Adverse Childhood Experiences of Low-Income Urban Youth

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KEY WORDS
child abuse, children of impaired parents, domestic violence, nominal group technique, poverty, sexual abuse, spouse abuse, substance abuse, urban

ABBREVIATIONS
ACE—adverse childhood experience
FPL—federal poverty level

Dr Wade conceptualized and designed the study, coordinated and supervised data collection at all sites, carried out all analyses, and drafted and revised the initial manuscript; Dr Shea conceptualized and designed the study, supervised all analyses, and revised the manuscript; Dr Rubin conceptualized and designed study, and revised the manuscript; Dr Wood conceptualized and designed the study, supervised data collection at all sites, supervised all analyses, and revised the initial manuscript; and all authors approved the final manuscript as submitted.

www.pediatrics.org/cgi/doi/10.1542/peds.2013-2475

doi:10.1542/peds.2013-2475

Accepted for publication Apr 16, 2014

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FINANCIAL DISCLOSURE: Dr Wood's institution has received payment for expert witness court testimony that Dr Wood has provided in cases of suspected child abuse for which she has been subpoenaed to testify; the other authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: Supported by the Eisenberg Scholar Research Award, Perelman School of Medicine at the University of Pennsylvania.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

WHAT'S KNOWN ON THIS SUBJECT: Adverse childhood experiences have been shown to have long-term impacts on health and well-being. However, little work has been done to incorporate the voices of youth in understanding the range of adverse experiences that low-income urban children face.

WHAT THIS STUDY ADDS: Study participants cited a broad range of adverse experiences beyond those listed in the initial adverse childhood experience studies. Domains of adverse experiences included family relationships, community stressors, personal victimization, economic hardship, peer relationships, discrimination, school, health, and child welfare/juvenile justice systems.

abstract

BACKGROUND AND OBJECTIVE: Current assessments of adverse childhood experiences (ACEs) may not adequately encompass the breadth of adversity to which low-income urban children are exposed. The purpose of this study was to identify and characterize the range of adverse childhood experiences faced by young adults who grew up in a low-income urban area.

METHODS: Focus groups were conducted with young adults who grew up in low-income Philadelphia neighborhoods. Using the nominal group technique, participants generated a list of adverse childhood experiences and then identified the 5 most stressful experiences on the group list. The most stressful experiences identified by participants were grouped into a ranked list of domains and subdomains.

RESULTS: Participants identified a range of experiences, grouped into 10 domains: family relationships, community stressors, personal victimization, economic hardship, peer relationships, discrimination, school, health, child welfare/juvenile justice, and media/technology. Included in these domains were many but not all of the experiences from the initial ACEs studies; parental divorce/separation and mental illness were absent. Additional experiences not included in the initial ACEs but endorsed by our participants included single-parent homes; exposure to violence, adult themes, and criminal behavior; personal victimization; bullying; economic hardship; and discrimination.

CONCLUSIONS: Gathering youth perspectives on childhood adversity broadens our understanding of the experience of stress and trauma in childhood. Future work is needed to determine the significance of this broader set of adverse experiences in predisposing children to poor health outcomes as adults. *Pediatrics* 2014;134:e13–e20

Adverse childhood experiences (ACEs) are a key risk factor for negative health outcomes. Scores of articles have long demonstrated a relationship between exposure to childhood adversity and a range of negative outcomes throughout the life span.[1–8] The disproportionate exposure of low-income children to abuse, neglect, and other adversities[9,10] has been implicated as an important contributor to health disparities.[11,12] Preventing and mitigating the impact of ACEs is critical to decreasing health disparities.

The link between childhood adversity and negative adult health outcomes was further elucidated by the ACE Study,[1] which found a graded relationship between childhood stressors and adult risk-taking behaviors and chronic illnesses. Additional research has further substantiated the tie between childhood adversity and negative outcomes, including poor academic achievement, incarceration, unemployment, poverty, disability, and early death.[1,3,4,13–24]

The original ACE questionnaire assessed childhood exposure to physical abuse, psychological abuse, and sexual abuse, as well as household mental illness, substance abuse, domestic violence, and incarceration.[1] Subsequent ACE studies incorporated physical/emotional neglect and parental separation/divorce into the ACE index.[25–27] These measures excluded broader or more chronic adverse experiences relevant to urban impoverished youth, such as community violence, discrimination, or economic hardship. In a recent study, researchers strengthened the association between ACEs and mental health symptoms by adding such measures to the ACE index and removing parental separation/divorce and incarceration of a household member.[28] Thus, the original index might be improved by considering a wider array of adverse experiences. More comprehensive childhood adversity measures exist but may not reflect inner-city youth experiences, as these measures were designed from interviews with mostly white, middle to upper middle class youth from rural and suburban communities.[29–36]

Measuring adverse experiences is important for urban economically distressed children, who, in addition to experiencing poverty as an adversity, may be subjected to the experiences of abuse, neglect, and family dysfunction, along with a host of other stressors, including community violence, discrimination, and peer victimization.[9,37] The large percentage of racial minorities comprising low-income urban populations makes having an understanding of cultural norms key to conceptualizing adversity in these communities. We must develop a thorough understanding of what adversity means for impoverished children, by soliciting the input of individuals growing up in these communities. To explore youth perspectives on the most stressful adverse childhood experiences in low-income inner-city communities, we conducted focus groups with young adults who grew up in economically distressed Philadelphia neighborhoods.

METHODS

We used the Nominal Group Technique, a highly structured qualitative method used to generate and prioritize ideas around a research question[38–40] to elicit participant's childhood adversities.

Participant Recruitment and Inclusion Criteria

We partnered with 12 organizations throughout Philadelphia, recruiting English-speaking adults ages 18 to 26 who grew up in a Philadelphia neighborhood with at least 20% of the residents living at or below the Federal Poverty Level (FPL), as measured by census data from 1990 and 2000. We selected organizations located in low-income neighborhoods in the 7 major geographic regions of Philadelphia. These organizations included homeless youth shelters, after-school and mentoring programs, health clinics, and community development corporations. We held at least 1 focus group at each site, recruiting participants through a combination of flyers and in-person solicitation by organizational staff and research team members. Participants were consented before participating and took part in only 1 focus group.

Conduct of Focus Groups

We used a standardized script to conduct focus groups, which included a statement of interest: "This focus group is part of a project that I am doing to describe the experiences of children growing up in neighborhoods throughout Philadelphia. I am particularly interested in understanding adverse childhood experiences. I define adverse childhood experiences as events that are emotionally difficult to deal with as a child and cause stress. These may be experiences that have happened to you as a child or other children that grew up in your neighborhood with you." We pilot tested the statement of interest with 10 community members to check its clarity. Participants silently wrote down a list of adverse experiences that they or children growing up in their neighborhoods faced. Using a round-robin format, each participant named the most stressful experience on their card not already named by another person at that focus group. Participants were allowed to volunteer responses that were not included on their original list but that arose after hearing responses from other focus group participants. The focus group facilitator asked participants to clarify their responses whenever necessary and then recorded the responses on a flip chart. In general, the facilitator recorded participant responses verbatim, but occasionally modified responses that lacked clarity.

This process was repeated for at least 2 additional rounds. After the final round, we prompted participants with a list of childhood stressors identified in the literature but not mentioned during the content-generating phase of the focus group. These stressors were added to the group list if participants acknowledged that these were stressful experiences for children growing up in their communities. Then each participant wrote down the 5 experiences from the flip chart that they considered the most stressful.

The Children's Hospital of Philadelphia Institutional Review Board found this study exempt from human subject review.

Analysis

Participant listings of the 5 most stressful experiences discussed during the focus group were used to generate a list of adverse experiences for each focus group. Using an iterative coding process, a primary coder (R.W.) combined experiences from these lists into subdomains and then up-coded these subdomains into domains. At frequent intervals, the primary coder met with members of the research team to review coding and discuss coding rules. We generated a final ranked list of domains by summing the number of times an experience in each domain was endorsed as 1 of the top 5 most stressful events. A member of the research team less heavily involved in the coding process (J.S.) separately coded 100 randomly selected experiences into subdomains and their respective domains. A Cohen's κ coefficient was calculated to assess the interrater reliability of the coding process. Finally, using a member-checking process,[41–43] we held 2 subsequent focus groups to allow additional study participants to review the ranked list of domains, comment on the accuracy of the domains, clarify the meaning of specific responses, and refine the language used to describe childhood experiences.

RESULTS

We held 17 content-generating focus groups with a total of 105 participants followed by 2 member-checking focus groups with 14 participants. Saturation was reached after the 10th focus group, as we did not hear new themes in subsequent groups. Additional focus groups were held to ensure a diverse representation of participants. More than half of the participants were male, black, and grew up in neighborhoods with at least 20% of the residents living at or below the FPL (see Table 1).

Participant responses were grouped into 10 domains: family relationships, community stressors, personal victimization, economic hardship, peer relationships, discrimination, school, health, child welfare/juvenile justice, and media/technology. Table 2 lists these domains ranked in order of greatest to least number of times participants endorsed an experience from this domain as 1 of the 5 most stressful experiences. The extent of interrater reliability between primary and secondary coders, estimated with Cohen's κ coefficient, was 0.93 for domains and 0.62 for subdomains. Several discordant responses were for adjacent subdomains. For example, 1 coder assigned the code "death of family members" for the phrase "family members/loved ones dying (shot by someone)," whereas the second coder assigned "seeing family members experience violence."

TABLE 1 Study Participant Demographics (n = 119)[a]

Demographics	%
Gender	
Boys	55
Girls	45
Race/Ethnicity	
Non-Hispanic white	5
Hispanic white	13
Non-Hispanic black	71
Hispanic black	5
Native American black	1
Native American	2
Asian	3
Neighborhood poverty level (100% FPL)[b]	
<10%	5
10%–20%	11
21%–40%	51
>40%	33

[a] Includes nominal group technique (n = 105) and member checking (n = 14) focus group participants.
[b] Percentage of individuals at or below the FPL in the neighborhoods in Philadelphia in which study participants spent at least half of their childhood.

Stressful exposures within family relationships were the most commonly identified adverse experiences. Within this domain, substance abuse in the home was most frequently cited by participants. This domain also includes death and illness of family members, single-parent homes, and violence between family members. Commonly cited among participants was the feeling that their families lacked love, support, strong parenting, and guidance as illustrated by the following quote: "My mom said, 'I ain't teach you nothing because I want you to go through the same thing I went through'…It's just like heartless, like you just don't care. My parents couldn't show me [love]. They made me feel like I was just there for a check."

The second most commonly cited domain, community stressors, includes experiences such as neighborhood violence, crime, and death. For our participants, violence in their communities was persistent and pervasive, disrupting daily routines and relationships with families and friends as highlighted in this quote: "There were shootings every night, so much so that the kids couldn't play outside. You wake up in the morning and find that someone from your friend's family passed away." Other community stressors included exposure to negative or adult behavior in the neighborhood, such as disagreements between neighbors or lewd behavior. One participant said, "My mom and neighbor had a grudge [against each other]… growing up [my neighbor] would poison my [pets], [she] would toss poison over our backyard fence to kill our dog and cat."

Personal victimization includes violent and nonviolent offenses, mostly focused on child abuse and neglect. One

TABLE 2 Most Stressful Adverse Childhood Experiences

Domains	Subdomains[a]	No. of Responses	Traditional ACEs
Family relationships		195[b]	
	Family members abusing alcohol and drugs (2)	37	Substance abuse in home
	Lack of love and support in the family	33	Divorce and separation[c]
	Single-parent homes (5)	30	Intimate partner violence
	Death and illness of family members (2)	21	Criminal activity in home
	Violence in the home (8)	20	Mental illness in home[c]
	Poor parenting and lack of guidance	20	
	Criminal activity by family members (3)	15	
	Having to take on adult responsibilities	14	
	Violent victimization of family members by individuals outside of the home	4	
Community stressors		119	
	Neighborhood crime, violence, and death (2)	57	
	Negative/adult behavior in the neighborhood (1)	50	
	Neighborhood nonviolent crime	12	
Personal victimization		72	
	Child abuse (3)	33	Physical abuse
	Bullying	16	Psychological abuse
	Child neglect (4)	9	Sexual abuse
	Violent crime (nonsexual)	7	Emotional neglect
	Nonviolent crime	3	Physical neglect
	Rape	3	
	Being chased by cops	1	
Economic hardship		67	
	Not enough money (1)	35	
	Lack of nonmonetary resources (4)	31	
	Watching parents struggle to make ends meet	1	
Peer relationships		35	
	Peer pressure	13	
	Death of friends	11	
	Problems with friends and peers (1)	9	
	Victimization of friends (violence)	2	
Discrimination		23	
	Stereotypes, racism, discrimination (4)	23	
School		22	
	Poor-quality schools	14	
	Lack of safety in schools (1)	3	
	Academic problems	3	
	School issues	2	
Health		17	
	Teenage pregnancy	9	
	Lack of access to quality health care (1)	5	
	Personal illness	3	
Child welfare/juvenile justice		8	
	Experiences with the foster care system (1)	6	
	Experiences with the juvenile justice system	2	
Media/technology		5	
	Mass media control: feeling like the government is trying to make you think a certain way	3	
	Social media intrusion into personal lives	2	

[a] Numbers beside subdomains indicate number of focus groups in which these experiences were identified only after prompting.
[b] One response was coded into this domain even though it was not specific enough to code into subdomain.
[c] Traditional ACE not endorsed by study participants.

participant said, "I seen my cousins getting raped by my uncles because they were addicted to drugs,… literally if you woke up in the middle of the night, you would be scared to walk down the steps because your uncles were doing whatever to your cousins."

Economic hardship includes not having enough money and the lack of nonmonetary resources. Participants also sensed the pain and struggle that their caregivers experienced to make ends meet, as illustrated by the following quote: "The hardest thing for me was watching my mom struggle [financially to pay for] food, utilities, bills."

Experiences in the domains of peer relationships, discrimination, and school were less commonly reported. Peer relationships include peer pressure and problems with friends, such as having to

maintain social status, jealousy between peers, backstabbing, gossiping, snitching, and break ups with significant others. Regarding peer pressure, several participants said that the pressure to "use drugs, drink alcohol, and have sex" were frequent stressors. Peer relationships include intense childhood events, such as death of friends and seeing friends incarcerated or robbed. Discrimination mostly involves racial stereotypes. One participant summed it up as follows: "stereotyping… it's mostly white people, the way they look at you when you are out walking in the street, they try to downgrade [you]… I've seen people follow [black people] around the store. They already got a mindset about us before they even know who we are." School stressors include poor-quality schools, lack of school safety, and academic struggles. One participant commented on differences between city and suburban schools stating, "Even though I lived in [the city] I went to [a suburban school]. My friends went to [city schools]… the stuff they learned in high school was taught to people at my school at earlier [grades]… there was an inconsistency between what they were learning and what was being taught at my school."

Additional domains endorsed by a minority of study participants were health, experiences in the child welfare/juvenile justice system, and media/technology. There were 9 additional responses that we were unable to code into a domain characterizing a stressful childhood experience not included in our results.

DISCUSSION

Since the initial ACE study, ACEs have been expanded to include an array of different childhood stressors.[44–47] ACE research has suffered from the lack of an agreed-on definition for childhood adversity leading to inconsistent operationalization of the term ACEs, hindering childhood adversity research.[48] Our work provides a youth perspective on the concept of childhood adversity.

Participants endorsed all of the traditional ACEs except for divorce/separation and mentally ill caregivers while citing childhood adversities not included in the initial ACE work but identified as ACEs in subsequent studies. Their responses highlight the complexity of capturing adversity in economically distressed populations as they describe experiences ranging from disruption of personal relationships, such as the death of family members, to environmental exposures, such as community violence.

Family relationships overlap with some of the initial ACEs, including substance abuse, violence, and criminal behavior in the home. In contrast to the initial ACE studies, in which divorce/separation was included as an adverse experience, our study participants cited single-parent homes, defined as living with only 1 parent, as a stressor. A large number of families began as single-parent homes in their communities, making divorce/separation irrelevant to their lives. Research does suggest that growing up in a single-parent home has a negative impact on children.[49–51] Factors, such as parental education, family income, and neighborhood resources, may buffer children from the negative effects of single-parent families,[52,53] but often are not present in the economically distressed communities in which our participants grew up.

With this focus on the importance of family dynamics, few of our participants endorsed corporal punishment/harsh parenting (ie, spanking, and use of profane language or yelling when disciplining a child) as a childhood stressor. Participants at each focus group acknowledged the use of harsh parenting practices and corporal punishment in their childhood homes. But only 1 participant ranked harsh parenting as one of the most stressful experiences. Participants rationalized these experiences as deserved for poor behavior and normal for their communities. Despite these findings, harsh parenting, whether perceived as such or not, has been associated with poor outcomes.[54–58]

Another area of overlap with the initial ACEs was personal victimization, which included physical/sexual abuse and neglect. In contrast to these traditional ACEs, personal victimization and community stressors highlight the different forms of victimization and violence that can occur throughout childhood. A recent study showed that up to 60% of children have been exposed to violence and nearly half of these events were direct physical assaults on the child.[59] These experiences affect childhood health and well-being beyond any physical injuries incurred, leading to mental, physical, and behavioral problems.[28,60,61]

Although not unexpected, given the negative impact of poverty on childhood physical health and emotional well-being,[62–65] the fact that economic hardship was so commonly cited as a stressor was significant nonetheless. These stressors involved witnessing parent financial struggles; and the lack of resources (ie, hunger, homelessness, and poor-quality clothing) caused by family financial struggles. These exposures were not assessed in the initial ACE studies but have been included as part of subsequent ACE studies.

Racism has a strong and lasting impact on the health of minorities[66–70]; however, few respondents endorsed racism and discrimination as a significant childhood stressor. We expected the large percentage of racial/ethnic minorities participating in our study, having grown up in disadvantaged racially segregated communities, would list discrimination as one of the predominant stressors in their lives. The reason for this finding is unclear. A potential explanation is these pervasive but subtle inequities have become

expected norms of our participants' lives and are not perceived as stressors.

Few participants cited discrimination based on sexual orientation as a significant childhood stressor. These issues are common problems in the lives of children and youth.[71] The focus group format could have made it difficult for participants to discuss issues surrounding sexual orientation. Future qualitative research with members of the lesbian, gay, bisexual, and transgendered community may provide insight into youth perspectives about the contribution of sexual preference–based discrimination to childhood adversity.

As our goal was to incorporate the voice of economically distressed urban youth in identifying the experiences that could represent severe stressors, we relied on participant recall of experiences perceived as stressful, and did not perform a concurrent health assessment or ask participants to specify when or how often ACEs occurred. Thus, we are unable to distinguish between "tolerable" and "toxic" stressors, identify exposures like harsh parenting or discrimination, which were harmful to our participants but not perceived as such, capture the impact of endorsed stressors, or assess the role of frequency or timing in determining the severity of these experiences.

Our study has several additional limitations. The study findings may be subject to recall bias, although several studies have confirmed the reliability of retrospective recall of adverse events in adult populations.[72–74] Study results may be specific to low-income Philadelphia communities, and not be generalizable to other settings. Also, the focus group format may have prohibited discussion of sensitive issues, such as abuse, victimization, or sexual orientation–based discrimination. However, the large number of personal stories about intense childhood experiences told during the focus groups suggests participants felt comfortable sharing sensitive childhood experiences. Finally, the close parallel relationship between experiences such as child maltreatment and involvement in the child welfare systems can make it difficult to disentangle the significance of each exposure.

Despite these limitations, our findings have implications for both health care practice and future research. Childhood adversity assessment should include experiences relevant to the target population. To assess adversity among inner-city low-income youth, clinicians should consider adding the following experiences to current ACE measures: single-parent homes; lack of parental love, support, and guidance; death of family members; exposure to violence, adult themes, and criminal behavior; date rape; personal victimization; bullying; economic hardship; discrimination; and poor health. All of these exposures were frequently cited by our participants and have been shown in other studies to contribute to poor health outcomes.[75–83] Experiences such as harsh parenting, which negatively affect child well-being but may not be perceived as stressors, also should be considered. However, before including any of these measures in any formal ACE assessment, more research must be done to examine the relative contribution of these additional experiences to health outcomes.

CONCLUSIONS

The disproportionate distribution of extreme levels of stress in disadvantaged communities has been cited as a contributor to the persistence of poor health outcomes for low-income populations.[84–87] We used focus groups with young adults who grew up in economically distressed urban communities to capture these stressful experiences. Study findings suggest that ACEs research should be broadened to include stressors experienced by youth in low-income urban settings. Understanding the diverse set of traumatic and stressful experiences of low-income urban youth is an area of research that requires further study.

ACKNOWLEDGMENTS

We are grateful to Steven Berkowitz, MD, and Kenneth Ginsburg, MD, for their guidance and advice in the development of this project.

REFERENCES

1. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. 1998;14(4):245–258
2. Edwards VJ, Holden GW, Felitti VJ, Anda RF. Relationship between multiple forms of childhood maltreatment and adult mental health in community respondents: results from the adverse childhood experiences study. *Am J Psychiatry*. 2003;160(8):1453–1460
3. Hillis SD, Anda RF, Dube SR, Felitti VJ, Marchbanks PA, Marks JS. The association between adverse childhood experiences and adolescent pregnancy, long-term psychosocial consequences, and fetal death. *Pediatrics*. 2004;113(2):320–327
4. Brown DW, Anda RF. Adverse childhood experiences: origins of behaviors that sustain the HIV epidemic. *AIDS*. 2009;23(16):2231–2233
5. Perez CM, Widom CS. Childhood victimization and long-term intellectual and academic outcomes. *Child Abuse Negl*. 1994;18(8):617–633
6. Duncan GJ, Brooks-Gunn J, Klebanov PK. Economic deprivation and early childhood development. *Child Dev*. 1994;65(spec no. 2):296–318

7. Leventhal T, Brooks-Gunn J. The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. *Psychol Bull*. 2000;126(2):309–337
8. Widom CS, Kuhns JB. Childhood victimization and subsequent risk for promiscuity, prostitution, and teenage pregnancy: a prospective study. *Am J Public Health*. 1996;86 (11):1607–1612
9. Evans GW. The environment of childhood poverty. *Am Psychol*. 2004;59(2):77–92
10. Understanding Child Abuse and Neglect. *Panel on Research on Child Abuse and Neglect*. Washington, DC: National Academy Press; 1993
11. Shonkoff JP, Garner AS; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 2012; 129(1). Available at: www.pediatrics.org/cgi/content/full/129/1/e232
12. Shonkoff JP. Leveraging the biology of adversity to address the roots of disparities in health and development. *Proc Natl Acad Sci U S A*. 2012;109(suppl 2):17302–17307
13. Duke NN, Pettingell SL, McMorris BJ, Borowsky IW. Adolescent violence perpetration: associations with multiple types of adverse childhood experiences. *Pediatrics*. 2010; 125(4). Available at: www.pediatrics.org/cgi/content/full/125/4/e778
14. Zielinski DS. Child maltreatment and adult socioeconomic well-being. *Child Abuse Negl*. 2009;33(10):666–678
15. Nikulina V, Widom CS, Czaja S. The role of childhood neglect and childhood poverty in predicting mental health, academic achievement and crime in adulthood. *Am J Community Psychol*. 2011;48(3-4):309–321
16. Buckle SK, Lancaster S, Powell MB, Higgins DJ. The relationship between child sexual abuse and academic achievement in a sample of adolescent psychiatric inpatients. *Child Abuse Negl*. 2005;29(9):1031–1047
17. Brown DW, Anda RF, Edwards VJ, Felitti VJ, Dube SR, Giles WH. Adverse childhood experiences and childhood autobiographical memory disturbance. *Child Abuse Negl*. 2007;31(9):961–969
18. Scherrer JF, Xian H, Kapp JMK, et al. Association between exposure to childhood and lifetime traumatic events and lifetime pathological gambling in a twin cohort. *J Nerv Ment Dis*. 2007;195(1):72–78
19. Rothman EF, Edwards EM, Heeren T, Hingson RW. Adverse childhood experiences predict earlier age of drinking onset: results from a representative US sample of current or former drinkers. *Pediatrics*. 2008;122(2). Available at: www.pediatrics.org/cgi/content/full/122/2/e298
20. Anda RF, Croft JB, Felitti VJ, et al. Adverse childhood experiences and smoking during adolescence and adulthood. *JAMA*. 1999; 282(17):1652–1658
21. Anda RF, Felitti VJ, Bremner JD, et al. The enduring effects of abuse and related adverse experiences in childhood. A convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci*. 2006;256(3):174–186
22. Surtees P, Wainwright N, Day N, Brayne C, Luben R, Khaw K-T. Adverse experience in childhood as a developmental risk factor for altered immune status in adulthood. *Int J Behav Med*. 2003;10(3):251–268
23. Brown DW, Anda RF, Felitti VJ, et al. Adverse childhood experiences are associated with the risk of lung cancer: a prospective cohort study. *BMC Public Health*. 2010;10(1):20
24. Anda RF, Brown DW, Dube SR, Bremner JD, Felitti VJ, Giles WH. Adverse childhood experiences and chronic obstructive pulmonary disease in adults. *Am J Prev Med*. 2008;34(5):396–403
25. Flaherty EG, Thompson R, Litrownik AJ, et al. Adverse childhood exposures and reported child health at age 12. *Acad Pediatr*. 2009;9(3):150–156
26. Anda RF, Chapman DP, Felitti VJ, et al. Adverse childhood experiences and risk of paternity in teen pregnancy. *Obstet Gynecol*. 2002;100(1):37–45
27. Anda R, Tietjen G, Schulman E, Felitti V, Croft J. Adverse childhood experiences and frequent headaches in adults. *Headache*. 2010;50(9):1473–1481
28. Finkelhor D, Shattuck A, Turner H, Hamby S. Improving the adverse childhood experiences study scale. *JAMA Pediatr*. 2013;167(1):70–75
29. Strand VC, Sarmiento TL, Pasquale LE. Assessment and screening tools for trauma in children and adolescents: a review. *Trauma Violence Abuse*. 2005;6(1):55–78
30. Elhai JD, Gray MJ, Kashdan TB, Franklin CL. Which instruments are most commonly used to assess traumatic event exposure and posttraumatic effects? A survey of traumatic stress professionals. *J Trauma Stress*. 2005;18(5):541–545
31. Dise-Lewis JE. The life events and coping inventory: an assessment of stress in children. *Psychosom Med*. 1988;50(5):484–499
32. Greenwald R, Rubin A. Assessment of posttraumatic symptoms in children: development and preliminary validation of parent and child scales. *Res Soc Work Pract*. 1999;9(1):61–75
33. Horowitz K, Weine S, Jekel J. PTSD symptoms in urban adolescent girls: compounded community trauma. *J Am Acad Child Adolesc Psychiatry*. 1995;34(10):1353–1361
34. Bernstein DP, Ahluvalia T, Pogge D, Handelsman L. Validity of the Childhood Trauma Questionnaire in an adolescent psychiatric population. *J Am Acad Child Adolesc Psychiatry*. 1997;36(3):340–348
35. Compas BE, Davis GE, Forsythe CJ, Wagner BM. Assessment of major and daily stressful events during adolescence: the Adolescent Perceived Events Scale. *J Consult Clin Psychol*. 1987;55(4):534–541
36. Strand V, Pasquale L, Sarmiento T. *Child and Adolescent Trauma Measures: A Review*. Bronx, NY: Children F.I.R.S.T. Fordham University; 2006
37. Evans GW, English K. The environment of poverty: multiple stressor exposure, psychophysiological stress, and socioemotional adjustment. *Child Dev*. 2002;73(4):1238–1248
38. Nair R, Aggarwal R, Khanna D. Methods of formal consensus in classification/diagnostic criteria and guideline development. *Semin Arthritis Rheum*. 2011;41(2):95–105
39. Gallagher M, Hares T, Spencer J, Bradshaw C, Webb I. The nominal group technique: a research tool for general practice? *Fam Pract*. 1993;10(1):76–81
40. Miller D, Shewchuk R, Elliot TR, Richards S. Nominal group technique: a process for identifying diabetes self-care issues among patients and caregivers. *Diabetes Educ*. 2000;26(2):305–310, 312, 314
41. Scott AJ, Wilson RF. Social determinants of health among African Americans in a rural community in the Deep South: an ecological exploration. *Rural Remote Health*. 2011; 11(1):1634
42. Doyle S. Member checking with older women: a framework for negotiating meaning. *Health Care Women Int*. 2007;28(10):888–908
43. Bygstad B, Munkvold BE. The Significance of Member Validation in Qualitative Analysis: Experiences from a Longitudinal Case Study. Proceedings of the 40th Annual Hawaii International Conference on System Sciences, January 3–6, 2007, Computer Society Press, 2007
44. Briggs ES, Price IR. The relationship between adverse childhood experience and obsessive-compulsive symptoms and beliefs: the role of anxiety, depression, and experiential avoidance. *J Anxiety Disord*. 2009;23 (8):1037–1046
45. Burke NJ, Hellman JL, Scott BG, Weems CF, Carrion VG. The impact of adverse childhood experiences on an urban pediatric population. *Child Abuse Negl*. 2011;35(6):408–413
46. Chartier MJ, Walker JR, Naimark B. Separate and cumulative effects of adverse childhood experiences in predicting adult

health and health care utilization. *Child Abuse Negl.* 2010;34(6):454–464

47. Masuda A, Yamanaka T, Hirakawa T, et al. Intra- and extra-familial adverse childhood experiences and a history of childhood psychosomatic disorders among Japanese university students. *Biopsychosoc Med.* 2007; 1(1):9
48. Kalmakis KA, Chandler GE. Adverse childhood experiences: towards a clear conceptual meaning [published online ahead of print December 11, 2013]. *J Adv Nurs.* doi:10.1111/jan.12329
49. Bass LE, Warehime MN. Family structure and child health outcomes in the United States. *Sociol Inq.* 2011;81(4):527–548
50. Craigie T-AL, Brooks-Gunn J, Waldfogel J. Family structure, family stability, and outcomes of five-year-old children. *Fam Relatsh Soc.* 2012;1(1):43–61
51. Ram B, Hou F. Changes in family structure and child outcomes: roles of economic and familial resources. *Policy Stud J.* 2003; 31(3):309–330
52. Bzostek SH, Beck AN. Familial instability and young children's physical health. *Soc Sci Med.* 2011;73(2):282–292
53. Youngblut JM, Brooten D, Singer LT, Standing T, Lee H, Rodgers WL. Effects of maternal employment and prematurity on child outcomes in single parent families. *Nurs Res.* 2001;50(6):346–355
54. Barry H. Corporal punishment and other formative experiences associated with violent crimes. *J Psychohist.* 2007;35(1):71
55. Mulvaney MK, Mebert CJ. Parental corporal punishment predicts behavior problems in early childhood. *J Fam Psychol.* 2007;21(3): 389–397
56. Knutson JF, DeGarmo D, Koeppl G, Reid JB. Care neglect, supervisory neglect, and harsh parenting in the development of children's aggression: a replication and extension. *Child Maltreat.* 2005;10(2):92–107
57. Chang L, Schwartz D, Dodge KA, McBride-Chang C. Harsh parenting in relation to child emotion regulation and aggression. *J Fam Psychol.* 2003;17(4):598–606
58. Nuru-Jeter AM, Sarsour K, Jutte DP, Boyce WT. Socioeconomic predictors of health and development in middle childhood: variations by socioeconomic status measure and race. *Issues Compr Pediatr Nurs.* 2010; 33(2):59–81
59. Finkelhor D, Turner H, Ormrod R, Hamby SL. Violence, abuse, and crime exposure in a national sample of children and youth. *Pediatrics.* 2009;124(5):1411–1423
60. Sharkey PT, Tirado-Strayer N, Papachristos AV, Raver CC. The effect of local violence on children's attention and impulse control. *Am J Public Health.* 2012;102(12):2287–2293
61. Turner HA, Finkelhor D, Shattuck A, Hamby S. Recent victimization exposure and suicidal ideation in adolescents. *Arch Pediatr Adolesc Med.* 2012;166(12):1149–1154
62. Malat J, Oh HJ, Hamilton MA. Poverty experience, race, and child health. *Public Health Rep.* 2005;120(4):442–447
63. Brooks-Gunn J, Duncan GJ. The effects of poverty on children. *Future Child.* 1997;7(2): 55–71
64. Burnett K, Farkas G. Poverty and family structure effects on children's mathematics achievement: estimates from random and fixed effects models. *Soc Sci J.* 2009;46 (2):297–318
65. Backlund E, Sorlie PD, Johnson NJ. The shape of the relationship between income and mortality in the United States. Evidence from the National Longitudinal Mortality Study. *Ann Epidemiol.* 1996;6(1):12–20, discussion 21–22
66. Terrell F, Miller AR, Foster K, Watkins CE Jr. Racial discrimination-induced anger and alcohol use among black adolescents. *Adolescence.* 2006;41(163):485–492
67. Guthrie BJ, Young AM, Williams DR, Boyd CJ, Kintner EK. African American girls' smoking habits and day-to-day experiences with racial discrimination. *Nurs Res.* 2002;51(3):183–190
68. Collins JW Jr, David RJ, Symons R, Handler A, Wall SN, Dwyer L. Low-income African-American mothers' perception of exposure to racial discrimination and infant birth weight. *Epidemiology.* 2000;11(3):337–339
69. Chambers EC, Tull ES, Fraser HS, Mutunhu NR, Sobers N, Niles E. The relationship of internalized racism to body fat distribution and insulin resistance among African adolescent youth. *J Natl Med Assoc.* 2004;96(12): 1594–1598
70. Brody GH, Chen Y-F, Murry VM, et al. Perceived discrimination and the adjustment of African American youths: a five-year longitudinal analysis with contextual moderation effects. *Child Dev.* 2006;77(5):1170–1189
71. Almeida J, Johnson RM, Corliss HL, Molnar BE, Azrael D. Emotional distress among LGBT youth: the influence of perceived discrimination based on sexual orientation. *J Youth Adolesc.* 2009;38(7):1001–1014
72. Hardt J, Sidor A, Bracko M, Egle UT. Reliability of retrospective assessments of childhood experiences in Germany. *J Nerv Ment Dis.* 2006;194(9):676–683
73. Hardt J, Rutter M. Validity of adult retrospective reports of adverse childhood experiences: review of the evidence. *J Child Psychol Psychiatry.* 2004;45(2):260–273
74. Hardt J, Vellaisamy P, Schoon I. Sequelae of prospective versus retrospective reports of adverse childhood experiences. *Psychol Rep.* 2010;107(2):425–440
75. Forrest CB, Bevans KB, Riley AW, Crespo R, Louis TA. School outcomes of children with special health care needs. *Pediatrics.* 2011; 128(2):303–312
76. Nyborg VM, Curry JF. The impact of perceived racism: psychological symptoms among African American boys. *J Clin Child Adolesc Psychol.* 2003;32(2):258–266
77. McLoyd VC. The impact of economic hardship on black families and children: psychological distress, parenting, and socioemotional development. *Child Dev.* 1990; 61(2):311–346
78. Meltzer H, Vostanis P, Ford T, Bebbington P, Dennis MS. Victims of bullying in childhood and suicide attempts in adulthood. *Eur Psychiatry.* 2011;26(8):498–503
79. Ackard DM, Neumark-Sztainer D. Date violence and date rape among adolescents: associations with disordered eating behaviors and psychological health. *Child Abuse Negl.* 2002;26(5):455–473
80. Singer MI, Anglin TM, Song LY, Lunghofer L. Adolescents' exposure to violence and associated symptoms of psychological trauma. *JAMA.* 1995;273(6):477–482
81. Waldfogel J, Craigie T-A, Brooks-Gunn J. Fragile families and child wellbeing. *Future Child.* 2010;20(2):87–112
82. Marks NF, Jun H, Song J. Death of parents and adult psychological and physical well-being: a prospective US national study. *J Fam Issues.* 2007;28(12):1611–1638
83. Stewart-Brown SL, Fletcher L, Wadsworth MEJ. Parent-child relationships and health problems in adulthood in three UK national birth cohort studies. *Eur J Public Health.* 2005;15(6):640–646
84. Beckie TM. A systematic review of allostatic load, health, and health disparities. *Biol Res Nurs.* 2012;14(4):311–346
85. Cavigelli SA, Chaudhry HS. Social status, glucocorticoids, immune function, and health: can animal studies help us understand human socioeconomic-status-related health disparities? *Horm Behav.* 2012;62(3):295–313
86. Shonkoff JP, Boyce WT, McEwen BS. Neuroscience, molecular biology, and the childhood roots of health disparities: building a new framework for health promotion and disease prevention. *JAMA.* 2009;301(21): 2252–2259
87. Goodman E, McEwen BS, Dolan LM, Schafer-Kalkhoff T, Adler NE. Social disadvantage and adolescent stress. *J Adolesc Health.* 2005;37(6):484–492

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DOI: 10.1542/peds.2013-2475 originally published online June 16, 2014;

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