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## Racial and ethnic differences in the prevalence of adverse childhood experiences: Findings from a low-income sample of U.S. women



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### ABSTRACT

Despite great interest in adverse childhood experiences (ACEs), there has been limited research on racial and ethnic differences in their prevalence. Prior research in the United States suggests that the prevalence of ACEs varies along socioeconomic lines, but it is uncertain whether there are racial/ethnic differences in ACE rates among low-income populations. This study examined the distribution of ACEs in a sample of 1523 low-income women in Wisconsin that received home visiting services. Participants ranging in age from 16 to 50 years were coded into five racial/ethnic groups, including Hispanics and four non-Hispanic groups: blacks, whites, American Indians, and other race. Following measurement conventions, ten dichotomous indicators of child maltreatment and household dysfunction were used to create a composite ACE score. Five other potential childhood adversities were also assessed: food insecurity, homelessness, prolonged parental absence, peer victimization, and violent crime victimization. Results from bivariate and multivariate analyses revealed that, while rates of adversity were high overall, there were significant racial/ethnic differences. Total ACE scores of American Indians were comparable to the ACE scores of non-Hispanic whites, which were significantly higher than the ACE scores of non-Hispanic blacks and Hispanics. Whites were more likely than blacks to report any abuse or neglect, and they were more likely than blacks and Hispanics to report any household dysfunction. The results underscore the need to account for socioeconomic differences when making racial/ethnic comparisons. Potential explanations for the observed differences are examined.

### 1. Introduction

It is well established that adverse childhood experiences (ACEs), including various forms of child maltreatment and household dysfunction, are common and consequential. Studies in the United States have repeatedly shown that most adults report at least one ACE, and that most adults with an ACE history have been exposed to multiple ACEs (e.g., Chapman et al., 2013; Felitti et al., 1998; Kessler et al., 1997). Research also has revealed that the risk of morbidity and mortality rises with increased exposure to ACEs (Brown et al., 2009; Green et al., 2010). Given their widespread prevalence and impact, ACEs have major public health implications (Anda, Butchart, Felitti, & Brown, 2010). For example, if ACEs are unequally distributed in society, their surveillance may shed light on health disparities by detecting groups and communities that are at a disproportionate risk of health and mental health problems.

Despite growing academic and public interest in ACEs, there has been limited research on racial and ethnic differences in their

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prevalence. This gap is surprising considering the keen attention that has been paid to racial/ethnic variation in rates of child abuse and neglect. Raw, unadjusted analyses of state and national child protective service (CPS) data often show that white children are less likely than their black and Hispanic counterparts to be reported to CPS and verified as victims of child maltreatment (Drake & Jonson-Reid, 2011; Putnam-Hornstein, Needell, King, & Johnson-Motoyama, 2013; Sedlak et al., 2010). Analyses of nationally representative survey data also indicate that white children have a lower risk of exposure to maltreatment and harsh punishment (Hussey, Chang, & Kotch, 2006; Regalado, Sareen, Inkelas, Wissow, & Halfon, 2004; Taillieu, Afifi, Mota, Keyes, & Sareen, 2014).

It is also widely recognized that many factors increase the risk of abuse and neglect, and that these factors are not equally distributed among racial/ethnic groups. For example, racial/ethnic differences in rates of child maltreatment are at least partly due to socioeconomic differences between groups (see Putnam-Hornstein et al., 2013). Yet, the interrelations between race/ethnicity, socioeconomic status, and maltreatment risk are complex and may vary by maltreatment type. For instance, survey research suggests that the prevalence of child sexual abuse does not differ significantly by race/ethnicity or socioeconomic status (Putnam, 2003). Conversely, child neglect rates are known to vary across racial/ethnic groups and levels of family and neighborhood poverty (Jonson-Reid, Drake, & Zhou, 2013; Slack, Holl, McDaniel, Yoo, & Bolger, 2004). However, child neglect also manifests in multiple forms, which complicates its connections to race/ethnicity and poverty. Some evidence suggests that blacks are more likely than whites to report experiences of physical neglect, but that whites are more likely than blacks to report emotional neglect (Hussey et al., 2006; Scher et al., 2004). The underlying reasons for these differences are unclear, due partly to the persistent dearth of research on child neglect (Cohen, Menon, Shorey, Le, & Temple, 2017; Wolock & Horowitz, 1984).

Like child abuse and neglect, there is evidence of racial/ethnic variation in household dysfunction. Marital instability and divorce, for example, is more prevalent among blacks than non-Hispanic whites and Hispanics (Raley, Sweeney, & Wondra, 2015). Some research also indicates that, compared to white women, black and American Indian women are at an increased risk of being victims of domestic violence (Sumner et al., 2015; Tjaden & Thoennes, 2000). However, rates of domestic violence are higher in more socioeconomically disadvantaged samples (Cunradi, Caetano, & Schafer, 2002), and some studies have shown that racial/ethnic differences are negated or even reversed by controlling for socioeconomic status (Breiding, Black, & Ryan, 2008; Rennison & Planty, 2003). Similarly, it is undisputed that there are stark racial/ethnic disparities in imprisonment in the United States. Yet, it is unclear to what extent these disparities stem from group differences in poverty and other associated risks, systemic biases in policing and legal decision making, or actual racial/ethnic differences in criminal activity (Baumer, 2013).

Despite racial/ethnic disparities in income, wealth, and social position that favor whites, some indicators of dysfunction appear to be more likely to manifest in white households than in minority households. For example, several large, nationally representative studies have found that certain mental health problems such as major depression and substance use disorders are more prevalent among whites than blacks and Hispanics (Breslau et al., 2006; Grant et al., 2004; Hasin & Grant, 2015; Riolo, Nguyen, Greden, & King, 2005). These findings underscore the potential utility of the ACE framework as a means of measuring different forms of risk exposure across contexts and populations.

We are aware of only one study that has examined racial and ethnic differences in ACE rates while parceling out the confounding influence of economic status. Using data on nearly 85,000 participants from the National Survey of Child Health, Slopen et al. (2016) demonstrated that blacks and Hispanics were more likely than whites to have been exposed to two or more ACEs. However, when the analysis was restricted to the lowest income quartile in the sample, the pattern reversed—poor whites were significantly more likely than poor blacks and Hispanics to have been exposed to multiple ACEs.

The current study revisits the novel findings of Slopen and colleagues by assessing the racial/ethnic distribution of ACEs in a diverse sample of low-income women. In addition to whites, blacks, and Hispanics, we document the prevalence of ACEs among American Indians, a population that has received limited attention in the ACE literature. We examine 10 adversities that are customarily defined as ACEs, including five forms of child abuse and neglect and five forms of household dysfunction. Following measurement conventions in ACE research, we create a composite measure (i.e., ACE score) that signifies cumulative exposure to adversity. Building on recent advances in the field toward measuring a broader range of ACEs (Mersky et al., 2017; Finkelhor, Shattuck, Turner, & Hamby, 2014), we also examine racial/ethnic variation in five other major adversities: food insecurity, homelessness, prolonged parental absence, peer victimization, and violent crime victimization. Finally, to adjust for potential socioeconomic and contextual differences among racial/ethnic groups, we enter these five adversities plus participant age into multivariate models that estimate racial/ethnic group differences in abuse and neglect, household dysfunction, and total adversity.

## 2. Methods

### 2.1. Data and sample

Data for this investigation were drawn from a total population sample of 1523 women who participated in an evaluation of Wisconsin's Family Foundations Home Visiting (FFHV) program. Supported with federal funding from the Maternal Infant and Early Childhood Home Visiting program, FFHV is a statewide network of agencies that provide evidence-based home visiting services to low-income families. Wisconsin's FFHV program supports four home visiting intervention models: Early Head Start, Healthy Families America, Nurse-Family Partnership, and Parents as Teachers. While their curricula differ to some extent, the models are all designed to provide home-based services and referrals to community resources for multiple years to enhance maternal health, child development, and family functioning.

After obtaining consent from their clients at enrollment, home visiting program personnel routinely collect child, caregiver, and household data, which are used to inform service provision and program evaluation activities in Wisconsin. The data are recorded in

a state-administered public health database. We gained access to participant records from the Wisconsin Department of Children and Families pursuant to a data sharing agreement. All study protocols were approved by a university institutional review board.

We conducted a secondary analysis of data collected from FFHV clients that received home visiting services between April 1, 2014 and June 30, 2016. Women were included in the effective sample if they were at least 16 years old at program enrollment and completed the *Childhood Experiences Survey* (described below). The mean age of participants was 24.3 years (range 16–50). Over 98% of service recipients have household pre-tax incomes at or below 200% of the federal poverty threshold or are eligible for federal means-tested benefits such as the Supplemental Nutrition Assistance Program. Reflecting the racial and ethnic diversity of women served by the FFHV program, 36.1% of participants in this study were non-Hispanic white, 27.7% were non-Hispanic black, 22.1% were Hispanic, 7.4% were non-Hispanic American Indian, and 6.7% were coded as other race (not Hispanic).

## 2.2. Measures

### 2.2.1. Conventional adverse childhood experiences

ACE data were gathered from participants by home visiting staff using the Childhood Experiences Survey (CES) within 90 days of program enrollment. The CES was adapted from the ACE module of the Behavioral Risk Factor Surveillance System (BRFSS). Participants were asked to recall any experiences during childhood (i.e., less than age 18) of physical abuse, sexual abuse, and emotional abuse as well as household substance abuse, mental health problems, domestic violence, crime, and divorce/separation. In addition, the CES assesses emotional neglect and physical neglect, which were omitted from the BRFSS module. Sample questions from the CES include: (1) “How often did an adult, or anyone at least 5 years older than you, touch you sexually, try to make you touch them sexually, or force you to have sex?” (sexual abuse); (2) “Did you live with anyone who was depressed, mentally ill, or suicidal? (household mental health problems). Previous research indicates that the CES has good internal consistency, test-retest reliability, and predictive validity (see Mersky et al., 2017).

The 10 ACEs listed above were coded dichotomously, denoting whether a respondent reported a given adversity (yes/no). These indicators were used to create a *total ACE score* that indexes the number of adversities endorsed by each participant (range 0–10). The data also were used to create two dichotomous outcome measures: *Any abuse or neglect* indicates if a participant reported experiencing at least one of the five forms of child abuse and neglect, while *any household dysfunction* indicates if a participant experienced at least one of the five forms of household dysfunction.

### 2.2.2. Race and ethnicity

Data collected at program intake were used to code participant race, and then a separate indicator was used to code if participants were of Hispanic ethnicity. Sample members were thereby divided into one of five categories, including Hispanics and four non-Hispanic racial groups: white, black, American Indian, and other race. Cases coded as other race include Asian ( $n = 28$ ) and multi-racial ( $n = 36$ ) participants along with individuals whose race/ethnicity was unknown ( $n = 38$ ).

### 2.2.3. Participant age

Sample members varied in age at the time of program enrollment. Multivariate analyses include a continuous measure of participant age at program enrollment to control for the potential influence of age on recall of ACEs along with time-of-measurement effects that might influence the prevalence of ACEs across age cohorts.

### 2.2.4. Other childhood adversities

In addition to 10 conventional ACEs, the CES was used to create five other variables that signify exposure to major childhood adversities. Respondents were coded as having experienced *food insecurity* if they reported that they were sometimes, often, or very often hungry because their family could not afford food. *Homelessness* indicates if respondents were ever homeless during childhood. *Prolonged parental absence* denotes if respondents reported that either of their parents had been absent from their lives for a long period (excluding death as cause of absence). *Frequent peer victimization* indicates that respondents were often or very often bullied or severely teased by other children or adolescents. *Violent crime victimization* indicates that respondents were the victim of a violent crime that was perpetrated by someone other than a parent or household family member. In addition to exploring their prevalence, the five other adversities were included as potential confounders in multivariate analyses of racial/ethnic differences in cumulative ACE scores.

## 2.3. Analysis plan

A descriptive analysis was conducted to assess the prevalence of ACEs in the full sample and for each racial and ethnic subgroup. Pairwise comparisons were performed to determine whether there were significant racial/ethnic differences in the prevalence of the 10 conventional ACEs and five additional childhood adversities. Chi-square tests for significance used a false discovery approach to adjust family-wise alpha rates among all 15 childhood adversities (Glickman, Rao, & Schultz, 2014).

We explored whether multilevel modeling should be used to account for potential clustering of ACE scores in urban and rural areas. Study subjects were dispersed across 17 counties that varied in the percentage of residents living in an urban area from 0% to 99.8% (U.S. Census, n.d.). Racial/ethnic groups were not equally distributed across the 17 counties; blacks and Hispanics were overrepresented in more urban counties, while whites and American Indians were overrepresented in more rural counties. We classified the counties into three groups based on their urbanicity: rural (urban rate < 33.3%, 7 counties); mixed (urban

**Table 1**  
Prevalence of Childhood Adversity among Racial and Ethnic Groups.

|  | N    | Total Sample | Black | Hispanic | American Indian | Other Race | White |
|--|------|--------------|-------|----------|-----------------|------------|-------|
| Conventional Adverse Childhood Experiences |      |              |       |          |                 |            |       |
| Any abuse or neglect                       | 1523 | 57.0         | 52.1* | 55.1     | 59.3            | 55.9       | 61.6  |
| Physical abuse                             | 1497 | 39.7         | 32.1* | 42.9     | 40.9            | 38.2       | 43.6  |
| Sexual abuse                               | 1468 | 26.0         | 25.6  | 20.2*    | 25.0*           | 25.7       | 30.1  |
| Emotional abuse                            | 1516 | 27.0         | 24.1* | 20.6*    | 23.2*           | 29.4       | 33.6  |
| Physical neglect                           | 1521 | 11.1         | 14.5* | 11.3*    | 13.3            | 15.7*      | 7.1   |
| Emotional neglect                          | 1519 | 18.5         | 17.6  | 12.5*    | 20.5            | 14.7       | 19.9  |
| Other Childhood Adversities                |      |              |       |          |                 |            |       |
| Any household dysfunction                  | 1523 | 79.1         | 72.5* | 69.3*    | 91.2            | 78.4       | 87.6  |
| Alcohol or drug problem                    | 1465 | 50.0         | 40.1* | 41.1*    | 72.6*           | 45.1*      | 59.3  |
| Mental health problem                      | 1512 | 42.6         | 30.2* | 27.9*    | 52.9            | 40.0*      | 60.2  |
| Domestic violence                          | 1435 | 37.5         | 30.1* | 38.9     | 54.9*           | 36.7       | 39.2  |
| Household incarceration                    | 1492 | 37.9         | 38.7  | 25.3*    | 58.9*           | 43.0       | 39.9  |
| Divorce or separation                      | 1511 | 43.2         | 30.5* | 36.4*    | 45.5*           | 40.0*      | 57.2  |
| Mean ACE Score (range 0–10)                | 1523 | 3.26         | 2.80* | 2.72*    | 3.92            | 3.25*      | 3.80  |
| Other Childhood Adversities                |      |              |       |          |                 |            |       |
| Food insecurity                            | 1517 | 18.8         | 16.9  | 22.9*    | 22.7            | 21.6       | 16.4  |
| Homelessness                               | 1518 | 22.9         | 30.2* | 15.9     | 34.5            | 30.2*      | 17.5  |
| Prolonged parental absence                 | 1513 | 58.0         | 64.8* | 50.9     | 67.6*           | 54.9       | 55.6  |
| Frequent peer victimization                | 1518 | 26.4         | 19.9* | 17.7*    | 22.1*           | 13.9*      | 39.9  |
| Violent crime victimization                | 1503 | 15.4         | 15.3  | 11.5*    | 16.7            | 17.6       | 17.1  |

Note: \*Indicates significant difference from non-Hispanic white participants ( $p < .05$ ). All significance tests are Pearson chi-square except for total ACE score (F test). A false discovery approach was used to adjust family-wise alpha rates for total number of childhood adversities ( $n = 15$ ).

rate  $\geq 33.3\%$  and  $< 66.7\%$ , 4 counties); and urban (urban rate  $\geq 66.7\%$ , 6 counties). Using an unconditional random intercept model, ICCs were calculated for three outcomes: total ACE score (ICC = 0.3%), any abuse or neglect (ICC  $< 0.01\%$ ), and any household dysfunction (ICC = 4.4%). The low ICCs suggest clustering of ACE scores based on urbanicity was not a concern. Accordingly, we tested single-level regression models without a measure of county urbanicity.

We ran two multivariate regression models for each of the three outcomes. Model 1 included only dummy-coded racial and ethnic categories, with white as the reference group. Model 2 adjusted for participant age and five other childhood adversities. Because the total ACE score was overdispersed, we specified a negative binomial regression model with a log link function and reported estimates as incident rate ratios (IRRs). An IRR can be interpreted as the rate at which the total ACE score changes based on a one-unit change in the independent variable while keeping all other variables constant. Both dichotomous study outcomes, any child abuse or neglect and any household dysfunction, were analyzed using logistic regression. All analyses were conducted using SAS software version 9.4.

### 3. Results

Table 1 displays descriptive means for the 10 conventional ACEs along with pairwise comparisons by race/ethnicity. Over half of the sample (57.0%) reported at least one form of abuse and neglect. Among all forms of child maltreatment, physical abuse was the most prevalent (39.7%) and physical neglect was the least prevalent (11.1%). Results indicated that 26.0% of respondents experienced sexual abuse, 27.0% experienced emotional abuse, and 18.5% experienced emotional neglect.

A large majority of the sample (79.1%) endorsed one or more forms of household dysfunction. Half of respondents (50.0%) indicated that they had lived with someone who had a drug or alcohol problem, and 42.6% had lived with someone with a mental health problem. In addition, 37.5% had been exposed to domestic violence, 37.9% had lived with a household member who was incarcerated, and 43.2% had parents who were divorced.

Among all racial/ethnic groups, non-Hispanic whites reported the highest prevalence of any abuse or neglect (61.6%). Whites reported the highest rates of physical abuse (43.6%), sexual abuse (30.1%), and emotional abuse (33.6%). Respondents coded as other race reported the highest rate of physical neglect (15.7%), and non-Hispanic American Indians reported the highest rate of emotional neglect (20.5%). Bivariate tests showed that non-Hispanic blacks and Hispanics were less likely than non-Hispanic whites to have experienced any abuse or neglect. Blacks also were less likely than whites to report physical abuse and emotional abuse but more likely to report physical neglect. Hispanics were less likely than whites to report physical abuse, emotional abuse, and emotional neglect, but they were more likely to report physical neglect. American Indians were less likely than whites to report sexual abuse and emotional abuse. Compared to whites, respondents coded as other race were more likely to report physical neglect.

American Indians reported the highest rate of any household dysfunction (91.2%). They also were the most likely to report household alcohol or drug problems (72.6%), domestic violence (54.9%), and incarceration (58.9%). Whites reported the highest rates of mental health problems (60.2%) and divorce/separation (57.2%). Comparison tests showed that blacks were less likely than whites to report alcohol or drug problems, mental health problems, domestic violence, and divorce/separation. Compared to whites, Hispanics reported lower rates of any household dysfunction as well as alcohol or drug problems, mental health problems, incarceration, and divorce/separation. Conversely, American Indians were more likely than whites to have been exposed to alcohol or drug problems, domestic violence, and incarceration. Respondents coded as other race were less likely than whites to report alcohol

**Table 2**  
Multivariate Analysis of Racial and Ethnic Differences in Childhood Adversity.

|                       | Total ACE Score      |                                 | Any Abuse or Neglect |                      | Any Household Dysfunction       |                                 |
|-----------------------|----------------------|---------------------------------|----------------------|----------------------|---------------------------------|---------------------------------|
|                       | Model 1 IRR 95% CI   | Model 2 IRR 95% CI              | Model 1 OR 95% CI    | Model 2 OR 95% CI    | Model 1 OR 95% CI               | Model 2 OR 95% CI               |
| African American      | 0.74**<br>0.66, 0.82 | 0.70**<br>0.64, 0.76            | 0.69**<br>0.52, 0.88 | 0.64**<br>0.47, 0.86 | 0.37**<br>0.27, 0.52            | 0.31**<br>0.21, 0.44            |
| Hispanic              | 0.72**<br>0.64, 0.80 | 0.76**<br>0.69, 0.83            | 0.76<br>0.58, 1.00   | 0.84<br>0.61, 1.54   | 0.32**<br>0.25, 0.50            | 0.34**<br>0.23, 0.50            |
| American Indian       | 1.04<br>0.88, 1.21   | 0.94<br>0.83, 1.07              | 0.91<br>0.60, 1.37   | 0.71<br>0.44, 1.15   | 1.45<br>0.72, 2.91              | 1.16<br>0.55, 2.42              |
| Other                 | 0.86<br>0.72, 1.02   | 0.85 <sup>†</sup><br>0.74, 0.98 | 0.79<br>0.51, 1.21   | 0.81<br>0.50, 1.31   | 0.51 <sup>†</sup><br>0.29, 0.81 | 0.57<br>0.31, 1.03              |
| Participant age       |                      | 1.00<br>0.99, 1.01              |                      | 1.04**<br>1.01, 1.06 |                                 | 0.99<br>0.97, 1.02              |
| Food insecurity       |                      | 1.38**<br>1.27, 1.50            |                      | 3.01**<br>2.10, 4.31 |                                 | 1.81 <sup>†</sup><br>1.14, 2.88 |
| Homelessness          |                      | 1.41**<br>1.31, 1.53            |                      | 2.05**<br>1.49, 2.82 |                                 | 1.87**<br>1.20, 2.93            |
| Parental absence      |                      | 1.61**<br>1.49, 1.73            |                      | 2.19**<br>1.73, 2.78 |                                 | 4.21**<br>3.14, 5.66            |
| Peer victimization    |                      | 1.38**<br>1.29, 1.49            |                      | 2.61**<br>1.94, 3.49 |                                 | 2.29**<br>1.51, 3.47            |
| Violent crime         |                      | 1.39**<br>1.28, 1.51            |                      | 3.18**<br>2.12, 4.78 |                                 | 3.04**<br>1.65, 5.59            |
| Pseudo R <sup>2</sup> | 0.01                 | 0.13                            | 0.01                 | 0.16                 | .04                             | .19                             |

Note. IRR = incident rate ratio; CI = Confidence Interval; OR = Odds Ratio.

\*\*  $p < .01$ .

\*  $p < .05$ .

or drug problems, mental health problems, and divorce/separation.

Results showed that Hispanics had the lowest mean ACE score (2.72) of all racial/ethnic groups. The mean scores for Hispanics, blacks (2.80), and participants coded as other race (3.25) were significantly lower than the mean score for whites (3.80). American Indians had the highest mean ACE score (3.92) of all racial/ethnic groups, but their score did not differ significantly from that of whites.

Analyses of five other childhood adversities showed that prolonged parental absence was the most prevalent (58.0%), followed by peer victimization (26.4%), homelessness (22.9%), food insecurity (18.8%), and violent crime victimization (15.4%). Compared to whites, blacks were more likely to report homelessness and parental absence, but they were less likely to report peer victimization. Compared to whites, Hispanics were less likely to report peer victimization and violent crime victimization, but they were more likely to report food insecurity. American Indians were more likely than whites to have experienced a parental absence and less likely to have experienced peer victimization. Participants coded as other race/ethnicity were less likely than whites to report peer victimization and more likely to report homelessness.

Table 2 displays results from unadjusted and adjusted regression analyses. Results from an unadjusted negative binomial regression analysis (model 1) showed that, compared to non-Hispanic whites, non-Hispanic blacks (IRR = 0.74; CI = 0.66, 0.82) and Hispanics (IRR = 0.72; CI = 0.64, 0.80) had significantly lower ACE scores. Model 2, which controls for age and other childhood adversities, also revealed that whites had significantly higher ACE scores than blacks (IRR = 0.70; CI = 0.64, 0.76), Hispanics (IRR = 0.76; CI = 0.69, 0.83), and participants coded as other race (IRR = 0.85; CI = 0.74, 0.98). In addition, all other childhood adversities were significantly associated with higher total ACE scores ( $p < .01$ ).

Results from an unadjusted logistic regression showed that the odds of reporting any abuse or neglect were significantly lower for blacks (OR = 0.69; CI = 0.52, 0.88) than for non-Hispanic whites. The difference between whites and blacks remained statistically significant after controlling for age and other childhood adversities (OR = 0.64; CI = 0.47, 0.86). The odds of reporting any type of abuse or neglect did not differ between whites and Hispanics, American Indians, or the other race/ethnicity group. Participant age and all other childhood adversities were associated with an increased likelihood of any abuse or neglect ( $p < .01$ ).

Compared to whites, the unadjusted odds of reporting any household dysfunction was significantly lower for blacks (OR = 0.37; CI = 0.27, 0.52), Hispanics (OR = 0.32; CI = 0.25, 0.50), and other race participants (OR = 0.51; CI = 0.29, 0.81). Similar results emerged from the adjusted analysis, although the coefficient for other race was non-significant. Associations between any household dysfunction and all other childhood adversities were significant at the 0.01 alpha level except food insecurity, which was significant at the 0.05 alpha level.

#### 4. Discussion

The central aim of this study was to determine whether the prevalence of ACEs varied among racial and ethnic groups in a diverse sample of low-income women. We found that, while rates of adversity were high overall, there were significant racial/ethnic differences. American Indian respondents reported nearly four ACEs on average—the highest prevalence among all racial and ethnic groups. Certain forms of household dysfunction, including alcohol and drug use, domestic violence, and incarceration, were particularly common among American Indians. These findings are unsurprising given what is already known about the significant levels of adversity faced by Native populations (Koss et al., 2003; Manson, Beals, Klein, & Croy, 2005).

It is more intriguing, perhaps, that the cumulative ACE scores of American Indians were comparable to the ACE scores of non-Hispanic whites, which were significantly higher than the ACE scores of non-Hispanic blacks and Hispanics. Whites were more likely than blacks to report at least one form of abuse or neglect. Whites were also more likely than blacks and Hispanics to report exposure to at least one form of household dysfunction. The estimated differences were robust to adjustments in multivariate models that added several other childhood adversities such as food insecurity and homelessness. Below we present four hypotheses that may explain why whites reported greater levels of adversity than blacks and Hispanics.

One plausible explanation is that perceptions of adversity may vary along racial and ethnic lines (Alegría et al., 2013). That is, when exposed to the same experiences, individuals from one racial/ethnic group may be more apt than those from another group to interpret the experiences as adverse. Relatedly, racial/ethnic groups may differ in their perceptions of some ACE survey items. For example, study participants were asked the following question regarding mental health: *Did you live with anyone who was depressed, mentally ill, or suicidal?* The likelihood of endorsing this item is predicated, in part, on a respondent's schema for depression and mental illness. Research suggests that ratings of mental health vary by race/ethnicity, with whites being more likely than blacks and Hispanics to perceive that certain cognitive, emotional, and behavioral symptoms reflect mental health status (Ahmad, Jhaji, Stewart, Burghardt, & Bierman, 2014; Alang, 2016). Other survey questions were arguably less subjective, however, because they focused on concrete events. For example, rather than asking if they had been physically abused, participants were asked: *How often did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way?*

A second hypothesis is that some ACEs are, in fact, more prevalent in white households than in black and Hispanic households. There is strong evidence that some substance use and mental health disorders are endorsed with greater frequency by whites than blacks and Hispanics (Breslau et al., 2006; Grant et al., 2004; Hasin & Grant, 2015; Riolo et al., 2005). Our results suggest that, like self-reported mental health, there may be racial/ethnic differences in reporting mental health problems of household members. In fact, we discovered that whites were more than twice as likely as blacks and Hispanics to report that during childhood they lived with someone who was depressed, mentally ill, or suicidal.

We also found that whites were more likely than other racial/ethnic groups to have parents that were divorced or separated. However, these differences may be partly due to racial/ethnic differences in rates of marriage. Research has shown that marriage rates are lower among blacks than whites and Hispanics, and that the likelihood of divorce conditional on marriage is higher among blacks than whites and Hispanics (Aughinbaugh, Robles, & Sun, 2013; Isen & Stevenson, 2010; Raley et al., 2015). Taken together, these results call into question whether divorce/separation is a valid measure of adversity across racial/ethnic and socioeconomic groups. Future ACE research should explore whether risks such as parental absence can be used to complement or replace divorce/separation when assessing household adversity in populations with low rates of marriage.

A third reason for the higher levels of adversity reported by whites than blacks and Hispanics is that there may be between-group variation in household structure. It is an obvious point, but one that has not been addressed in the ACE literature to our knowledge: household dysfunction questions ask participants to anchor their responses to events that occurred in their *household* (i.e., Did you live with anyone...). This approach could result in the omission of experiences associated with a non-custodial parent, thereby leading to underreporting of certain adversities. For instance, of all states nationwide, Wisconsin is known to have significantly lower rates of incarceration among whites than blacks (Berger, Cancian, Cuesta, & Noyes, 2016; Pawasarat & Quinn, 2013). Yet, in this study the rate of household incarceration was lower among blacks than whites. This finding may be due partly to the fact that study participants were asked if they lived with someone who served time or was sentenced to serve time in a prison, jail, or a correctional facility. Given the higher rates of unmarried births and single parenthood among blacks than whites in the United States (Brown, Stykes, & Manning, 2016; Vespa, Lewis, & Kreider, 2013), results may have differed had participants been asked if a custodial or non-custodial parent had been incarcerated.

A fourth explanation is that there may be racial/ethnic differences in the origins of poverty. The *differential assortment* hypothesis (Drake et al., 2009) suggests that risk factors such as family violence, substance abuse, and mental illness may play a more significant role in the etiology of white poverty than non-white poverty. As the argument goes, historically disadvantaged racial/ethnic minority groups face pervasive structural barriers to upward economic mobility. Whites, on average, have significantly higher incomes and greater wealth (DeNavas-Walt & Proctor, 2015; McKernan, Ratcliffe, Steuerle, & Zhang, 2014). It is possible that some whites do not capitalize on these structural advantages because they have been exposed to significant adversity and trauma. Relatively speaking, black and Hispanic poverty may have a weaker association with these risk factors and a stronger association with structural, socioeconomic forces (Drake et al., 2009; Jonson-Reid et al., 2013). In sum, this hypothesis is one of reverse causality, suggesting that poverty not only increases the risk of ACEs but that ACEs also increase the risk of poverty—particularly in white households.

The preceding line of reasoning points to an overarching study limitation, which is that there are many unobserved factors other than ACEs that could account for the racial/ethnic differences observed. We parceled out the effects of age and several other adversities such as homelessness and food insecurity, two correlates of extreme poverty in childhood. Yet, it is possible that the racial/ethnic differences resulted from any number of factors associated with race and ethnicity. For example, there were racial/ethnic

differences in the geographic distribution of sample members. A large proportion of American Indians and whites lived in rural areas, whereas most blacks and Hispanics lived in urban areas. We explored this potential confounding influence by testing the effects of county-level urbanicity in a multilevel analysis. Although results revealed that urbanicity was not a significant confound, there still may be unmeasured differences between urban and rural environments that are associated with the prevalence of ACEs. For example, although all home visiting agencies in the FFHV network target low-income families, it is possible that there were undetected differences between families served by rural agencies and families served by agencies in urban areas.

It is uncertain to what extent the study findings are generalizable beyond this non-probability sample of low-income women receiving home visiting services in Wisconsin. Further research is needed to determine if our results can be replicated with other samples of men and women. The study is also limited by its use of retrospective and self-report data, which have known shortcomings. In addition, each ACE was coded from responses to single-item measures. This is a common practice in ACE research, but it is also one that can lead to misestimation of prevalence. Finally, we were unable to disaggregate Hispanic participants into specific ethnic categories or according to their nativity or immigration status. This should be considered when interpreting the results, which showed that Hispanics experienced the least adversity of all racial/ethnic groups.

## 5. Conclusion

This study demonstrated that ACEs were prevalent in a racially and ethnically diverse sample of low-income women. Over half of the participants reported that they were exposed to at least one form of child abuse and neglect, and nearly four out of five participants endorsed at least one form of household dysfunction. Prevalence rates for 10 conventional ACEs were higher in the present study than in the seminal Adverse Childhood Experiences Study (Centers for Disease Control and Prevention, Kaiser Permanente, 2017). These results support previous research indicating that ACEs are pervasive in impoverished samples (Mersky et al., 2013; Topitzes, Pate, Berman, & Medina-Kirchner, 2016).

There was significant racial/ethnic variation in ACE prevalence in the present study, with American Indians reporting the highest rates of total adversity and Hispanics reporting the lowest. Notably, average ACE scores for whites approximated the scores of American Indians and were significantly higher than the average ACE scores of blacks and Hispanics. Our results reinforce recent evidence from the National Survey of Child Health (Slopen et al., 2016), which showed that ACEs were more prevalent among low-income whites than low-income blacks and Hispanics. Yet, when the analysis was not stratified by income, Slopen and colleagues found that, overall, ACEs were more prevalent among blacks and Hispanics than whites. Altogether, these findings underscore the importance of exercising caution when using nationally representative data to make racial/ethnic comparisons without accounting for socioeconomic differences.

Further research is needed to describe and explain racial/ethnic variation in ACEs. The next generation of ACE researchers should examine whether the cross-cultural and ecological validity of the conventional 10-item ACE framework can be improved by adding other ACEs that manifest in diverse populations and contexts. It may be particularly fruitful to employ longitudinal and inter-generational designs to investigate the paths through which poverty precipitates ACEs and ACEs perpetuate poverty. Further exploration of differential assortment and other mechanisms that account for the high prevalence of ACEs among low-income whites is warranted.

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