 | 47.50 | 0.62 | 32.94 | 0.79 | 34.37 | 0.19 |
| West | 23.81 | 0.17 | 9.87 | 0.54 | 12.57 | 0.41 | 28.14 | 0.76 | 25.55 | 0.21 |
| Highest education in household* | | | | | | | | | | |
| Less than high school | 7.70 | 0.19 | 8.33 | 0.97 | 6.64 | 0.38 | 5.76 | 0.47 | 8.00 | 0.22 |
| High school grad | 26.30 | 0.26 | 37.97 | 1.31 | 34.93 | 0.64 | 29.85 | 0.84 | 24.38 | 0.30 |
| More than high school | 65.99 | 0.28 | 53.70 | 1.32 | 58.43 | 0.66 | 64.39 | 0.87 | 67.62 | 0.33 |
| Family Structure* | | | | | | | | | | |
| Two parent, biological | 63.56 | 0.28 | 61.81 | 1.32 | 60.98 | 0.65 | 62.35 | 0.85 | 64.09 | 0.33 |
| Two parent, step | 8.59 | 0.16 | 10.98 | 0.85 | 11.70 | 0.46 | 10.40 | 0.51 | 7.92 | 0.18 |
| Single mother | 23.41 | 0.25 | 22.01 | 1.20 | 21.94 | 0.55 | 22.40 | 0.75 | 23.75 | 0.30 |

Table B-1, Continued. Characteristics of US children by level of rurality. Data Source: 2003 National Survey of Children's Health (NSCH).

| | | | | | | | | | | |
|------------------------------------|-------|------|-------|------|-------|------|-------|------|-------|------|
| Other | 4.43 | 0.12 | 5.20 | 0.59 | 5.38 | 0.29 | 4.86 | 0.34 | 4.23 | 0.14 |
| Total children in household | | | | | | | | | | |
| 3+ | 39.45 | 0.30 | 39.12 | 1.37 | 40.15 | 0.69 | 38.21 | 0.92 | 39.46 | 0.36 |
| 2 or less | 60.55 | 0.30 | 60.88 | 1.37 | 59.85 | 0.69 | 61.79 | 0.92 | 60.54 | 0.36 |
| Family mobility* | | | | | | | | | | |
| High | 10.33 | 0.18 | 9.63 | 0.75 | 11.60 | 0.44 | 12.08 | 0.57 | 10.03 | 0.21 |
| Employment* | | | | | | | | | | |
| Not employed or less than 49 weeks | 10.13 | 0.19 | 12.19 | 0.97 | 11.51 | 0.45 | 9.33 | 0.52 | 9.93 | 0.22 |
| Poverty* | | | | | | | | | | |
| <100% | 16.19 | 0.24 | 22.64 | 1.25 | 19.36 | 0.59 | 16.21 | 0.71 | 15.52 | 0.28 |
| 100-200% | 20.87 | 0.24 | 28.70 | 1.17 | 27.21 | 0.59 | 25.61 | 0.79 | 19.31 | 0.28 |
| 200-400% | 29.80 | 0.25 | 29.78 | 1.08 | 32.71 | 0.58 | 34.33 | 0.80 | 29.01 | 0.29 |
| 400%+ | 24.42 | 0.22 | 11.10 | 0.72 | 12.93 | 0.38 | 17.13 | 0.55 | 27.11 | 0.27 |
| MISSING | 8.72 | 0.17 | 7.79 | 0.72 | 7.79 | 0.34 | 6.72 | 0.42 | 9.05 | 0.20 |
| Poverty, excluding missing | | | | | | | | | | |
| <100% | 17.73 | 0.26 | 24.55 | 1.33 | 20.99 | 0.63 | 17.38 | 0.76 | 17.06 | 0.31 |
| 100-200% | 22.86 | 0.26 | 31.12 | 1.25 | 29.51 | 0.63 | 27.45 | 0.83 | 21.23 | 0.30 |
| 200-400% | 32.65 | 0.26 | 32.29 | 1.15 | 35.48 | 0.62 | 36.81 | 0.85 | 31.90 | 0.31 |
| 400%+ | 26.76 | 0.24 | 12.04 | 0.78 | 14.02 | 0.41 | 18.36 | 0.59 | 29.81 | 0.29 |
| Insurance* | | | | | | | | | | |
| Private | 64.01 | 0.28 | 52.00 | 1.31 | 56.56 | 0.66 | 63.33 | 0.85 | 65.53 | 0.33 |
| Public | 27.38 | 0.27 | 37.71 | 1.33 | 34.91 | 0.65 | 28.11 | 0.82 | 25.89 | 0.32 |
| None | 8.61 | 0.17 | 10.29 | 0.86 | 8.53 | 0.36 | 8.56 | 0.48 | 8.57 | 0.20 |
| Child's health | | | | | | | | | | |
| Fair to poor | 3.18 | 0.11 | 3.16 | 0.52 | 3.10 | 0.24 | 2.54 | 0.27 | 3.24 | 0.13 |
| Parent's health | | | | | | | | | | |
| Fair to poor | 13.05 | 0.2 | 15.35 | 1.00 | 13.68 | 0.46 | 13.9 | 0.69 | 12.81 | 0.24 |

*Differences across rurality: age (p<0.0001), race/ethnicity (p<0.0001), primary language (p<0.0001), region (p<0.0001), education (p<0.0001), family structure (p<0.0001), family mobility (p=0.0002), employment (p=0.0007), poverty with missing (p<0.0001), poverty without missing (p<0.0001), insurance (p<0.0001).

Table B-2. Poverty by race/ethnicity and level of rurality. Includes respondents for whom poverty is “missing.” Data Source: NSCH 2003. (Shaded cell indicates that estimate is based on a small number of observations and may be unreliable.)

| | Total, all children | | Small rural | | Medium Rural | | Large Rural | | Urban | |
|-------------------------|---------------------|------|-------------|------|--------------|------|-------------|------|---------|------|
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE | Percent | SE |
| Total | | | | | | | | | | |
| <100% | 16.19 | 0.24 | 22.64 | 1.25 | 19.36 | 0.59 | 16.21 | 0.71 | 15.52 | 0.28 |
| 100-200% | 20.87 | 0.24 | 28.7 | 1.17 | 27.21 | 0.59 | 25.61 | 0.79 | 19.31 | 0.28 |
| 200-400% | 29.8 | 0.25 | 29.78 | 1.08 | 32.71 | 0.58 | 34.33 | 0.8 | 29.01 | 0.29 |
| 400%+ | 24.42 | 0.22 | 11.1 | 0.72 | 12.93 | 0.38 | 17.13 | 0.55 | 27.11 | 0.27 |
| Missing | 8.72 | 0.17 | 7.79 | 0.72 | 7.79 | 0.34 | 6.72 | 0.42 | 9.05 | 0.2 |
| Hispanic | | | | | | | | | | |
| <100% | 35.15 | 0.81 | 44.39 | 6.95 | 34.1 | 2.6 | 34.4 | 2.9 | 35.18 | 0.88 |
| 100-200% | 26.33 | 0.7 | 23.76 | 4.49 | 31.98 | 2.46 | 26.47 | 2.67 | 25.98 | 0.75 |
| 200-400% | 16.14 | 0.53 | 14.47 | 2.97 | 17.07 | 2.1 | 22.76 | 3.03 | 15.82 | 0.56 |
| 400%+ | 7.84 | 0.34 | 5.42 | 1.79 | 5.23 | 1.07 | 5.1 | 1.13 | 8.14 | 0.37 |
| Missing | 14.54 | 0.6 | 11.96 | 3.69 | 11.63 | 1.56 | 11.27 | 2.01 | 14.88 | 0.65 |
| NH White | | | | | | | | | | |
| <100% | 7.96 | 0.2 | 17.86 | 1.31 | 14.1 | 0.58 | 9.92 | 0.68 | 6.14 | 0.22 |
| 100-200% | 17.89 | 0.26 | 28.79 | 1.28 | 26.32 | 0.66 | 24.34 | 0.9 | 15.12 | 0.3 |
| 200-400% | 35.8 | 0.3 | 33.59 | 1.22 | 37.34 | 0.68 | 38.87 | 0.93 | 35.29 | 0.36 |
| 400%+ | 31.35 | 0.28 | 12.97 | 0.86 | 15.04 | 0.46 | 21.03 | 0.7 | 36.36 | 0.35 |
| Missing | 7.01 | 0.16 | 6.8 | 0.63 | 7.2 | 0.36 | 5.84 | 0.42 | 7.09 | 0.19 |
| African American | | | | | | | | | | |
| <100% | 28.83 | 0.79 | 36.04 | 4.49 | 42.28 | 2.34 | 34.05 | 2.88 | 27.04 | 0.88 |
| 100-200% | 27.34 | 0.75 | 30.65 | 4.29 | 29.52 | 2 | 31.02 | 2.87 | 26.84 | 0.84 |
| 200-400% | 22.25 | 0.64 | 16.18 | 3.21 | 13.5 | 1.29 | 20.44 | 2.19 | 23.37 | 0.73 |
| 400%+ | 12.08 | 0.45 | 3.74 | 1.81 | 4.38 | 0.71 | 5.44 | 1.12 | 13.41 | 0.53 |
| Missing | 9.51 | 0.48 | 13.39 | 3.82 | 10.32 | 1.33 | 9.05 | 1.7 | 9.35 | 0.54 |
| Other | | | | | | | | | | |
| <100% | 14.8 | 0.93 | 41.72 | 4.79 | 29.02 | 2.24 | 25.18 | 3.12 | 12.17 | 1.04 |
| 100-200% | 20 | 1.08 | 27.17 | 4.69 | 28.25 | 2.1 | 28.77 | 2.54 | 18.43 | 1.25 |
| 200-400% | 27.15 | 1.17 | 19.8 | 3.79 | 27.09 | 2.18 | 27.16 | 2.65 | 27.31 | 1.35 |
| 400%+ | 30.38 | 1.2 | 6.25 | 2.1 | 10.82 | 1.54 | 13.31 | 1.69 | 33.96 | 1.41 |
| Missing | 7.66 | 0.72 | 5.06 | 1.74 | 4.83 | 0.83 | | 1.23 | 8.12 | 0.84 |

Table B-2, continued. Poverty by race/ethnicity and level of rurality*, excluding “missing.” Data Source: 2003 NSCH.

| | Total, all children | | Small rural | | Medium rural | | Large rural | | Urban | |
|-------------------------|---------------------|------|-------------|------|--------------|------|-------------|------|---------|------|
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE | Percent | SE |
| Total | | | | | | | | | | |
| <100% | 17.73 | 0.26 | 24.55 | 1.33 | 20.99 | 0.63 | 17.38 | 0.76 | 17.06 | 0.31 |
| 100-200% | 22.86 | 0.26 | 31.12 | 1.25 | 29.51 | 0.63 | 27.45 | 0.83 | 21.23 | 0.30 |
| 200-400% | 32.65 | 0.26 | 32.29 | 1.15 | 35.48 | 0.62 | 36.81 | 0.85 | 31.90 | 0.31 |
| 400%+ | 26.76 | 0.24 | 12.04 | 0.78 | 14.02 | 0.41 | 18.36 | 0.59 | 29.81 | 0.29 |
| Hispanic | | | | | | | | | | |
| <100% | 41.13 | 0.88 | 50.42 | 7.09 | 38.58 | 2.85 | 38.77 | 3.18 | 41.33 | 0.96 |
| 100-200% | 30.8 | 0.79 | 26.99 | 5.16 | 36.18 | 2.72 | 29.83 | 2.95 | 30.53 | 0.86 |
| 200-400% | 18.89 | 0.62 | 16.43 | 3.44 | 19.31 | 2.35 | 25.65 | 3.32 | 18.58 | 0.65 |
| 400%+ | 9.17 | 0.39 | 6.16 | 2.05 | 5.92 | 1.21 | 5.75 | 1.28 | 9.56 | 0.43 |
| NH White | | | | | | | | | | |
| <100% | 8.56 | 0.21 | 19.16 | 1.39 | 15.19 | 0.62 | 10.54 | 0.72 | 6.61 | 0.23 |
| 100-200% | 19.23 | 0.27 | 30.89 | 1.35 | 28.36 | 0.70 | 25.85 | 0.95 | 16.28 | 0.32 |
| 200-400% | 38.49 | 0.31 | 36.04 | 1.31 | 40.24 | 0.72 | 41.28 | 0.98 | 37.98 | 0.38 |
| 400%+ | 33.71 | 0.30 | 13.91 | 0.92 | 16.21 | 0.49 | 22.33 | 0.74 | 39.14 | 0.37 |
| African American | | | | | | | | | | |
| <100% | 31.86 | 0.85 | 41.61 | 4.84 | 47.15 | 2.46 | 37.44 | 3.08 | 29.83 | 0.95 |
| 100-200% | 30.21 | 0.81 | 35.39 | 4.70 | 32.92 | 2.20 | 34.11 | 3.07 | 29.61 | 0.91 |
| 200-400% | 24.59 | 0.70 | 18.68 | 3.63 | 15.06 | 1.43 | 22.48 | 2.39 | 25.78 | 0.80 |
| 400%+ | 13.35 | 0.50 | 4.32 | 2.08 | 4.88 | 0.79 | 5.98 | 1.23 | 14.79 | 0.58 |
| Other | | | | | | | | | | |
| <100% | 16.03 | 0.99 | 43.95 | 4.99 | 30.49 | 2.33 | 26.67 | 3.26 | 13.25 | 1.12 |
| 100-200% | 21.66 | 1.15 | 28.62 | 4.89 | 29.69 | 2.19 | 30.47 | 2.68 | 20.06 | 1.34 |
| 200-400% | 29.4 | 1.24 | 20.85 | 3.97 | 28.46 | 2.27 | 28.76 | 2.79 | 29.73 | 1.45 |
| 400%+ | 32.9 | 1.28 | 6.59 | 2.21 | 11.36 | 1.62 | 14.10 | 1.79 | 36.96 | 1.50 |

*Poverty differences across rurality, $p < 0.0001$; poverty differences across race/ethnicity $p < 0.0001$.

Table B-3. County level poverty by race/ethnicity* and level of rurality**. Data sources: US 2003 NSCH and 2003 ARF. (Shaded cells indicate estimates that are unreliable, due to small sample sizes.)

| | Total, all children | | Small rural | | Medium Rural | | Large Rural | | Urban | |
|-------------------------|---------------------|------|-------------|------|--------------|------|-------------|------|---------|------|
| | Percent | SE | Percent | SE | Percent | SE | Percent | SC | Percent | SE |
| Total | | | | | | | | | | |
| 0-<8.1% | 24.18 | 0.21 | 8.51 | 0.61 | 11.17 | 0.36 | 10.90 | 0.42 | 27.64 | 0.26 |
| 8.1 - <10.6% | 19.94 | 0.21 | 15.16 | 0.84 | 17.70 | 0.47 | 20.66 | 0.66 | 20.36 | 0.25 |
| 10.6 - < 13.8% | 25.81 | 0.24 | 26.71 | 1.15 | 23.30 | 0.54 | 29.94 | 0.75 | 25.82 | 0.28 |
| 13.8+% | 30.07 | 0.26 | 49.62 | 1.29 | 47.78 | 0.64 | 38.50 | 0.87 | 26.18 | 0.31 |
| Hispanic | | | | | | | | | | |
| 0-<8.1% | 13.54 | 0.50 | 7.51 | 2.33 | 6.88 | 0.96 | 5.13 | 0.96 | 14.37 | 0.55 |
| 8.1 - <10.6% | 15.39 | 0.56 | 13.16 | 3.23 | 14.65 | 2.20 | 13.72 | 1.59 | 15.52 | 0.60 |
| 10.6 - < 13.8% | 25.11 | 0.67 | 25.10 | 4.82 | 19.17 | 1.79 | 22.47 | 1.98 | 25.60 | 0.73 |
| 13.8+% | 45.96 | 0.81 | 54.23 | 6.29 | 59.30 | 2.58 | 58.68 | 2.82 | 44.51 | 0.87 |
| NH White | | | | | | | | | | |
| 0-<8.1% | 29.34 | 0.26 | 9.88 | 0.73 | 13.26 | 0.45 | 13.61 | 0.56 | 34.89 | 0.33 |
| 8.1 - <10.6% | 22.74 | 0.25 | 17.51 | 0.98 | 20.20 | 0.54 | 23.93 | 0.82 | 23.34 | 0.31 |
| 10.6 - < 13.8% | 26.40 | 0.27 | 29.80 | 1.29 | 25.65 | 0.63 | 33.15 | 0.89 | 25.73 | 0.33 |
| 13.8+% | 21.52 | 0.28 | 42.81 | 1.39 | 40.88 | 0.71 | 29.32 | 0.94 | 16.04 | 0.33 |
| African American | | | | | | | | | | |
| 0-<8.1% | 13.64 | 0.50 | 0.09 | 0.09 | 0.36 | 0.19 | 1.91 | 0.55 | 15.92 | 0.59 |
| 8.1 - <10.6% | 12.71 | 0.56 | 3.89 | 2.08 | 3.11 | 0.73 | 11.55 | 2.19 | 13.95 | 0.64 |
| 10.6 - < 13.8% | 27.61 | 0.75 | 9.88 | 3.55 | 11.94 | 1.40 | 23.21 | 2.64 | 29.85 | 0.85 |
| 13.8+% | 46.04 | 0.82 | 86.14 | 3.95 | 84.59 | 1.56 | 63.33 | 2.98 | 40.28 | 0.91 |
| Other | | | | | | | | | | |
| 0-<8.1% | 27.15 | 1.16 | 9.40 | 3.10 | 8.34 | 1.28 | 5.95 | 0.92 | 30.87 | 1.36 |
| 8.1 - <10.6% | 21.66 | 1.08 | 9.08 | 2.46 | 14.06 | 1.82 | 12.54 | 1.35 | 23.32 | 1.27 |
| 10.6 - < 13.8% | 19.06 | 0.89 | 22.88 | 4.60 | 17.92 | 1.89 | 19.89 | 2.05 | 19.00 | 1.03 |
| 13.8+% | 32.16 | 1.30 | 58.64 | 4.95 | 59.68 | 2.39 | 61.61 | 2.66 | 26.81 | 1.52 |

* Race/ethnicity differences significant for total (p<0.0001), all rural areas (p<0.0001), and urban (p<0.0001)

**Rurality differences for total and all race/ethnicity groups (p<0.0001)

Table B-4. Mean parenting stress scale values and the percentages reporting high stress by race/ethnicity and residence. Data source: 2003 NSCH.

| Parental Stress Scale | | | | | | | | | | | |
|-----------------------------|---------|-----------|-------------|-----------|--------------|-----------|-------------|-----------|---------|-----------|---------------------|
| | Total | | Small Rural | | Medium Rural | | Large Rural | | Urban | | p-value rural/urban |
| | LS Mean | 95% CI | LS Mean | 95% CI | LS Mean | 95% CI | LS Mean | 95% CI | LS Mean | 95% CI | |
| Total | 4.82 | 4.80-4.83 | 4.74 | 4.67-4.81 | 4.75 | 4.71-4.79 | 4.73 | 4.69-4.77 | 4.84 | 4.82-4.86 | <0.0001 |
| Hispanic | 4.97 | 4.93-5.02 | 4.76 | 4.47-5.04 | 4.89 | 4.75-5.04 | 5.00 | 4.86-5.14 | 4.98 | 4.93-5.03 | 0.3215 |
| NH White | 4.73 | 4.71-4.75 | 4.71 | 4.63-4.79 | 4.68 | 4.64-4.75 | 4.65 | 4.61-4.70 | 4.75 | 4.73-4.77 | 0.0001 |
| African American | 4.98 | 4.93-5.03 | 4.84 | 4.61-5.07 | 5.18 | 5.02-5.35 | 4.94 | 4.77-5.10 | 4.96 | 4.09-5.02 | 0.0436 |
| Other | 4.86 | 4.78-4.95 | 4.89 | 4.61-5.18 | 4.71 | 4.60-4.83 | 4.83 | 4.67-4.99 | 4.88 | 4.78-4.97 | 0.1938 |
| % Reporting High Stress | | | | | | | | | | | |
| | % | SE | % | SE | % | SE | % | SE | % | SE | p-value rural/urban |
| Total | 25.80 | 0.25 | 24.11 | 1.11 | 23.34 | 0.56 | 23.19 | 0.71 | 26.43 | 0.30 | <0.0001 |
| Hispanic | 33.26 | 0.78 | 27.65 | 5.88 | 29.29 | 2.47 | 33.86 | 2.96 | 33.53 | 0.85 | 0.3172 |
| NH White | 22.63 | 0.26 | 23.42 | 1.20 | 21.36 | 0.60 | 20.56 | 0.74 | 23.05 | 0.32 | 0.0031 |
| African American | 29.32 | 0.76 | 25.29 | 3.80 | 33.19 | 2.17 | 28.94 | 2.63 | 29.06 | 0.85 | 0.2277 |
| Other | 27.63 | 1.20 | 28.32 | 4.59 | 23.43 | 1.92 | 25.12 | 2.51 | 28.18 | 1.40 | 0.2230 |
| p-values for race/ethnicity | <0.0001 | | 0.6582 | | <0.0001 | | <0.0001 | | <0.0001 | | |

Table B-5 Parental stress by poverty (family and community level), race/ethnicity, and rurality.
Data Source: 2003 NSCH.

| Parental Stress Scale | | | | | |
|------------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|--|
| | <100% LS Mean (SE) | 100-200% LS Mean (SE) | 200-400% LS Mean (SE) | >400% LS Mean (SE) | |
| Hispanic | 5.09 (0.04) | 4.98 (0.04) | 4.81 (0.05) | 4.58 (0.06) | |
| NH White | 4.93 (0.04) | 4.79 (0.02) | 4.73 (0.01) | 4.68 (0.01) | |
| African American | 5.20 (0.06) | 5.06 (0.05) | 4.77 (0.05) | 4.69 (0.05) | |
| Other | 5.18 (0.12) | 4.98 (0.14) | 4.76 (0.07) | 4.74 (0.06) | |
| Community level poverty | | | | | |
| % Reporting High Stress | 0-<8.1% % (SE) | 8.1%-<10.6% % (SE) | 10.6%-<13.8% % (SE) | 13.8%+ % (SE) | p-value for poverty effects |
| Total | 24.2 (0.4) | 25.0 (0.5) | 25.9 (0.5) | 27.6 (0.5) | <0.0001 |
| Rural (non- MSA) | 22.6 (1.0) | 22.4 (0.9) | 22.7 (0.8) | 24.4 (0.7) | 0.1894 |
| Urban (MSA) | 24.3 (0.5) | 25.6 (0.6) | 26.7 (0.6) | 29.0 (0.7) | <0.0001 |
| Hispanic | 32.3 (1.9) | 31.1 (1.8) | 35.3 (1.5) | 33.2 (1.3) | 0.3119 |
| NH White | 22.6 (0.4) | 23.4 (0.5) | 22.4 (0.5) | 22.1 (0.6) | 0.4224 |
| NH Black | 24.9 (1.6) | 25.5 (2.0) | 30.4 (1.6) | 31.1 (1.1) | 0.0044 |
| NH Other | 28.3 (2.3) | 28.6 (2.8) | 23.4 (2.0) | 29.0 (2.3) | 0.1973 |

Table B-6. Factors affecting parenting stress, multivariable analysis. Data Source: 2003 NSCH.

| Characteristic | Level of Characteristic | LSMean | SE | P value |
|---|--------------------------------|--------|------|---------|
| Residence | Rural | 4.78 | 0.02 | 0.0249 |
| | Urban | 4.82 | 0.01 | |
| Poverty and race/ethnicity | <100%, Hispanic | 4.76 | 0.06 | 0.0343 |
| | <100%, NH White | 4.74 | 0.05 | |
| | <100%, African American | 4.89 | 0.06 | |
| | <100%, Other | 4.99 | 0.12 | |
| | 100-200%, Hispanic | 4.81 | 0.05 | |
| | 100-200%, NH White | 4.79 | 0.02 | |
| | 100-200%, African American | 4.92 | 0.05 | |
| | 100-200%, Other | 4.92 | 0.14 | |
| | 200-400%, Hispanic | 4.81 | 0.05 | |
| | 200-400%, NH White | 4.82 | 0.02 | |
| | 200-400%, African American | 4.74 | 0.05 | |
| | 200-400%, Other | 4.83 | 0.07 | |
| | 400%+, Hispanic | 4.81 | 0.06 | |
| | 400%+, NH White | 4.82 | 0.02 | |
| | 400%+, African American | 4.74 | 0.05 | |
| | 400%+, Other | 4.83 | 0.06 | |
| | Missing, Hispanic | 4.71 | 0.08 | |
| Missing, NH White | 4.72 | 0.03 | | |
| Missing, African American | 4.72 | 0.09 | | |
| Missing, Other | 4.77 | 0.1 | | |
| Age of child | 0-5 | 4.57 | 0.02 | 0.0000 |
| | 6-11 | 4.87 | 0.01 | |
| | 12-17 | 4.98 | 0.01 | |
| Sex of child | Male | 4.86 | 0.01 | 0.0000 |
| | Female | 4.75 | 0.01 | |
| Child's health | Fair to poor | 5.38 | 0.06 | 0.0001 |
| | Excellent to good | 4.79 | 0.01 | |
| Respondent's relationship To child | Mother | 4.84 | 0.01 | 0.0000 |
| | Father | 4.67 | 0.02 | |
| | Other | 4.7 | 0.06 | |
| Primary language in home | English | 4.79 | 0.01 | 0.0009 |
| | Other | 4.97 | 0.05 | |
| Highest level of education | Less than high school graduate | 4.95 | 0.05 | 0.0355 |
| | High school graduate | 4.81 | 0.02 | |
| | More than high school | 4.8 | 0.01 | |
| Family structure | 2-Parent Biological/Adoptive | 4.73 | 0.01 | 0.0000 |
| | 2-Parent Step Family | 4.99 | 0.03 | |
| | Single mother | 4.95 | 0.02 | |
| | Other | 4.9 | 0.04 | |
| Children in household | 3 or more | 4.86 | 0.02 | 0.0001 |
| | 1-2 | 4.79 | 0.01 | |
| Family mobility (moves per year) | High | 4.93 | 0.03 | 0.0000 |
| | Other | 4.8 | 0.01 | |

Table B-6, continued. Factors affecting parenting stress, multivariable analysis. Data Source: 2003 NSCH.

| | | | | |
|--|----------------------------|------|------|--------|
| Employment | ≥ 50 weeks | 4.8 | 0.01 | 0.0000 |
| | ≤ 49 weeks or not employed | 4.94 | 0.03 | |
| Parent's health | Fair to Poor | 5.1 | 0.03 | 0.0000 |
| | Excellent to Good | 4.77 | 0.01 | |
| Neighborhood characteristics | Low trust | 5.02 | 0.03 | 0.0000 |
| | Other | 4.78 | 0.01 | |
| Percent county population below Poverty level, in quartiles | 0 - <8.1 | 4.85 | 0.02 | 0.0076 |
| | 8.1 - <10.6 | 4.84 | 0.02 | |
| | 10.6 - < 13.8 | 4.8 | 0.02 | |
| | 13.8+ | 4.77 | 0.02 | |
| Percent owner-occupied housing in county, in quartiles | 0 - <63.1 | 4.85 | 0.02 | 0.0036 |
| | 63.1 - <69.1 | 4.82 | 0.02 | |
| | 69.1 - < 74.8 | 4.8 | 0.02 | |
| | 74.8+ | 4.76 | 0.02 | |

Table B-7. Disagreement style by rurality* and race/ethnicity**. Data Source: 2003 NSCH. (Shaded cells indicate estimates based on a small number of observations and may be unreliable.)

| | Total | | Small rural | | Medium rural | | Large rural | | Urban | |
|-------------------------|---------|------|-------------|------|--------------|------|-------------|------|---------|------|
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE | Percent | SE |
| All Children | | | | | | | | | | |
| Hit, throw | 10.29 | 0.19 | 9.90 | 0.86 | 8.26 | 0.37 | 8.75 | 0.51 | 10.72 | 0.22 |
| Argue, shout | 31.49 | 0.27 | 29.43 | 1.20 | 31.27 | 0.62 | 30.65 | 0.80 | 31.65 | 0.31 |
| Discuss calmly | 58.23 | 0.28 | 60.67 | 1.29 | 60.47 | 0.65 | 60.60 | 0.85 | 57.63 | 0.33 |
| Hispanic | | | | | | | | | | |
| Hit, throw | 11.34 | 0.52 | 17.93 | 7.53 | 10.87 | 1.56 | 11.78 | 1.75 | 11.30 | 0.56 |
| Argue, shout | 31.95 | 0.77 | 31.43 | 6.06 | 34.46 | 2.63 | 32.79 | 3.07 | 31.76 | 0.83 |
| Discuss calmly | 56.71 | 0.81 | 50.65 | 6.61 | 54.67 | 2.69 | 55.44 | 3.15 | 56.94 | 0.87 |
| NH White | | | | | | | | | | |
| Hit, throw | 8.64 | 0.19 | 8.32 | 0.74 | 7.40 | 0.39 | 7.01 | 0.53 | 9.05 | 0.24 |
| Argue, shout | 29.94 | 0.29 | 28.61 | 1.27 | 29.76 | 0.68 | 29.94 | 0.89 | 30.03 | 0.35 |
| Discuss calmly | 61.42 | 0.31 | 63.07 | 1.34 | 62.84 | 0.71 | 63.05 | 0.95 | 60.91 | 0.37 |
| African American | | | | | | | | | | |
| Hit, throw | 15.10 | 0.62 | 15.40 | 3.74 | 12.25 | 1.54 | 17.81 | 2.44 | 15.22 | 0.69 |
| Argue, shout | 37.43 | 0.81 | 34.50 | 4.58 | 40.13 | 2.26 | 35.67 | 2.88 | 37.34 | 0.90 |
| Discuss calmly | 47.47 | 0.82 | 50.09 | 4.73 | 47.62 | 2.28 | 46.52 | 2.97 | 47.44 | 0.92 |
| Other | | | | | | | | | | |
| Hit, throw | 12.09 | 0.96 | 12.84 | 3.87 | 8.87 | 1.45 | 8.63 | 1.31 | 12.64 | 1.13 |
| Argue, shout | 31.60 | 1.24 | 27.64 | 3.97 | 30.74 | 2.20 | 27.70 | 2.52 | 32.08 | 1.45 |
| Discuss calmly | 56.31 | 1.33 | 59.52 | 4.77 | 60.39 | 2.36 | 63.67 | 2.74 | 55.29 | 1.54 |

*Residence effects are significant in the total population ($p < 0.0001$) and among White children ($p = 0.0006$).

**Race effects were not significant within smallest rural but were significant for all larger categories ($p < 0.0001$).

Table B-8. Prevalence of violent (hit, throw) and heated (argue, shout) disagreements, by characteristics of the child and family. Data Source: 2003 NSCH.

| Characteristics of child | | | % | SE | p value |
|------------------------------------|-------------------|--------------|-------|------|---------|
| Age of child | 0 – 5 | Hit, throw | 8.27 | 0.3 | 0.0000 |
| | | Argue, shout | 24.02 | 0.44 | |
| | 6 – 11 | Hit, throw | 11.28 | 0.35 | |
| | | Argue, shout | 33.53 | 0.48 | |
| | 12-17 | Hit, throw | 11.25 | 0.32 | |
| | | Argue, shout | 36.64 | 0.46 | |
| Sex | Male | Hit, throw | 10.58 | 0.26 | 0.0078 |
| | | Argue, shout | 32.05 | 0.38 | |
| | Female | Hit, throw | 9.98 | 0.27 | |
| | | Argue, shout | 30.9 | 0.38 | |
| Child's health insurance | Private | Hit, throw | 9.25 | 0.21 | 0.0000 |
| | | Argue, shout | 30.57 | 0.31 | |
| | Public | Hit, throw | 12.37 | 0.43 | |
| | | Argue, shout | 32.82 | 0.57 | |
| | None | Hit, throw | 11.24 | 0.67 | |
| | | Argue, shout | 34 | 1.02 | |
| Child's health | Fair to poor | Hit, throw | 17.09 | 1.43 | 0.0000 |
| | | Argue, shout | 33.79 | 1.73 | |
| | Good to excellent | Hit, throw | 10.06 | 0.19 | |
| | | Argue, shout | 31.4 | 0.27 | |
| Characteristics of parent/family | | | | | |
| Respondent's relationship to child | Mother | Hit, throw | 10.88 | 0.21 | 0.0000 |
| | | Argue, shout | 31.97 | 0.3 | |
| | Father | Hit, throw | 7.1 | 0.39 | |
| | | Argue, shout | 28.75 | 0.62 | |
| | Other | Hit, throw | 10.55 | 0.99 | |
| | | Argue, shout | 32.16 | 1.38 | |
| Primary language in home | English | Hit, throw | 9.94 | 0.19 | 0.0009 |
| | | Argue, shout | 31.56 | 0.27 | |
| | Other | Hit, throw | 12.73 | 0.72 | |
| | | Argue, shout | 30.9 | 0.98 | |
| Region | Northeast | Hit, throw | 11.64 | 0.46 | 0.0000 |
| | | Argue, shout | 33.8 | 0.61 | |
| | Midwest | Hit, throw | 9.87 | 0.3 | |
| | | Argue, shout | 30.7 | 0.44 | |
| | South | Hit, throw | 10.08 | 0.29 | |
| | | Argue, shout | 31.45 | 0.41 | |
| | West | Hit, throw | 10.00 | 0.49 | |
| | | Argue, shout | 30.6 | 0.7 | |

Table B-8, continued. Prevalence of violent (hit, throw) and heated (argue, shout) disagreements, by characteristics of the child and family. Data Source: 2003 NSCH.

| | | | | | |
|---|-----------------------------------|--------------|-------|------|--------|
| Highest level of education in household | Less than high school | Hit, throw | 13.78 | 0.93 | 0.0000 |
| | | Argue, shout | 34.63 | 1.23 | |
| | High school | Hit, throw | 11.15 | 0.39 | |
| | | Argue, shout | 33.69 | 0.56 | |
| | More than high school | Hit, throw | 9.55 | 0.21 | |
| | | Argue, shout | 30.22 | 0.31 | |
| Family Structure | 2parent biological | Hit, throw | 9.03 | 0.21 | 0.0000 |
| | | Argue, shout | 29.43 | 0.32 | |
| | 2 parent step | Hit, throw | 9.21 | 0.59 | |
| | | Argue, shout | 34.44 | 0.93 | |
| | Single mother | Hit, throw | 14.25 | 0.48 | |
| | | Argue, shout | 36.03 | 0.62 | |
| | Other | Hit, throw | 8.21 | 0.85 | |
| | | Argue, shout | 29.96 | 1.22 | |
| Children in household | 3 or more | Hit, throw | 12.71 | 0.39 | 0.0000 |
| | | Argue, shout | 33.17 | 0.53 | |
| | 1 - 2 | Hit, throw | 8.71 | 0.18 | |
| | | Argue, shout | 30.39 | 0.27 | |
| Family mobility | High | Hit, throw | 10.18 | 0.61 | 0.0000 |
| | | Argue, shout | 27.37 | 0.82 | |
| | Low | Hit, throw | 10.32 | 0.2 | |
| | | Argue, shout | 31.94 | 0.28 | |
| Employment | Employed ≥50 weeks | Hit, throw | 9.89 | 0.19 | 0.0000 |
| | | Argue, shout | 31.11 | 0.28 | |
| | Employed < 50 weeks or not at all | Hit, throw | 13.82 | 0.77 | |
| | | Argue, shout | 34.64 | 0.92 | |
| Health of parents | Fair to poor, at least one parent | Hit, throw | 15.03 | 0.68 | 0.0000 |
| | | Argue, shout | 38.32 | 0.82 | |
| | Good to excellent | Hit, throw | 9.58 | 0.19 | |
| | | Argue, shout | 30.45 | 0.28 | |

Table B-9. Disagreement style by poverty and parenting stress. Data Source: 2003 NSCH.

| Characteristics of child | | | % | SE | p value |
|---------------------------------|--------------|--------------|----------|-----------|----------------|
| Poverty status | <100% | Hit, throw | 13.15 | 0.61 | 0.0000 |
| | | Argue, shout | 35.02 | 0.8 | |
| | 100-200% | Hit, throw | 12.05 | 0.47 | |
| | | Argue, shout | 32.6 | 0.62 | |
| | 200-400% | Hit, throw | 9.30 | 0.28 | |
| | | Argue, shout | 31.2 | 0.45 | |
| | 400%+ | Hit, throw | 8.00 | 0.29 | |
| | | Argue, shout | 28.92 | 0.46 | |
| MISSING | Hit, throw | 10.56 | 0.65 | | |
| | Argue, shout | 30.44 | 0.97 | | |
| Parenting stress | High | Hit, throw | 17.92 | 0.46 | 0.0000 |
| | | Argue, shout | 40.18 | 0.57 | |
| | Low | Hit, throw | 7.63 | 0.19 | |
| | | Argue, shout | 28.46 | 0.30 | |

Table B-10. Effects of residence, race/ethnicity, and parental stress on disagreement style, holding child, parent, and community characteristics constant. Data Source: 2003 NSCH.

| | Hit, throw versus discuss Calmly | | Argue, shout versus discuss calmly | |
|---|-------------------------------------|-----------|---------------------------------------|------------|
| | OR | 95% CI | OR | 95% CI |
| Residence (reference: urban) | | | | |
| Rural | 0.86 | 0.77 0.95 | 0.98 | 0.92 1.05 |
| Race/Ethnicity (reference: white) | | | | |
| Hispanic | 1.03 | 0.87 1.21 | 1.07 | 0.95 1.20 |
| African-American | 1.73 | 1.51 1.98 | 1.41 | 1.29 1.54 |
| Other | 1.38 | 1.14 1.67 | 1.17 | 1.04 1.33 |
| Parenting stress (reference: low) | | | | |
| High Stress | 3.17 | 2.91 3.47 | 1.99 | 1.87 2.12 |
| Characteristics of the child | | | | |
| Age (reference: 12-17 years) | | | | |
| 0-5 | 0.59 | 0.53 0.67 | 0.53 | 0.50 0.57 |
| 6-11 | 0.96 | 0.87 1.06 | 0.87 | 0.82 -0.93 |
| Sex (reference: female) | | | | |
| Male | 1.09 | 1.00 1.19 | 1.07 | 1.02 1.13 |
| Child's health (reference: good to ex.) | | | | |
| Fair to poor | 1.14 | 0.90 1.44 | 0.85 | 0.71 1.03 |
| Child's health insurance (referent: private) | | | | |
| Public | 0.95 | 0.84 1.07 | 0.93 | 0.86 1.01 |
| None | 0.98 | 0.82 1.16 | 1.05 | 0.94 1.17 |
| Characteristics of parent and household | | | | |
| Respondent's relation to child (referent: mother) | | | | |
| Father | 0.69 | 0.61 0.80 | 0.88 | 0.81 0.94 |
| Other | 0.54 | 0.39 0.75 | 0.79 | 0.66 0.94 |
| Primary language (reference: English) | | | | |
| Not English | 1.03 | 0.85 1.25 | 0.85 | 0.74 0.98 |
| Region (referent: West) | | | | |
| Northeast | 1.36 | 1.17 1.58 | 1.22 | 1.12 1.33 |
| Midwest | 1.10 | 0.96 1.27 | 1.04 | 0.96 1.13 |
| South | 1.07 | 0.94 1.23 | 1.02 | 0.94 1.11 |
| Highest level of education (ref: > HS) | | | | |
| Less than high school | 1.05 | 0.86 1.29 | 1.14 | 0.99 1.31 |
| High school gra | 0.99 | 0.89 1.10 | 1.08 | 1.01 1.15 |
| Family structure (referent: 2-parent, biological) | | | | |
| 2-parent step family | 0.78 | 0.66 0.92 | 0.95 | 0.87 1.05 |
| Single mother | 1.31 | 1.16 1.48 | 1.15 | 1.07 1.24 |
| Other | 0.92 | 0.72 1.16 | 0.95 | 0.82 1.10 |
| Total children (referent: 1 - 2) | | | | |
| 3+ children | 1.57 | 1.44 1.72 | 1.19 | 1.12 1.26 |
| Family mobility (referent: low) | | | | |

Table B-10, continued. Effects of residence, race/ethnicity, and parental stress on disagreement style, holding child, parent, and community characteristics constant. Data Source: 2003 NSCH.

| | | | | |
|--|------|-----------|------|-----------|
| High residential mobility | 0.99 | 0.85 1.16 | 0.92 | 0.84 1.02 |
| Employment status (referent: full time) | | | | |
| Unemployed or working less than 49 weeks | 1.10 | 0.94 1.29 | 1.06 | 0.95 1.17 |
| Poverty (referent: 400% of poverty or above) | | | | |
| <100% | 1.12 | 0.92 1.36 | 1.09 | 0.97 1.23 |
| 100-200% | 1.26 | 1.09 1.47 | 1.08 | 0.99 1.18 |
| 200-400% | 1.12 | 1.00 1.25 | 1.06 | 0.99 1.13 |
| MISSING | 1.06 | 0.89 1.27 | 1.00 | 0.90 1.12 |
| Parent's health (referent: good to excellent) | | | | |
| Fair to Poor | 1.48 | 1.30 1.68 | 1.35 | 1.24 1.47 |
| Community characteristics | | | | |
| Perceived neighborhood support (referent: high) | | | | |
| Low perceived support | 1.24 | 1.10 1.40 | 1.23 | 1.14 1.34 |
| Percent county population in poverty (referent, highest quartile) | | | | |
| 0% - <8.1% | 1.12 | 0.97 1.28 | 1.05 | 0.96 1.14 |
| 8.1 - <10.6% | 1.02 | 0.89 1.18 | 0.98 | 0.90 1.07 |
| 10.6% - < 13.8% | 1.04 | 0.92 1.17 | 1.01 | 0.94 .09 |
| Percent county housing that is owner-occupied (referent: highest quartile) | | | | |
| 0 - < 63.1% | 1.09 | 0.96 1.24 | 1.05 | 0.97 1.14 |
| 63.1% - <69.1% | 0.95 | 0.84 1.07 | 1.04 | 0.97 1.12 |
| 69.1% - < 74.8 % | 0.99 | 0.89 1.11 | 0.97 | 0.91 1.04 |

Table B-11. Proportion of children reported to have diagnosed behavioral, emotional or developmental (BED) problems or school problems by race/ethnicity and residence. Data Source: 2003 NSCH

| | Total, all children | | Small rural | | Medium rural | | Large rural | | Urban | | p-value for rural/urban differences |
|---|---------------------|------|-------------|------|--------------|------|-------------|------|---------|------|-------------------------------------|
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE | Percent | SE | |
| Behavioral, emotional, or developmental problem (all children) | | | | | | | | | | | |
| Total | 11.51 | 0.18 | 11.92 | 0.88 | 11.26 | 0.41 | 10.93 | 0.50 | 11.57 | 0.22 | 0.5912 |
| Hispanic | 9.28 | 0.47 | 15.78 | 5.54 | 7.71 | 1.54 | 9.86 | 1.43 | 9.30 | 0.50 | 0.4738 |
| NH White | 12.06 | 0.21 | 11.98 | 0.96 | 11.37 | 0.46 | 11.11 | 0.58 | 12.3 | 0.26 | 0.1337 |
| African American | 12.95 | 0.61 | 9.00 | 2.37 | 11.65 | 1.32 | 9.26 | 1.55 | 13.38 | 0.69 | 0.0427 |
| Other | 9.28 | 0.67 | 14.48 | 4.61 | 15.26 | 1.76 | 12.85 | 2.16 | 8.36 | 0.75 | 0.0012 |
| p-value for race/ethnicity differences | <0.0001 | | 0.5305 | | 0.0146 | | 0.4669 | | <0.0001 | | |
| School problem (ages 6 – 17) | | | | | | | | | | | |
| Total | 30.01 | 0.33 | 27.90 | 1.43 | 27.85 | 0.71 | 27.43 | 0.94 | 30.61 | 0.39 | 0.0002 |
| Hispanic | 32.09 | 0.99 | 31.30 | 8.01 | 31.16 | 3.32 | 29.41 | 3.50 | 32.28 | 1.07 | 0.8789 |
| NH White | 26.33 | 0.35 | 25.70 | 1.50 | 25.47 | 0.76 | 24.85 | 1.02 | 26.68 | 0.42 | 0.2560 |
| African American | 44.83 | 1.00 | 34.82 | 5.21 | 40.12 | 2.65 | 41.47 | 3.44 | 45.74 | 1.12 | 0.0516 |
| Other | 25.87 | 1.30 | 40.61 | 6.25 | 34.4 | 2.99 | 28.05 | 3.32 | 24.55 | 1.49 | 0.0059 |
| p-value for race/ethnicity differences | <0.0001 | | 0.0594 | | <0.0001 | | 0.0001 | | <0.0001 | | |

Table B-12. Levels of parental stress and the presence of diagnosed behavioral, emotional or developmental problems in the children, by race and residence*. Data Source: 2003 NSCH.

| | Total, all children | | Rural | | Urban | |
|-------------------------|---------------------|------------|---------|------------|---------|------------|
| | LS Mean | 95% CI | LS Mean | 95% CI | LS Mean | 95% CI |
| Total | 4.82 | 4.80, 4.83 | 4.74 | 4.72, 4.77 | 4.84 | 4.82, 4.85 |
| Problem Present | 5.96 | 5.90, 6.02 | 5.85 | 5.75, 5.95 | 5.99 | 5.92, 6.05 |
| No Problem | 4.67 | 4.65, 4.68 | 4.60 | 4.58, 4.63 | 4.68 | 4.67, 4.70 |
| Hispanic | | | | | | |
| Total | 4.97 | 4.92, 5.02 | 4.92 | 4.82, 5.02 | 4.98 | 4.93, 5.03 |
| Problem Present | 6.06 | 5.88, 6.23 | 6.06 | 5.68, 6.44 | 6.05 | 5.87, 6.24 |
| No Problem | 4.86 | 4.81, 4.91 | 4.81 | 4.71, 4.91 | 4.86 | 4.81, 4.92 |
| NH White | | | | | | |
| Total | 4.73 | 4.71, 4.75 | 4.68 | 4.65, 4.70 | 4.75 | 4.73, 4.77 |
| Problem Present | 5.86 | 5.80, 5.92 | 5.81 | 5.69, 5.92 | 5.88 | 5.81, 5.94 |
| No Problem | 4.57 | 4.56, 4.59 | 4.53 | 4.50, 4.56 | 4.59 | 4.57, 4.61 |
| African American | | | | | | |
| Total | 4.98 | 4.92, 5.03 | 5.06 | 4.95, 5.16 | 4.96 | 4.90, 5.02 |
| Problem Present | 6.25 | 6.07, 6.42 | 6.04 | 5.66, 6.42 | 6.27 | 6.08, 6.47 |
| No Problem | 4.79 | 4.74, 4.84 | 4.94 | 4.83, 5.05 | 4.76 | 4.71, 4.81 |
| Other | | | | | | |
| Total | 4.86 | 4.77, 4.94 | 4.78 | 4.69, 4.88 | 4.87 | 4.77, 4.97 |
| Problem Present | 6.01 | 5.72, 6.31 | 5.84 | 5.55, 6.13 | 6.07 | 5.69, 6.44 |
| No Problem | 4.74 | 4.65, 4.83 | 4.61 | 4.52, 4.70 | 4.76 | 4.66, 4.87 |

*The association between problems and stress did not differ by residence ($p=0.4069$) or race/ethnicity ($p=0.2461$).

Diagnosed problems were associated with higher parental stress values ($p<0.0001$).

Table B-13. Adjusted effects of residence, parental stress, race and disagreement style on the odds that a parent will report diagnosed behavioral, emotional or developmental problems in a child, other characteristics of the child and household held equal, US NSCH 2003

| Variables | OR | 95% CI | p-value |
|--|-----------|---------------|----------------|
| Residence (referent: urban) | | | 0.0000 |
| Non-MSA | 0.82 | 0.74,0.91 | |
| Parental Stress and Race/ethnicity (referent: low stress) | | | 0.0005 |
| Hispanic | | | |
| High Stress | 2.81 | 2.17,3.64 | |
| White | | | |
| High Stress | 4.71 | 4.30,5.16 | |
| African American | | | |
| High stress | 3.97 | 3.13,5.05 | |
| Other | | | |
| High stress | 3.22 | 2.27,4.57 | |
| Disagreement style (referent: discuss calmly) | | | 0.0000 |
| Hit, throw | 1.35 | 1.19,1.54 | |
| Argue, shout | 1.19 | 1.09,1.30 | |

Model: Other factors in the model, not shown, include: age of child, sex of child, individual responding concerning the child, primary language in the home (English/other), region, highest education in the household, family structure, total number of children in the household (1-2/3+), family mobility, employment status, health insurance status of child, health of child, and one or more parents with fair to poor health status, perceived neighborhood characteristics (trust/no trust), poverty in county of residence (quartiles) and percent resident-owned households (quartiles).

Table B-14. Adjusted effects of residence, parental stress, race and disagreement style on the odds that a parent will report school problems in a child, other characteristics of the child and household held equal, US NSCH 2003

| | OR | 95% CI | p-value |
|--|-----------|---------------|----------------|
| Residence (referent: urban) | | | |
| Non-MSA | 0.90 | 0.83, 0.97 | 0.0091 |
| Parental Stress and Race/ethnicity (referent: low stress) | | | |
| Hispanic | | | 0.0013 |
| High Stress | 1.85 | 1.52, 2.25 | |
| NH White | | | |
| High Stress | 2.81 | 2.59, 3.04 | |
| African American | | | |
| High stress | 2.52 | 2.12, 3.01 | |
| Other | | | |
| High stress | 2.19 | 2.64, 2.93 | |
| Disagreement style (reference: discuss calmly) | | | |
| Hit, throw | 1.62 | 1.45, 1.80 | <0.0001 |
| Argue, shout | 1.29 | 1.20, 1.38 | |

Model: Other factors in the model include: age of child, sex of child, individual responding concerning the child, primary language in the home (English/other), region, highest education in the household, family structure, total number of children in the household (1-2/3+), family mobility, employment status, health insurance status of child, health of child, and one or more parents with fair to poor health status, perceived neighborhood characteristics (trust/no trust), poverty in county of residence (quartiles) and percent resident-owned households (quartiles).

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