

Technical Appendix

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice

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Technical Appendix A Part 1: ACEs Measurement Tools Comparison Table – Long Form

Name of ACEs tool	Sponsor, primary purpose, use and context	Data source & number and type of childhood adversity topics addressed (vs. CDC model); Population surveyed	Recommended ACEs metric(s) derived (vs. CDC model)	Other trauma, risk, resilience, health & contextual information collected	Technical development & validation status and activities	Notes on difference from NSCH-ACEs	Availability, implementation, resources, and links to examples of publications.
Centers for Disease Control (CDC)/Kaiser Permanente	<p>Sponsor: CDC & Kaiser Permanente Purpose: Assess associations between childhood maltreatment & adult health and well-being Use: Originally designed to be used in Kaiser Permanente health clinic as part of larger health screening. Although it is not being used to enroll further participants, those already enrolled are still having their outcomes tracked.</p>	<p>Data source: Adult self-report Constructs/topics: Physical neglect* Emotional neglect* Physical abuse Emotional abuse Sexual abuse Household substance abuse Household mental illness Domestic violence Parental divorce or separation* Parental incarceration (*not included in 1st wave analyses) 1-4 questions per construct; total of 28 questions.</p>	<p>Original CDC model: A yes to any question within one of the constructs counts as one point, and the total ACE score is 0-10 (0-7 in earlier model). Scores are often shown as 0, 1, 2, 3, 4+; to assess dose response of ACEs and adult health outcomes.</p>	<p>Demographics: sex, race/ethnicity, nativity, age, education, marital status, employment Other: mental health status, pregnancy history, sexual history, smoking, physical activity, alcohol use, drug use, suicide attempts, Health Appraisal Questionnaire (many current illnesses and symptoms, past physical health)</p>	<p>Development: Questionnaire was developed using questions from previously published surveys including Conflict Tactics Scale, Childhood Trauma Questionnaire, Wyatt (sexual abuse), and NHIS; additional questions came from standard Kaiser Health Appraisal Questionnaire. Additional ACEs questions added in 2nd wave. Validation: Responder and non-responder demographics and health history were compared & not found to have significant differences.</p>	<p>CDC/Kaiser study does not include questions on discrimination, economic hardship, neighborhood violence, or parental death, and has additional questions on physical neglect emotional neglect, physical abuse, sexual abuse, and emotional abuse.</p>	<p>Implementation and Availability: The family health questionnaires containing the ACEs are available on the CDC website (http://www.cdc.gov/violenceprevention/acestudy/questionnaires.html) as is information about the constructs and the questions that compose them (www.cdc.gov/violenceprevention/acestudy/about.html). Publications: The CDC website contains a list of publications sorted by year and topic (http://www.cdc.gov/violenceprevention/acestudy/publications.html). The first main paper (Felitti et al. 1998) gives more information about methods</p>
World Health Organization (WHO);	<p>Sponsor: International ACE Research Network (led by WHO and CDC).</p>	<p>Data Source: Adult self-report Categories: <i>Emotional abuse</i></p>	<p>Scoring methods: <i>Binary:</i> any positive response (once, a few times, many times) to any ACEs</p>	<p>Demographics: sex, age, race/ethnicity, education, work status, marital</p>	<p>Development: Meeting in 2009; reviewed several ACE and other studies. Led to a</p>	<p>ACE-IQ does not include questions on discrimination or economic hardship and has</p>	<p>Implementation and Availability: ACE-IQ Version 1 is “survey-ready.” (http://www.who.int)</p>

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ACE-International Questionnaire (ACE-IQ)	<p>Purpose: Measurement of ACEs internationally & comparison across countries; enabling advocacy and program planning around public health importance of ACEs around the world Use: Designed to be a standardized questionnaire across all countries; designed for use in country health surveys</p>	<p><i>Physical abuse</i> <i>Sexual abuse</i> Bullying <i>Emotional neglect</i> <i>Physical neglect</i> <i>Household substance abuse</i> <i>Household mental illness</i> <i>Household violence</i> <i>Household member incarcerated</i> <i>Parental separation or death</i> Community violence Collective violence* (Italics= included in original CDC study)</p> <p>1-4 items per category; total of 29 items</p>	<p>question within one of 13 categories gets 1 point; total score from 0-13. <i>Frequency:</i> there is a threshold for which positive responses count for each question; otherwise scoring is the same. Scores should be assessed in a similar way to CDC model (dose response curve).</p>	<p>status, family information Other: details of bullying, question on physical fights *Information on exposure to war/collective violence is included in their ACEs score</p>	<p>decision to address all adversities from BRFSS & add questions/change phrasing to increase international cultural applicability. Testing: Draft ACE-IQ field tested in several low and middle income countries Reliability/validity testing scheduled after 2011 meeting (and is currently underway) – implementing in broader health surveys in 6-8 countries</p>	<p>additional questions on physical neglect, emotional neglect, bullying, physical abuse, sexual abuse, emotional abuse, and collective violence</p>	<p>/violence_injury_prevention/violence/activities/adverse_childhood_experiences/questionnaire.pdf?ua=1) Website also gives introductory materials, questionnaire, interviewer guide, informed consent form, ethical approval (http://www.who.int/violence_injury_prevention/violence/activities/adverse_childhood_experiences/en/), and data analysis guidelines (http://www.who.int/violence_injury_prevention/violence/activities/adverse_childhood_experiences/data/en/) Publications: Papers from use in Iraq, Saudi Arabia, and Vietnam: http://www.ncbi.nlm.nih.gov/pubmed/?term=%22Adverse+Childhood+Experiences%22+AND+%22International+Questionnaire%22</p>
Beha-	Sponsor: CDC	Data source: Adult self-	Scoring: A yes (or	Other: Many	Development:	BRFSS ACEs	Implementation

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vioral Risk Factor Surveillance System (BRFSS)	Purpose: Add to prevalence data on ACEs, allow states to get representative ACEs information Use: ACEs module was part of larger BRFSS, conducted in all 50 states + DC & 3 US territories. Data are used for monitoring trends, looking at risk factors, evaluating program success, etc.	report 8 Domains (all included in original CDC study): Physical abuse Psychological abuse Sexual abuse Household substance abuse Household member imprisoned Household mental illness Household violence Parental separation or divorce 1-3 items/domain, 11 items total.	other positive response with non-yes/no items) to any item within one of 8 domains gets you 1 point for that ACE. Total score from 0-8. Scores should be looked at in similar way to CDC model (dose-response curve).	other modules, both core and optional, within BRFSS. No other questions within ACEs module.	Questions were modified from Kaiser-CDC study to “conform to fewer BRFSS question response categories.” Validation: Focus group testing done for understanding. Factor analysis done (Ford et al. 2014); supported either current scoring algorithm or alternate based on 3 construct areas.	module does not include items on parental death, economic hardship, discrimination, or neighborhood violence, and includes additional items on physical abuse, verbal (psychological) abuse, and sexual abuse.	and Availability: 2009-2012 questionnaires available: http://www.cdc.gov/brfss/questionnaires/index.htm Publications: MMWR article from December 17, 2010: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5949a1.htm ; List of publications from PubMed: http://www.ncbi.nlm.nih.gov/pubmed/?term=%22BRFSS%22+AND+%22ACE%22
National Survey of Children’s Health (NSCH)-ACEs	Sponsor: Maternal and Child Health Bureau, Health Resources and Services Administration Purpose: ACEs questions can be used to assess ACEs prevalence, variations, & associations with other topics included in survey Use: As part of overall survey	Data source: Parent-report (about children’s experiences) Questions: <i>Parental divorce/separation</i> <i>Parental death</i> <i>Parental incarceration</i> <i>Household mental illness</i> <i>Household substance abuse</i> Economic hardship Discrimination <i>Domestic violence</i> Neighborhood violence (Italics= in original CDC/Kaiser constructs)	Scoring: A yes or very often/ somewhat often answer gives 1 point. Total score from 0-9. Scores should be constructed in same way to the CDC model (dose-response curve).	Other: Many questions on child physical & mental health, health care access, health care quality, insurance, parental health, and community & school factors (part of a large national child health survey): http://childhealthdata.org/learn/	Development: Questions were based on original CDC/Kaiser ACEs, and adapted by a technical expert panel (in particular, to be appropriate to ask of parents about their children) for 2011/12 NSCH. Validation: Standard survey item testing was conducted by NCHS. The entire	n/a	Implementation and Availability: Guide to Topics & Questions, Full survey instruments, Interactive data query, microdata, scoring, several ACEs data briefs & more (http://childhealthdata.org) Publications: Health Affairs paper (Bethell et al. 2014), many others:

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	designed to give broad picture of child & adolescent health in the US	9 questions (+1 follow up to discrimination question, not included in scoring).		NSCH/topics_q uestions	survey underwent extensive cognitive testing & pilot testing.		examples found at: http://www.cahmi.org/projects/adverse-childhood-experiences-aces/
Center for Youth Wellness (CYW) (ACEs-Questionnaire (ACE-Q) Child, Teen, and Teen Self-Report)	<p>Sponsor: Bayview Child Health Center & Center for Youth Wellness, San Francisco, CA</p> <p>Purpose: For early detection and response in primary care practice</p> <p>Use: Designed for use by pediatricians & primary care physicians/ health care professionals.</p>	<p>Data source: Parent-report (about children’s (0-12) and teen’s (13-17) experiences); teen (13-17) self-report</p> <p>Categories: Original 10 CDC/Kaiser ACEs + Foster care Bullying Parental death Parental deportation/immigration separation Serious medical procedure/life-threatening illness Neighborhood violence Child arrest/ incarceration* Discrimination Relationship violence/threats* (*only asked for teens)</p> <p>17/19 (Child/Teen) items total.</p>	<p>Scoring: 2 sections (CDC & additional) are scored separately. Child questionnaire will have 2 scores, one from 0-10 & one from 0-7; Teen questionnaire will have 2 scores, one from 0-10 & one from 0-9. Provider responses are divided into 3 categories: Score from both sections combined is 0-3 with no symptoms; score from both sections combined is 0-3 with symptoms; or score from both sections combined is 4+.</p>	<p>Demographics: Child age & relationship of person completing questionnaire to child.</p> <p>Other: Questionnaire intended to be given as part of integrated primary care visit (but specific questions that may be asked during the visit are not shown)</p>	<p>Development: Based on original 10 CDC/Kaiser study ACEs questions. Additional questions added from experts & community stakeholders – hypothesized to also be predictive of later life health issues.</p> <p>Validation: Validation is being carried out in partnership with the Bay Area Research Consortium. The CYW ACE-Q is currently being used in the Bayview Child Health Center, a partner of CYW; collecting data to assess use of tool within integrated pediatric primary care.</p>	CYW ACE-Q does not include questions on economic hardship and has additional questions on verbal/emotional abuse, sexual abuse, physical abuse, emotional neglect, foster care, bullying, parental deportation or immigration separation, child arrest or incarceration, and relationship violence or threats.	<p>Implementation and Availability: 3 surveys & user guide available for download to pediatric primary care health professionals: http://sgiz.mobi/s3/ab0291ef106d</p> <p>Publications: None listed on website or found on PubMed</p>
Yale-Vermont Adversity	Sponsor: The YVACS was developed at UVM as	Data source: Adult self-report; Parent-report (about children’s experiences);	Scoring: Each item is scored on Frequency (0-2;	No additional items. *Questions on	Development: Questionnaire was developed using	Y-VACS does not include discrimination or	Implementation and Availability: Questionnaires are

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in Childhood Scale (Y-VACS)	<p>part of a combined Yale/UVM trauma research program supported by NIMH/RDOC</p> <p>Purpose: Assess associations between childhood adversity and health outcomes based on frequency and severity of adversity exposure within and outside the family</p> <p>Use: Designed to be a multi-informant questionnaire for use in research, clinical, and primary care settings</p>	<p>Clinician report (about children’s experiences); Child self-report (age 9+)</p> <p>All CDC constructs included except: Emotional neglect.</p> <p>Additional constructs measured: Community violence witnessed Bullying Exposure to war/terrorism* Serious car accident* Exposure to natural disasters or fire* Death of non-immediate family member/close friend Hospital care for serious medical problem</p> <p>All versions have 20 items in 2 sections: Family-Related and Non-Family or Non-Household-Related (in Adult questionnaire, this is called Natural Disasters, Community, and Health-Related). Each section has 9 specific questions and one labeled “Other (specify).”</p>	<p>never happened, one time, more than one time) and Severity (1-3; mild [or suspected, in clinician report], moderate, severe).</p>	<p>natural disasters, fire, war/terrorism, serious accident, serious medical problem, included in score.</p>	<p>questions from original CDC ACE survey, and additional non-family-related questions were included based on commonly reported adverse events captured in the “other” category from the initial draft of the forms.</p> <p>Validation: Inter-rater reliability analyses demonstrated high reliability of clinician rating scores generated independently on the same sample of children</p>	<p>economic hardship, but includes additional questions on physical abuse, sexual abuse, emotional abuse, bullying, exposure to war/terrorism, serious car accidents, exposure to natural disasters or fire, hospital care for serious medical condition, and death of non-immediate family member/close friend.</p>	<p>available for use; request copies from Jim Hudziak (james.hudziak@uvm.edu) or Joan Kaufman at (joan.Kaufman@kenedykrieger.org)</p> <p>Publications: Poster- Holbrook H, O’Loughlin K, Athoff R, Kaufman J, Hudziak J (2014). The Yale-Vermont Adversity in Childhood Scale: A quantitative approach to adversity assessment. Poster presented at the 61st Annual Meeting of the American Academy of Child and Adolescent Psychiatry (AACAP), San Diego, CA, October 24, 2014: https://aacap.confex.com/aacap/2014/webprogram/Paper22623.html</p> <p>Clinician Rating Scale paper and Parent-report/Child-report paper</p>

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							are currently being written and were submitted for publication at the end of 2015
Philadelphia ACEs	<p>Sponsor: Robert Wood Johnson Foundation, created by Institute for Safe Families and ACE Task Force, conducted by Public Health Management Corporation</p> <p>Purpose: Measure ACEs in urban setting with socially & racially diverse population in order to make policy recommendations</p> <p>Use: Designed specifically for use in the Philadelphia Urban ACE Study (follow-up to Southeastern Pennsylvania Household Health Survey)</p>	<p>Data source: Adult self-report</p> <p>All CDC constructs included except: Parental Separation/Divorce</p> <p>Additional indicators include: Witnessing violence Discrimination Neighborhood safety/community Bullying Foster care</p> <p>Total of 22 ACEs questions in 14 ACE indicators</p>	<p>Scoring: For yes/no questions, a yes in any question within an ACE indicator gives 1 point; for other response options, responses were dichotomized into ever/never, and an ever response to any question within an ACE indicator gives 1 point. Total score from 0-14. Scores should be looked at in similar way to CDC model (dose-response curve).</p>	<p>Demographics: Did you grow up in Philadelphia & if not what city/state</p> <p>Other: Current/ever medical conditions, Sexual history, Drug use, Mental health,</p>	<p>Development: Used original CDC/Kaiser questions and additional questions to measures “stressed associated with growing up in an urban community.”</p> <p>Constructs developed using literature review & focus groups with urban youth. Items to measure said constructs came from several previously published surveys.</p> <p>Validation: Initial analyses including descriptive stats & chi-square present in report. Logistic regression between CDC & additional ACEs in Cronholm et al. publication.</p>	<p>Philadelphia ACEs does not include parental divorce/separation, or parental death, and has additional questions on emotional abuse, physical abuse, sexual abuse, emotional neglect, neighborhood safety/community, bullying, and foster care.</p>	<p>Implementation and Availability: Questionnaire and methodology available online in report from 2013: http://www.institute.forsafefamilies.org/sites/default/files/isffiles/Philadelphia%20Urban%20ACE%20Report%202013.pdf</p> <p>Publications: Cronholm et. al, <i>American Journal of Preventive Medicine</i>, 2015: http://www.ncbi.nlm.nih.gov/pubmed/26296440</p>
National Survey of Child and Adoles-	<p>Sponsor: Administration on Children and Families (ACF),</p>	<p>Data source: Parent-, Caregiver-, and Caseworker-report (about children’s experiences);</p>	<p>Scoring: Same as for the original CDC/Kaiser study: 1 point for each</p>	<p>Other: The NSCAW is a wide ranging survey of</p>	<p>Development: ACEs items were those items that already existed in</p>	<p>NSCAW ACEs does not include parental death, economic</p>	<p>Implementation and Availability: List of topics and many research</p>

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cent Well-Being (NSCAW)	Office of Planning, Research & Evaluation Purpose: To measure ACEs in children involved with CPS/foster care system Use: NSCAW is a longitudinal survey of children and families involved with CPS	Data from CPS reports All CDC constructs were covered , although wording is different. In some cases, only one item from one person comprised the construct, & in others there were multiple reports from multiple people, where any of those reports/items could give a positive result for that ACE construct.	ACE, for a total score between 0-10 , and scores should be looked at on a dose-response scale.	children, biological parents, caregivers, teachers, and caseworkers on well-being, functioning, service needs and service use of children involved with CPS/foster care.	the NSCAW which most closely matched the CDC constructs. The overall survey was designed by a team from the child welfare research and policy communities, using already existing measures. Validation: Most items taken from existing (already validated) scales, such as Conflicts Tactics Scale, Alcohol Use Disorders Identification Test, and WHO Composite International Diagnostic Interview (https://www.acf.hhs.gov/sites/default/files/opre/aces_brief_final_7_23_13_2.pdf)	hardship, discrimination, or neighborhood violence, (larger NSCAW does have questions on economic hardship & neighborhood violence), and has additional items on physical abuse, emotional abuse, sexual abuse, physical neglect, and emotional neglect.	briefs, including one specifically on ACEs, can be found online. There is no consolidated ACEs tool. The ACEs brief specifies language in items used for ACEs score. Data sets are available to researchers through licensing agreements (http://www.ndacan.cornell.edu/datasets/request-nscaw-information.cfm) Publications: Research briefs available on website. (http://www.acf.hhs.gov/programs/opre/research/project/national-survey-of-child-and-adolescent-well-being-nscaw)
Marie-Mitchell and O'Connor Child ACE tool	Sponsor: Designed by scientists at Loma Linda University, funded by Commonwealth Fund Purpose: Screen for ACEs in young children & identify	Data source: Mother-report (about children's experiences) Constructs covered (1 per item) are: <i>Suspected child maltreatment</i> (could encompass several	Scoring: 1 point is given for a positive response to each question. Total score between 0-6 or 0-7. Results reported in categories: 0-2	Other: Child developmental screening, general child health status questionnaire and Pediatric Symptom	Development: based on "6 risk factors described in ACE literature and associated with increased risk of poor adult outcomes"	Marie-Mitchell & O'Connor ACEs tool does not include questions on economic hardship, discrimination, or neighborhood	Implementation and Availability: Only initial paper has been written about pilot testing of questionnaire (http://www.ncbi.nlm.nih.gov/pubmed/

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	specific early child outcomes associated with ACEs Use: Designed for use in pediatric practices, tested with 4-5 year olds in urban low-income practice	abuse/neglect domains from CDC) <i>Domestic violence</i> <i>Household substance use</i> <i>Household mental illness</i> <i>Household member jailed/imprisoned</i> <i>Maternal marital status (single parent)</i> Maternal education* (Italics= overlap with CDC constructs) 6 & 7 item versions (with and without maternal education). Data come from maternal report	ACEs & 3-6 or 3-7 ACEs.	Checklist, child BMI, injuries in past year, antibiotic use in past year, inhaler prescription in past year, and documentation of developmental delay. *Maternal education level was included in longer version of their ACE questionnaire	Validation: Initial paper in Academic Pediatrics) Marie-Mitchell & O'Connor 2013) describes pilot testing.	violence (includes question on marital status, but doesn't specifically ask about divorce or death of parent), and has additional questions on suspected child maltreatment and maternal education.	23312855); but table does list specific language used in each ACE item. A follow-up paper focusing on the female caretakers from the original study was recently published (http://www.ncbi.nlm.nih.gov/pubmed/26950476).
Montefiore – Clinical ACE questionnaire Adult/ Child	Sponsor: Questionnaires by Murphy, Dube, Steele, & Steele (2007), used as part of GABI, conducted at Early Childhood Center at the RFK Children's Evaluation and Rehabilitation Center, Montefiore Medical Center and , researched by Center for Attachment Research at New School and Shanta Dube at Georgis State Purpose: Screening	Data source: Parent-report, Adult self-report All CDC constructs were covered , slight wording changes & question combinations for some. 1-4 questions/construct, 25 questions in each version	Scoring: Same as for the original CDC/Kaiser study: 1 point for each ACE (positive response to any question within a construct; questions are yes/no or Likert scale), for a total score between 0-10 , and scores should be looked at on a dose-response scale. *Questions on Emotional Neglect are worded in the positive, and therefore are reverse	Other: No other questions in ACEs questionnaire. Participants also had their BMI measured and were asked questions on psychosocial and environmental stressors	Development: Questions were based on the original CDC/Kaiser study; wording was slightly modified & a child version was created Validation: Questionnaire was validated for use in GABI by analyzing its association with Unresolved/Cannot Classify outcomes on the Adult Attachment Interview (AAI)	Montefiore clinical ACE questionnaire does not include questions on discrimination, economic hardship, neighborhood violence, or parental death, and has additional questions on physical neglect emotional neglect, physical abuse, sexual abuse, and emotional abuse.	Implementation and Availability: Implementation is described in paper on initial survey results (http://www.ncbi.nlm.nih.gov/pubmed/26017004); questionnaire not available on website; e-mail Brooke Allman at brooke.allman@einstein.yu.edu .

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	tool as part of an intervention for vulnerable families (Group Attachment-Based Intervention -- GABI) in a health-care setting Use: Designed for clinical use with families to see 2-generational ACEs		scored. The normal scoring is used to create a measure of emotional support.				
Washington State University (WSU) ACEs tool -- schools	Sponsor: Tool developed by WSU Child and Family Research Unit Purpose: To support screening and assessment needs in population level efforts addressing trauma in children. Use: Designed for use in elementary schools.	Data source: School staff-report All CDC constructs included except: Emotional neglect. *All maltreatment constructs combined into one (CPS Involvement). Additional constructs measured: Residential instability Physical disability in Family Member Community Violence Exposure Parent/Caregiver Death Basic Needs (likely including Physical Neglect; not used in predicting child adjustment) Tool not available for review; this information gathered from reports on study.	Scoring: Same as for the original CDC/Kaiser study: 1 point for each ACE (positive response to any question within a construct), for a total score between 0-11 , and scores should be looked at on a dose-response scale. Looked at both lifetime and past 12 months prevalence.	Demographics: Grade, gender, race, Free/Reduced Meal Eligibility, Special Education enrollment Other: Academic problems, health concerns (chronic conditions & overall poor health)	Development: Questions were modified from those in the original CDC/Kaiser study. Validation: None shown	WSU ACEs school tool does not include questions on discrimination, or economic hardship (although that may be captured in part by the questions on basic needs), and has additional questions on child maltreatment (CPS report), residential instability, basic needs, and family member physical disability	Implementation and Availability: Initial report on study available online (http://ext100.wsu.edu/cafru/wp-content/uploads/sites/65/2015/02/Adverse-Childhood-Experience-and-Developmental-Risk-in-Elementary-Schoolchildren-Research-Briefx.pdf), no peer-reviewed publications yet. Some details about implementation and development available in: <a 325="" 895="" 910="" 917"="" data-label="Page-Footer" href="http://ext100.wsu.edu/cafru/wp-content/uploads/sites/65/2015/03/Complex-Trauma- </td> </tr> </tbody> </table> </div> <div data-bbox="> <p>Methods for resilience-based assessment of adverse childhood experiences, Technical Appendix A Page 9</p>

Name of ACEs tool	Sponsor, primary purpose, use and context	Data source & number and type of childhood adversity topics addressed (vs. CDC model); Population surveyed	Recommended ACEs metric(s) derived (vs. CDC model)	Other trauma, risk, resilience, health & contextual information collected	Technical development & validation status and activities	Notes on difference from NSCH-ACEs	Availability, implementation, resources, and links to examples of publications.
							Research-ACE-Screening-and-Assessment-in-Child-Serving-Systems-7-12-final.pdf. Tool not available.
Washington State University (WSU) ACEs tool – Head Start	<p>Sponsor: Tool developed by WSU Child and Family Research Unit</p> <p>Purpose: To meet screening and assessment needs of population level efforts to address trauma in children.</p> <p>Use: Designed for use in Head Start Centers</p>	<p>Data source: Parent-report & adult self-report</p> <p>All CDC constructs included except: Physical neglect.</p> <p>*CPS involvement used as a proxy for maltreatment.</p> <p>Additional constructs measured: Homelessness</p>	<p>Scoring: Same as for the original CDC/Kaiser study: 1 point for each ACE (positive response to any question within a construct), for a total score between 0-9, and scores reported on a dose-response scale.</p>	<p>Demographics: Age, gender, race, ethnicity</p> <p>Other: Teacher-rated child development (Teaching Strategies Gold); parent-rated child adjustment (Devereux Early Childhood Assessment)</p>	<p>Development: Questions were modified from those in the original CDC/Kaiser study.</p> <p>Validation: None reported.</p>	<p>WSU ACEs Head Start tool does not include questions on discrimination, economic hardship, neighborhood violence, or parental death, and has additional questions on child maltreatment (CPS report), emotional abuse, emotional neglect, and homelessness</p>	<p>Implementation and Availability: Initial reports on study available online (http://ext100.wsu.edu/cafru/wp-content/uploads/sites/65/2015/03/ACEs-in-Head-Start-Children-and-Impact-on-Development-1-14.pdf), no peer-reviewed publications yet. Some details about implementation and development available in: http://ext100.wsu.edu/cafru/wp-content/uploads/sites/65/2015/03/Complex-Trauma-Research-ACE-Screening-and-Assessment-in-Child-Serving-Systems-7-12-final.pdf. Tool not</p>

Name of ACEs tool	Sponsor, primary purpose, use and context	Data source & number and type of childhood adversity topics addressed (vs. CDC model); Population surveyed	Recommended ACEs metric(s) derived (vs. CDC model)	Other trauma, risk, resilience, health & contextual information collected	Technical development & validation status and activities	Notes on difference from NSCH-ACEs	Availability, implementation, resources, and links to examples of publications.
Childhood Adversity Questionnaire (CAQ)	<p>Sponsor: Developed by researchers at the Children's Hospital of Philadelphia with support from the Stoneleigh Foundation (still under development)</p> <p>Purpose: Assess ACEs amongst children and youth and assist organizations in directing services to prevent exposure to ACEs or mitigate the impact of these experiences.</p> <p>Use: Designed for use across health and social service agencies.</p>	<p>Data source: Parent report for children less than 8. Self-report for children and youth between ages of 8 to 18 years.</p> <p>Constructs: Family relationships (includes household stressors from CDC measure – parental/separation divorce changed to single parent homes) Community stressors Personal victimization (includes emotional, physical, sexual abuse and emotional and physical neglect) Economic hardship Peer relationships Discrimination Personal issues with school and health Involvement in juvenile justice and child welfare systems</p>	<p>Scoring: Currently in development</p>	<p>Demographics: Age, gender, race, ethnicity</p> <p>Other: Protective factors including the presence of supportive and nurturing relationships with adults, positive affect, communication and problem solving skills, and positive coping skills</p>	<p>Development: Questions created from statements from interviews with children and youth impacted by ACEs.</p> <p>Validation: None reported yet.</p>	<p>CAQ does not include questions on parental separation/divorce using the term single parent homes instead, but includes additional items on physical abuse, emotional abuse, sexual abuse, physical neglect, and emotional neglect.</p>	<p>available.</p> <p>Implementation and Availability: None available yet.</p>
The National Crittenton Foundation's ACES Survey	<p>Sponsor: ASCEND at the Aspen Institute</p> <p>Purpose: Support screening, assessment, treatment, and self-empowerment for young women and men and their children, and to</p>	<p>Data source: Parent-report, Adult self-report</p> <p>All CDC constructs were covered, slight wording changes to allow for parent-report in addition to adult self-report & a few question combinations</p> <p>1-3 questions/construct, total of 19 questions</p>	<p>Scoring: Same as for the original CDC/Kaiser study: 1 point for each ACE (positive response to any question within a construct; questions are yes/no or Likert scale), for a total</p>	<p>Other: Demographic items, optional well-being assessment which includes items on psychological stress, coping, and connection</p>	<p>Development: Questions were based on the original CDC/Kaiser study; a parent-reported child version was created with modified wording</p> <p>Validation: None</p>	<p>Crittenton ACES Survey does not include questions on discrimination, economic hardship, neighborhood violence, or parental death, and has</p>	<p>Implementation and Availability: Extensive implementation guidelines included in the toolkit (http://www.nationalcrittenton.org/wp-content/uploads/2015/10/ACES_Toolkit).</p>

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice
 Bethell, C., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P.

Name of ACEs tool	Sponsor, primary purpose, use and context	Data source & number and type of childhood adversity topics addressed (vs. CDC model); Population surveyed	Recommended ACEs metric(s) derived (vs. CDC model)	Other trauma, risk, resilience, health & contextual information collected	Technical development & validation status and activities	Notes on difference from NSCH-ACEs	Availability, implementation, resources, and links to examples of publications.
	improve interventions at the agency level Use: Designed for clinical/social service use for young women and their children		score between 0-10 , and scores should be looked at on a dose-response scale.	to adults	(beyond what had been originally done for CDC study)	additional questions on physical neglect, emotional neglect, physical abuse, sexual abuse, and emotional abuse.	pdf). 3 publications from earlier (2012) ACEs survey on particular subgroups; webinar on early results from the current (2014) version (http://www.nationalcrittenton.org/what-we-do/publications/).

Technical Appendix A Part 2: ACEs Measurement Tools Crosswalk of Constructs

Figure 1-A: Comparison of question wording for CDC original study constructs across ACEs questionnaires

CDC Constructs	WHO ACE-IQ	CDC/Kaiser original study	BRFSS ACEs module	NSCH ACEs questions	CYW ACE-Q
Physical abuse	Did a parent, guardian or other household member spank, slap, kick, punch or beat you up? Did a parent, guardian or other household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip etc?	While you were growing up, that is, during your first 18 years of life, how often did a parent, step-parent, or adult living in your home: ...Actually push, grab, shove, slap you, or throw something at you? ...Hit you so hard that you had marks or were injured?	Before age 18, how often did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way? Do not include spanking.		Someone pushed, grabbed, slapped or threw something at you OR You were hit so hard that you were injured or had marks
Emotional abuse	Did a parent, guardian or other household member yell, scream or swear at you, insult or humiliate you? Did a parent, guardian or other household member threaten to, or actually, abandon you or throw you out of the house?	While you were growing up, that is, during your first 18 years of life, how often did a parent, step-parent, or adult living in your home: ...Swear at you, insult you, or put you down? ...Act in a way that made you afraid that you might be physically hurt?	How often did a parent or adult in your home ever swear at you, insult you, or put you down?		A household member swore at, insulted, humiliated, or put you down in a way that scared you OR A household member acted in a way that made you afraid that you might be physically hurt
Sexual abuse	Did someone touch or fondle you in a sexual way when you did not want them to? Did someone make you touch their body in a sexual way when you did not want them to? Did someone attempt oral, anal, or vaginal intercourse with you when you did not want them to?	During the first 18 years of life, did an adult or older relative, family friend or stranger [at least 5 years older than you] ever: ...Touch or fondle your body in a sexual way? ...Have you touch their body in a sexual way? ...Attempt to have any type of sexual intercourse (oral, anal, or vaginal)	How often did anyone at least 5 years older than you or an adult, ever touch you sexually? How often did anyone at least 5 years older than or an adult try to make you touch them sexually? How often did anyone at least 5 years older than you or an adult force you to have sex?		Someone touched your private parts or asked you to touch their private parts in a sexual way that was unwanted, against your will, or made you feel uncomfortable

CDC Constructs	WHO ACE-IQ	CDC/Kaiser original study	BRFSS ACEs module	NSCH ACEs questions	CYW ACE-Q
	Did someone actually have oral, anal, or vaginal intercourse with you when you did not want them to?	with you? ... Actually have any type of sexual intercourse (oral, anal, or vaginal) with you?			
Physical neglect	Did your parents/guardians not give you enough food even when they could easily have done so? Were your parents/guardians too drunk or intoxicated by drugs to take care of you? Did your parents/guardians not send you to school even when it was available?	While you were growing up, during your first 18 years of life, how true were each of the following statements: ... You didn't have enough to eat? ... You knew there was someone to take care of you and protect you? ... Your parents were too drunk or high to take care of the family? ... You had to wear dirty clothes? ... There was someone to take you to the doctor if you needed it?			More than once, you went without food, clothing, a place to live, or had no one to protect you
Emotional neglect	Did your parents/guardians understand your problems and worries? Did your parents/guardians really know what you were doing with your free time when you were not at school or work?	While you were growing up, during your first 18 years of life, how true were each of the following statements: ... There was someone in your family who helped you feel important or special? ... You felt loved? ... People in your family looked out for each other? ... People in your family felt close to each other? ... Your family was a			You often felt unsupported, unloved and/or unprotected

CDC Constructs	WHO ACE-IQ	CDC/Kaiser original study	BRFSS ACEs module	NSCH ACEs questions	CYW ACE-Q
		source of strength and support?			
Parental separation/divorce	Were your parents ever separated or divorced?*(in ACE-IQ, this & parental death are part of same construct)	Were your parents ever separated or divorced?	Were your parents separated or divorced?	Did child ever live with a parent or guardian who got divorced or separated after child was born?	Your parents or guardians were separated or divorced
Parental incarceration	Did you live with a household member who was ever sent to jail or prison?	Did anyone in your household go to prison?	Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?	Did child ever live with a parent or guardian who served time in jail or prison after child was born?	You lived with a household member who served time in jail or prison
Domestic violence	Did you see or hear a parent or household member in your home being yelled at, screamed at, sworn at, insulted or humiliated? Did you see or hear a parent or household member in your home being slapped, kicked, punched or beaten up? Did you see or hear a parent or household member in your home being hit or cut with an object, such as a stick (or cane), bottle, club, knife, whip etc.?	While you were growing up in your first 18 years of life, how often did your father (or stepfather) or mother's boyfriend do any of these things to your mother (or stepmother)? ...Push, grab, slap or throw something at her? ...Kick, bite, hit her with a fist, or hit her with something hard? ...Repeatedly hit her over at least a few minutes? ...Threaten her with a knife or gun, or use a knife or gun to hurt her?	How often did your parents or adults in your home ever slap, hit, kick, punch, or beat each other up?	Did child ever see or hear any parents or adults in his/her home slap, hit, kick, punch, or beat each other up?	You saw household members hurt or threaten to hurt each other
Household mental illness/suicide	Did you live with a household member who was depressed, mentally ill or suicidal?	Was anyone in your household depressed or mentally ill? Did anyone in your household attempt to commit suicide?	Did you live with anyone who was depressed, mentally ill, or suicidal?	Did child ever live with anyone who was mentally ill or suicidal, or severely depressed for more than a couple of weeks?	You lived with a household member who was depressed, mentally ill, or attempted suicide
Household substance	Did you live with a household member who	During your first 18 years of life did you live with	Did you live with anyone who was a problem drinker	Did child ever live with anyone who had a	You lived with someone who had a problem with

CDC Constructs	WHO ACE-IQ	CDC/Kaiser original study	BRFSS ACEs module	NSCH ACEs questions	CYW ACE-Q
abuse	was a problem drinker or alcoholic, or misused street or prescription drugs?	anyone who was a problem drinker or alcoholic? Did you live with anyone who used street drugs?	or alcoholic? Did you live with anyone who used illegal street drugs or who abused prescription medications?	problem with alcohol or drugs?	drinking or using drugs

Figure 1-B: Comparison of question wording for CDC original study constructs across ACEs questionnaires

CDC Constructs	Y-VACS	Philadelphia ACEs	NSCAW ACEs	Child ACEs study	Einstein Clinical ACEs questionnaire
Physical abuse	Did an adult in the household hit, push, or throw you?	While you were growing up how often did a parent, step-parent, or another adult living in your home: ...Push, grab, shove, or slap you? ...Hit you so hard that you had marks or were injured?	Parent report of severe assault or caseworker report of physical abuse, such as shaking an infant or hitting an older child		How often did a parent or other adult in your home: ...Actually push, grab, slap, or throw something at you? ...Hit you so hard that you had marks or were injured?
Emotional abuse	Did an adult in the household ridicule, reject, or threaten you?	While you were growing up how often did a parent, step-parent, or another adult living in your home: ...Swear at you, insult you, or put you down? ...Act in a way that made you afraid you would be physically hurt?	Parent report of psychological aggression, such as threatening the child or calling him/her names		How often did a parent, step-parent, or other adult in your home: ...Swear at you, insult you, or put you down? ...Act in a way that made you afraid you might be physically hurt?
Sexual abuse	Did a parent, other adult in the household, or other family member force you to watch or do something sexual? Did a non-household, non-family member force you to watch or do something sexual when you were a child or adolescent?	During the first 18 years of life, did an adult or older relative, family friend, or stranger who was at least five years older than yourself ever: ...Touch or fondle you in a sexual way or have you touch their body in a sexual way? ...Attempt to have or actually have any type of sexual intercourse, oral, anal, or vaginal, with you?	Parent or caseworker report of sexual abuse or forced sex reported by the child		During the first 18 years of life, did an adult or older relative, family friend, or stranger ever: ...Touch or fondle your body in a sexual way? ...Make you touch them sexually? ...Have any type of sexual intercourse (oral, anal, vaginal) with you? ...Attempt to have any type of sexual intercourse (oral, anal, vaginal) with you?
Physical neglect	Did you ever lack food, shelter, supervision, or routine or specialized medical care?	Your family sometimes cut the size of meals or skipped meals because there was not enough	Parent report of child neglect, or caseworker report of failure to supervise or provide for the		How often were the following statements true: ...You did not have enough to eat

CDC Constructs	Y-VACS	Philadelphia ACEs	NSCAW ACEs	Child ACEs study	Einstein Clinical ACEs questionnaire
		money in the budget for food.	child		... You had to wear dirty clothes ... You had no one to take you to the doctor ... Your parents were too drunk or high to take care of you
Emotional neglect		There was someone in your life who helped you feel important or special.	Caregiver reported that, in the past 12 months, “many times were you so caught up with problems that you were not able to show or tell your child that you loved him/her?”		How often were the following statements true: ... You knew there was someone to take care of you and protect you ... There was someone in your family who helped you feel special or important ... You felt loved
Parental separation/divorce	Were your parents separated or divorced, or did you have no or limited contact with one or both of your parents for any period of time when you were a child or adolescent?		Child was placed out of home currently or at baseline, or caseworker report of abandonment, or caregiver’s current marital status is divorced or separated, or mother or father is deceased.	Maternal report of marital status	During your first 18 years of life, were your parents ever separated or divorced?
Parental incarceration	Was a parent or other adult in the household ever arrested or incarcerated?	Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?	Caregiver reports spending time in prison as a result of an arrest, or parent currently in a jail or detention center	Maternal report of household member jailed or imprisoned	During your first 18 years of life, did anyone in your household ever go to prison?
Domestic violence	Did you see or hear adults in the household having serious fights?	How often, if ever, did you see or hear in your home a parent, step parent, or another adult who was helping to raise you being: ... Slapped, kicked, punched, or beaten up?	Caregiver or caseworker report of any domestic violence such as slapping, hitting, or kicking	Maternal report of being pushed, grabbed, slapped, had something thrown at her, kicked, bitten, hit with a fist, hit with something hard, or hit with a gun or knife in the past year	How often did your father (or stepfather) or mother’s boyfriend do any of the following things to your mother (or stepmother): ... Push, grabbed, slap, or throw things at her? ... Kick, bite, hit her with

CDC Constructs	Y-VACS	Philadelphia ACEs	NSCAW ACEs	Child ACEs study	Einstein Clinical ACEs questionnaire
		...Hit or cut with an object, such as a stick, cane, bottle, club, knife, or gun?			a fist, or hit her with something hard? ...Repeatedly hit her for over at least a few minutes? ...Threatened her with a knife or a gun, or use a knife or gun to hurt her?
Household mental illness/ suicide	Did a parent or other household member attempt suicide or intentionally harm him or herself when you were a child or adolescent?	Did you live with anyone who was depressed or mentally ill? Did you live with anyone who was suicidal?	Caseworker report of a caregiver having a serious mental health problem, or caregiver elevated mental health symptoms	Maternal Edinburgh Postnatal Depression Screen, household report of member with history of depression, mental illness or attempted suicide	During your first 18 years of life, was a household member depressed or mentally ill? During your first 18 years of life, did a household member ever attempt suicide?
Household substance abuse	Did a parent or other adult in the household ever misuse alcohol or drugs?	Did you live with anyone who was a problem drinker or alcoholic? Did you live with anyone who used illegal street drugs or who abused prescription medication?	Caseworker report of active alcohol or drug abuse by the primary or secondary caregiver, or caregiver report of current alcohol abuse.	Maternal CAGE (cut down, annoyed, guilty, eye-opener), household report of member with problem drinking or use of street drugs	During your first 18 years of life, did you ever live with anyone who: ...Was a problem drinker or alcoholic? ...Or, used street drugs?

Figure 2: Comparison of question wording for other common topics across ACEs questionnaires

Other common topics	WHO ACE-IQ	NSCH ACEs questions	CYW ACE-Q	Y-VACS	Philadelphia ACEs
Discrimination		Was child ever treated or judged unfairly because of his/her race or ethnic group?	You have often been treated badly because of race, sexual orientation, place of birth, disability or religion		How often did you feel that you were treated badly or unfairly because of your race or ethnicity?
Bullying	Were you bullied?		You have experienced harassment or bullying at school	Were you bullied?	How often were you bullied by a peer or classmate?
Neighborhood violence	Did you see or hear someone being beaten up in real life? Did you see or hear someone being stabbed or shot in real life? Did you see or hear someone being threatened with a knife or gun in real life?	Was child ever the victim of violence or witness any violence in his/her neighborhood?	You have often seen or heard violence in the neighborhood or in your school neighborhood	Did you witness community violence when you were a child or adolescent?	How often, if ever, did you see or hear someone being beaten up, stabbed, or shot in real life?
Parental death	Did your mother, father or guardian die?*(in ACE-IQ, this & parental divorce/separation are part of same construct)	Did child ever live with a parent or guardian who died?	You have lived with a parent or guardian who died		

*The Washington State University questionnaires could not be included in this table due to the fact that we were unable to acquire the actual questionnaires. The CAQ could not be included in this table due to the fact that it is still under development.

Appendix A Part 3: ACEs Measurement Tools Additional Information and Resources

CDC/Kaiser (original ACEs study)

Questionnaires: <http://www.cdc.gov/violenceprevention/acestudy/questionnaires.html>

- The Male and Female versions of the Family Health History Questionnaire contain the questions used for the ACEs study along with other health information
- The Health Appraisal Questionnaires ask about current and past health symptoms

Prevalence of Individual Adverse Childhood Experiences:

<http://www.cdc.gov/violenceprevention/acestudy/prevalence.html>

- Gives information about prevalence of overall and individual ACEs, descriptions of ACE categories, and scales that were used to create some questions

About the Study: <http://www.cdc.gov/violenceprevention/acestudy/about.html>

Publications on Major Findings:

<http://www.cdc.gov/violenceprevention/acestudy/publications.html>

- Can access by health outcome or year
- Initial paper (Felitti et al., 1998) gives detailed information on study design & methodology

WHO (ACE-IQ)

Questionnaire:

http://www.who.int/violence_injury_prevention/violence/activities/adverse_childhood_experiences/questionnaire.pdf?ua=1

Data management:

http://www.who.int/violence_injury_prevention/violence/activities/adverse_childhood_experiences/data/en/

- Scoring guidelines are in document titled “Guidance for analysing ACE-IQ”
- Also has information on how to code and analyze responses

ACE Global Research Network:

http://www.who.int/violence_injury_prevention/violence/activities/adverse_childhood_experiences/global_research_network/en/

- 2009 meeting report gives information on initial discussion of importance, ACEs/trauma measures considered, ACEs categories & rationale, and participant list
- 2011 meeting report gives details of pilot testing and results, next steps in validation & testing, and participant list

ACE-IQ main page:

http://www.who.int/violence_injury_prevention/violence/activities/adverse_childhood_experiences/en/

- In addition links to above pages & documents, also includes links to introductory materials, supporting documents, and a guide to administration of the ACE-IQ

BRFSS ACEs module

Questionnaire: http://www.cdc.gov/brfss/questionnaires/pdf-ques/2012_brfss.pdf

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice Bethell, C., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P.

- ACEs questions under “Optional modules”
- Also includes interviewer’s script

BRFSS Data User Guide:

http://www.cdc.gov/brfss/data_documentation/pdf/userguidejune2013.pdf

- Information about how the BRFSS is implemented, designed, and can be analyzed

MMWR Article: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5949a1.htm>

- Data from 5 states administering module in 2009
- Also gives a lot of information about ACE categories covered and development of the BRFSS ACEs module

Main BRFSS page: <http://www.cdc.gov/brfss/about/index.htm>

NSCH ACEs questions

Guide to Topics & Questions: <http://childhealthdata.org/docs/drc/2011-12-guide-to-topics-questions-draft.pdf?sfvrsn=4>

- ACEs questions are in “Parental Health” section

Health Affairs paper: <http://content.healthaffairs.org/content/33/12/2106.abstract>

- Example of looking at associations between ACEs score and other factors measured in NSCH
- Also gives background information on development and testing of NSCH questions

Survey Methods and Documentation page: <http://childhealthdata.org/learn/methods>

- Includes information on sampling & administration of survey, design and operations manual, codebooks for data analysis, and full length survey instrument

Data in Action: Data Briefs page: <http://childhealthdata.org/action/databriefs>

- Data briefs give ACEs prevalence and more from NSCH data

Center for Youth Wellness ACE-Q

Main CYW website: <http://www.centerforyouthwellness.org/>

- Clicking on “Health Care Professionals” gives you the form to request 3 questionnaires & user guide
- Other information about ACEs and other resources are available throughout the website

Y-VACS questionnaire

For more information or to access the questionnaires, please contact Jim Hudziak at james.hudziak@uvm.edu or Joan Kaufman at joan.kaufman@kennedykrieger.org.

Philadelphia Urban ACE Study

Report on Findings:

<http://www.instituteforsafefamilies.org/sites/default/files/isfFiles/Philadelphia%20Urban%20ACE%20Report%202013.pdf>

- Also includes questionnaire and development and survey methodology information

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice Bethell, C., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P.

Initial publication (abstract) by Cronholm et al. in the *American Journal of Preventive Medicine* on results, which particularly focuses on the comparison between those ACEs items that appeared in the original CDC study and their expanded, community-level items:

<http://www.ncbi.nlm.nih.gov/pubmed/26296440>

NSCAW ACEs questions

NSCAW ACEs Research Brief:

http://www.acf.hhs.gov/sites/default/files/opre/aces_brief_final_7_23_13_2.pdf

- Questions from NSCAW used for each ACEs construct
- Also includes background, methodology, and some findings

NSCAW II Baseline Report: Introduction to NSCAW:

http://www.acf.hhs.gov/sites/default/files/opre/nscaw2_intro.pdf

- Overall information about the survey, including development, history, sampling, & more

NSCAW main website: <http://www.acf.hhs.gov/programs/opre/research/project/national-survey-of-child-and-adolescent-well-being-nscaw>

National Data Archive on Child Abuse and Neglect, Cornell University (to request datasets):

<http://www.ndacan.cornell.edu/datasets/request-nscaw-information.cfm>

Marie-Mitchell & O'Connor ACEs Study

Study by Marie-Mitchell & O'Connor (abstract):

<http://www.ncbi.nlm.nih.gov/pubmed/23312855>

Einstein Clinical ACE Questionnaire

Paper on GABI Intervention (abstract): <http://www.ncbi.nlm.nih.gov/pubmed/26017004>

- Outlines implementation of ACEs questionnaire & other parts of intervention
- Also gives some prevalence of ACEs among intervention population

Paper on questionnaire validation (abstract): <http://www.ncbi.nlm.nih.gov/pubmed/24670331>

- Also gives text of items from questionnaire

WSU School and Head Start ACEs Tools

Working paper on all ACEs studies being conducted by WSU CAFRU:

<http://ext100.wsu.edu/cafru/wp-content/uploads/sites/65/2015/03/Complex-Trauma-Research-ACE-Screening-and-Assessment-in-Child-Serving-Systems-7-12-final.pdf>

- Gives details of 4 studies – in elementary school, extracurricular program, Head Start center, and home visiting program
- Includes some information about ACEs tool construction and topics

Manuscript in progress on Head Start study: <http://ext100.wsu.edu/cafru/wp-content/uploads/sites/65/2015/03/ACEs-in-Head-Start-Children-and-Impact-on-Development-1-14.pdf>

Research brief on elementary school study: <http://ext100.wsu.edu/cafru/wp-content/uploads/sites/65/2015/02/Adverse-Childhood-Experience-and-Developmental-Risk-in-Elementary-Schoolchildren-Research-Briefx.pdf>

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice Bethell, C., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P.

WSU CAFRU main research page: <http://ext100.wsu.edu/cafru/research/>

Children’s Hospital of Philadelphia’s Childhood Adversity Questionnaire (CAQ)

This tool is currently under development. For more information, please contact Roy Wade at WadeR2@email.chop.edu.

The National Crittenton Foundation (TNCF) ACEs Survey

ACEs Survey toolkit: http://www.nationalcrittenton.org/wp-content/uploads/2015/10/ACEs_Toolkit.pdf

- Sample protocol and tips for administering the ACEs survey
- Case studies, testimonials, and additional resources
- Information on who to contact for a copy of the tool

TNCF Publications: <http://www.nationalcrittenton.org/what-we-do/publications/>

- 2016 Beyond ACEs webinar
- 3 briefs from 2012 ACEs pilot – ACE Summary on Girls in Juvenile Justice, 2013; ACE Summary on Girls and Boys in Residential Programs, 2013; and ACE Results on Young Moms, 2012

Technical Appendix B: Publications Used to Inform the Development of NSCH-ACEs Items

Extreme Economic Hardship

1. Astone, N.M., Misra, D., & Lynch, C. (2007). "The effect of maternal socio-economic status throughout the lifespan on infant birthweight." *Paediatric and Perinatal Epidemiology*.
2. Chittleborough, C.R., Baum, F.E., Taylor, A.W., & Hiller, J.E. (2006). "A life-course approach to measuring socioeconomic position in population health surveillance systems." *Journal of Epidemiology & Community Health*.
3. Colen, C.G., Geronimus, A.T., Bound, J., & James, S.A. (2006). "Maternal Upward Socioeconomic Mobility and Black-White Disparities in Infant Birthweight." *American Journal of Public Health*.
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Astone, N.M., Misra, D., & Lynch, C. (2007). "The effect of maternal socio-economic status throughout the lifespan on infant birthweight." *Paediatric and Perinatal Epidemiology*.

Abstract: The objective of this study was to investigate whether maternal socio-economic status during childhood and at the time of pregnancy each have unique associations with infant birthweight when biological determinants of birthweight are controlled. The data are from a three-generation study which contains information on the mothers and grandmothers of 987 singleton infants, collected over a period of 25 years. We used simple and multivariable regression to assess the association between indicators of a woman's socio-economic status and her offspring's birthweight. Women who grew up in poor households had smaller babies than those who did not, and a unit increase in the income/needs ratio (analogous to the poverty index), in non-poor households only, was associated with a 185 g [95% CI 70, 200] increase in infant birthweight. Maternal age at the index infant's birth had a positive association with birthweight that diminished as women reached their mid-twenties. Among mothers with low education, high grandmaternal education was associated with a 181 g [95% CI 71, 292] increase in infant birthweight, while high grandmaternal education had no effect among infants whose mothers were relatively well-educated. This interaction between grandmaternal and maternal education is consistent with claims that cumulative stress is an important mechanism connecting maternal socio-economic status and infant health.

Chittleborough, C.R., Baum, F.E., Taylor, A.W., & Hiller, J.E. (2006). "A life-course approach to measuring socioeconomic position in population health surveillance systems." *Journal of Epidemiology & Community Health*.

Abstract: Measuring socioeconomic position (SEP) in population chronic disease and risk factor surveillance systems is essential for monitoring socioeconomic inequalities in health over time. Life-course measures are an innovative way to supplement other SEP indicators in surveillance systems. A literature review examined the indicators of early-life SEP that could potentially be used in population

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health surveillance systems. The criteria of validity, relevance, reliability and deconstruction were used to determine the value of potential indicators. Early-life SEP indicators used in cross-sectional and longitudinal studies included education level, income, occupation, living conditions, family structure and residential mobility. Indicators of early-life SEP should be used in routine population health surveillance to monitor trends in the health and SEP of populations over time, and to analyse long-term effects of policies on the changing health of populations. However, these indicators need to be feasible to measure retrospectively, and relevant to the historical, geographical and sociocultural context in which the surveillance system is operating.

Chittleborough, C.R., Baum, F.E., Taylor, A.W., & Hiller, J.E. (2007). "Missing data on retrospective recall of early-life socio-economic position in surveillance systems: An additional disadvantage?" *Public Health*.

Abstract: *Objectives:* Inclusion of information on early-life socio-economic position (SEP) in population chronic disease and risk factor surveillance systems enables better monitoring of effects of policies and interventions on health inequities and intergenerational disadvantage. Examining data quality, in terms of item nonresponse, informs choices about which indicators of early-life SEP to include in surveillance questionnaires. This study examined differences in recall of indicators of early-life SEP between different socio-economic groups.

Study design: Cross-sectional population survey.

Methods: A representative population of people aged 18 years and over living in South Australia (n = 2999) was selected at random from the electronic white pages, and a computer-assisted telephone interview was administered.

Results: Respondents with missing data on early-life SEP indicators were disadvantaged in terms of current SEP compared with those who provided this information. Among all respondents, the highest proportions of missing data were observed for maternal grandfather's main occupation (27.2%), and mother's (20.1%) and father's (19.6%) highest level of education. Family structure, housing tenure and family financial situation when the respondent was 10 years old, and mother's and father's main occupation were the indicators of early-life SEP that performed best in terms of recall.

Colen, C.G., Geronimus, A.T., Bound, J., & James, S.A. (2006). "Maternal Upward Socioeconomic Mobility and Black-White Disparities in Infant Birthweight." *American Journal of Public Health*.

Abstract: *Objectives.* We estimate the extent to which upward socioeconomic mobility limits the probability that Black and White women who spent their childhoods in or near poverty will give birth to a low-birthweight baby.

Methods. Data from the National Longitudinal Survey of Youth 1979 and the 1970 US Census were used to complete a series of logistic regression models. We restricted multivariate analyses to female survey respondents who, at 14 years of age, were living in households in which the income-to-needs ratio did not exceed 200% of poverty.

Results. For White women, the probability of giving birth to a low-birthweight baby decreases by 48% for every 1 unit increase in the natural logarithm of adult family income, once the effects of all other covariates are taken into account. For Black women, the relation between adult family income and the probability of low birthweight is also negative; however, this association fails to reach statistical significance.

Conclusions. Upward socioeconomic mobility contributes to improved birth outcomes among infants born to White women who were poor as children, but the same does not hold true for their Black counterparts.

Currie, J. (2009). "Healthy, Wealthy, and Wise: Socioeconomic Status, Poor Health in Childhood, and Human Capital Development." *Journal of Economic Literature*.

Abstract: There are many possible pathways between parental education, income, and health, and between child health and education, but only some of them have been explored in the literature. This essay focuses on links between parental socioeconomic status (as measured by education, income, occupation, or in some cases area of residence) and child health, and between child health and adult education or income. Specifically, I ask two questions: What is the evidence regarding whether parental socioeconomic status affects child health? And, what is the evidence relating child health to future educational and labor market outcomes? I show that there is now strong evidence of both links, suggesting that health could play a role in the intergenerational transmission of economic status.

Dailey, A.B., Kasl, S.V., Holford, T.R., Lewis, T.T., & Jones, B.A. (2009). "Neighborhood- and individual-level socioeconomic variation in perceptions of racial discrimination." *Ethnicity & Health*.
Abstract: Objective. In approaching the study of racial discrimination and health, the neighborhood- and individual-level antecedents of perceived discrimination need further exploration. We investigated the relationship between neighborhood- and individual-level socioeconomic position (SEP), neighborhood racial composition, and perceived racial discrimination in a cohort of African-American and White women age 40_79 from Connecticut, USA.

Design. The logistic regression analysis included 1249 women (39% African-American and 61% White). Neighborhood-level SEP and racial composition were determined using 1990 census tract information. Individual-level SEP indicators included income, education, and occupation. Perceived racial discrimination was measured as lifetime experience in seven situations.

Results. For African-American women, living in the most disadvantaged neighborhoods was associated with fewer reports of racial discrimination (odds ratio (OR) 0.44; 95% confidence interval (CI) 0.26, 0.75), with results attenuated after adjustment for individual-level SEP (OR 0.54, CI: 0.29, 1.03), and additional adjustment for neighborhood racial composition (OR 0.70, CI: 0.30, 1.63). African-American women with 12 years of education or less were less likely to report racial discrimination, compared with women with more than 12 years of education (OR 0.57, CI: 0.33, 0.98 (12 years); OR 0.51, CI: 0.26, 0.99 (less than 12 years)) in the fully adjusted model. For White women, neither neighborhood-level SEP nor individual-level SEP was associated with perceived racial discrimination.

Conclusion. Individual- and neighborhood-level SEP may be important in understanding how racial discrimination is perceived, reported, processed, and how it may influence health. In order to fully assess the role of racism in future studies, inclusion of additional dimensions of discrimination may be warranted.

Demakakos, P., Marmot, M., & Steptoe, A. (2012). "Socioeconomic position and the incidence of type 2 diabetes: the ELSA study." *European Journal of Epidemiology*.

Abstract: We examined the associations between childhood and adult socioeconomic position (SEP) and incident diabetes in 7,432 individuals aged 50 or older from the English Longitudinal Study of Ageing (ELSA). We identified 174 and 189 cases of incident diabetes, in men and women, respectively, over 5.3 years of follow-up. Cox models were estimated. In women, childhood SEP, education, occupational class, income, wealth, and subjective social status (SSS) were related to incident diabetes. Occupational class, income, and SSS did not remain significantly related to incident diabetes after adjustment for individual sets of covariates (i.e. unhealthy behaviours, obesity, or psychosocial factors). Wealth (HR: 1.65, 95 % CI: 1.05, 2.60, poorest vs. wealthiest tertile) remained significantly related to incident diabetes after adjustment for all covariates, but education (HR: 1.46, 95 % CI: 0.92, 2.33, lowest vs. highest category) and childhood SEP (HR: 1.47, 95 % CI: 0.98, 2.19, lowest vs. highest category) did not. In men, only wealth and SSS were related to incident diabetes. SSS remained significantly related to incident diabetes after adjustment for all covariates (HR: 2.46, 95 % CI: 1.32, 4.68, lowest vs. highest category), but wealth did not (HR: 1.42, 95 % CI: 0.94, 2.15, poorest vs. wealthiest tertile). Additional adjustment for wealth did not greatly affect the association between incident diabetes and SSS in men. Incident diabetes in older

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women is associated with SEP from all life stages, while in older men only with current SEP. Psychosocial factors (in women), unhealthy behaviours, and obesity partly mediate these associations.

Fors, S., Lennartsson, C., & Lundberg, O. (2011). "Live long and prosper? Childhood living conditions, marital status, social class in adulthood and mortality during mid-life: A cohort study." *Scandinavian Journal of Public Health*.

Abstract: *Aims:* The aim of the present study was to investigate the impact of childhood living conditions, marital status, and social class in adulthood on the risk of mortality during mid-life. Two questions were addressed: Is there an effect of childhood living conditions on mortality risk during mid-life and if so, is the effect mediated or modified by social class and/or marital status in adulthood? *Methods:* A nationally representative, Swedish, level of living survey from 1968 was used as baseline. The study included those aged 25–69 at baseline (n=4082). Social conditions in childhood and adulthood were assessed using self-reports. These individuals were then followed for 39 years using registry data on mortality. *Results:* The results showed associations between childhood living conditions, marital status, social class in adulthood and mortality during mid life. Social class and familial conditions during childhood as well as marital status and social class in adulthood all contributed to the risk of mortality during mid-life. Individuals whose father's were manual workers, who grew up in broken homes, who were unmarried, and/or were manual workers in adulthood had an increased risk of mortality during mid life. The effects of childhood conditions were, in part, both mediated and modified by social class in adulthood. **Conclusions: The findings of this study suggest that there are structural, social conditions experienced at different stages of the life course that affect the risk of mortality during mid-life.**

Galobardes, B., Lynch, J.W., and Smith, G.D. (2004). "Childhood Socioeconomic Circumstances and Cause-specific Mortality in Adulthood: Systematic Review and Interpretation." *Epidemiologic Reviews*. **Abstract:** n/a

Gavin, A.R., Hill, K.G., Hawkins, J.D., & Maas, C. (2010). "The Role of Maternal Early-Life and Later-Life Risk Factors on Offspring Low Birth Weight: Findings From a Three-Generational Study." *Journal of Adolescent Health*.

Abstract: Purpose: This study examined three research questions: (1) Is there an association between maternal early-life economic disadvantage and the birth weight of later-born offspring? (2) Is there an association between maternal abuse in childhood and the birth weight of later-born offspring? (3) To what extent are these early-life risks mediated through adolescent and adult substance use, mental and physical health status, and adult socioeconomic status (SES)?

Methods: Analyses used structural equation modeling to examine data from two longitudinal studies, which included three generations. The first generation (G1) and the second generation (G2) were enrolled in the Seattle Social Development Project (SSDP), and the third generation (G3) was enrolled in the SSDP Intergenerational Project. Data for the study (N = 136) focused on (G2) mothers enrolled in the SSDP and their children (G3).

Results: Analyses revealed that G2 low childhood SES predicted G3 offspring birth weight. Early childhood abuse among G2 respondents predicted G3 offspring birth weight through a mediated pathway including G2 adolescent substance use and G2 prenatal substance use. Birth weight was unrelated to maternal adult SES, depression, or obesity.

Conclusions: To our knowledge, this is the first study to identify the effect of maternal early-life risks of low childhood SES and child maltreatment on later-born offspring birth weight. These findings have far-reaching effects on the cumulative risk associated with early-life economic disadvantage and childhood maltreatment. Such findings encourage policies and interventions that enhance child health at birth by taking the mother's own early-life and development into account.

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Gavin, A.R., Nurius, P., & Logan-Greene, P. (2011). "Mediators of Adverse Birth Outcomes Among Socially Disadvantaged Women." *Journal of Women's Health*.

Abstract: Background: Numerous studies find that socially disadvantaged women are more likely than socially advantaged women to deliver infants that weigh less than normal and/or are born weeks prior to their due date. However, little is known about the pathways that link maternal social disadvantage to birth outcomes. Using data from a prospective cohort study, we examined whether antenatal psychosocial stress, substance use, and maternal health conditions in pregnancy mediated the pathway between maternal social disadvantage and birth outcomes.

Methods: Analyses used structural equation modeling to examine data from a community clinic-based sample (n = 2168) of pregnant women who completed questionnaires assessing psychosocial functioning and health behaviors as well as sociodemographic characteristics, which were matched with subsequent birth outcome data.

Results: Analyses revealed maternal social disadvantage predicted poorer birth outcomes through a mediated pathway including maternal health conditions in pregnancy.

Conclusions: The findings demonstrate that maternal social disadvantage is associated with poor health status in pregnancy, which in turn adversely affects birth outcomes. Results argue for more systematic attention to the roles of social disadvantage, including life course perspectives that trace social disadvantage prior to and through pregnancy.

Gavin, A.R., Thompson, E., Rue, T., & Guo, Y. (2012). "Maternal Early Life Risk Factors for Offspring Birth Weight: Findings from the Add Health Study." *Prevention Science*.

Abstract: The aim of this study was to examine the pathways that link mothers' early life socioeconomic status (SES) and mothers' experience of childhood maltreatment with birth weight among their later born offspring. Data were drawn from a nationally representative longitudinal survey of school-aged respondents, initially enrolled during adolescence in Wave I (1994–1995) and Wave II (1996) of the National Longitudinal Study of Adolescent Health and followed-up in adulthood in Wave III (2001–2002). Data on offspring birth weight were obtained from nulliparous females (N=1,897) who had given birth between Waves II and III. Analyses used structural equation modeling to examine the extent to which early life maternal risk predicted offspring birth weight, and demonstrated that maternal childhood SES and maternal childhood maltreatment predicted offspring birth weight through several mediated pathways. First, maternal adolescent substance use and prenatal cigarette use partially mediated the association between maternal childhood SES and offspring birth weight. Second, maternal adolescent depressive symptoms and adult SES partially mediated the association between maternal childhood SES and offspring birth weight. Third, adult SES partially mediated the association between maternal childhood SES and offspring birth weight. Fourth, maternal adolescent substance use and prenatal cigarette use partially mediated the association between maternal childhood maltreatment and offspring birth weight. Finally, maternal adolescent depressive symptoms and adult SES partially mediated the association between maternal childhood maltreatment and offspring birth weight. To our knowledge, this is the first study to identify maternal childhood maltreatment as an early life risk factor for offspring birth weight among a nationally representative sample of young women, and to demonstrate the mechanisms that link childhood SES and maltreatment to offspring birth weight. These findings suggest the importance of designing and implementing prevention and intervention strategies to address early life maternal social conditions in an effort to improve intergenerational child health at birth.

Gisselmann, M.D. (2006). "The influence of maternal childhood and adulthood social class on the health of the infant." *Social Science & Medicine*.

Abstract: The aim of this study is to investigate how maternal childhood and adulthood social class contribute to social inequalities in low birth weight, neonatal mortality and postneonatal mortality. In particular I consider the combined influence of childhood and adult class, and compare outcomes with regard to the time distance from birth. Analyses were performed on a large sample of Swedish births from

1973 to 1990, restricted to infants of women with both childhood and adult class, classified as manual or non-manual. Logistic regression is used to compare odds ratios for social classes.

The results indicate that manual maternal childhood class is consistently associated with higher risks for low birth weight and neonatal mortality, even when adult class was adjusted for. The influence of adult class was greater than that of childhood class for all health outcomes. Compared to higher/middle non-manual workers, unskilled workers in the service sector and workers in the manufacturing sector displayed the highest odds ratios for all adverse health outcomes. When both childhood and adult class were taken into account, social differences were greater for low birth weight and neonatal mortality than for postneonatal mortality. Maternal childhood class had more influence on low birth weight and neonatal mortality than on postneonatal mortality.

I conclude that maternal childhood and adulthood social class are both independently associated with inequalities in health-related birth outcomes, and that social differences are greater for health outcomes closer to birth.

Goodman, E. (1999). "The Role of Socioeconomic Status Gradients in Explaining Differences in US Adolescents' Health." *American Journal of Public Health*.

Abstract: *Objective.* This study sought to determine whether socioeconomic status (SES) gradients exist among US adolescents for self-rated health and for 5 diseases that cause serious adolescent and continuing adult morbidity.

Methods. Baseline data from 15483 adolescent and parental surveys from the National Longitudinal Study of Adolescent Health were used. SES indicators included parental education and occupation, and household income. Dependent variables included self-rated health and the presence of depression, obesity, asthma, suicide attempt in the past year, and prior sexually transmitted disease.

Results. SES gradients were found for self-rated health, depression, and obesity ($P < .01$). Suicide attempt was linearly associated with income ($P < .01$). After adjustment for other SES and sociodemographic factors, education and income remained independent correlates of both depression and obesity; income remained an independent correlate of attempted suicide.

Conclusions. Differences in susceptibility to socially mediated etiologic mechanisms of disease may exist during adolescence. Understanding the sociostructural context and patterning of adolescents' lives is crucial to clearly understanding health and disease etiology throughout the course of life.

Goodman, E., Adler, N.E., Kawachi, I., Frazier, A.L., Huang, B., & Colditz, G.A. (2001). "Adolescents' Perceptions of Social Status: Development and Evaluation of a New Indicator." *Pediatrics*.

Abstract: *Objective.* Eliminating health disparities, including those that are a result of socioeconomic status (SES), is one of the overarching goals of Healthy People 2010. This article reports on the development of a new, adolescent-specific measure of subjective social status (SSS) and on initial exploratory analyses of the relationship of SSS to adolescents' physical and psychological health.

Methods. A cross-sectional study of 10 843 adolescents and a subsample of 166 paired adolescent/mother dyads who participated in the Growing Up Today Study was conducted. The newly developed MacArthur Scale of Subjective Social Status (10-point scale) was used to measure SSS. Paternal education was the measure of SES. Indicators of psychological and physical health included depressive symptoms and obesity, respectively. Linear regression analyses determined the association of SSS to depressive symptoms, and logistic regression determined the association of SSS to overweight and obesity, controlling for sociodemographic factors and SES.

Results. Mean society ladder ranking, a subjective measure of SES, was 7.2 +/- 1.3. Mean community ladder ranking, a measure of perceived placement in the school community, was 7.6 +/- 1.7. Reliability of the instrument was excellent: the intraclass correlation coefficient was 0.73 for the society ladder and 0.79 for the community ladder. Adolescents had higher society ladder rankings than their mothers ($\mu_{\text{teen}} = 7.2 \pm 1.3$ vs $\mu_{\text{mom}} = 6.8 \pm 1.2$; $P = .002$). Older adolescents' perceptions of familial placement in society were more closely correlated with maternal subjective perceptions of placement than those of younger

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adolescents (Spearman's $\rho_{\text{teens} < 15 \text{ years}} = 0.31$ vs Spearman's $\rho_{\text{teens} > 15 \text{ years}} = 0.45$; $P < .001$ for both). SSS explained 9.9% of the variance in depressive symptoms and was independently associated with obesity (odds ratio_{society} = 0.89, 95% confidence interval = 0.83, 0.95; odds ratio_{community} = 0.91, 95% confidence interval = 0.87, 0.97). For both depressive symptoms and obesity, community ladder rankings were more strongly associated with health than were society ladder rankings in models that controlled for both domains of SSS.

Conclusions. This new instrument can reliably measure SSS among adolescents. Social stratification as reflected by SSS is associated with adolescents' health. The findings suggest that as adolescents mature, SSS may undergo a developmental shift. Determining how these changes in SSS relate to health and how SSS functions prospectively with regard to health outcomes requires additional research.

Hardy, R., Wadsworth, M., & Kuh, D. (2000). "The influence of childhood weight and socioeconomic status on change in adult body mass index in a British national birth cohort." *International Journal of Obesity*.

Abstract: OBJECTIVE: To investigate the effect of childhood weight and childhood socioeconomic status on the pattern of change in body mass index (BMI) between 20 and 43 years.

METHODS: A British birth cohort study where the survey members have been followed up regularly since their birth in 1946, with the most recent of 19 follow-ups when the cohort were aged 43 years. BMI was available at 20, 26, 36 and 43 years of age and thus multilevel models for repeated outcome measures were used to model the patterns of change in BMI.

RESULTS: The rate of increase in BMI with age was non-linear, with the rate of increase in mean BMI accelerating with increasing age at different rates for men and women. The mean BMI for men was higher than that for women at all ages.

Childhood manual social class, defined in terms of father's occupation, and high relative weight at 14 years of age were associated with higher mean BMI across adult life, and these effects increased with age. The effects of childhood relative weight and social class were independent of educational attainment and adult social class.

CONCLUSION: The study provides evidence of a long-term effect of childhood social and biological circumstances on BMI. The pathways underlying these relationships may be social or biological, but are not yet fully understood.

Hogberg, L. Cnattingius, S., Lundholm, C., Sparen, P., & Iliadou, A.N. (2011). "Intergenerational social mobility and the risk of hypertension." *Journal of Epidemiology & Community Health*.

Abstract: Background Low socioeconomic status (SES) has been linked to increased risk of hypertension, a known risk factor for cardiovascular disease. How the risk is altered by intergenerational social mobility is not well known. The aim of this study is to investigate parental SES, adult SES and the intergenerational social mobility in relation to hypertension risk.

Methods By using data from the Swedish Twin Registry, the authors obtained information about both parental and adult SES and hypertension in 12 030 individuals born from 1926 to 1958. Generalised estimating equations were used to estimate ORs with 95% CIs.

Results Low parental SES was associated with increased odds of hypertension (OR 1.42, 95% CI 1.14 to 1.76). Low SES in adulthood was associated with increased odds for women but not for men (OR 1.40, 95% CI 1.15 to 1.70 and OR 1.01, 95% CI 0.83 to 1.24, respectively). Compared with the stable low social status group, the upward mobile group had lower odds of hypertension (OR 0.82, 95% CI 0.70 to 0.97). Compared with the stable high social status group, the results for the downward mobile group indicated an increased risk. A co-twin case-control analysis indicated that the results were independent of familial factors.

Conclusions These findings suggest that the risk of hypertension associated with low parental social status can be modified by social status later in life. Possibly, this could be targeted by public health or

political interventions. As parental social status has an impact on later health, such interventions should be introduced early.

Kahn, J.R. & Pearlin, L.I. (2006). "Financial Strain over the Life Course and Health among Older Adults." *Journal of Health and Social Behavior*.

Abstract: *This paper focuses on financial strain across the life course as a condition underlying health inequalities observed in later life. The analysis is based on data from 1,167 adults 65 years and older collected as part of the "Aging, Stress and Health Study." Relying on retrospective data about hardship experienced over the life course, we find that long-term financial hardship is reflected in a range of health outcomes at late life, even after controlling for the effects of current financial circumstances. Moreover, the sheer persistence of hardship matters more than its episodic occurrence or timing, so that the health effects of early hardship may be obviated if followed by no further hardship. This pattern of findings is consistent with the notion of allostatic load, the cumulative damage done to health and well-being under the burden of an unrelenting stressor in a critically important life domain.*

Kahn, R.S., Wilson, K., & Wise, P.H. (2005). "Intergenerational Health Disparities: Socioeconomic Status, Women's Health Conditions, and Child Behavior Problems." *Public Health Reports*.

Abstract: Objective. Relatively little is known about the intergenerational mechanisms that lead to social disparities in child health. We examined whether the association between low socioeconomic status (SES) and child behavior problems is mediated by maternal health conditions and behavior.

Methods. Prospective cohort data (1979–1998) on 2,677 children and their mothers were obtained from the National Longitudinal Survey of Youth. SES, the Child Behavior Problems Index (BPI), and maternal smoking, depressive symptoms, and alcohol use before, during, and after pregnancy were examined.

Results. Lower income and lower maternal education were associated with increased child BPI scores. Adjustment for maternal smoking, depressive symptoms, and alcohol use attenuated the associations between SES and child BPI by 26% to 49%. These maternal health conditions often occurred together, persisted over time, and were associated with the mother's own childhood SES and pre-pregnancy health.

Conclusions. Social disparities in women's health conditions may help shape the likelihood of behavior problems in the subsequent generation. Improved public health programs and services for disadvantaged women across the lifecourse may not only address their own urgent health needs, but reduce social disparities in the health and well-being of their children.

Love, C., David, R.J., Rankin, K.M., & Collins Jr., J.W. (2010). "Exploring Weathering: Effects of Lifelong Economic Environment and Maternal Age on Low Birth Weight, Small for Gestational Age, and Preterm Birth in African-American and White Women." *American Journal of Epidemiology*.

Abstract: White women experience their lowest rate of low birth weight (LBW) in their late 20s; the nadir LBW for African-American women is under 20 years with rates rising monotonically thereafter, hypothesized as due to "weathering" or deteriorating health with cumulative disadvantage. Current residential environment affects birth outcomes for all women, but little is known about the impact of early life environment. The authors linked neighborhood income to a transgenerational birth file containing infant and maternal birth data, allowing assessment of economic effects over a woman's life course. African-American women who were born in poorer neighborhoods and were still poor as mothers showed significant weathering with regard to LBW and small for gestational age (SGA) but not preterm birth (PTB). However, African-American women in upper-income areas at both time points had a steady fall in LBW and SGA rate with age, similar to the pattern seen in white women. No group of white women, even those always living in poorer neighborhoods, exhibited weathering with regard to LBW, SGA, or PTB. In contrast, the degree of weathering among African-American women is related to duration of exposure to low-income areas and disappears for those with a life residence in non-poor neighborhoods.

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Lynch, J.W., Kaplan, G.A., & Salonen, J.T. (1997). "Why Do Poor People Behave Poorly? Variation in Adult Health Behaviours and Psychosocial Characteristics by Stages of the Socioeconomic Lifecourse." *Social Science & Medicine*.

Abstract: Attempts to explain socioeconomic inequalities in health have often made reference to the observation that poor health behaviours and psychosocial characteristics cluster in low socioeconomic status (SES) groups. Causal interpretation of the association between SES, health behaviour, psychosocial orientations, and health inequalities has been hampered because these factors and SES have usually been measured at the same point in time. Data from the Kuopio Ischaemic Heart Disease Risk Factor Study were used to examine the associations between measures of SES reflecting different stages of the lifecourse, health behaviours, and psychosocial characteristics in adulthood in a population-based study of 2674 middle-aged Finnish men. Results show that many adult behaviours and psychosocial dispositions detrimental to health are consistently related to poor childhood conditions, low levels of education, and blue-collar employment. Poor adult health behaviours and psychosocial characteristics were more prevalent among men whose parents were poor. Increases in income inequality which place children into low SES conditions may well produce a negative behavioural and psychosocial health dividend to be reaped in the future. Understanding that adult health behaviour and psychosocial orientations are associated with socioeconomic conditions throughout the lifecourse implies that efforts to reduce socioeconomic inequalities in health must recognize that economic policy is public health policy.

Maty, S.C., Lynch, J.W., Raghunathan, T.E., & Kaplan, G.A. (2008). "Childhood Socioeconomic Position, Gender, Adult Body Mass Index, and Incidence of Type 2 Diabetes Mellitus Over 34 Years in the Alameda County Study." *American Journal of Public Health*.

Abstract: *Objectives.* We examined the association between childhood socioeconomic position and incidence of type 2 diabetes and the effects of gender and adult body mass index (BMI).

Methods. We studied 5913 participants in the Alameda County Study from 1965 to 1999 who were diabetes free at baseline (1965). Cox proportional hazards models estimated diabetes risk associated with childhood socioeconomic position and combined childhood socioeconomic position–adult BMI categories in pooled and gender-stratified samples. Demographic confounders and potential pathway components (physical inactivity, smoking, alcohol consumption, hypertension, depression, health care access) were included as covariates.

Results. Low childhood socioeconomic position was associated with excess diabetes risk, especially among women. Race and body composition accounted for some of this excess risk. The association between childhood socioeconomic position and diabetes incidence differed by adult BMI category in the pooled and women-only groups. Adjustment for race and behaviors attenuated the risk attributable to low childhood socioeconomic position among the obese group only.

Conclusions. Childhood socioeconomic position was a robust predictor of incident diabetes, especially among women. A cumulative risk effect was observed for both childhood socioeconomic position and adult BMI, especially among women.

McLanahan, S. & Percheski, C. (2008). "Family Structure and the Reproduction of Inequalities." *Annual Review of Sociology*.

Abstract: Over the past four decades, income inequality has increased and family structures have diversified. We argue that family structure has become an important mechanism for the reproduction of class, race, and gender inequalities. We review studies of income inequality and family structure changes and find a wide range of estimates of the correlation. We discuss how increases in income inequality may lead to increases in single motherhood, particularly among less educated women. Single motherhood in turn decreases intergenerational economic mobility by affecting children's material resources and the parenting they experience. Because of the unequal distribution of family structure by race and the negative effects of single motherhood, family structure changes exacerbate racial inequalities. Gender

inequalities also increase as mothers incur more child-related costs and fewer fathers experience family life with children.

Najman, J.M., Aird, R., Bor, W., O’Callaghan, M., Williams, G.M., & Shuttlewood, G.J. (2004). “The generational transmission of socioeconomic inequalities in child cognitive development and emotional health.” *Social Science & Medicine*.

Abstract: Socioeconomic inequalities in the health of adults have been largely attributed to lifestyle inequalities. The cognitive development (CD) and emotional health (EH) of the child provides a basis for many of the health-related behaviours which are observed in adulthood. There has been relatively little attention paid to the way CD and EH are transmitted in the foetal and childhood periods, even though these provide a foundation for subsequent socioeconomic inequalities in adult health.

The Mater-University of Queensland Study of Pregnancy (MUSP) is a large, prospective, pre-birth cohort study which enrolled 8556 pregnant women at their first clinic visit over the period 1981–1983. These mothers (and their children) have been followed up at intervals until 14 years after the birth.

The socioeconomic status of the child was measured using maternal age, family income, and marital status and the grandfathers’ occupational status. Measures of child CD and child EH were obtained at 5 and 14 years of age. Child smoking at 14 years of age was also determined.

Family income was related to all measures of child CD and EH and smoking, independently of all other indicators of the socioeconomic status of the child. In addition, the grandfathers’ occupational status was independently related to child CD (at 5 and 14 years of age). Children from socioeconomically disadvantaged families (previous generations’ socioeconomic status as well as current socioeconomic status) begin their lives with a poorer platform of health and a reduced capacity to benefit from the economic and social advances experienced by the rest of society.

Nazroo, J.Y. (2003). “The Structuring of Ethnic Inequalities in Health: Economic Position, Racial Discrimination, and Racism.” *American Journal of Public Health*.

Abstract: Differences in health across ethnic groups have been documented in the United States and the United Kingdom. The extent to which socioeconomic inequalities underlie such differences remains contested, with many instead focusing on cultural or genetic explanations. In both the United States and the United Kingdom, data limitations have greatly hampered investigations of ethnic inequalities in health. Perhaps foremost of these is the inadequate measurement of ethnicity, but also important is the lack of good data on socioeconomic position, particularly data that address life-course issues. Other elements of social disadvantage, particularly experiences of racism, are also neglected.

The author reviews existing evidence and presents new evidence to suggest that social and economic inequalities, underpinned by racism, are fundamental causes of ethnic inequalities in health.

Pollitt, R.A., Kaufman, J.S., Rose, K.M., Diez-Roux, A.V., Zeng, D., & Heiss, G. “Early-life and adult socioeconomic status and inflammatory risk markers in adulthood.” *European Journal of Epidemiology*.

Abstract: *Background:* Associations between childhood and adult socioeconomic status (SES) and adult levels of inflammatory markers (C-reactive protein [CRP], fibrinogen, white blood cell count [WBC], and von Willebrand factor [vWF]) were examined in the Atherosclerosis Risk in Communities (ARIC) Study cohort. *Methods:* A total of 12,681 white and African-American participants provided information on SES (via education and social class) and place of residence in childhood and adulthood. Residences were linked to census data for neighborhood SES information. Multiple imputation was used to impute missing data. Hierarchical and linear regression were used to estimate the effects of SES and possible mediation by adult cardiovascular disease (CVD) risk factors. *Findings:* Low childhood social class and education were associated with elevated levels of CRP, fibrinogen, WBC, and vWF (increments of 17%, 2%, 4% and 3% for lowest versus highest education in childhood, respectively) among whites. Findings were less consistent among African-Americans. Adult SES was more strongly associated with inflammation than childhood SES. Individual-level SES measures were more consistently associated with inflammation than neighborhood-level measures. Fibrinogen and WBC showed the most consistent associations with SES;

the largest changes in inflammation by SES were observed for CRP. Covariate adjustment strongly attenuated these associations. Mediation of the SES-inflammation associations by BMI, smoking and HDL cholesterol (HDL-C) are suggested by these data. *Conclusion:* Low individual and neighborhood-level SES in childhood and adulthood are associated with modest increments in adult inflammatory burden. These associations may operate through the influence of low SES on traditional CVD risk factors, especially BMI, smoking and HDL-C.

Pearlin, L.I., Schieman, S., Fazio, E.M., & Meersman, S.C. (2005). "Stress, Health, and the Life Course: Some Conceptual Perspectives." *Journal of Health and Social Behavior*.

Abstract: *This article proposes several conceptual perspectives designed to advance our understanding of the material and experiential conditions contributing to persistent disparities in rates of morbidity and mortality among groups unequal in their social and economic statuses. An underlying assumption is that these disparities, which are in clear evidence at mid- and late life, may be anchored to earlier circumstances of the life course. Of particular interest are those circumstances resulting in people with the least privileged statuses having the greatest chances of exposure to health-related stressors. Among the stressors closely linked to status and status attainment are those that continue or are repeated across the life course, such as enduring economic strain and discriminatory experiences. Also taking a long-range toll on health are circumstances of stress proliferation, a process that places people exposed to a serious adversity at risk for later exposure to additional adversities. We suggest that this process can be observed in instances of trauma, in early out-of-sequence transitions, and in the case of undesired changes that disrupt behaviors and relationships in established roles. Effective effort to close the systemic health gaps must recognize their structural underpinnings.*

Poulton, R., Caspi, A., Milne, B.J., Thomson, W.M., Taylor, A., Sears, M.R., & Moffitt, T.E. (2002). "Association between children's experience of socioeconomic disadvantage and adult health: a life-course study." *The Lancet*.

Abstract: Background Research into social inequalities in health has tended to focus on low socioeconomic status in adulthood. We aimed to test the hypothesis that children's experience of socioeconomic disadvantage is associated with a wide range of health risk factors and outcomes in adult life.

Methods We studied an unselected cohort of 1000 children (born in New Zealand during 1972–73) who had been assessed at birth and ages 3, 5, 7, 9, 11, 13, and 15 years. At age 26 years, we assessed these individuals for health outcomes including body-mass index, waist:hip ratio, blood pressure, cardiorespiratory fitness, dental caries, plaque scores, gingival bleeding, periodontal disease, major depression, and tobacco and alcohol dependence, and tested for associations between these variables and childhood and adult socioeconomic status.

Findings Compared with those from high socioeconomic status backgrounds, children who grew up in low socioeconomic status families had poorer cardiovascular health. Significant differences were also found on all dental health measures, with a threefold increase in adult periodontal disease (31.1% vs 11.9%) and caries level (32.2% vs 9.9%) in low versus high childhood socioeconomic status groups. Substance abuse resulting in clinical dependence was related in a similar way to childhood socioeconomic status (eg, 21.5% vs 12.1% for adult alcohol dependence). The longitudinal associations could not be attributed to life-course continuity of low socioeconomic status, and upward mobility did not mitigate or reverse the adverse effects of low childhood socioeconomic status on adult health.

Interpretation Protecting children against the effects of socioeconomic adversity could reduce the burden of disease experienced by adults. These findings provide strong impetus for policy makers, practitioners, and researchers to direct energy and resources towards childhood as a way of improving population health.

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Power, C. & Matthews, S. (1997). "Origins of health inequalities in a national population sample." *The Lancet*.

Abstract: Background Explanations for social inequalities in health are often explored but remain largely unresolved. To elucidate the origins of health inequalities, we investigated the extent to which adult-disease risk factors vary systematically according to social position over three decades of early life.

Methods We used the 1958 birth cohort (all children born in England, Scotland, and Wales on March 3–9, 1958) with data up to age 33 years from parents, teachers, doctors, and cohort members (n=11 407 for age 33 interview).

Findings Social class of origin was associated with physical risk factors (birthweight, height, and adult body-mass index); economic circumstances, including household overcrowding, basic amenities, and low income; health behaviour of parents (breastfeeding and smoking) and of participants (smoking and diet); social and family functioning and structure, such as divorce or separation of participants or their parents, emotional adjustment in adolescence, social support in early adulthood; and educational achievement and working career, in particular no qualifications, unemployment, job strain, and insecurity. With few exceptions, there were strong significant trends of increasing risk from classes I and II to classes IV and V. Self-perceived health status and symptoms were worse in participants with lower class origins.

Interpretation An individual's chance of encountering multiple adverse health risks throughout life is influenced powerfully by social position. Social trends in adult-disease risk factors do not emerge exclusively in mid-life, but accumulate over decades. Investment in educational and emotional development is needed in all social groups to strengthen prevention strategies relating to health behaviour, work-place environment, and income inequality.

Sternthal, M.J., Coull, B.A., Chiu, Y.M., Cohen, S., & Wright, R.J. (2011). "Associations among maternal childhood socioeconomic status, cord blood IgE levels, and repeated wheeze in urban children." *Journal of Allergy and Clinical Immunology*.

Abstract: Background: Independent of current socioeconomic status (SES), past maternal SES might influence asthma outcomes in children.

Objective: We examined associations among the mother's SES in the first 10 years of her life (maternal childhood SES), increased cord blood IgE levels (upper 20% [1.37 IU/mL]), and repeated wheeze (≥ 2 episodes by age 2 years) in an urban pregnancy cohort (n = 510).

Methods: Data on sociodemographics, discrimination, financial strain, community violence, interpersonal trauma, and other negative events were obtained prenatally. Prenatal household dust was assayed for cockroach and murine allergens, and traffic-related air pollution was estimated by using spatiotemporal land-use regression. Maternal childhood SES was defined by parental home ownership (birth to 10 years). Maternally reported child wheeze was ascertained at 3-month intervals from birth. Using structural equation models, we examined whether outcomes were dependent on maternal childhood SES directly versus indirect relationships operating through (1) cumulative SES-related adversities, (2) the mother's socioeconomic trajectory (adult SES), and (3) current prenatal environmental exposures.

Results: Mothers were largely Hispanic (60%) or black (28%), 37% had not completed high school, and 56% reported parental home ownership. When associations between low maternal childhood SES and repeated wheeze were examined, there were significant indirect effects operating through adult SES and prenatal cumulative stress (b = 0.28, P = .003) and pollution (b = 0.24, P = .004; P value for total indirect effects $\leq .04$ for both pathways). Low maternal childhood SES was directly related to increased cord blood IgE levels (b = 0.21, P = .003). Maternal cumulative adversity (interpersonal trauma) was also associated with increased cord blood IgE levels (b = 0.19, P = .01), although this did not explain maternal childhood SES effects.

Conclusion: Lower maternal childhood SES was associated with increased cord blood IgE levels and repeated wheeze through both direct and indirect effects, providing new insights into the role of social inequalities as determinants of childhood respiratory risk.

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Stringhini, S., Dugravot, A., Kivimaki, M., Shipley, M., Zins, M., Goldberg, M., Ferrie, J.E., & Singh-Manoux, A. (2010). "Do different measures of early life socioeconomic circumstances predict adult mortality? Evidence from the British Whitehall II and French GAZEL studies." *Journal of Epidemiology & Community Health*.

Abstract: Background Father's occupational position, education and height have all been used to examine the effects of adverse early life socioeconomic circumstances on health, but it remains unknown whether they predict mortality equally well.

Methods We used pooled data on 18 393 men and 7060 women from the Whitehall II and GAZEL cohorts to examine associations between early life socioeconomic circumstances and all-cause and cause-specific mortality.

Results During the 20-y follow-up period, 1487 participants died. Education had a monotonic association with all mortality outcomes; the age, sex and cohort-adjusted HR for the lowest versus the highest educational group was 1.45 (95% CI 1.24 to 1.69) for all-cause mortality. There was evidence of a U-shaped association between height and all-cause, cancer and cardiovascular mortality robust to adjustment for the other indicators (HR 1.41, 95% CI 1.03 to 1.93 for those shorter than average and HR 1.36, 95% CI 0.98 to 1.88 for those taller than average for cardiovascular mortality). Greater all-cause and cancer mortality was observed in participants whose father's occupational position was manual rather than non-manual (HR 1.11, 95% CI 1.00 to 1.23 for all-cause mortality), but the risks were attenuated after adjusting for education and height.

Conclusions The association between early life socioeconomic circumstances and mortality depends on the socioeconomic indicator used and the cause of death examined. Height is not a straightforward measure of early life socioeconomic circumstances as taller people do not have a health advantage for all mortality outcomes.

Yang, S., Lynch, J., Schulenberg, J., Diez Roux, A.V., & Raghunathan, T. (2007). "Emergence of Socioeconomic Inequalities in Smoking and Overweight and Obesity in Early Adulthood: The National Longitudinal Study of Adolescent Health." *American Journal of Public Health*.

Abstract: Objectives. We examined whether socioeconomic inequalities in smoking and overweight and obesity emerged in early adulthood and the contribution of family background, adolescent smoking, and body mass index to socioeconomic inequalities.

Methods. Using data from the National Longitudinal Study of Adolescent Health we employed multinomial regression analyses to estimate relative odds of heavy or light-to-moderate smoking to nonsmoking and of overweight or obesity to normal weight.

Results. For smoking, we found inequalities by young adult socioeconomic position in both genders after controlling for family background and smoking during adolescence. However, family socioeconomic position was not strongly associated with smoking in early adulthood. For overweight and obesity, we found socioeconomic inequalities only among women both by young adult and family socioeconomic position after adjusting for birthweight, other family background, and body mass index during adolescence.

Conclusions. Socioeconomic inequalities in smoking emerged in early adulthood according to socioeconomic position. Among women, inequalities in overweight or obesity were already evident by family socioeconomic position and strengthened by their own socioeconomic position. The relative importance of family background and current socioeconomic circumstances varied between smoking and overweight or obesity.

Household Domestic Violence

1. Evans, S.E., Davies, C., & DiLillo, D. (2008). "Exposure to domestic violence: A meta-analysis of child and adolescent outcomes." *Aggression and Violent Behavior*.

2. Fantuzzo, J., Boruch, R., Beriama, A., Atkins, M., & Marcus, S. (1997). "Domestic Violence and Children: Prevalence and Risk in Five Major U.S. Cities." *Journal of the American Academy of Child and Adolescent Psychiatry*.
3. Holt, S., Buckley, H., & Whelan, S. (2008). "The impact of exposure to domestic violence on children and young people: A review of the literature." *Child Abuse & Neglect*.
4. Kitzmann, K.M., Gaylord, N.K., Holt, A.R., & Kenny, E.D. (2003). "Child Witnesses to Domestic Violence: A Meta-Analytic Review." *Journal of Counseling and Clinical Psychology*.
5. Kolbo, J.R., Blakely, E.H., & Engleman, D. (1996). "Children Who Witness Domestic Violence: A Review of Empirical Literature." *Journal of Interpersonal Violence*.
6. Silverstein, M., Augustyn, M., Cabral, H., & Zuckerman, B. (2006). "Maternal Depression and Violence Exposure: Double Jeopardy for Child School Functioning." *Pediatrics*.
7. Straus, M.A. (1991). "Children as Witness to Marital Violence: A Risk Factor for Life Long Problems among a Nationally Representative Sample of American Men and Women." New Hampshire University Report.
8. Wolfe, D.A., Crooks, C.V., Lee, V., McIntyre-Smith, A., & Jaffe, P.G. (2003). "The Effects of Children's Exposure to Domestic Violence: A Meta-Analysis and Critique." *Clinical Child and Family Psychology Review*.

Evans, S.E., Davies, C., & DiLillo, D. (2008). "Exposure to domestic violence: A meta-analysis of child and adolescent outcomes." *Aggression and Violent Behavior*.

Abstract: This study used meta-analysis to examine the relationship between childhood exposure to domestic violence and children's internalizing, externalizing, and trauma symptoms. Results from 60 reviewed studies revealed mean weighted effect size d-values of .48 and .47 for the relationship between exposure to domestic violence and childhood internalizing and externalizing symptoms, respectively, indicating moderate effects. A larger mean weighted effect size d-value of 1.54 was obtained for the relationship between exposure to domestic violence and childhood trauma symptoms, though this figure was based on only six studies. Moderator analyses for gender showed that the relationship between exposure to domestic violence and externalizing symptoms was significantly stronger for boys than for girls. Further analyses examining age, age by gender, and recruitment setting variables revealed no significant effects. Descriptive information obtained from this meta-analytic review suggests that more recent research within this area is beginning to address some of the significant methodological limitations of past research. Recommendations for future research in the area are discussed.

Fantuzzo, J., Boruch, R., Beriama, A., Atkins, M., & Marcus, S. (1997). "Domestic Violence and Children: Prevalence and Risk in Five Major U.S. Cities." *Journal of the American Academy of Child and Adolescent Psychiatry*.

Abstract: Objective: Children witnessing domestic violence is a major national concern. The present study provided data on the prevalence of children's exposure to substantiated cases of adult female assaults in five U.S. cities. **Method:** Data for this study were drawn from the Spouse Assault Replication Program (SARP) database, collected from police officers and female victims of misdemeanor domestic violence. In addition, household demographic data and data on involvement of children in the violent incidents were collected. Data from the SARP households were compared with census data from each city. **Results:** Results indicated that children were disproportionately present in households with domestic violence and that young children were disproportionately represented among these children. Moreover, these children were exposed to excessive levels of additional developmental risk factors and they were involved in the incidents to varying degrees. **Conclusions:** These findings underscore the importance of establishing a more rigorous interdisciplinary, scientific research agenda to inform assessment and treatment efforts for a very vulnerable group of children who witness domestic violence, children aged 0 through 5 years.

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Holt, S., Buckley, H., & Whelan, S. (2008). "The impact of exposure to domestic violence on children and young people: A review of the literature." *Child Abuse & Neglect*.

Abstract: Objective: This article reviews the literature concerning the impact of exposure to domestic violence on the health and developmental well-being of children and young people. Impact is explored across four separate yet inter-related domains (domestic violence exposure and child abuse; impact on parental capacity; impact on child and adolescent development; and exposure to additional adversities), with potential outcomes and key messages concerning best practice responses to children's needs highlighted.

Method: A comprehensive search of identified databases was conducted within an 11-year framework (1995–2006). This yielded a vast literature which was selectively organized and analyzed according to the four domains identified above.

Results: This review finds that children and adolescents living with domestic violence are at increased risk of experiencing emotional, physical and sexual abuse, of developing emotional and behavioral problems and of increased exposure to the presence of other adversities in their lives. It also highlights a range of protective factors that can mitigate against this impact, in particular a strong relationship with and attachment to a caring adult, usually the mother.

Conclusion: Children and young people may be significantly affected by living with domestic violence, and impact can endure even after measures have been taken to secure their safety. It also concludes that there is rarely a direct causal pathway leading to a particular outcome and that children are active in constructing their own social world. Implications for interventions suggest that timely, appropriate and individually tailored responses need to build on the resilient blocks in the child's life.

Practice implications: This study illustrates the links between exposure to domestic violence, various forms of child abuse and other related adversities, concluding that such exposure may have a differential yet potentially deleterious impact for children and young people. From a resilient perspective this review also highlights a range of protective factors that influence the extent of the impact of exposure and the subsequent outcomes for the child. This review advocates for a holistic and child-centered approach to service delivery, derived from an informed assessment, designed to capture a picture of the individual child's experience, and responsive to their individual needs.

Kitzmann, K.M., Gaylord, N.K., Holt, A.R., & Kenny, E.D. (2003). "Child Witnesses to Domestic Violence: A Meta-Analytic Review." *Journal of Counseling and Clinical Psychology*.

Abstract: This meta-analysis examined 118 studies of the psychosocial outcomes of children exposed to interparental violence. Correlational studies showed a significant association between exposure and child problems ($d = -0.29$). Group comparison studies showed that witnesses had significantly worse outcomes relative to nonwitnesses ($d = -0.40$) and children from verbally aggressive homes ($d = -0.28$), but witnesses' outcomes were not significantly different from those of physically abused children ($d = 0.15$) or physically abused witnesses ($d = 0.13$). Several methodological variables moderated these results. Similar effects were found across a range of outcomes, with slight evidence for greater risk among preschoolers. Recommendations for future research are made, taking into account practical and theoretical issues in this area.

Kolbo, J.R., Blakely, E.H., & Engleman, D. (1996). "Children Who Witness Domestic Violence: A Review of Empirical Literature." *Journal of Interpersonal Violence*.

Abstract: This article presents a review of the empirical literature examining the initial effects of witnessing domestic violence on children's functioning. Previous reviews of the literature suggested that witnessing was harmful to children, but they also indicated that the state of knowledge was quite limited due to an emphasis on exploratory methodologies, reliance on untested theories, and inconsistent findings. Nearly a decade of research has been conducted since the most recent review. Although results are still somewhat inconclusive regarding children's social, cognitive, and physical development, the findings of recently conducted investigations, when combined and compared with the previously

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reviewed literature, suggest much less equivocation concerning the negative effects of witnessing domestic violence on children's emotional and behavioral development. Theoretical developments and methodological refinements appear related to the recent findings.

Silverstein, M., Augustyn, M., Cabral, H., & Zuckerman, B. (2006). "Maternal Depression and Violence Exposure: Double Jeopardy for Child School Functioning." *Pediatrics*.

Abstract: OBJECTIVE. The goal was to determine how violence exposure affects the relationship between maternal depression, cognitive ability, and child behavior.

METHODS. A multivariate regression analysis of data for a nationally representative sample of kindergarten students was performed. Maternal depression and violence exposure were measured with standardized parent interviews. Standardized *T* scores were derived from direct testing of children in reading, mathematics, and general knowledge; child behavior was reported by teachers.

RESULTS. A total of 9360 children had neither maternal depression nor violence exposure, 779 violence only, 1564 depression only, and 380 both. Maternal depression alone was associated with poorer mean *T* scores for reading, mathematics, and general knowledge. However, this effect was attenuated by nearly 25% for reading and general knowledge with adjustment for violence. Children with concurrent exposure to depression and violence had lower mean *T* scores for reading, mathematics, and general knowledge, as well as more-concerning behaviors, than did those exposed to either factor alone. Across all outcome measures, boys seemed more affected than girls.

CONCLUSIONS. Violence compounds the effect of maternal depression on school functioning and behavior. Research and intervention planning for children affected by maternal depression should consider violence exposure.

Straus, M.A. (1991). "Children as Witness to Marital Violence: A Risk Factor for Life Long Problems among a Nationally Representative Sample of American Men and Women." New Hampshire University Report.

Abstract: A number of studies have found evidence suggesting that being a witness to violence puts a child at risk of developing social and psychological problems. However, most of these studies used populations of severely battered women and did not control for confounding with other family characteristics. This study analyzed male and female responses (N=6,002) of the 1985 National Family Violence Survey using an analysis of covariance to control for confounding variables including physical attacks on the child, gender, age, and family socioeconomic status. The study also analyzed whether the child witnessed violence by the father, the mother, or by both. The results demonstrated a link between witnessing marital violence with various psycho-social problems including health problems, feelings of depression and stress, increased drug abuse, use of coercion and violence in marital conflict, child abuse, and engaging in violence and other criminal behavior outside the family. Results suggest that being a witness to violence between parents puts a child at risk for a number of serious mental health and other problems, and that this applies to children of all socioeconomic levels and regardless of whether the child has also been attacked by the parents.

Wolfe, D.A., Crooks, C.V., Lee, V., McIntyre-Smith, A., & Jaffe, P.G. (2003). "The Effects of Children's Exposure to Domestic Violence: A Meta-Analysis and Critique." *Clinical Child and Family Psychology Review*.

Abstract: A wide range of children's developmental outcomes are compromised by exposure to domestic violence, including social, emotional, behavioral, cognitive, and general health functioning. However, there are relatively few empirical studies with adequate control of confounding variables and a sound theoretical basis. We identified 41 studies that provided relevant and adequate data for inclusion in a meta-analysis. Forty of these studies indicated that children's exposure to domestic violence was related to emotional and behavioral problems, translating to a small overall effect ($Z_r = .28$). Age, sex, and type of outcome were not significant moderators, most likely due to considerable heterogeneity within each of

these groups. Co-occurrence of child abuse increased the level of emotional and behavioral problems above and beyond exposure alone, based on 4 available studies. Future research needs are identified, including the need for large-scale longitudinal data and theoretically guided approaches that take into account relevant contextual factors.

Household Mental Illness/Suicide

1. Bould, H., Koupil, I., Dalman, C., DeStavola, B., Lewis, G., & Magnusson, C. (2015). "Parental Mental Illness and Eating Disorders in Offspring." *International Journal of Eating Disorders*. (added *post-hoc*)
2. McManama O'Brien, K.H., Salas-Wright, C.P., Vaughn, M.G., & LeCloux, M. (2015). "Childhood exposure to a parental suicide attempt and risk for substance use disorders." *Addictive Behaviors*. (added *post-hoc*)
3. Nijjar, R., Ellenbogen, M.A., & Hodgins, S. (2014). "Personality, coping, risky behavior, and mental disorders in the offspring of parents with bipolar disorder: A comprehensive psychosocial assessment." *Journal of Affective Disorders*. (added *post-hoc*)
4. Silverstein, M., Augustyn, M., Cabral, H., & Zuckerman, B. (2006). "Maternal Depression and Violence Exposure: Double Jeopardy for Child School Functioning." *Pediatrics*. (see Household Domestic Violence for Abstract)

Bould, H., Koupil, I., Dalman, C., DeStavola, B., Lewis, G., & Magnusson, C. (2015). "Parental Mental Illness and Eating Disorders in Offspring." *International Journal of Eating Disorders*.

Abstract: Objective: To investigate which parental mental illnesses are associated with eating disorders in their offspring.

Method: We used data from a record-linkage cohort study of 158,679 children aged 12–24 years at the end of follow-up, resident in Stockholm County from 2001 to 2007, to investigate whether different parental mental illnesses are risk factors for eating disorders in their offspring. The outcome measure was diagnosis of any eating disorder, either from an ICD or DSM-IV code, or inferred from an appointment at a specialist eating disorder clinic.

Results: Mental illness in parents is a risk factor for eating disorders in female offspring (Adjusted Hazard Ratio (AHR) 1.57 (95% CI 1.42, 1.92), $p < 0.0001$). Risk of eating disorders is increased if there is a parental diagnosis of bipolar affective disorder (AHR 2.28 (95% CI 1.39, 3.72), $p = 0.004$), personality disorder (AHR 1.57 (95% CI 1.01, 2.44), $p = 0.043$) or anxiety/depression (AHR 1.57 (95% CI 1.32, 1.86), $p < 0.0001$). There is a lack of statistical evidence for an association with parental schizophrenia (AHR 1.41 (95% CI 0.96, 2.07), $p = 0.08$), and somatoform disorder (AHR 1.25 (95% CI 0.74, 2.13), $p = 0.40$). There is no support for a relationship between parental substance misuse and eating disorders in children (AHR 1.08 (95% CI 0.82, 1.43), $p = 0.57$).

Discussion: Parental mental illness, specifically parental anxiety, depression, bipolar affective disorder, and personality disorders, are risk factors for eating disorders in their offspring

McManama O'Brien, K.H., Salas-Wright, C.P., Vaughn, M.G., & LeCloux, M. (2015). "Childhood exposure to a parental suicide attempt and risk for substance use disorders." *Addictive Behaviors*.

Abstract: Childhood exposure to parental suicidal behavior has been linked to a variety of adverse behavioral and health outcomes. However, relatively little is known about the degree to which such exposure may place individuals at risk for a substance use disorder (SUD). Employing data from the National Epidemiologic Survey on Alcohol and Related Conditions, we compared the prevalence of SUDs among those who experienced childhood exposure to parental suicide attempts. Childhood exposure to parental suicide attempts was not associated with increased risk for the development of alcohol, cannabis, or cocaine use disorders. However, individuals who were exposed to a parental suicide attempt as children were significantly more likely to have met criteria for stimulant (AOR = 1.40, 95% CI = 1.18-1.67), sedative (AOR = 1.24, 95% CI = 1.04-1.47), tranquilizer (AOR = 1.78, 95% CI = 1.45-

2.20), and opioid (AOR = 1.41, 95% CI = 1.19-1.67) use disorders in their lifetime. No significant gender differences were identified with respect to the magnitude of the relationship between exposure to parental suicide attempts and SUD risk among men and women. Findings suggest that, controlling for an array of sociodemographic, parental, mental health, and childhood adversity confounds, childhood exposure to parental suicide attempts is a vulnerability factor for low prevalence illicit drugs (i.e. stimulants, sedatives, tranquilizers, opioids), but not for more commonly used substances.

Nijjar, R., Ellenbogen, M.A., & Hodgins, S. (2014). "Personality, coping, risky behavior, and mental disorders in the offspring of parents with bipolar disorder: A comprehensive psychosocial assessment." *Journal of Affective Disorders*.

Abstract: *Objectives:* It has been proposed that the offspring of parents with bipolar disorder (OBD), through genetic mechanisms and early family interactions, develop a heightened sensitivity to stress, maladaptive coping, and dysregulated behavior, which ultimately increases the risk for affective disorders. The current study tested certain predictions of this model by assessing different psychosocial and health-related outcomes in the OBD, including personality, coping style, smoking, suicidality, high-risk sexual behaviors, criminality, and mental health. *Method:* The sample was composed of 74 OBD and 75 control offspring, who were between 14 and 27 years of age (mean: 19.38 +/- 3.56). Participants underwent a diagnostic interview and a structured interview to assess high-risk behavior and other maladaptive outcomes, and they completed the Revised NEO Personality Inventory and Coping in Stressful Situations questionnaire. *Results:* The rates of affective (31.1%) and non-affective (56.8%) disorders were elevated in the OBD compared to controls (9.5% and 32.4%). Relative to controls, OBD endorsed fewer task-oriented and more distraction coping strategies [Wilk's $\lambda=.83$, $F(1, 136) = 6.92$, $p < .01$], and were more likely to report engaging in high-risk sexual behavior (OR=2.37; Wald=4.13, 1 df, $p < .05$). Importantly, OBD reported elevated high-risk sexual behavior relative to controls, irrespective of affective disorder diagnosis. *Conclusion:* The results highlight a potential risk profile for the OBD, consisting of ineffective coping strategies and risky sexual behavior and are discussed in the context of current knowledge of stress and coping in this population. *Limitations:* The present findings were based on cross-sectional data and relied on offspring self-report. It would be useful to corroborate these findings with biobehavioural and longitudinal measures.

Household Substance Abuse

1. Anda, R.F., Whitfield, C.L., Felitti, V.J., Chapman, D., Edwards, V.J., Dube, S.R., & Williamson, D.F. (2002). "Adverse childhood experiences, alcoholic parents, and later risk of alcoholism and depression." *Psychiatric Services*. (added *post-hoc*)
2. Christoffersen, M.N. & Sothill, K. (2003). "The long-term consequences of parental alcohol abuse: a cohort study of children in Denmark." *Journal of Substance Abuse Treatment*. (added *post-hoc*)
3. Dube, S.R., Anda, R.F., Felitti, V.J., Croft, J.B., Edwards, V.J., & Giles, W.H. "Growing up with parental alcohol abuse: exposure to childhood abuse, neglect, and household dysfunction." *Child Abuse & Neglect*. (added *post-hoc*)
4. Torvik, F.A., Rognmo, K., Ask, H., Roysamb, E., & Tambs, K. (2011). "Parental alcohol use and adolescent school adjustment in the general population: Results from the HUNT study." *BMC Public Health*. (added *post-hoc*)

Anda, R.F., Whitfield, C.L., Felitti, V.J., Chapman, D., Edwards, V.J., Dube, S.R., & Williamson, D.F. (2002). "Adverse childhood experiences, alcoholic parents, and later risk of alcoholism and depression." *Psychiatric Services*.

Abstract: OBJECTIVE: The study examined how growing up with alcoholic parents and having adverse childhood experiences are related to the risk of alcoholism and depression in adulthood. **METHODS:** In this retrospective cohort study, 9,346 adults who visited a primary care clinic of a large health maintenance organization completed a survey about nine adverse childhood experiences:

experiencing childhood emotional, physical, and sexual abuse; witnessing domestic violence; parental separation or divorce; and growing up with drug-abusing, mentally ill, suicidal, or criminal household members. The associations between parental alcohol abuse, the adverse experiences, and alcoholism and depression in adulthood were assessed by logistic regression analyses. **RESULTS:** The risk of having had all nine of the adverse childhood experiences was significantly greater among the 20 percent of respondents who reported parental alcohol abuse. The number of adverse experiences had a graded relationship to alcoholism and depression in adulthood, independent of parental alcohol abuse. The prevalence of alcoholism was higher among persons who reported parental alcohol abuse, no matter how many adverse experiences they reported. The association between parental alcohol abuse and depression was accounted for by the higher risk of having adverse childhood experiences in alcoholic families. **CONCLUSIONS:** Children in alcoholic households are more likely to have adverse experiences. The risk of alcoholism and depression in adulthood increases as the number of reported adverse experiences increases regardless of parental alcohol abuse. Depression among adult children of alcoholics appears to be largely, if not solely, due to the greater likelihood of having had adverse childhood experiences in a home with alcohol-abusing parents.

Christoffersen, M.N. & Soothill, K. (2003). "The long-term consequences of parental alcohol abuse: a cohort study of children in Denmark." *Journal of Substance Abuse Treatment*.

Abstract: The aim of this study is to consider whether parents' abuse of alcohol has an impact on children during their formative years. The research is based on data from 84,765 children born in Denmark in 1966. These children and their parents were followed between 1979 and 1993. Information was analyzed from government registers covering health, education, family separation, suicidal behavior, criminality, and unemployment, using a discrete time Cox-regression model. Results showed that the parents' alcohol abuse may frame the childhood with parental violence, very high occurrence of family separations, and often foster care. The parental abuse of alcohol may influence several long-term consequences for their 15- to 27-year-old children such as increased mortality, self-destructive behaviors (e.g. attempted suicide or drug addiction). Hospitalization due to violence, an increased risk of teenage pregnancy and unemployment were also seen more frequently among cases where the parents were alcohol abusers. Mothers' alcohol abuse seemed to be associated with higher occurrences of all the mentioned disadvantages

Dube, S.R., Anda, R.F., Felitti, V.J., Croft, J.B., Edwards, V.J., & Giles, W.H. "Growing up with parental alcohol abuse: exposure to childhood abuse, neglect, and household dysfunction." *Child Abuse & Neglect*.

Abstract: Objective: This study is a detailed examination of the association between parental alcohol abuse (mother only, father only, or both parents) and multiple forms of childhood abuse, neglect, and other household dysfunction, known as adverse childhood experiences (ACEs). **Method:** A questionnaire about ACEs including child abuse, neglect, household dysfunction, and exposure to parental alcohol abuse was completed by 8629 adult HMO members to retrospectively assess the relationship of growing up with parental alcohol abuse to 10 ACEs and multiple ACEs (ACE score). **Results:** Compared to persons who grew up with no parental alcohol abuse, the adjusted odds ratio for each category of ACE was approximately 2 to 13 times higher if either the mother, father, or both parents abused alcohol ($p < 0.05$). For example, the likelihood of having a battered mother was increased 13-fold for men who grew up with both parents who abused alcohol (OR, 12.7; 95% CI: 8.4–19.1). For almost every ACE, those who grew up with both an alcohol-abusing mother and father had the highest likelihood of ACEs. The mean number of ACEs for persons with no parental alcohol abuse, father only, mother only, or both parents was 1.4, 2.6, 3.2, and 3.8, respectively ($p < .001$). **Conclusion:** Although the retrospective reporting of these experiences cannot establish a causal association with certainty, exposure to parental alcohol abuse is highly associated with experiencing adverse childhood experiences. Improved coordination of adult and pediatric health care along with related social and substance abuse services may

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice Bethell, C., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P.

lead to earlier recognition, treatment, and prevention of both adult alcohol abuse and adverse childhood experiences, reducing the negative sequelae of ACEs in adolescents and adults.

Torvik, F.A., Rognmo, K., Ask, H., Roysamb, E., & Tambs, K. (2011). "Parental alcohol use and adolescent school adjustment in the general population: Results from the HUNT study." *BMC Public Health*.

Abstract: Background: This study investigates the relationship between parental drinking and school adjustment in a total population sample of adolescents, with independent reports from mothers, fathers, and adolescents. As a group, children of alcohol abusers have previously been found to exhibit lowered academic achievement. However, few studies address which parts of school adjustment that may be impaired. Both a genetic approach and social strains predict elevated problem scores in these children. Previous research has had limitations such as only recruiting cases from clinics, relying on single responders for all measures, or incomplete control for comorbid psychopathology. The specific effects of maternal and paternal alcohol use are also understudied.

Methods: In a Norwegian county, 88% of the population aged 13-19 years participated in a health survey (N = 8984). Among other variables, adolescents reported on four dimensions of school adjustment, while mothers and fathers reported their own drinking behaviour. Mental distress and other control variables were adjusted for. Multivariate analysis including generalized estimation equations was applied to investigate associations.

Results: Compared to children of light drinkers, children of alcohol abusers had moderately elevated attention and conduct problem scores. Maternal alcohol abuse was particularly predictive of such problems. Children of abstainers did significantly better than children of light drinkers. Controlling for adolescent mental distress reduced the association between maternal abuse and attention problems. The associations between parental reported drinking and school adjustment were further reduced when controlling for the children's report of seeing their parents drunk, which itself predicted school adjustment. Controlling for parental mental distress did not reduce the associations.

Conclusions: Parental alcohol abuse is an independent risk factor for attention and conduct problems at school. Some of the risk associated with mothers' drinking is likely to be mediated by adolescent mental distress. Despite lowered adjustment on the externalizing dimensions, children of alcohol abusers report that they enjoy being at school as much as other children.

Parental Death

1. Brent, D., Melhem, N., Donohoe, M.B., & Walker, M. (2009). "The Incidence and Course of Depression in Bereaved Youth 21 Months After the Loss of a Parent to Suicide, Accident, or Sudden Natural Death." *American Journal of Psychiatry*.
2. Cerel, J., Fristad, M.A., Verducci, J., Weller, R.A., & Weller, E.B. (2006). "Childhood Bereavement: Psychopathology in the 2 Years Postparental Death." *Journal of the American Academy of Child and Adolescent Psychiatry*.
3. Corak, M. (2001). "Death and Divorce: The Long-Term Consequences of Parental Loss on Adolescents." *Journal of Labor Economics*.
4. Dowdney, L. (2000). "Annotation: Childhood Bereavement Following Parental Death." *Journal of Child Psychology and Psychiatry*.
5. Draper, A. & Hancock, M. (2011). "Childhood parental bereavement: the risk of vulnerability to delinquency and factors that compromise resilience." *Mortality: Promoting the interdisciplinary study of death and dying*.
6. Fors, S., Lennartsson, C., & Lundberg, O. (2011). "Live long and prosper? Childhood living conditions, marital status, social class in adulthood and mortality during mid-life: A cohort study." *Scandinavian Journal of Public Health*. (see Extreme Economic Hardship for Abstract)
7. Hamdan, S., Marzariegos, D., Melhem, N.M., Porta, G., Payne, M.W., & Brent, D.A. (2012). "Effect of Parental Bereavement on Health Risk Behaviors in Youth." *Archives of Pediatric Adolescent Medicine*.

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice Bethell, C., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P.

8. Kaplow, J.B., Saunders, J., Angold, A., & Costello, E.J. (2010). "Psychiatric Symptoms in Bereaved Versus Nonbereaved Youth and Young Adults: A Longitudinal Epidemiological Study." *Journal of the American Academy of Child and Adolescent Psychiatry*.

9. Wilcox, H.C., Kuramoto, S.J., Lichtenstein, P., Langstrom, N., Brent, D.A., & Runeson, B. (2010). "Psychiatric Morbidity, Violent Crime, and Suicide Among Children and Adolescents Exposed to Parental Death." *Journal of the American Academy of Child and Adolescent Psychiatry*.

Brent, D., Melhem, N., Donohoe, M.B., & Walker, M. (2009). "The Incidence and Course of Depression in Bereaved Youth 21 Months After the Loss of a Parent to Suicide, Accident, or Sudden Natural Death." *American Journal of Psychiatry*.

Abstract: Objective – This study examined effects of bereavement 21 months after a parent's death, particularly death by suicide.

Method – The participants were 176 offspring, ages 7–25, of parents who died by suicide, accident, or sudden natural death. They were assessed 9 and 21 months after the death, along with 168 nonbereaved subjects.

Results – Major depression and alcohol or substance abuse 21 months after the parent's death were more common among bereaved youth than among comparison subjects. Offspring with parental suicide or accidental death had higher rates of depression than comparison subjects; those with parental suicide had higher rates of alcohol or substance abuse. Youth with parental suicide had a higher incidence of depression than those bereaved by sudden natural death. Bereavement and a past history of depression increased depression risk in the 9 months following the death, which increased depression risk between 9 and 21 months. Losing a mother, blaming others, low self-esteem, negative coping, and complicated grief were associated with depression in the second year.

Conclusions – Youth who lose a parent, especially through suicide, are vulnerable to depression and alcohol or substance abuse during the second year after the loss. Depression risk in the second year is mediated by the increased incidence of depression within the first 9 months. The most propitious time to prevent or attenuate depressive episodes in bereaved youth may be shortly after the parent's death. Interventions that target complicated grief and blaming of others may also improve outcomes in symptomatic youth with parental bereavement.

Cerel, J., Fristad, M.A., Verducci, J., Weller, R.A., & Weller, E.B. (2006). "Childhood Bereavement: Psychopathology in the 2 Years Postparental Death." *Journal of the American Academy of Child and Adolescent Psychiatry*.

Abstract: Objective: Although the death of a parent is one of the most significant stressors a child can experience, the psychiatric sequelae of parental death are not fully understood. **Method:** A total of 360 parent-bereaved children (ages 6-17) and their surviving parents were directly interviewed four times during the first 2 years following the death (at 2, 6, 13, and 25 months). Data collection occurred from 1989 to 1996. Psychiatric symptomatology was compared among the bereaved children, 110 depressed children, and 128 community control children and their informant parents. Additional analyses examined simple bereavement without other stressors versus complex bereavement with other stressors and anticipated versus unanticipated death. **Results:** Bereavement following parental death is associated with increased psychiatric problems in the first 2 years after death. Bereaved children are, however, less impaired than children diagnosed with clinical depression. Higher family socioeconomic status and lower surviving parents' level of depressive symptoms are associated with better outcomes. Complex bereavement was associated with a worse course, but anticipation of the death was not. **Conclusions:** Childhood bereavement from parental death is a significant stressor. Children who experience depression in combination with parental depression or in the context of other family stressors are at the most risk of depression and overall psychopathology.

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Corak, M. (2001). "Death and Divorce: The Long-Term Consequences of Parental Loss on Adolescents." *Journal of Labor Economics*.

Abstract: Two quasi-experiments are used to estimate the impact of parental divorce on the adult labor market and marital/fertility outcomes of adolescents. These involve individuals experiencing the death of a parent and legislative changes to the Canadian divorce law. Parental loss by death is assumed to be exogenous, the experiences of children with a bereaved background offering a benchmark to assess the endogeneity of parental loss through divorce. Adolescents whose parents divorced put off marriage and, once married, suffer a greater likelihood of marital instability, but their earnings and incomes are not on average much different from others.

Dowdney, L. (2000). "Annotation: Childhood Bereavement Following Parental Death." *Journal of Child Psychology and Psychiatry*.

Abstract: Psychological outcomes in children who have experienced the death of a parent are heterogeneous. One child in five is likely to develop psychiatric disorder. In the year following bereavement, children commonly display grief, distress, and dysphoria. Nonspecific emotional and behavioural difficulties among children are often reported by surviving parents and the bereaved children themselves. The highest rates of reported difficulties are found in boys. This review identifies the moderating and mediating variables that lead to some children being more vulnerable to disturbance than others following parental death. Limitations and gaps in the recent bereavement literature are identified. Theoretical and methodological advances that are necessary for a coherent account of childhood bereavement are outlined.

Draper, A. & Hancock, M. (2011). "Childhood parental bereavement: the risk of vulnerability to delinquency and factors that compromise resilience." *Mortality: Promoting the interdisciplinary study of death and dying*.

Abstract: Background: In previous research, it has been established that a child who has experienced the death of a parent is vulnerable to a variety of concerns, including grief, distress and dysphoria, particularly in the first year following the death. In addition, one in five parentally-bereaved children is likely to develop a psychiatric disorder. As Kemshall argues, the growing body of evidence linking delinquency in adolescents to previous traumatic life experiences, such as parental loss, with a large number of children affected every year makes this a very important area for research. This paper considers the effects of parental bereavement in childhood, and is part of a wider study exploring the future for children who experience a parent's death. We found that parentally-bereaved children are significantly more vulnerable to delinquent behaviour than those who have not experienced parental bereavement. Thus there is a need for awareness of the variables that form protectors to the vulnerability to delinquency formed, in part by the experience of a parent's death.

Methods: We used secondary data from the National Child Development study from which children who had been parentally bereaved by the age of 16 were identified. The Rutter Behaviour Scale highlighted which of those children also displayed delinquent behaviours; the Pearson Chi Square was used to establish significant links between these two factors. Potential moderating factors of social class background, gender of child, gender of dead parent and age of child at the time of bereavement were also examined.

Results: The findings present as a set of risk variables that increase a child's susceptibility to delinquent behaviour, with specific reference to children who have been parentally bereaved. Children who were parentally bereaved before the age of 16 were significantly more likely to display delinquent behavior than those who were not, as indicated by scoring 9 or above, the cut off point on the Rutter Behaviour Scale ($p < .001$). These scores of 9+ at 16 are significantly more likely ($p < .001$) for children who were bereaved between the ages of 12 and 16 years. For all children (including children not parentally bereaved), boys were significantly more likely than girls to score 9+ on the Rutter Behaviour Scale at

16 ($p < .001$). However, gender was not a significant factor in parentally-bereaved children, indicating parentally-bereaved girls are more likely to display similar levels of delinquent behaviour to non-parentally-bereaved boys. Children from manual backgrounds are significantly more likely than those from non-manual backgrounds to be parentally bereaved ($p < .001$).

Hamdan, S., Marzariegos, D., Melhem, N.M., Porta, G., Payne, M.W., & Brent, D.A. (2012). "Effect of Parental Bereavement on Health Risk Behaviors in Youth." *Archives of Pediatric Adolescent Medicine*.
Abstract: Objective: To examine the course of health risk behaviors (HRBs) during a 3-year period after a parent's death in bereaved youth compared with nonbereaved youth (control subjects).

Design: A longitudinal population-based study.

Setting: Bereaved families were recruited through coroner records and by advertisement. Control families were recruited using random-digit dialing and by advertisement.

Participants: Two hundred forty parentally bereaved offspring were compared with 183 nonbereaved control offspring.

Main Exposure: Sudden parental death due to accident, suicide, or sudden disease-related (natural) death.

Main Outcome Measures: The sum of the total number of HRBs at a clinically significant frequency threshold assessed 9, 21, and 33 months after the parent's death.

Results: The bereaved group showed a higher number of HRBs over time compared with the nonbereaved group (univariate effect sizes, 0.22-0.52; $P < .04$), even after taking into account correlates of bereavement and of HRBs, such as youth aggression, as well as antisocial and anxiety disorders of the deceased parent.

Conclusions: Parental bereavement is associated with higher HRBs in youth over time, even after controlling for other covariates associated with bereavement and HRBs. Clinicians should be aware that bereaved youth may be vulnerable to HRBs. Further work is warranted on interventions to attenuate the negative effect of bereavement on HRBs.

Kaplow, J.B., Saunders, J., Angold, A., & Costello, E.J. (2010). "Psychiatric Symptoms in Bereaved Versus Nonbereaved Youth and Young Adults: A Longitudinal Epidemiological Study." *Journal of the American Academy of Child and Adolescent Psychiatry*.

Abstract: Objective: To examine potential differences in psychiatric symptoms between parent-bereaved youth ($N = 172$), youth who experienced the death of another relative ($N = 815$), and nonbereaved youth ($N = 235$), aged 11 to 21 years, above and beyond antecedent environmental and individual risk factors.

Method: Sociodemographics, family composition, and family functioning were assessed one interview wave before the death. Child psychiatric symptoms were assessed during the wave in which the death was reported and one wave before and after the death. A year was selected randomly for the nonbereaved group.

Results: The early loss of a parent was associated with poverty, previous substance abuse problems, and greater functional impairment before the loss. Both bereaved groups of children were more likely than nonbereaved children to show symptoms of separation anxiety and depression during the wave of the death, controlling for sociodemographic factors and prior psychiatric symptoms. One wave following the loss, bereaved children were more likely than nonbereaved children to exhibit symptoms of conduct disorder and substance abuse and to show greater functional impairment. **Conclusions:** The impact of parental death on children must be considered in the context of pre-existing risk factors. Even after controlling for antecedent risk factors, both parent-bereaved children as well as those who lost other relatives were at increased risk for psychological and behavioral health problems.

Wilcox, H.C., Kuramoto, S.J., Lichtenstein, P., Langstrom, N., Brent, D.A., & Runeson, B. (2010). "Psychiatric Morbidity, Violent Crime, and Suicide Among Children and Adolescents Exposed to Parental Death." *Journal of the American Academy of Child and Adolescent Psychiatry*.

Abstract: Objective: This retrospective cohort study examined the risk for suicide, psychiatric hospitalization, and violent criminal convictions among offspring of parents who died from suicide, accidents, and other causes. **Method:** Population-based data from multiple Swedish national registers were linked from 1969 to 2004. Participants were 44,397 offspring of suicide decedents, 41,467 offspring of accident decedents, 417,365 offspring of parents who died by other causes, and 3,807,867 offspring of alive parents. We estimated risk by mode of parental death (suicide, accident, other) and offspring age at parental death (childhood, adolescence, young adulthood). **Results:** Offspring of suicide decedents were at greater risk for suicide than offspring of alive parents (incidence rate ratio [IRR] = 1.9; 95% confidence interval [CI] = 1.4 to 2.5), whereas offspring of accident decedents and other parental death were not at increased risk ($p < .001$). The risk for offspring suicide differed by the developmental period during which parental suicide occurred. Child and adolescent offspring of suicide decedents were at threefold greater risk for suicide (IRR = 3.0; 95% CI = 1.7 to 5.3; IRR = 3.1, 95% CI = 2.1 to 4.6, respectively). Young adults were not at increased risk for suicide (IRR = 1.3; 95% CI = 0.9 to 1.9). Offspring of suicide decedents had an especially high risk of hospitalization for suicide attempt, depressive, psychotic, and personality disorders. Child survivors of parental suicide were at particularly high risk for hospitalization for drug disorders and psychosis. All offspring who experienced parental death, regardless of mode or age, were at increased risk for violent criminal convictions. **Conclusions:** Mode of parental death and offspring age at parental death are associated with offspring long-term risk for suicide and hospitalization for specific psychiatric disorders.

Parental Divorce/Separation

1. Amato, P.R. (2010). "Research on Divorce: Continuing Trends and New Developments." *Journal of Marriage and Family*.
2. Cavanagh, S. E. (2008). "Family Structure History and Adolescent Adjustment." *Journal of Family Issues*.
3. Cherlin, A.J., Furstenberg, F.F., Chase-Lansdale, P.L., Kiernan, K.E., Robins, P.K., Morrison, D.R., & Teitler, J.O. (1991). "Longitudinal Studies of Effects of Divorce on Children in Great Britain and the United States." *Science*.
4. Corak, M. (2001). "Death and Divorce: The Long-Term Consequences of Parental Loss on Adolescents." *Journal of Labor Economics*. (see Parental Death for Abstract)
5. Fors, S., Lennartsson, C., & Lundberg, O. (2011). "Live long and prosper? Childhood living conditions, marital status, social class in adulthood and mortality during mid-life: A cohort study." *Scandinavian Journal of Public Health*. (see Extreme Economic Hardship for Abstract)
6. Kim, H.S. (2011). "Consequences of Parental Divorce for Child Development." *American Sociological Review*.
7. Lansford, J.E., Malone, P.S., Castellino, D.R., Dodge, K.A., Pettit, G.S., & Bates, J.E. (2006). "Trajectories of Internalizing, Externalizing, and Grades for Children Who Have and Have Not Experienced Their Parents' Divorce or Separation." *Journal of Family Psychology*.
8. Lansford, J.E. (2009). "Parental Divorce and Children's Adjustment." *Perspectives on Psychological Science*.
9. Potter, D. (2010). "Psychosocial Well-Being and the Relationship Between Divorce and Children's Academic Achievement." *Journal of Marriage and Family*.
10. Richardson, S. & McCabe, M.P. (2001). "Parental Divorce During Adolescence and Adjustment in Early Adulthood." *Adolescence*.
11. Sigle-Rushton, W., Hobcraft, J., & Kiernan, K. (2005). "Parental Divorce and Subsequent Disadvantage: A Cross-Cohort Comparison." *Demography*.

Amato, P.R. (2010). "Research on Divorce: Continuing Trends and New Developments." *Journal of Marriage and Family*.

Abstract: Research on divorce during the past decade has focused on a range of topics, including the predictors of divorce, associations between divorce and the well-being of children and former spouses, and interventions for divorcing couples. Methodological advances during the past decade include a greater reliance on nationally representative longitudinal samples, genetically informed designs, and statistical models that control for time-invariant sources of unobserved heterogeneity. Emerging perspectives, such as a focus on the number of family transitions rather than on divorce as a single event, are promising. Nevertheless, gaps remain in the research literature, and the review concludes with suggestions for new studies.

Cavanagh, S. E. (2008). "Family Structure History and Adolescent Adjustment." *Journal of Family Issues*.

Abstract: As patterns of union formation and dissolution in adult lives become complex, the living arrangements of American children are becoming increasingly fluid. With a sample ($N = 12,843$) drawn from the National Longitudinal Study of Adolescent Health, this study attempted to capture this complexity by mapping out children's family structure histories across their early life course, investigating the implications of these arrangements for their general adjustment, and finally, identifying family processes that explained these associations. The findings suggest that a sizable minority of young people experience dynamic family structure arrangements. Moreover, family structure at adolescence best predicted later emotional distress, and family structure at adolescence plus an indicator of cumulative family instability across childhood best predicted current marijuana use. More so than indicators tapping social control, levels of family connectedness and parent-adolescent relationship quality were key conduits for these associations.

Cherlin, A.J., Furstenberg, F.F., Chase-Lansdale, P.L., Kiernan, K.E., Robins, P.K., Morrison, D.R., & Teitler, J.O. (1991). "Longitudinal Studies of Effects of Divorce on Children in Great Britain and the United States." *Science*.

Abstract: National, longitudinal surveys from Great Britain and the United States were used to investigate the effects of divorce on children. In both studies, a subsample of children who were in two-parent families during the initial interview (at age 7 in the British data and at ages 7 to 11 in the U.S. data) were followed through the next interview (at age 11 and ages 11 to 16, respectively). At both time points in the British data, parents and teachers independently rated the children's behavior problems, and the children were given reading and mathematics achievement tests. At both time points in the U.S. data, parents rated the children's behavior problems. Children whose parents divorced or separated between the two time points were compared to children whose families remained intact. For boys, the apparent effect of separation or divorce on behavior problems and achievement at the later time point was sharply reduced by considering behavior problems, achievement levels, and family difficulties that were present at the earlier time point, before any of the families had broken up. For girls, the reduction in the apparent effect of divorce occurred to a lesser but still noticeable extent once preexisting conditions were considered.

Kim, H.S. (2011). "Consequences of Parental Divorce for Child Development." *American Sociological Review*.

Abstract: In this article, I propose a three-stage estimation model to examine the effect of parental divorce on the development of children's cognitive skills and noncognitive traits. Using a framework that includes pre-, in-, and post-divorce time periods, I disentangle the complex factors affecting children of divorce. I use the Early Childhood Longitudinal Study-Kindergarten Class 1998 to 1999 (ECLS-K), a multiwave longitudinal dataset, to assess the three-stage model. To evaluate the parameters of interest more rigorously, I employ a stage-specific ordinary least squares (OLS) model, a counterfactual matching estimator, and a piece-wise growth curve model. Within some combinations of developmental domains and stages, in particular from the in-divorce stage onward, I find negative effects of divorce even after

accounting for selection factors that influence children's skills and traits at or before the beginning of the dissolution process. These negative outcomes do not appear to intensify or abate in the ensuing study period.

Lansford, J.E., Malone, P.S., Castellino, D.R., Dodge, K.A., Pettit, G.S., & Bates, J.E. (2006). "Trajectories of Internalizing, Externalizing, and Grades for Children Who Have and Have Not Experienced Their Parents' Divorce or Separation." *Journal of Family Psychology*.

Abstract: This study examined whether the occurrence and timing of parental separation or divorce was related to trajectories of academic grades and mother- and teacher-reported internalizing and externalizing problems. The authors used hierarchical linear models to estimate trajectories for children who did and did not experience their parents' divorce or separation in kindergarten through 10th grade ($N = 194$). A novel approach to analyzing the timing of divorce/separation was adopted, and trajectories were estimated from 1 year prior to the divorce/separation to 3 years after the event. Results suggest that early parental divorce/separation is more negatively related to trajectories of internalizing and externalizing problems than is later divorce/separation, whereas later divorce/separation is more negatively related to grades. One implication of these findings is that children may benefit most from interventions focused on preventing internalizing and externalizing problems, whereas adolescents may benefit most from interventions focused on promoting academic achievement.

Lansford, J.E. (2009). "Parental Divorce and Children's Adjustment." *Perspectives on Psychological Science*.

Abstract: This article reviews the research literature on links between parental divorce and children's short-term and long-term adjustment. First, I consider evidence regarding how divorce relates to children's externalizing behaviors, internalizing problems, academic achievement, and social relationships. Second, I examine timing of the divorce, demographic characteristics, children's adjustment prior to the divorce, and stigmatization as moderators of the links between divorce and children's adjustment. Third, I examine income, interparental conflict, parenting, and parents' well-being as mediators of relations between divorce and children's adjustment. Fourth, I note the caveats and limitations of the research literature. Finally, I consider notable policies related to grounds for divorce, child support, and child custody in light of how they might affect children's adjustment to their parents' divorce.

Potter, D. (2010). "Psychosocial Well-Being and the Relationship Between Divorce and Children's Academic Achievement." *Journal of Marriage and Family*.

Abstract: As an unprecedented number of children live in families experiencing divorce, researchers have developed increasingly complex explanations for the consequences associated with marital dissolution. Current accounts focus on changes to family finances, destabilized parenting practices, elevated parental conflict, and deterioration of the parent-child relationship, to explain the impact of divorce. A less studied explanation draws attention to children's diminished psychosocial well-being following divorce. Using data from the Early Childhood Longitudinal Study—Kindergarten cohort (ECLS-K) ($N = 10,061$), I examined the role of psychosocial well-being in the relationship between divorce and children's outcomes. The results suggest that divorce is associated with diminished psychosocial well-being in children, and that this decrease helps explain the connection between divorce and lower academic achievement.

Richardson, S. & McCabe, M.P. (2001). "Parental Divorce During Adolescence and Adjustment in Early Adulthood." *Adolescence*.

Abstract: The present study examined the impact of parental divorce during adolescence, interparental conflict, and intimacy with parents on young adult adjustment. One hundred sixty-seven undergraduate students (146 females, 21 males) completed a questionnaire regarding their psychosocial adjustment, their

present relationships with their parents, the level of interparental conflict experienced during adolescence, and the marital status of their parents during adolescence. High levels of interparental conflict were found to be negatively associated with adjustment and current intimacy with parents. A poor relationship with both parents was negatively associated with several domains of psychological adjustment, while high intimacy with at least one parent was positively associated with adjustment. Intimacy with mother and with father were found to be the most important predictors of psychosocial adjustment. This investigation highlights the importance of maintaining a good parent-young adult relationship, particularly in divorced families. The findings indicate that future research should examine multiple family variables when assessing the impact of parental divorce or conflict on young adult adjustment.

Sigle-Rushton, W., Hobcraft, J., & Kiernan, K. (2005). "Parental Divorce and Subsequent Disadvantage: A Cross-Cohort Comparison." *Demography*.

Abstract: *Although many studies have examined the link between parental divorce and subsequent well-being, some theories of the effects of divorce suggest that the negative associations should have declined over time. However, few studies have examined the extent to which the associations have remained stable over time. Using data from two British cohorts, we analyzed both shorter- and longer-term outcomes of children who experienced parental divorce and the extent to which the associations have changed over time. Estimating similar models for both cohorts, we found little evidence of any change in the size of the relationship as divorce became more commonplace.*

Parental Incarceration

1. Dallaire, D.H. (2007). "Incarcerated Mothers and Fathers: A Comparison of Risks for Children and Families." *Family Relations*.
2. Dallaire, D.H. (2007). "Children with incarcerated mothers: Developmental outcomes, special challenges and recommendations." *Journal of Applied Developmental Psychology*.
3. Geller, A., Garfinkel, I., Cooper, C.E., & Mincy, R.B. (2009). "Parental Incarceration and Child Well-Being: Implications for Urban Families." *Social Science Quarterly*.
4. Murray, J. & Farrington, D.P. (2005). "Parental imprisonment: effects on boys' antisocial behaviour and delinquency through the life-course." *Journal of Child Psychology and Psychiatry*.
5. Poehlmann, J. (2005). "Children's Family Environments and Intellectual Outcomes during Maternal Incarceration." *Journal of Marriage and Family*.
6. Roettger, M.E. (2009). "Paternal Incarceration and Adversity in Young Adulthood." *Corrections Today*.

Dallaire, D.H. (2007). "Incarcerated Mothers and Fathers: A Comparison of Risks for Children and Families." *Family Relations*.

Abstract: The current study investigates differences between inmate mothers' and fathers' reported rates of incarceration for family members, adult children, predictors of adult children's incarceration, and living situations of minor children. Participants included 6,146 inmates who participated in the U.S. Department of Justice Survey of Inmates in State and Federal Correctional Facilities. Mothers were 2.5 times more likely to report that their adult children were incarcerated than fathers; mothers' regular drug use predicted adult child incarceration. Incarcerated mothers reported greater familial incarceration and their minor children were more likely to be in foster and other nonfamilial care situations than incarcerated fathers. As risk factors accumulated, there were greater rates of adult child incarceration, with a more obvious relationship for mothers.

Dallaire, D.H. (2007). "Children with incarcerated mothers: Developmental outcomes, special challenges and recommendations." *Journal of Applied Developmental Psychology*.

Abstract: Incarcerated mothers represent a rapidly growing sector of the prison population. This review of the literature presents research examining the psychological and socio-emotional well-being of children

with an incarcerated mother, highlighting risk and protective factors at different stages of children's development. Child outcomes are reviewed from a developmental perspective with a focus on children's connectedness to family and school. Attachment disruptions and disorganization are explored as outcomes for infants and toddlers; academic difficulties for school-aged children are discussed; and delinquency and risky behaviors that may place adolescent children at increased risk for incarceration themselves are reviewed. Next, special concerns and challenges associated with working with children and families with an incarcerated mother are highlighted. Future research recommendations are made that include methodological improvements and the use of an interdisciplinary perspective that focuses on family processes.

Geller, A., Garfinkel, I., Cooper, C.E., & Mincy, R.B. (2009). "Parental Incarceration and Child Well-Being: Implications for Urban Families." *Social Science Quarterly*.

Abstract: *Objective.* Using a population-based, longitudinal family survey (N=4,898), we identify economic, residential, and developmental risks particular to the children of incarcerated parents. *Methods.* We use parental reports of incarceration history, demographic background, and a rich set of child and family outcomes, in a series of multivariate regression models. *Results.* Children of incarcerated parents face more economic and residential instability than their counterparts. Sons of incarcerated fathers display more behavior problems, though other developmental differences are insignificant. *Conclusions.* We find that incarceration identifies families facing severe hardship that cannot be explained by other observed family characteristics. Given the prevalence of incarceration, our findings suggest that a large population of children suffers unmet material needs, residential instability, and behavior problems. These risks may be best addressed by using the point of incarceration as an opportunity for intervention and the administration of age-appropriate social services.

Murray, J. & Farrington, D.P. (2005). "Parental imprisonment: effects on boys' antisocial behaviour and delinquency through the life-course." *Journal of Child Psychology and Psychiatry*.

Abstract: Background: Prisoners' children appear to suffer profound psychosocial difficulties during their parents' imprisonment. However, no previous study has examined later-life outcomes for prisoners' children compared to children separated from parents for other reasons. We hypothesise that parental imprisonment predicts boys' antisocial and delinquent behaviour partly because of the trauma of separation, partly because parental imprisonment is a marker for parental criminality, and partly because of childhood risks associated with parental imprisonment. **Method:** This study uses prospective longitudinal data from the Cambridge Study in Delinquent Development (CSDD). The CSDD includes data on 411 Inner London males and their parents. We compare boys separated by parental imprisonment during their first 10 years of life with four control groups: boys who did not experience separation, boys separated by hospital or death, boys separated for other reasons (usually disharmony), and boys whose parents were only imprisoned before their birth. Individual, parenting, and family risk factors for delinquency were measured when boys were aged 8–11. Eleven antisocial and delinquent outcomes were assessed between ages 14 and 40. **Results:** Separation because of parental imprisonment predicted all antisocial–delinquent outcomes compared to the four control conditions. Separation caused by parental imprisonment was also strongly associated with many other childhood risk factors for delinquency. After controlling for parental convictions and other childhood risk factors, separation caused by parental imprisonment still predicted several antisocial–delinquent outcomes, even up to age 32, compared with other types of separation. **Conclusions:** Prisoners' children are a highly vulnerable group with multiple risk factors for adverse outcomes. Parental imprisonment appears to affect children over and above separation experiences and associated risks. Further research on possible moderating and mediating factors such as stigma, reduction in family income and reduced quality of care is required to identify the mechanisms by which parental imprisonment affects children.

Poehlmann, J. (2005). "Children's Family Environments and Intellectual Outcomes during Maternal Incarceration." *Journal of Marriage and Family*.

Abstract: Despite the dramatic increase in incarcerated mothers that has occurred in the past decades, there is a paucity of family research focusing on the children affected by maternal imprisonment. The present study investigated family environments and intellectual outcomes in 60 children between the ages of 2 and 7 years during their mothers' incarceration. Multiple methods were used to collect data from children, mothers, and children's nonmaternal care-givers. Results indicated that most children experienced multiple risks across contextual levels. Cumulative caregiver sociodemographic risks predicted children's cognitive abilities, although quality of the home and family environment mediated this relation. Results under-score the importance of children's family environments and highlight the need for increased monitoring, service delivery, and longitudinal research with children of incarcerated mothers and their families.

Roettger, M.E. (2009). "Paternal Incarceration and Adversity in Young Adulthood." *Corrections Today*.

Abstract: n/a

Racial/Ethnic Discrimination

1. Bastos, J.L., Celeste, R.K., Faerstein, E., & Barros A.J.D. (2010). "Racial discrimination and health: A systematic review of scales with a focus on their psychometric properties." *Social Science & Medicine*.
2. Brodish, A.B., Cogburn, C.D., Fuller-Rowell, T.E., Peck, S., Malanchuk, O., & Eccles, J.S. (2011). "Perceived Racial Discrimination as a Predictor of Health Behaviors: the Moderating Role of Gender." *Race and Social Problems*.
3. Cammack, A.L., Buss, C., Entringer, S., Hogue, C.J., Hobel, C.J., & Wadhwa, P.D. (2011). "The association between early life adversity and bacterial vaginosis during pregnancy." *American Journal of Obstetrics and Gynecology*.
4. Coker, T.R., Elliott, M.N., Kanouse, D.E., Grunbaum, J.A., Schwebel, D.C., Gilliland, M.J., Tortolero, S.R., Peskin, M.F., & Schuster, M.A. (2009). "Perceived Racial/Ethnic Discrimination Among Fifth-Grade Students and Its Association With Mental Health." *American Journal of Public Health*.
5. Dailey, A.B., Kasl, S.V., Holford, T.R., Lewis, T.T., & Jones, B.A. (2009). "Neighborhood- and individual-level socioeconomic variation in perceptions of racial discrimination." *Ethnicity & Health*. (see Extreme Economic Hardship for Abstract)
6. Dole, N., Savitz, D.A., Hertz-Picciotto, I., Siega-Riz, A.M., McMahon, M.J., & Buekens, P. (2002). "Maternal Stress and Preterm Birth." *American Journal of Epidemiology*.
7. Dole, N., Savitz, D.A., Siega-Riz, A.M., Hertz-Picciotto, I., McMahon, M.J., & Buekens, P. (2004). "Psychosocial Factors and Preterm Birth Among African American and White Women in Central North Carolina." *American Journal of Public Health*.
8. Gee, G.C. (2002). "A Multilevel Analysis of the Relationship Between Institutional and Individual Racial Discrimination and Health Status." *American Journal of Public Health*.
9. Gee, G.C., Walsemann, K.M., & Brondolo, E. (2012). "A Life Course Perspective on How Racism May Be Related to Health Inequities." *American Journal of Public Health*.
10. Gee, G. & Walsemann, K. (2009). "Does health predict the reporting of racial discrimination or do reports of discrimination predict health? Findings from the National Longitudinal Study of Youth." *Social Science & Medicine*.
11. Giurgescu, C., McFarlin, B.L., Lomax, J., Craddock, C., & Albrecht, A. (2011). "Racial Discrimination and the Black-White Gap in Adverse Birth Outcomes: A Review." *Journal of Midwifery & Women's Health*.
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13. Krieger, N. (2012). "Methods for the Scientific Study of Discrimination and Health: An Ecosocial Approach." *American Journal of Public Health*.

14. Krieger, N., Waterman, P.D., Kosheleva, A., Chen, J.T., Comey, D.R., Smith, K.W., Bennett, G.G., Williams, D.R., Freeman, E., Russell, B., Thomhill, G., Mikolowsky, K., Rifkin, R., & Samuel, L. (2011). "Exposing Racial Discrimination: Implicit & Explicit Measures—The My Body, My Story Study of 1005 US-Born Black & White Community Health Center Members." *PLoS One*.
15. Mustillo, S., Krieger, N., Gunderson, E.P., Sidney, S., McCreath, H., & Kiefe, C.L. (2004). "Self-Reported Experiences of Racial Discrimination and Black–White Differences in Preterm and Low-Birthweight Deliveries: The CARDIA Study." *American Journal of Public Health*.
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18. Pumell, J.Q., Peppone, L.J., Alcaraz, K., McQueen, A., Guido, J.J., Carroll, J.K., Shacham, E., & Morrow, G.R. (2012). "Perceived Discrimination, Psychological Distress, and Current Smoking Status: Results From the Behavioral Risk Factor Surveillance System Reactions to Race Module, 2004–2008." *American Journal of Public Health*.
19. Rosenberg, L., Palmer, J.R., Wise, L.A., Horton, N.J., & Corwin, M.J. (2002). "Perceptions of Racial Discrimination and the Risk of Preterm Birth." *Epidemiology*.
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21. Seaton, E.K. & Yip, T. (2009). "School and Neighborhood Contexts, Perceptions of Racial Discrimination, and Psychological Well-being Among African American Adolescents." *Journal of Youth and Adolescence*.
22. Smedley, B.D. (2012). "The Lived Experience of Race and Its Health Consequences." *American Journal of Public Health*.
23. Thomas, S.B., Quinn, S.C., Butler, J., Fryer, C.S., & Garza, M.A. (2011). "Toward a Fourth Generation of Disparities Research to Achieve Health Equity." *Annual Review of Public Health*.
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27. Williams, D.R. & Mohammed, S.A. (2009). "Discrimination and racial disparities in health: evidence and needed research." *Journal of Behavioral Medicine*.

Bastos, J.L., Celeste, R.K., Faerstein, E., & Barros A.J.D. (2010). "Racial discrimination and health: A systematic review of scales with a focus on their psychometric properties." *Social Science & Medicine*.
Abstract: The literature addressing the use of the race variable to study causes of racial inequities in health is characterized by a dense discussion on the pitfalls in interpreting statistical associations as causal relationships. In contrast, fewer studies have addressed the use of racial discrimination scales to estimate discrimination effects on health, and none of them provided a thorough assessment of the scales' psychometric properties. Our aim was to systematically review self-reported racial discrimination scales to describe their development processes and to provide a synthesis of their psychometric properties. A computer-based search in PubMed, LILACS, PsycInfo, Scielo, Scopus and Web of Science was conducted without any type of restriction, using search queries containing free and controlled vocabulary. After initially identifying 3060 references, 24 scales were included in the review. Despite the fact that discrimination stands as topic of international relevance, 23 (96%) scales were developed within the

United States. Most studies (67%, N = 16) were published in the last 12 years, documenting initial attempts at scale development, with a dearth of investigations on scale refinements or cross-cultural adaptations. Psychometric properties were acceptable; sixteen of all scales presented reliability scores above 0.7, 19 out of 20 instruments confirmed at least 75% of all previously stated hypotheses regarding the constructs under consideration, and conceptual dimensional structure was supported by means of any type of factor analysis in 17 of 21 scales. However, independent researchers, apart from the original scale developers, have rarely examined such scales. The use of racial terminology and how it may influence self-reported experiences of discrimination has not yet been thoroughly examined. The need to consider other types of unfair treatment as concurrently important health-damaging exposures, and the idea of a universal instrument which would permit cross-cultural adaptations, should be discussed among researchers in this emerging field of inquiry.

Brodish, A.B., Cogburn, C.D., Fuller-Rowell, T.E., Peck, S., Malanchuk, O., & Eccles, J.S. (2011). "Perceived Racial Discrimination as a Predictor of Health Behaviors: the Moderating Role of Gender." *Race and Social Problems*.

Abstract: Perceived racial discrimination (PRD) has been implicated in undermining the mental and physical health of racial/ethnic minorities (e.g., Williams et al. in *Am J Public Health* 93:200–208, 2003; Wong et al. in *J Pers* 71:1197–1232, 2003). Researchers have begun to explore the indirect role of health behaviors as one factor in helping to explain this relationship. The goal of the present study was to examine the relationship between PRD and a wide range of health behaviors using a prospective, longitudinal design and to explore the role of gender in moderating these relationships. Using data from the Maryland Adolescent Development in Context Study, we examined the relationship between adolescent PRD (accumulated across ages 14–21) and health behaviors (i.e., diet, substance use, exercise) at age 30 in a sample of middle-class black men and women. Using structural equation modeling, results revealed that more cumulative PRD during adolescence was associated with less healthy eating, more substance use (among men), and more exercise (among women) in young adulthood. Implications of these findings for understanding the role of health behaviors in explaining the link between PRD and health outcomes are considered.

Cammack, A.L., Buss, C., Entringer, S., Hogue, C.J., Hobel, C.J., & Wadhwa, P.D. (2011). "The association between early life adversity and bacterial vaginosis during pregnancy." *American Journal of Obstetrics and Gynecology*.

Abstract: OBJECTIVE: The purpose of this study was to examine associations between chronic preconception psychosocial and socioeconomic stress with bacterial vaginosis (BV) during pregnancy.

STUDY DESIGN: Using univariate and multivariate logistic regression, childhood abuse and neglect, chronic discrimination, childhood socioeconomic status, potential confounders, and BV were assessed at 14–16 and 19–22 weeks' gestation in a cohort of 312 pregnant women.

RESULTS: Persistent BV (BV positive at both time points vs no BV at either time point) was associated with childhood sexual abuse (CSA), chronic discrimination, and lack of parental home ownership. These associations were still present after covarying for current perceived stress, socioeconomic status, and other potential confounders.

CONCLUSION: There is evidence that BV during pregnancy is independently linked with early life psychosocial adversity, suggesting that a life-course perspective may be important in elucidating determinants of perinatal outcomes.

Coker, T.R., Elliott, M.N., Kanouse, D.E., Grunbaum, J.A., Schwebel, D.C., Gilliland, M.J., Tortolero, S.R., Peskin, M.F., & Schuster, M.A. (2009). "Perceived Racial/Ethnic Discrimination Among Fifth-Grade Students and Its Association With Mental Health." *American Journal of Public Health*.

Abstract: Objectives. We sought to describe the prevalence, characteristics, and mental health problems of children who experience perceived racial/ethnic discrimination.

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice Bethell, C., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P.

Methods. We analyzed cross-sectional data from a study of 5147 fifth-grade students and their parents from public schools in 3 US metropolitan areas. We used multivariate logistic regression (overall and stratified by race/ethnicity) to examine the associations of sociodemographic factors and mental health problems with perceived racial/ethnic discrimination.

Results. Fifteen percent of children reported perceived racial/ethnic discrimination, with 80% reporting that discrimination occurred at school. A greater percentage of Black (20%), Hispanic (15%), and other (16%) children reported perceived racial/ethnic discrimination compared with White (7%) children. Children who reported perceived racial/ethnic discrimination were more likely to have symptoms of each of the 4 mental health conditions included in the analysis: depression, attention deficit hyperactivity disorder, oppositional defiant disorder, and conduct disorder. An association between perceived racial/ethnic discrimination and depressive symptoms was found for Black, Hispanic, and other children but not for White children.

Conclusions. Perceived racial/ethnic discrimination is not an uncommon experience among fifth-grade students and may be associated with a variety of mental health disorders.

Dole, N., Savitz, D.A., Hertz-Picciotto, I., Siega-Riz, A.M., McMahon, M.J., & Buekens, P. (2002). "Maternal Stress and Preterm Birth." *American Journal of Epidemiology*.

Abstract: This study examined a comprehensive array of psychosocial factors, including life events, social support, depression, pregnancy-related anxiety, perceived discrimination, and neighborhood safety in relation to preterm birth (<37 weeks) in a prospective cohort study of 1,962 pregnant women in central North Carolina between 1996 and 2000, in which 12% delivered preterm. There was an increased risk of preterm birth among women with high counts of pregnancy-related anxiety (risk ratio (RR) = 2.1, 95% confidence interval (CI): 1.5, 3.0), with life events to which the respondent assigned a negative impact weight (RR = 1.8, 95% CI: 1.2, 2.7), and with a perception of racial discrimination (RR = 1.4, 95% CI: 1.0, 2.0). Different levels of social support or depression were not associated with preterm birth. Preterm birth initiated by labor or ruptured membranes was associated with pregnancy-related anxiety among women assigning a high level of negative impact weights (RR = 3.0, 95% CI: 1.7, 5.3). The association between high levels of pregnancy-related anxiety and preterm birth was reduced when restricted to women without medical comorbidities, but the association was not eliminated. The prospective collection of multiple psychosocial measures on a large population of women indicates that a subset of these factors is associated with preterm birth.

Dole, N., Savitz, D.A., Siega-Riz, A.M., Hertz-Picciotto, I., McMahon, M.J., & Buekens, P. (2004). "Psychosocial Factors and Preterm Birth Among African American and White Women in Central North Carolina." *American Journal of Public Health*.

Abstract: Objectives. We assessed associations between psychosocial factors and preterm birth, stratified by race in a prospective cohort study.

Methods. We surveyed 1898 women who used university and public health prenatal clinics regarding various psychosocial factors.

Results. African Americans were at higher risk of preterm birth if they used distancing from problems as a coping mechanism or reported racial discrimination. Whites were at higher risk if they had high counts of negative life events or were not living with a partner. The association of pregnancy-related anxiety with preterm birth weakened when medical comorbidities were taken into account. No association with preterm birth was found for depression, general social support, or church attendance.

Conclusions. Some associations between psychosocial variables and preterm birth differed by race.

Gee, G.C. (2002). "A Multilevel Analysis of the Relationship Between Institutional and Individual Racial Discrimination and Health Status." *American Journal of Public Health*.

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice Bethell, C., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P.

Abstract: *Objectives.* This study examined whether individual (self-perceived) and institutional (segregation and redlining) racial discrimination was associated with poor health status among members of an ethnic group.

Methods. Adult respondents (n = 1503) in the cross-sectional Chinese American Psychiatric Epidemiologic Study were geocoded to the 1990 census and the 1995 Home Mortgage Disclosure Act database. Hierarchical linear modeling assessed the relationship between discrimination and scores on the Medical Outcomes Study Short-Form 36 and revised Symptom Checklist 90 health status measures.

Results. Individual and institutional measures of racial discrimination were associated with health status after control for acculturation, sex, age, social support, income, health insurance, employment status, education, neighborhood poverty, and housing value.

Conclusions. The data support the hypothesis that discrimination at multiple levels influences the health of minority group members.

Gee, G.C., Walsemann, K.M., & Brondolo, E. (2012). "A Life Course Perspective on How Racism May Be Related to Health Inequities." *American Journal of Public Health*.

Abstract: Recent studies show that racism may influence health inequities. As individuals grow from infancy into old age, they encounter social institutions that may create new exposures to racial bias. Yet, few studies have considered this idea fully. We suggest a framework that shows how racism and health inequities may be viewed from a life course perspective. It applies the ideas of age-patterned exposures, sensitive periods, linked lives, latency period, stress proliferation, historic period, and cohorts. It suggests an overarching idea that racism can structure one's time in asset-building contexts (e.g., education) or disadvantaged contexts (e.g., prison). This variation in time and exposure can contribute to racial inequities in life expectancy and other health outcomes across the life course and over generations.

Gee, G. & Walsemann, K. (2009). "Does health predict the reporting of racial discrimination or do reports of discrimination predict health? Findings from the National Longitudinal Study of Youth." *Social Science & Medicine*.

Abstract: Racial discrimination may contribute to diminished well-being, possibly through stress and restricted economic advancement. Our study examines whether reports of racial discrimination predict health problems, and whether health problems predict the reporting of racial discrimination. Data come from years 1979 to 1983 of the US National Longitudinal Study of Youth, focusing on respondents of Black (n = 1851), Hispanic (n = 1170), White (n = 3450) and other (n = 1387) descent. Our analyses indicate that reports of racial discrimination in seeking employment predict health-related work limitations, although these limitations develop over time, and not immediately. We also find that reports of discrimination at two time-points appear more strongly related to health-related work limitations than reports at one time-point. A key finding is that these limitations do not predict the subsequent reporting of racial discrimination in seeking employment. These findings inform our knowledge of the temporal ordering of racial discrimination in seeking employment and health-related work conditions among young adults. The findings also indicate that future research should carefully attend to the patterns and timing of discrimination.

Giurgescu, C., McFarlin, B.L., Lomax, J., Craddock, C., & Albrecht, A. (2011). "Racial Discrimination and the Black-White Gap in Adverse Birth Outcomes: A Review." *Journal of Midwifery & Women's Health*.

Abstract: Introduction: The purpose of this integrative review was to evaluate what is known about the relationship between racial discrimination and adverse birth outcomes.

Methods: A search of the Cumulative Index of Nursing and Allied Health Literature, MEDLINE, and PsycINFO was conducted. The keywords used were: preterm birth, premature birth, preterm delivery, preterm labor, low birth weight, very low birth weight, racism, racial discrimination, and prejudice. Ten research studies were reviewed. All of the studies included African American women in their samples,

Methods to Assess Adverse Childhood Experiences of Children and Families: Towards Resilience and Well-Being Based Approaches in Policy and Practice Bethell, C., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P.

were conducted in the United States, and were written in English. We did not limit the year of publication for the studies. Data were extracted based on the birth outcomes of preterm birth, low birth weight, or very low birth weight.

Results: A consistent positive relationship existed between perceptions of racial discrimination and preterm birth, low birth weight, and very low birth weight. No relationship was found between racial discrimination and gestational age at birth.

Discussion: Future research should explore the effects of racial discrimination as a chronic stressor contributing to the persistent gap in birth outcomes between racial groups.

Krieger, N. & Sidney, S. (1996). "Racial Discrimination and Blood Pressure: The CARDIA Study of Young Black and White Adults." *American Journal of Public Health*.

Abstract: Objectives. This study examined associations between blood pressure and self-reported experiences of racial discrimination and responses to unfair treatment.

Methods. Survey data were collected in year 7 (1992/93) of the Coronary Artery Risk Development in Young Adults (CARDIA) study, a prospective multisite community-based investigation. Participants included 831 Black men, 1143 Black women, 1006 White men, and 1106 White women 25 to 37 years old.

Results. Systolic blood pressure among working-class Black adults reporting that they typically accepted unfair treatment and had experienced racial discrimination in none of seven situations was about 7 mm Hg higher than among those reporting that they challenged unfair treatment and experienced racial discrimination in one or two of the situations. Among professional Black adults, systolic blood pressure was 9 to 10 mm Hg lower among those reporting that they typically challenged unfair treatment and had not experienced racial discrimination. Black-White differences in blood pressure were substantially reduced by taking into account reported experiences of racial discrimination and responses to unfair treatment.

Conclusions. Research on racial/ethnic distributions of blood pressure should take into account how discrimination may harm health.

Krieger, N. (2012). "Methods for the Scientific Study of Discrimination and Health: An Ecosocial Approach." *American Journal of Public Health*.

Abstract: The scientific study of how discrimination harms health requires theoretically grounded methods. A tissue is how discrimination, as one form of societal injustice, becomes embodied inequality and is manifested as health inequities.

As clarified by ecosocial theory, methods must address the lived realities of discrimination as an exploitative and oppressive societal phenomenon operating at multiple levels and involving myriad pathways across both the life course and historical generations.

An integrated embodied research approach hence must consider (1) the structural level — past and present de jure and de facto discrimination; (2) the individual level — issues of domains, nativity, and use of both explicit and implicit discrimination measures; and (3) how current research methods likely underestimate the impact of racism on health.

Krieger, N., Waterman, P.D., Kosheleva, A., Chen, J.T., Camey, D.R., Smith, K.W., Bennett, G.G., William, D.R., Freeman, E., Russell, B. Thomhill, G., Mikolowsky, K., Rifkin, R., & Samuel, L. (2011). "Exposing Racial Discrimination: Implicit & Explicit Measures—The My Body, My Story Study of 1005 US-Born Black & White Community Health Center Members." *PLoS One*.

Abstract: Background: To date, research on racial discrimination and health typically has employed explicit self-report measures, despite their potentially being affected by what people are able and willing to say. We accordingly employed an Implicit Association Test (IAT) for racial discrimination, first developed and used in two recent published studies, and measured associations of the explicit and implicit discrimination measures with each other, socioeconomic and psychosocial variables, and smoking.

Methodology/Principal Findings: Among the 504 black and 501 white US-born participants, age 35–64, randomly recruited in 2008–2010 from 4 community health centers in Boston, MA, black participants were over 1.5 times more likely ($p < 0.05$) to be worse off economically (e.g., for poverty and low education) and have higher social desirability scores (43.8 vs. 28.2); their explicit discrimination exposure was also 2.5 to 3.7 times higher ($p < 0.05$) depending on the measure used, with over 60% reporting exposure in 3 or more domains and within the last year. Higher IAT scores for target vs. perpetrator of discrimination occurred for the black versus white participants: for “black person vs. white person”: 0.26 vs. 0.13; and for “me vs. them”: 0.24 vs. 0.19. In both groups, only low non-significant correlations existed between the implicit and explicit discrimination measures; social desirability was significantly associated with the explicit but not implicit measures. Although neither the explicit nor implicit discrimination measures were associated with odds of being a current smoker, the excess risk for black participants (controlling for age and gender) rose in models that also controlled for the racial discrimination and psychosocial variables; additional control for socioeconomic position sharply reduced and rendered the association null.

Conclusions: Implicit and explicit measures of racial discrimination are not equivalent and both warrant use in research on racial discrimination and health, along with data on socioeconomic position and social desirability.

Mustillo, S., Krieger, N., Gunderson, E.P., Sidney, S., McCreath, H., & Kiefe, C.L. (2004). “Self-Reported Experiences of Racial Discrimination and Black–White Differences in Preterm and Low-Birthweight Deliveries: The CARDIA Study.” *American Journal of Public Health*.

Abstract: Objectives. We examined the effects of self-reported experiences of racial discrimination on Black–White differences in preterm (less than 37 weeks gestation) and low-birthweight (less than 2500 g) deliveries.

Methods. Using logistic regression models, we analyzed data on 352 births among women enrolled in the Coronary Artery Risk Development in Young Adults Study.

Results. Among Black women, 50% of those with preterm deliveries and 61% of those with low-birthweight infants reported having experienced racial discrimination in at least 3 situations; among White women, the corresponding percentages were 5% and 0%. The unadjusted odds ratio for preterm delivery among Black versus White women was 2.54 (95% confidence interval [CI]=1.33, 4.85), but this value decreased to 1.88 (95% CI=0.85, 4.12) after adjustment for experiences of racial discrimination and to 1.11 (95% CI=0.51, 2.41) after additional adjustment for alcohol and tobacco use, depression, education, and income. The corresponding odds ratios for low birthweight were 4.24 (95% CI=1.31, 13.67), 2.11 (95% CI=0.75, 5.93), and 2.43 (95% CI=0.79, 7.42).

Conclusions. Self-reported experiences of racial discrimination were associated with preterm and low-birthweight deliveries, and such experiences may contribute to Black–White disparities in perinatal outcomes.

Pascoe, E.A. & Richman, L.S. (2009). “Perceived Discrimination and Health: A Meta-Analytic Review.” *Psychological Bulletin*.

Abstract: Perceived discrimination has been studied with regard to its impact on several types of health effects. This meta-analysis provides a comprehensive account of the relationships between multiple forms of perceived discrimination and both mental and physical health outcomes. In addition, this meta-analysis examines potential mechanisms by which perceiving discrimination may affect health, including through psychological and physiological stress responses and health behaviors. Analysis of 134 samples suggests that when weighting each study’s contribution by sample size, perceived discrimination has a significant negative effect on both mental and physical health. Perceived discrimination also produces significantly heightened stress responses and is related to participation in unhealthy and nonparticipation in healthy behaviors. These findings suggest potential pathways linking perceived discrimination to negative health outcomes.

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Pumell, J.Q., Peppone, L.J., Alcaraz, K., McQueen, A., Guido, J.J., Carroll, J.K., Shacham, E., & Morrow, G.R. (2012). "Perceived Discrimination, Psychological Distress, and Current Smoking Status: Results From the Behavioral Risk Factor Surveillance System Reactions to Race Module, 2004–2008." *American Journal of Public Health*.

Abstract: *Objectives.* We examined the association between perceived discrimination and smoking status and whether psychological distress mediated this relationship in a large, multiethnic sample.

Methods. We used 2004 through 2008 data from the Behavioral Risk Factor Surveillance System Reactions to Race module to conduct multivariate logistic regression analyses and tests of mediation examining associations between perceived discrimination in health care and workplace settings, psychological distress, and current smoking status.

Results. Regardless of race/ethnicity, perceived discrimination was associated with increased odds of current smoking. Psychological distress was also a significant mediator of the discrimination–smoking association.

Conclusions. Our results indicate that individuals who report discriminatory treatment in multiple domains may be more likely to smoke, in part, because of the psychological distress associated with such treatment.

Rosenberg, L., Palmer, J.R., Wise, L.A., Horton, N.J., & Corwin, M.J. (2002). "Perceptions of Racial Discrimination and the Risk of Preterm Birth." *Epidemiology*.

Abstract: Background. Because racial discrimination might contribute to their excess of preterm births, we assessed experiences of racism in relation to preterm birth among African-American women.

Methods. We used data from the Black Women's Health Study, a follow-up study of African-American women begun in 1995. Data on subsequent singleton births were obtained using follow-up questionnaires in 1997 and 1999; nine questions about experiences of racism were asked in 1997. We compared mothers of 422 babies born 3 or more weeks early (because of premature labor for unknown reasons or rupture of membranes) with mothers of 4544 babies of longer gestation. We used generalized estimating equation models to estimate odds ratios (ORs) for preterm birth, controlling potential confounders.

Results. The adjusted ORs for preterm birth were 1.3 (95% confidence interval [CI] = 1.1–1.6) for women who reported unfair treatment on the job and 1.4 (1.0–1.9) for women who reported that people acted afraid of them at least once a week. Overall ORs for the seven other racism questions were close to 1.0. Among 491 women with ≤ 12 years of education, ORs were 2.0 or greater for four racism variables.

Conclusions. These data provide some evidence for an increase in preterm birth among women who report experiences of racism, particularly women with lower levels of education.

Sanders-Phillips, K., Settles-Reaves, B., Walker, D., & Brownlow, J. (2009). "Social Inequality and Racial Discrimination: Risk Factors for Health Disparities in Children of Color." *Pediatrics*.

Abstract: A child's sense of control over life and health outcomes as well as perceptions of the world as fair, equal, and just are significantly influenced by his or her social experiences and environment.

Unfortunately, the social environment for many children of color includes personal and family experiences of racial discrimination that foster perceptions of powerlessness, inequality, and injustice. In turn, these perceptions may influence child health outcomes and disparities by affecting biological functioning (eg, cardiovascular and immune function) and the quality of the parent-child relationship and promoting psychological distress (eg, self-efficacy, depression, anger) that can be associated with risk-taking and unhealthy behaviors. In this article we review existing theoretical models and empirical studies of the impact of racial discrimination on the health and development of children of color in the United States. On the basis of this literature, a conceptual model of exposure to racial discrimination as a chronic stressor and a risk factor for poor health outcomes and child health disparities is presented.

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Seaton, E.K. & Yip, T. (2009). "School and Neighborhood Contexts, Perceptions of Racial Discrimination, and Psychological Well-being Among African American Adolescents." *Journal of Youth and Adolescence*.

Abstract: The present study examined contextual influences on the relationship between racial discrimination (individual, cultural, and collective/institutional) and psychological well-being. Two hundred and fifty two African American adolescents (46% male and 54% female, average age = 16) completed measures of racial discrimination, self-esteem, depressive symptoms and life satisfaction. Archival information regarding the racial/ethnic composition of the participants' neighborhoods and schools was used and increased school diversity was linked to increased perceptions of cultural discrimination. Regardless of school and neighborhood diversity, high perceptions of collective/institutional discrimination were linked to lower self-esteem for students in high diversity settings. Further, high levels of collective/institutional discrimination were associated with lower life satisfaction for African American youth in low diversity settings.

Smedley, B.D. (2012). "The Lived Experience of Race and Its Health Consequences." *American Journal of Public Health*.

Abstract: A growing body of research illuminates the mechanisms through which racism and discrimination influence the health status of people of color. Much of the focus of this research, however, has been on individually mediated racism (i.e., acts of discrimination and racial bias committed by White individuals against people of color).

Yet research literature provides numerous examples of how racism operates not just at individual levels, but also at internalized, institutional, and structural levels. A more comprehensive model of the lived experience of race is needed that considers the cumulative, interactive effects of different forms of racism on health over the lifespan.

Such a model must facilitate an intersectional analysis to better understand the interaction of race with gender, socioeconomic status, geography, and other factors, and should consider the negative consequences of racism for Whites.

Thomas, S.B., Quinn, S.C., Butler, J., Fryer, C.S., & Garza, M.A. (2011). "Toward a Fourth Generation of Disparities Research to Achieve Health Equity." *Annual Review of Public Health*.

Abstract: Achieving health equity, driven by the elimination of health disparities, is a goal of Healthy People 2020. In recent decades, the improvement in health status has been remarkable for the U.S. population as a whole. However, racial and ethnic minority populations continue to lag behind whites with a quality of life diminished by illness from preventable chronic diseases and a life span cut short by premature death. We examine a conceptual framework of three generations of health disparities research to understand (a) data trends, (b) factors driving disparities, and (c) solutions for closing the gap. We propose a new, fourth generation of research grounded in public health critical race praxis, utilizing comprehensive interventions to address race, racism, and structural inequalities and advancing evaluation methods to foster our ability to eliminate disparities. This new generation demands that we address the researcher's own biases as part of the research process.

Vines, A.I., McNeilly, M.D., Stevens, J. Hertz-Picciotto, I., Bohlig, M., & Baird, D.D. (2011). "Development and Reliability of a Telephone-Administered Perceived Racism Scale (TPRS): A Tool for Epidemiological Use." *Ethnicity & Disease*.

Abstract: The conceptualization of perceived racism as a chronic stressor is relatively new to epidemiology. The Telephone-Administered Perceived Racism Scale (TPRS) captures the complexity of racism within five scales: Experience of Racism (by Blacks as a group and by the respondent), Emotional Responses, Behavioral Responses, Concern for Child(ren), and Past Experiences of Racism. The TPRS was developed for employed Black women. Exploratory factor analyses and tests of internal consistency were completed with 476 Black women, aged 36–53. Factor analyses on their responses to racism yielded

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five factors: passive emotions, active emotions, passive behaviors, internal active behaviors, and external active behaviors. Alpha reliability values ranged from 0.75 to 0.80 for the active and passive emotions subscales, from 0.59 to 0.69 for the passive behaviors subscale, and greater than 0.76 for both active behaviors subscales. Alpha reliabilities were 0.82, 0.90, 0.88, and 0.82 for Past Experiences, Concern for Child(ren), Experience of Racism—Personal, and Experience of Racism—Group, respectively. Another 30 Black women were queried for test-retest reliability, with values ranging from 0.61 to 0.82. The TPRS was found to be reliable and should serve as a useful epidemiological tool in the examination of the effects of perceived racism on Black women's health.

Williams, D.R., Neighbors, H.W., & Jackson, J.S. (2003). "Racial/Ethnic Discrimination and Health: Findings From Community Studies." *American Journal of Public Health*.

Abstract: The authors review the available empirical evidence from population-based studies of the association between perceptions of racial/ethnic discrimination and health. This research indicates that discrimination is associated with multiple indicators of poorer physical and, especially, mental health status.

However, the extant research does not adequately address whether and how exposure to discrimination leads to increased risk of disease. Gaps in the literature include limitations linked to measurement of discrimination, research designs, and inattention to the way in which the association between discrimination and health unfolds over the life course.

Research on stress points to important directions for the future assessment of discrimination and the testing of the underlying processes and mechanisms by which discrimination can lead to changes in health.

Williams, D.R., John, D.A., Oyserman, D., Sonnega, J., Mohammed, S.A., & Jackson, J.S. (2012). "Research on Discrimination and Health: An Exploratory Study of Unresolved Conceptual and Measurement Issues." *American Journal of Public Health*.

Abstract: Objectives. Our goal in this study was to better understand racial and socioeconomic status (SES) variations in experiences of racial and nonracial discrimination.

Methods. We used 1999 and 2000 data from the YES Health Study, which involved a community sample of 50 Black and 50 White respondents drawn from 4 neighborhoods categorized according to racial group (majority Black or majority White) and SES ($\leq 150\%$ or $> 250\%$ of the poverty line). Qualitative and quantitative analyses examined experiences of discrimination across these neighborhoods.

Results. More than 90% of Blacks and Whites described the meaning of unfair treatment in terms of injustice and felt certain about the attribution of their experiences of discrimination. These experiences triggered similar emotional reactions (most frequently anger and frustration) and levels of stress across groups, and low-SES Blacks and Whites reported higher levels of discrimination than their moderate-SES counterparts.

Conclusions. Experiences of discrimination were commonplace and linked to similar emotional responses and levels of stress among both Blacks and Whites of low and moderate SES. Effects were the same whether experiences were attributed to race or to other reasons.

Williams, D.R. & Mohammed, S.A. (2009). "Discrimination and racial disparities in health: evidence and needed research." *Journal of Behavioral Medicine*.

Abstract: This paper provides a review and critique of empirical research on perceived discrimination and health. The patterns of racial disparities in health suggest that there are multiple ways by which racism can affect health. Perceived discrimination is one such pathway and the paper reviews the published research on discrimination and health that appeared in PubMed between 2005 and 2007. This recent research continues to document an inverse association between discrimination and health. This pattern is now evident in a wider range of contexts and for a broader array of outcomes. Advancing our understanding of the relationship between perceived discrimination and health will require more attention

to situating discrimination within the context of other health-relevant aspects of racism, measuring it comprehensively and accurately, assessing its stressful dimensions, and identifying the mechanisms that link discrimination to health.

Victim or Witness of Neighborhood Violence

1. Eitle, D. & Turner, R.J. (2002). "Exposure to Community Violence and Young Adult Crime: The Effects of Witnessing Violence, Traumatic Victimization, and Other Stressful Life Events." *Journal of Research in Crime and Delinquency*.
2. Silverstein, M., Augustyn, M., Cabral, H., & Zuckerman, B. (2006). "Maternal Depression and Violence Exposure: Double Jeopardy for Child School Functioning." *Pediatrics*. (see Household Domestic Violence for Abstract)

Eitle, D. & Turner, R.J. (2002). "Exposure to Community Violence and Young Adult Crime: The Effects of Witnessing Violence, Traumatic Victimization, and Other Stressful Life Events." *Journal of Research in Crime and Delinquency*.

Abstract: Evidence has accumulated that young people in America are witnesses to considerable violence at home and in the community. This study is the first to examine the association between witnessing community violence and criminal behavior in a representative sample of young adults. In addition, the authors consider whether receiving traumatic news, witnessing domestic violence, experiencing accidents, and being the direct victim of domestic and community-based violence are independently associated with young adult crime. The results indicate that recent exposure to violence in the community along with a history of receiving traumatic news, direct victimizations in the community, recent life events, and associations with criminal peers increase the risk for young adult criminal offending. The implications of these results are discussed.

Other/Mixed

Hair, E.C., Anderson Moore, K., Hadley, A.M., Kaye, K., Day, R.D., & Orthner, D.K. (2009). "Parent Marital Quality and the Parent-Adolescent Relationship: Effects on Adolescent and Young Adult Health Outcomes." *Marriage & Family Review*.

Abstract: *Although a number of studies examined the implications of marital disruption for adolescent well-being, few studied the implications of marital relationship quality on health outcomes for children in married-couple families. The present study examines how parent marital quality among intact families interacts with the quality of parent-adolescent relationships to predict physical health, mental health, and substance use in middle adolescence and early adulthood. The study uses data from the NLSY97 cohort, a nationally representative sample of adolescents who are being followed into adulthood. Predictors include the quality of the parent marital relationship, the quality of the parent-adolescent relationship, marital structure, and a number of contextual covariates and control variables. Combined parent marital quality and parent-adolescent relationship groups were developed using latent class analyses and were used to predict positive and negative health behaviors during the teen and early adult years. Results indicate that adolescents in families experiencing poor marital quality fared worse on physical health, mental health, and substance use outcomes. In addition, adolescents who reported poor relationships with at least one of their parents fared worse on outcomes. Adolescents whose parents have low-quality relationships and also have poor parent-adolescent relationships tended to fare least well across health measures. Adolescents whose parents have a high-quality relationship and who have a good parent-adolescent relationship with both parents consistently had the best outcomes. Overall, poor relationships consistently undermine mental health, physical health, and substance use. Family religious activities also consistently predict better health outcomes.*

Mare, R.D. (2011). "A Multigenerational View of Inequality." *Demography*.

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Abstract: The study of intergenerational mobility and most population research are governed by a two-generation (parent-to-offspring) view of intergenerational influence, to the neglect of the effects of grandparents and other ancestors and nonresident contemporary kin. While appropriate for some populations in some periods, this perspective may omit important sources of intergenerational continuity of family-based social inequality. Social institutions, which transcend individual lives, help support multigenerational influence, particularly at the extreme top and bottom of the social hierarchy, but to some extent in the middle as well. Multigenerational influence also works through demographic processes because families influence subsequent generations through differential fertility and survival, migration, and marriage patterns, as well as through direct transmission of socioeconomic rewards, statuses, and positions. Future research should attend more closely to multigenerational effects; to the tandem nature of demographic and socioeconomic reproduction; and to data, measures, and models that transcend coresident nuclear families.

McElroy, J.A., Remington, P.A., Trentham-Dietz, A., Robert, S.A., & Newcomb, P.A. (2003). "Geocoding Addresses from a Large Population-based Study: Lessons Learned." *Epidemiology*.

Abstract: Background: Geographic information systems (GIS) and spatial statistics are useful for exploring the relation between geographic location and health. The ultimate usefulness of GIS depends on both completeness and accuracy of geocoding (the process of assigning study participants' residences latitude/longitude coordinates that closely approximate their true locations, also known as address matching). The goal of this project was to develop an iterative geocoding process that would achieve a high match rate in a large population-based health study.

Methods: Data were from a study conducted in Wisconsin using mailing addresses of participants who were interviewed by telephone from 1988 to 1995. We standardized the addresses according to US Postal Service guidelines, used desktop GIS geocoding software and two versions of the Topologically Integrated Geographic Encoding and Referencing street maps, accessed Internet mapping engines for problematic addresses, and recontacted a small number of study participants' households. We also tabulated the project's cost, time commitment, software requirements, and brief notes for each step and their alternatives.

Results: Of the 14,804 participants, 97% were ultimately assigned latitude/longitude coordinates corresponding to their respective residences. The remaining 3% were geocoded to their zip code centroid.

Conclusion: The multiple methods described in this work provide practical information for investigators who are considering the use of GIS in their population health research.

Pearlin, L.I. (2010). "The Life Course and the Stress Process: Some Conceptual Comparisons." *Journal of Gerontology: Social Sciences*.

Abstract: This paper compares the meanings and applications of concepts relevant to both the life course and the stress process frameworks. Some of these concepts bear the same labels but serve quite different scholarly agendas. Other concepts have different labels but have closely related applications. The purpose of this kind of comparative analysis is to help both fields clarify the conceptual tools needed to advance their scholarly goals.

Whitehead, S.J., Cul, K.X., De, A.K., Ayers, T., & Effler, P.V. (2007). "Identifying Risk Factors for Underimmunization by Using Geocoding Matched to Census Tracts: A Statewide Assessment of Children in Hawaii." *Pediatrics*.

Abstract: OBJECTIVE. Obtaining childhood immunization coverage data for small geographic areas is difficult and resource-intensive, especially in the absence of comprehensive immunization registries. To identify factors that are associated with delayed immunization, we collected school-entry immunization records statewide and used geocoding to link to publicly available census tract sociodemographic data. **METHODS.** Immunization records were reviewed for children who were enrolled in all public and private school kindergarten programs in Hawaii in the 2002–2003 school year; immunization status at the

time of the second birthday was determined. The main outcome variable was up-to-date status for the 4:3:1:3:3 vaccination series (4 doses of diphtheria-tetanus-pertussis, 3 doses of polio, 1 dose of measles-mumps-rubella, 3 doses of *Haemophilus influenzae* type b, and 3 doses of hepatitis B vaccines).

Children's home addresses were geocoded to census tracts; coverage rates by tract were mapped, and sociodemographic data from Census 2000 files were used to identify factors that were associated with delays in immunization.

RESULTS. Records were obtained for 15 275 of 15 594 children registered in Hawaii kindergartens. Overall, 78% had completed their 4:3:1:3:3 series by their second birthday. Risk factors for delayed immunization included delayed immunization at 3 months of age, living in Maui County, living in a neighborhood where a low proportion of adults had postsecondary education, and living in a neighborhood where a high proportion of households spoke a language other than English at home. The majority (80%) of underimmunized children would have required only 1 additional visit to bring them up-to-date.

CONCLUSIONS. Retrospective review of kindergarten-entry immunization data revealed geographic areas with lower immunization coverage, and geocoding to census tracts identified associated sociodemographic risk factors. This is a practical method for state or city health departments to identify pockets of need and to direct resources appropriately.

Technical Appendix C Part 1: Prevalence of Individual Adverse Childhood Experiences by Children's Characteristics, Data: 2011/12 NSCH

Characteristics	Economic hardship		Child lived with parent who got divorced/separated after he/she was born		Child lived with parent who died		Child lived with parent who served time in jail after he/she was born		Child saw parents hit, kip, slap, punch or beat each other up		Child was a victim of violence or witness violence in his/her neighborhood		Child lived with anyone who was mentally ill or suicidal, or severity depressed for more than a couple weeks		Child lived with anyone who had a problem with alcohol or drugs		Child was ever treated or judged unfairly because of his/her race or ethnic group		
	Never/rarely	Somewhat/very often	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	
All children	74.3%	25.7%	79.9%	20.1%	96.9%	3.1%	93.1%	6.9%	92.7%	7.3%	91.4%	8.6%	91.4%	8.6%	89.3%	10.7%	95.9%	4.1%	
Age																			
0-5 years	74.7%	25.3%	90.1%	9.9%	99.1%	0.9%	95.5%	4.5%	95.9%	4.1%	97.2%	2.8%	94.5%	5.5%	94.5%	5.5%	99.1%	0.9%	
6-11 years	73.8%	26.2%	77.8%	22.2%	97.0%	3.0%	91.8%	8.2%	92.1%	7.9%	91.3%	8.7%	91.6%	8.4%	88.4%	11.6%	95.9%	4.1%	
12-17 years	74.5%	25.5%	72.2%	27.8%	94.8%	5.2%	91.9%	8.1%	90.2%	9.8%	85.8%	14.2%	88.3%	11.7%	85.3%	14.7%	93.0%	7.0%	
Sex																			
Male	73.9%	26.1%	80.0%	20.0%	97.0%	3.0%	93.1%	6.9%	92.8%	7.2%	90.9%	9.1%	91.4%	8.6%	89.4%	10.6%	96.0%	4.0%	
Female	74.7%	25.3%	79.9%	20.1%	96.9%	3.1%	93.0%	7.0%	92.6%	7.4%	91.9%	8.1%	91.4%	8.6%	89.3%	10.7%	95.9%	4.1%	
Race																			
Hispanic	68.5%	31.5%	82.9%	17.1%	97.6%	2.4%	93.6%	6.4%	91.6%	8.4%	91.3%	8.7%	93.8%	6.2%	90.3%	9.7%	95.4%	4.6%	
White, NH	77.2%	22.8%	78.6%	21.4%	97.5%	2.5%	94.0%	6.0%	93.7%	6.3%	93.3%	6.7%	90.3%	9.7%	88.4%	11.6%	98.6%	1.4%	
Black, NH	70.2%	29.8%	78.2%	21.8%	93.7%	6.3%	88.5%	11.5%	91.2%	8.8%	83.6%	16.4%	92.0%	8.0%	89.9%	10.1%	90.9%	9.1%	
Other, NH	78.2%	21.8%	81.9%	18.1%	96.8%	3.2%	93.0%	7.0%	91.8%	8.2%	92.1%	7.9%	90.5%	9.5%	90.2%	9.8%	90.1%	9.9%	
Income																			
0-99% FPL	52.2%	47.8%	76.2%	23.8%	95.2%	4.8%	87.5%	12.5%	87.9%	12.1%	85.5%	14.5%	89.8%	10.2%	86.8%	13.2%	95.6%	4.4%	
100-199% FPL	63.2%	36.8%	75.8%	24.2%	96.5%	3.5%	91.0%	9.0%	91.3%	8.7%	90.2%	9.8%	89.8%	10.2%	87.1%	12.9%	95.5%	4.5%	
200-399% FPL	80.0%	20.0%	79.0%	21.0%	97.3%	2.7%	94.3%	5.7%	93.1%	6.9%	92.5%	7.5%	91.3%	8.7%	88.8%	11.2%	96.1%	3.9%	
400% or more FPL	94.9%	5.1%	87.0%	13.0%	98.3%	1.7%	98.0%	2.0%	97.2%	2.8%	96.0%	4.0%	94.1%	5.9%	93.6%	6.4%	96.5%	3.5%	
Insurance type																			
Public	59.2%	40.8%	74.9%	25.1%	95.2%	4.8%	86.9%	13.1%	88.0%	12.0%	86.5%	13.5%	88.8%	11.2%	85.1%	14.9%	95.7%	4.3%	
Private	85.3%	14.7%	83.2%	16.8%	98.2%	1.8%	97.2%	2.8%	95.9%	4.1%	94.8%	5.2%	93.1%	6.9%	92.4%	7.6%	96.3%	3.7%	
Uninsured	61.7%	38.3%	79.1%	20.9%	95.4%	4.6%	92.3%	7.7%	90.8%	9.2%	87.8%	12.2%	91.4%	8.6%	85.3%	14.7%	94.7%	5.3%	
Insurance adequacy (among who are insured)																			
Adequate	76.7%	23.3%	79.9%	20.1%	97.0%	3.0%	92.7%	7.3%	92.7%	7.3%	91.8%	8.2%	91.5%	8.5%	89.6%	10.4%	96.6%	3.4%	
Inadequate	69.9%	30.1%	80.1%	19.9%	97.1%	2.9%	94.4%	5.6%	93.0%	7.0%	90.8%	9.2%	91.0%	9.0%	89.5%	10.5%	94.2%	5.8%	
CSHCN status																			
Non-CSHCN	76.3%	23.7%	82.2%	17.8%	97.3%	2.7%	94.2%	5.8%	94.0%	6.0%	93.2%	6.8%	93.3%	6.7%	90.9%	9.1%	96.5%	3.5%	
CSHCN	66.4%	33.6%	70.8%	29.2%	95.4%	4.6%	88.3%	11.7%	87.4%	12.6%	83.9%	16.1%	83.7%	16.3%	83.0%	17.0%	93.9%	6.1%	
CSHCN Complexity (among CSHCN)																			
Less complex	74.8%	25.2%	76.1%	23.9%	97.2%	2.8%	92.5%	7.5%	92.2%	7.8%	90.2%	9.8%	89.6%	10.4%	88.5%	11.5%	94.7%	5.3%	
More complex	61.9%	38.1%	68.0%	32.0%	94.4%	5.6%	86.0%	14.0%	84.9%	15.1%	80.5%	19.5%	80.6%	19.4%	80.1%	19.9%	93.4%	6.6%	

Technical Appendix C Part 2: (a) Prevalence of Adverse Childhood Experiences (ACEs) by Children’s Characteristics and (b) Children’s Characteristics by ACEs Status, Data: 2011/12 NSCH

Characteristics	All Children, Age 0-17 Years	(a) Prevalence of ACEs, 0-17 Years					(b) Characteristics of Children by ACEs, 0-17 Years				
		ACEs Status	Number of ACEs				ACEs Status	Number of ACEs			
		≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs
All children	100%	47.9%	52.1%	25.3%	16.2%	6.4%	47.9%	52.1%	25.3%	16.2%	6.4%
Age											
0-5 years	32.7%	36.7%	63.3%	24.1%	9.9%	2.6%	25.0%	39.8%	31.2%	20.0%	13.2%
6-11 years	33.2%	50.2%	49.8%	25.8%	17.7%	6.7%	34.7%	31.6%	33.7%	36.1%	34.8%
12-17 years	34.1%	56.5%	43.5%	26.0%	20.8%	9.7%	40.3%	28.5%	35.1%	43.8%	51.9%
Sex											
Male	51.2%	48.2%	51.8%	25.7%	15.9%	6.5%	51.5%	51.0%	52.0%	50.4%	52.4%
Female	48.8%	47.7%	52.3%	25.0%	16.5%	6.2%	48.5%	49.0%	48.0%	49.6%	47.6%
Race/ethnicity											
Hispanic	23.7%	50.9%	49.1%	29.1%	15.8%	5.9%	25.0%	22.3%	27.1%	23.1%	21.8%
White, NH	52.5%	44.3%	55.7%	23.3%	14.8%	6.2%	48.4%	56.3%	48.2%	48.0%	50.3%
Black, NH	13.5%	60.4%	39.6%	29.3%	23.3%	7.7%	17.0%	10.3%	15.6%	19.4%	16.3%
Other, NH	10.3%	44.5%	55.5%	22.2%	15.0%	7.2%	9.5%	11.0%	9.0%	9.5%	11.5%
Income											
0-99% FPL	22.4%	66.6%	33.4%	31.8%	23.7%	11.1%	31.2%	14.4%	28.2%	32.8%	39.1%
100-199% FPL	21.5%	59.0%	41.0%	30.4%	20.3%	8.4%	26.6%	17.0%	25.9%	26.9%	28.3%
200-399% FPL	28.2%	45.1%	54.9%	24.1%	15.5%	5.5%	26.6%	29.8%	26.9%	27.1%	24.3%
400% or more FPL	27.8%	27.0%	73.0%	17.4%	7.7%	1.9%	15.6%	38.9%	19.0%	13.1%	8.4%
Insurance type											
Public	37.1%	63.8%	36.2%	29.7%	23.1%	10.9%	49.2%	25.7%	43.4%	52.6%	63.4%
Private	57.4%	36.7%	63.3%	22.0%	11.5%	3.1%	44.0%	69.9%	50.0%	40.7%	28.2%
Uninsured	5.6%	59.1%	40.9%	29.9%	19.6%	9.6%	6.8%	4.4%	6.6%	6.7%	8.4%
Insurance adequacy (among who are insured)											
Adequate	76.5%	46.1%	53.9%	24.3%	15.7%	6.1%	74.5%	78.3%	74.2%	75.1%	74.6%
Inadequate	23.5%	51.3%	48.7%	27.5%	17.0%	6.7%	25.5%	21.7%	25.8%	24.9%	25.4%
CSHCN status											
Non-CSHCN	80.2%	44.5%	55.5%	25.2%	14.6%	4.7%	80.2%	74.4%	85.4%	79.7%	72.1%
CSHCN	19.8%	61.9%	38.1%	25.9%	22.8%	13.2%	19.8%	25.6%	14.6%	20.3%	27.9%
CSHCN Complexity											
Less complex	34.7%	51.8%	48.2%	26.9%	17.6%	7.3%	34.7%	29.1%	43.9%	36.1%	26.7%
More complex	65.3%	67.2%	32.8%	25.3%	25.6%	16.3%	65.3%	70.9%	56.1%	63.9%	73.3%

Technical Appendix C Part 3: Prevalence of Resilience by Adverse Childhood Experiences (ACEs) Status and Children's Demographic and Health Characteristics, Data: 2011/12 NSCH

Characteristics	All Children Age 6-17 Years	ACEs Status, Age 6-17	Resilience Status (Child Stays Calm and in Control When Faced with a Challenge) Age 6-17 Years											
		≥1 ACEs	Never/Rarely/Sometimes Resilient						Usually/Always Resilient					
			All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs
All children	100%	53.4%	35.3%	41.4%	28.3%	37.1%	42.3%	52.9%	64.7%	58.6%	71.7%	62.9%	57.7%	47.1%
Age														
6-11 years	49.4%	50.2%	38.7%	44.7%	32.6%	39.8%	47.2%	56.8%	61.3%	55.3%	67.4%	60.2%	52.8%	43.2%
12-17 years	50.6%	56.5%	32.0%	38.5%	23.4%	34.4%	38.2%	50.3%	68.0%	61.5%	76.6%	65.6%	61.8%	49.7%
Sex														
Male	51.2%	53.3%	37.8%	44.2%	30.4%	39.0%	45.9%	56.0%	62.2%	55.8%	69.6%	61.0%	54.1%	44.0%
Female	48.8%	53.6%	32.7%	38.4%	26.0%	35.0%	38.5%	49.4%	67.3%	61.6%	74.0%	65.0%	61.5%	50.6%
Race/ethnicity														
Hispanic	22.3%	55.4%	38.7%	43.0%	33.5%	40.4%	43.3%	51.1%	61.3%	57.0%	66.5%	59.6%	56.7%	48.9%
White, NH	53.7%	49.9%	31.7%	38.9%	24.5%	34.6%	39.2%	52.0%	68.3%	61.1%	75.5%	65.4%	60.8%	48.0%
Black, NH	14.2%	66.0%	44.8%	47.5%	39.3%	41.5%	50.6%	57.6%	55.2%	52.5%	60.7%	58.5%	49.4%	42.4%
Other, NH	9.7%	51.2%	34.2%	40.3%	27.9%	34.3%	40.5%	54.2%	65.8%	59.7%	72.1%	65.7%	59.5%	45.8%
Income														
0-99% FPL	20.7%	72.3%	47.4%	50.5%	39.1%	44.7%	52.8%	57.8%	52.6%	49.5%	60.9%	55.3%	47.2%	42.2%
100-199% FPL	21.4%	65.4%	38.7%	42.7%	31.5%	37.8%	43.5%	53.8%	61.3%	57.3%	68.5%	62.2%	56.5%	46.2%
200-399% FPL	28.9%	52.1%	32.9%	37.8%	27.5%	35.8%	37.2%	47.4%	67.1%	62.2%	72.5%	64.2%	62.8%	52.6%
400% or more FPL	29.1%	32.4%	26.6%	30.7%	24.5%	29.8%	29.1%	43.6%	73.4%	69.3%	75.5%	70.2%	70.9%	56.4%
Insurance type														
Public	33.9%	70.7%	45.0%	48.1%	37.6%	42.5%	49.2%	56.5%	55.0%	51.9%	62.4%	57.5%	50.8%	43.5%
Private	60.1%	42.7%	29.5%	35.2%	25.3%	33.1%	35.0%	48.0%	70.5%	64.8%	74.7%	66.9%	65.0%	52.0%
Uninsured	6.0%	63.6%	38.4%	41.4%	33.3%	40.4%	40.5%	45.9%	61.6%	58.6%	66.7%	59.6%	59.5%	54.1%
Insurance adequacy (among who are insured)														
Adequate	74.4%	52.1%	33.7%	39.8%	27.0%	34.7%	41.6%	51.6%	66.3%	60.2%	73.0%	65.3%	58.4%	48.4%
Inadequate	25.6%	55.1%	39.1%	45.4%	31.3%	42.1%	44.4%	58.3%	60.9%	54.6%	68.7%	57.9%	55.6%	41.7%
CSHCN status														
Non-CSHCN	76.1%	50.0%	30.4%	35.0%	25.6%	32.3%	36.1%	43.5%	69.6%	65.0%	74.4%	67.7%	63.9%	56.5%
CSHCN	23.9%	64.3%	50.9%	57.0%	40.0%	52.3%	56.7%	65.5%	49.1%	43.0%	60.0%	47.7%	43.3%	34.5%
CSHCN Complexity														
Less complex	34.2%	53.9%	32.5%	35.2%	29.5%	35.7%	32.2%	40.8%	67.5%	64.8%	70.5%	64.3%	67.8%	59.2%
More complex	65.8%	69.7%	60.4%	65.7%	48.3%	61.9%	65.5%	71.1%	39.6%	34.3%	51.7%	38.1%	34.5%	28.9%

Technical Appendix C Part 4: Prevalence of School Engagement and Activity Participation by Adverse Childhood Experiences (ACEs) Status and Children's Demographic and Health Characteristics, Data: 2011/12 NSCH

Characteristics	School Factors, Age 6-17 Years											
	Usually/Always Engage in School AND Participate Activities Outside of School						Do Not Engage in School and/or Do Not Participate Activities Outside of School					
	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs
All children	66.7%	59.2%	75.5%	64.2%	56.8%	49.1%	33.3%	40.8%	24.5%	35.8%	43.2%	50.9%
Age												
6-11 years	68.3%	60.6%	76.2%	64.1%	58.9%	51.8%	31.7%	39.4%	23.8%	35.9%	41.1%	48.2%
12-17 years	65.2%	58.0%	74.7%	64.3%	55.1%	47.2%	34.8%	42.0%	25.3%	35.7%	44.9%	52.8%
Sex												
Male	61.2%	52.0%	71.7%	57.3%	48.9%	43.0%	38.8%	48.0%	28.3%	42.7%	51.1%	57.0%
Female	72.5%	66.7%	79.5%	71.4%	64.9%	55.9%	27.5%	33.3%	20.5%	28.6%	35.1%	44.1%
Race/ethnicity												
Hispanic	57.6%	52.6%	63.7%	52.7%	53.5%	50.3%	42.4%	47.4%	36.3%	47.3%	46.5%	49.7%
White, NH	71.9%	62.5%	81.3%	70.3%	59.3%	45.4%	28.1%	37.5%	18.7%	29.7%	40.7%	54.6%
Black, NH	58.6%	55.7%	64.3%	60.1%	51.8%	53.0%	41.4%	44.3%	35.7%	39.9%	48.2%	47.0%
Other, NH	72.4%	65.3%	79.7%	69.4%	65.0%	56.2%	27.6%	34.7%	20.3%	30.6%	35.0%	43.8%
Income												
0-99% FPL	46.3%	43.9%	51.5%	46.3%	43.1%	40.4%	53.7%	56.1%	48.5%	53.7%	56.9%	59.6%
100-199% FPL	59.3%	56.6%	64.3%	60.0%	55.3%	50.4%	40.7%	43.4%	35.7%	40.0%	44.7%	49.6%
200-399% FPL	72.4%	67.5%	78.0%	71.5%	65.4%	57.8%	27.6%	32.5%	22.0%	28.5%	34.6%	42.2%
400% or more FPL	81.0%	74.1%	84.9%	78.0%	70.1%	58.2%	19.0%	25.9%	15.1%	22.0%	29.9%	41.8%
Insurance type												
Public	51.3%	49.1%	56.1%	52.1%	48.5%	44.5%	48.7%	50.9%	43.9%	47.9%	51.5%	55.5%
Private	76.8%	69.8%	82.1%	73.6%	67.8%	54.6%	23.2%	30.2%	17.9%	26.4%	32.2%	45.4%
Uninsured	55.3%	53.1%	60.4%	52.9%	49.4%	61.0%	44.7%	46.9%	39.6%	47.1%	50.6%	39.0%
Insurance adequacy (among who are insured)												
Adequate	68.2%	60.1%	77.0%	64.9%	58.6%	48.3%	31.8%	39.9%	23.0%	35.1%	41.4%	51.7%
Inadequate	65.7%	58.8%	74.2%	65.6%	54.3%	47.4%	34.3%	41.2%	25.8%	34.4%	45.7%	52.6%
CSHCN status												
Non-CSHCN	70.3%	63.7%	77.1%	66.3%	62.0%	57.5%	29.7%	36.3%	22.9%	33.7%	38.0%	42.5%
CSHCN	55.4%	48.2%	68.2%	57.4%	44.8%	37.8%	44.6%	51.8%	31.8%	42.6%	55.2%	62.2%
CSHCN Complexity												
Less complex	71.3%	63.8%	79.8%	68.8%	59.9%	56.2%	28.7%	36.2%	20.2%	31.2%	40.1%	43.8%
More complex	47.1%	41.9%	59.1%	50.8%	39.3%	33.7%	52.9%	58.1%	40.9%	49.2%	60.7%	66.3%

School factors include: Always/usually engaged in school and participate in activities outside of school

Technical Appendix C Part 5: Prevalence of Flourishing by Adverse Childhood Experiences (ACEs) Status and Children's Demographic and Health Characteristics, Data: 2011/12 NSCH

Characteristics	Flourishing Measure, Age 6-17 Years											
	Met 0-2 Flourishing Items						Met All 3 Flourishing Items					
	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs
All children	52.3%	59.0%	44.6%	53.7%	61.3%	70.5%	47.7%	41.0%	55.4%	46.3%	38.7%	29.5%
Age												
6-11 years	52.2%	59.1%	45.1%	54.5%	61.8%	69.6%	47.8%	40.9%	54.9%	45.5%	38.2%	30.4%
12-17 years	52.5%	59.0%	44.0%	52.8%	61.0%	71.0%	47.5%	41.0%	56.0%	47.2%	39.0%	29.0%
Sex												
Male	55.9%	62.9%	47.9%	57.1%	65.5%	74.9%	44.1%	37.1%	52.1%	42.9%	34.5%	25.1%
Female	48.6%	55.0%	41.0%	50.1%	57.2%	65.6%	51.4%	45.0%	59.0%	49.9%	42.8%	34.4%
Race/ethnicity												
Hispanic	53.2%	57.5%	47.8%	53.7%	58.6%	68.3%	46.8%	42.5%	52.2%	46.3%	41.4%	31.7%
White, NH	49.1%	57.4%	40.9%	52.2%	59.3%	69.7%	50.9%	42.6%	59.1%	47.8%	40.7%	30.3%
Black, NH	63.5%	66.0%	58.3%	59.5%	70.3%	74.3%	36.5%	34.0%	41.7%	40.5%	29.7%	25.7%
Other, NH	51.2%	58.0%	44.2%	52.1%	57.9%	72.3%	48.8%	42.0%	55.8%	47.9%	42.1%	27.7%
Income												
0-99% FPL	63.1%	65.9%	55.6%	59.7%	67.8%	74.8%	36.9%	34.1%	44.4%	40.3%	32.2%	25.2%
100-199% FPL	54.4%	58.4%	46.6%	51.8%	60.8%	70.6%	45.6%	41.6%	53.4%	48.2%	39.2%	29.4%
200-399% FPL	51.8%	58.3%	44.5%	55.0%	59.7%	67.1%	48.2%	41.7%	55.5%	45.0%	40.3%	32.9%
400% or more FPL	43.7%	50.1%	40.7%	47.6%	52.7%	60.3%	56.3%	49.9%	59.3%	52.4%	47.3%	39.7%
Insurance type												
Public	61.0%	63.9%	53.4%	57.1%	65.6%	73.7%	39.0%	36.1%	46.6%	42.9%	34.4%	26.3%
Private	47.1%	54.2%	41.9%	50.8%	56.9%	65.0%	52.9%	45.8%	58.1%	49.2%	43.1%	35.0%
Uninsured	56.5%	60.6%	49.0%	57.7%	60.2%	68.5%	43.5%	39.4%	51.0%	42.3%	39.8%	31.5%
Insurance adequacy (among who are insured)												
Adequate	50.3%	57.6%	42.4%	51.2%	61.0%	69.7%	49.7%	42.4%	57.6%	48.8%	39.0%	30.3%
Inadequate	57.1%	62.4%	50.7%	59.0%	62.5%	73.0%	42.9%	37.6%	49.3%	41.0%	37.5%	27.0%
CSHCN status												
Non-CSHCN	47.8%	53.5%	41.9%	48.9%	56.6%	64.0%	52.2%	46.5%	58.1%	51.1%	43.4%	36.0%
CSHCN	66.8%	72.6%	56.4%	69.0%	72.5%	79.1%	33.2%	27.4%	43.6%	31.0%	27.5%	20.9%
CSHCN Complexity												
Less complex	49.5%	54.5%	43.6%	53.8%	54.2%	57.3%	50.5%	45.5%	56.4%	46.2%	45.8%	42.7%
More complex	75.8%	79.9%	66.4%	77.8%	79.1%	84.1%	24.2%	20.1%	33.6%	22.2%	20.9%	15.9%

Flourishing items include: (1) child shows interest and curiosity in learning new things, (2) child stays calm and in control when faced with a challenge, (3) child finishes tasks and follows through with plans.

Technical Appendix D Part 1: Characteristics of Children by Adverse Childhood Experiences (ACEs) Status and Health Status and Outcomes, Data: 2011/12 NSCH

Demographic characteristics and insurance status	All children	Adverse Childhood Experiences (ACE)				Children with Special Health Care (CSHCN) status		Children with Emotional, Behavioral or Developmental Problem*		Exhibits Core Aspect of Resilience, 6-17 years**		Engaged in School, 6-17 years	
		4+ ACEs	2-3 ACEs	1 ACE	No ACEs	CSHCN	Non-CSHCN	Yes	No	Usually/always	Never/rarely/sometimes	Usually/Always	Never/rarely/sometimes
All children	100%	6.4%	16.2%	25.3%	52.1%	19.8%	80.2%	14.2%	85.8%	64.7%	35.3%	80.4%	19.6%
Age													
0-5 years	32.7%	13.2%	20.0%	31.2%	39.8%	18.8%	36.2%	10.7%	36.4%	NA	NA	NA	NA
6-11 years	33.2%	34.8%	36.1%	33.7%	31.6%	38.0%	32.0%	39.8%	32.1%	46.8%	54.1%	52.1%	38.2%
12-17 years	34.1%	51.9%	43.8%	35.1%	28.5%	43.2%	31.8%	49.5%	31.5%	53.2%	45.9%	47.9%	61.8%
Sex													
Male	51.2%	52.4%	50.4%	52.0%	51.0%	58.1%	49.4%	62.6%	49.3%	49.2%	54.8%	47.3%	67.3%
Female	48.8%	47.6%	49.6%	48.0%	49.0%	41.9%	50.6%	37.4%	50.7%	50.8%	45.2%	52.7%	32.7%
Race/ethnicity													
Hispanic	23.7%	21.8%	23.1%	27.1%	22.3%	17.4%	25.2%	18.4%	24.5%	21.1%	24.4%	22.6%	21.0%
White, Non-Hispanic	52.5%	50.3%	48.0%	48.2%	56.3%	56.8%	51.5%	58.1%	51.6%	56.8%	48.2%	54.1%	52.0%
Black, Non-Hispanic	13.5%	16.3%	19.4%	15.6%	10.3%	16.4%	12.8%	14.8%	13.3%	12.2%	18.0%	13.1%	19.0%
Other, Non-Hispanic	10.3%	11.5%	9.5%	9.0%	11.0%	9.3%	10.5%	8.7%	10.5%	9.9%	9.4%	10.2%	7.9%
Family Income (Federal Poverty Level-FPL)													
0-99% FPL	22.4%	39.1%	32.8%	28.2%	14.4%	23.6%	22.2%	28.6%	21.4%	16.7%	27.6%	18.9%	27.6%
100-199% FPL	21.5%	28.3%	26.9%	25.9%	17.0%	21.6%	21.5%	22.3%	21.4%	20.3%	23.5%	20.9%	23.4%
200-399% FPL	28.2%	24.3%	27.1%	26.9%	29.8%	27.9%	28.3%	26.8%	28.4%	30.0%	27.0%	29.3%	27.1%
400% or more FPL	27.8%	8.4%	13.1%	19.0%	38.9%	26.9%	28.0%	22.3%	28.7%	33.0%	21.9%	30.8%	21.8%
Insurance type													
Public (Pop: 2,897,524)	37.1%	63.4%	52.6%	43.4%	25.7%	43.4%	35.5%	48.7%	35.1%	28.7%	43.1%	31.2%	44.7%
Private (Pop: 12,90,199)	57.4%	28.2%	40.7%	50.0%	69.9%	53.3%	58.4%	47.3%	59.0%	65.6%	50.4%	62.8%	49.1%
Uninsured (Pop: 381,828)	5.6%	8.4%	6.7%	6.6%	4.4%	3.2%	6.1%	4.0%	5.8%	5.7%	6.5%	5.9%	6.3%
Insurance adequacy (among who have insurance)													
Adequate	76.5%	74.6%	75.1%	74.2%	78.3%	70.8%	77.9%	69.7%	77.6%	76.0%	71.5%	75.4%	70.4%
Inadequate	23.5%	25.4%	24.9%	25.8%	21.7%	29.2%	22.1%	30.3%	22.4%	24.0%	28.5%	24.6%	29.6%

*Children who qualify on the CSHCN Screener criteria for having emotional, developmental, or behavioral conditions that require treatment or counseling have lasted or are expected to last for 12 months or longer and/or experience one or more emotional, behavioral and developmental conditions asked in the survey: learning disability, ADHD/ADD, depression, anxiety, behavioral problems, autism, developmental delay, intellectual disability, cerebral palsy, or Tourette syndrome; **Child stays calm and in control when faced with a challenge

Technical Appendix D Part 2: Characteristics of Children by Resilience and Adverse Childhood Experiences (ACEs) Status, Data: 2011/12 NSCH.

Characteristics	All children, Age 6-17 Years	ACEs Status, Age 6-17 Years	Resilience Status (Child Stays Calm and in Control When Faced with a Challenge), Age 6-17 Years											
		≥1 ACEs	Never/Rarely/Sometimes Resilient						Usually/Always Resilient					
			All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs
All children	100.0%	53.4%	35.3%	62.7%	37.3%	27.2%	23.1%	12.4%	64.7%	48.4%	51.6%	25.2%	17.2%	6.0%
Age														
6-11 years	49.4%	46.2%	54.1%	49.9%	60.8%	52.6%	50.5%	43.1%	46.8%	43.6%	49.4%	46.8%	41.4%	36.9%
12-17 years	50.6%	53.8%	45.9%	50.1%	39.2%	47.4%	49.5%	56.9%	53.2%	56.4%	50.6%	53.2%	58.6%	63.1%
Sex														
Male	51.2%	51.1%	54.8%	54.6%	55.4%	53.6%	54.9%	56.1%	49.2%	48.7%	49.9%	49.3%	47.4%	49.6%
Female	48.8%	48.9%	45.2%	45.4%	44.6%	46.4%	45.1%	43.9%	50.8%	51.3%	50.1%	50.7%	52.6%	50.4%
Race														
Hispanic	22.3%	23.1%	24.4%	23.9%	25.2%	26.4%	22.6%	20.7%	21.1%	22.5%	19.8%	23.0%	21.8%	22.3%
White, NH	53.7%	50.1%	48.2%	47.0%	50.3%	47.2%	45.5%	49.3%	56.8%	52.3%	61.1%	52.7%	52.0%	51.3%
Black, NH	14.2%	17.5%	18.0%	20.1%	14.4%	18.3%	23.2%	18.3%	12.2%	15.7%	8.8%	15.2%	16.7%	15.3%
Other, NH	9.7%	9.3%	9.4%	9.0%	10.1%	8.0%	8.8%	11.7%	9.9%	9.5%	10.3%	9.1%	9.5%	11.1%
Income														
0-99% FPL	20.7%	27.9%	27.6%	34.0%	16.7%	28.5%	36.5%	41.4%	16.7%	23.5%	10.3%	20.8%	23.9%	33.9%
100-199% FPL	21.4%	26.3%	23.5%	27.1%	17.8%	25.0%	28.1%	29.8%	20.3%	25.7%	15.2%	24.2%	26.8%	28.7%
200-399% FPL	28.9%	28.3%	27.0%	25.9%	29.0%	28.3%	25.3%	21.7%	30.0%	30.0%	30.2%	29.9%	31.3%	27.0%
400% or more FPL	29.1%	17.5%	21.9%	13.0%	36.5%	18.1%	10.1%	7.1%	33.0%	20.8%	44.3%	25.1%	18.0%	10.4%
Insurance type														
Public	33.9%	44.7%	43.1%	51.9%	28.1%	42.0%	56.6%	64.9%	28.7%	39.6%	18.4%	33.4%	42.8%	56.4%
Private	60.1%	48.1%	50.4%	41.0%	66.4%	50.8%	36.5%	27.9%	65.6%	53.3%	77.3%	60.3%	49.8%	34.0%
Uninsured	6.0%	7.1%	6.5%	7.1%	5.5%	7.3%	6.9%	7.2%	5.7%	7.1%	4.4%	6.3%	7.4%	9.6%
Insurance adequacy (among who are insured)														
Adequate	74.4%	73.4%	71.5%	70.7%	72.9%	69.0%	72.7%	70.6%	76.0%	75.2%	76.8%	75.2%	74.9%	75.9%
Inadequate	25.6%	26.6%	28.5%	29.3%	27.1%	31.0%	27.3%	29.4%	24.0%	24.8%	23.2%	24.8%	25.1%	24.1%
CSHCN status														
Non-CSHCN	76.1%	71.1%	65.5%	60.2%	73.9%	66.5%	59.8%	47.1%	81.8%	78.8%	84.5%	82.0%	77.5%	68.7%
CSHCN	23.9%	28.9%	34.5%	39.8%	26.1%	33.5%	40.2%	52.9%	18.2%	21.2%	15.5%	18.0%	22.5%	31.3%
CSHCN Complexity														
Less complex	34.2%	28.6%	21.9%	17.8%	32.5%	24.9%	15.2%	11.5%	47.0%	43.2%	51.8%	49.2%	41.7%	31.7%
More complex	65.8%	71.4%	78.1%	82.2%	67.5%	75.1%	84.8%	88.5%	53.0%	56.8%	48.2%	50.8%	58.3%	68.3%

Technical Appendix D Part 3: Characteristics of Children by School Engagement and Activity Participation and Adverse Childhood Experiences (ACEs) Status, Data: 2011/12 NSCH

Characteristics	School Factors, Age 6-17 Years											
	Usually/Always Engaged in School and Participate Activities Outside of School						Do Not Engage in School or Do Not Participate Activities Outside of School					
	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs
All children	66.7%	47.3%	52.7%	24.9%	16.4%	6.1%	33.3%	65.6%	34.4%	27.9%	25.1%	12.6%
Age												
6-11 years	50.5%	47.4%	53.1%	48.8%	47.0%	42.4%	47.1%	44.6%	51.0%	49.1%	43.0%	37.9%
12-17 years	49.5%	52.6%	46.9%	51.2%	53.0%	57.6%	52.9%	55.4%	49.0%	50.9%	57.0%	62.1%
Sex												
Male	47.0%	44.9%	48.9%	45.5%	43.5%	46.4%	59.7%	60.1%	59.4%	60.8%	59.9%	59.2%
Female	53.0%	55.1%	51.1%	54.5%	56.5%	53.6%	40.3%	39.9%	40.6%	39.2%	40.1%	40.8%
Race												
Hispanic	19.2%	20.5%	18.0%	19.9%	20.7%	22.2%	28.6%	26.9%	31.9%	32.1%	24.0%	21.0%
White, NH	57.8%	52.8%	62.4%	55.4%	51.2%	46.4%	45.5%	46.1%	44.4%	42.1%	46.7%	53.6%
Black, NH	12.4%	16.5%	8.8%	15.3%	17.6%	18.3%	17.8%	19.1%	15.2%	18.3%	21.8%	15.5%
Other, NH	10.6%	10.3%	10.8%	9.4%	10.5%	13.1%	8.1%	7.9%	8.5%	7.5%	7.5%	9.8%
Income												
0-99% FPL	14.3%	20.6%	8.4%	17.0%	22.2%	31.2%	33.3%	38.3%	24.2%	35.4%	38.5%	44.4%
100-199% FPL	19.0%	25.1%	13.6%	22.9%	26.6%	30.0%	26.2%	27.9%	23.2%	27.4%	28.3%	28.5%
200-399% FPL	31.3%	32.3%	30.8%	32.6%	33.1%	28.5%	23.9%	22.6%	26.7%	23.3%	23.0%	20.0%
400% or more FPL	35.3%	22.0%	47.2%	27.4%	18.1%	10.3%	16.6%	11.2%	25.9%	13.9%	10.2%	7.1%
Insurance type												
Public	26.0%	37.0%	15.8%	29.7%	41.4%	55.4%	49.8%	56.0%	38.2%	49.2%	58.4%	66.3%
Private	69.0%	56.6%	80.5%	64.8%	52.4%	34.2%	42.2%	35.8%	54.3%	42.0%	33.1%	27.3%
Uninsured	5.0%	6.4%	3.7%	5.5%	6.2%	10.4%	8.1%	8.2%	7.6%	8.8%	8.5%	6.4%
Insurance adequacy (among who are insured)												
Adequate	75.2%	73.8%	76.4%	72.7%	75.5%	73.5%	73.0%	72.8%	73.6%	73.4%	72.1%	72.8%
Inadequate	24.8%	26.2%	23.6%	27.3%	24.5%	26.5%	27.0%	27.2%	26.4%	26.6%	27.9%	27.2%
CSHCN status												
Non-CSHCN	80.2%	76.5%	83.3%	78.8%	76.4%	67.0%	67.9%	63.3%	76.1%	71.8%	61.7%	47.8%
CSHCN	19.8%	23.5%	16.7%	21.2%	23.6%	33.0%	32.1%	36.7%	23.9%	28.2%	38.3%	52.2%
CSHCN Complexity												
Less complex	44.0%	38.0%	51.6%	43.7%	35.6%	27.3%	22.0%	20.0%	28.1%	26.7%	19.4%	13.0%
More complex	56.0%	62.0%	48.4%	56.3%	64.4%	72.7%	78.0%	80.0%	71.9%	73.3%	80.6%	87.0%

School factors include: Always/Usually engaged in school and participate in activities outside of school

Technical Appendix D Part 4: Characteristics of Children by Flourishing and Adverse Childhood Experiences (ACEs) Status, Data: 2011/12 NSCH

Characteristics	Flourishing, Age 6-17 Years											
	Met 0-2 Flourishing Items						Met All 3 Flourishing Items					
	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs	All children	≥1 ACEs	No ACEs	1 ACE	2-3 ACEs	≥4 ACEs
All children	52.3%	60.3%	39.7%	26.6%	22.6%	11.1%	47.7%	45.9%	54.1%	25.1%	15.6%	5.1%
Age												
6-11 years	49.2%	46.3%	53.2%	49.7%	45.6%	39.7%	49.5%	46.1%	52.1%	48.0%	44.7%	41.3%
12-17 years	50.8%	53.7%	46.8%	50.3%	54.4%	60.3%	50.5%	53.9%	47.9%	52.0%	55.3%	58.7%
Sex												
Male	54.7%	54.5%	55.4%	54.2%	54.0%	56.2%	47.4%	46.3%	48.4%	47.1%	45.2%	45.1%
Female	45.3%	45.5%	44.6%	45.8%	46.0%	43.8%	52.6%	53.7%	51.6%	52.9%	54.8%	54.9%
Race												
Hispanic	22.7%	22.5%	23.0%	24.2%	21.2%	20.9%	21.9%	23.9%	20.1%	24.3%	23.6%	23.2%
White, NH	50.5%	48.7%	53.3%	49.2%	47.7%	49.6%	57.3%	52.0%	61.8%	52.4%	51.6%	51.4%
Black, NH	17.3%	19.6%	13.6%	18.1%	22.3%	17.8%	10.9%	14.5%	7.8%	14.3%	14.8%	14.7%
Other, NH	9.5%	9.2%	10.2%	8.5%	8.7%	11.7%	10.0%	9.5%	10.3%	9.0%	10.0%	10.7%
Income												
0-99% FPL	24.9%	31.1%	15.2%	26.3%	32.3%	40.3%	16.0%	23.2%	9.8%	20.6%	24.4%	32.4%
100-199% FPL	22.3%	26.0%	16.7%	23.7%	27.1%	29.3%	20.5%	26.7%	15.4%	25.5%	27.7%	29.0%
200-399% FPL	28.5%	28.0%	29.8%	30.0%	28.0%	23.0%	29.2%	28.8%	29.8%	28.4%	30.0%	26.9%
400% or more FPL	24.3%	14.9%	38.3%	20.0%	12.6%	7.4%	34.3%	21.4%	45.0%	25.5%	17.9%	11.6%
Insurance type												
Public	39.4%	48.5%	25.4%	39.0%	52.0%	63.7%	27.8%	39.4%	17.9%	33.8%	43.3%	54.5%
Private	54.1%	44.2%	69.5%	53.7%	40.9%	28.3%	66.8%	53.8%	77.8%	60.0%	49.3%	36.5%
Uninsured	6.5%	7.3%	5.1%	7.3%	7.1%	8.1%	5.5%	6.9%	4.3%	6.1%	7.4%	8.9%
Insurance adequacy (among who are insured)												
Adequate	72.0%	71.8%	72.2%	70.0%	73.6%	72.2%	77.1%	75.7%	78.5%	76.3%	74.8%	75.4%
Inadequate	28.0%	28.2%	27.8%	30.0%	26.4%	27.8%	22.9%	24.3%	21.5%	23.7%	25.2%	24.6%
CSHCN status												
Non-CSHCN	69.4%	64.4%	76.7%	69.5%	64.6%	51.9%	83.4%	80.7%	85.5%	84.2%	78.6%	69.8%
CSHCN	30.6%	35.6%	23.3%	30.5%	35.4%	48.1%	16.6%	19.3%	14.5%	15.8%	21.4%	30.2%
CSHCN Complexity												
Less complex	25.3%	21.5%	34.1%	28.4%	19.9%	13.3%	52.1%	47.6%	57.0%	54.4%	44.2%	37.6%
More complex	74.7%	78.5%	65.9%	71.6%	80.1%	86.7%	47.9%	52.4%	43.0%	45.6%	55.8%	62.4%

Flourishing items: (1) child shows interest and curiosity in learning new things, (2) child stays calm and in control when faced with a challenge, (3) child finishes tasks and follows through with plans.

Technical Appendix D Part 5: Characteristics of Children who Experience Individual Adverse Childhood Events, Data: 2011/12 NSCH

Characteristics	Economic hardship		Child lived with parent who got divorced/separated after he/she was born		Child lived with parent who died		Child lived with parent who served time in jail after he/she was born		Child saw parents hit, kip, slap, punch or beat each other up		Child was a victim of violence or witness violence in his/her neighborhood		Child lived with anyone who was mentally ill or suicidal, or severity depressed for more than a couple weeks		Child lived with anyone who had a problem with alcohol or drugs		Child was ever treated or judged unfairly because of his/her race or ethnic group	
	Never/rarely	Somewhat/very often	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
All Children	74.3%	25.7%	79.9%	20.1%	96.9%	3.1%	93.1%	6.9%	92.7%	7.3%	91.4%	8.6%	91.4%	8.6%	89.3%	10.7%	95.9%	4.1%
Age																		
0-5 years	33.0%	32.4%	37.0%	16.1%	33.5%	9.2%	33.6%	21.0%	33.9%	18.4%	34.9%	10.5%	33.9%	21.2%	34.6%	17.0%	33.9%	7.6%
6-11 years	32.9%	33.8%	32.2%	36.6%	33.1%	32.5%	32.6%	39.2%	32.9%	35.8%	33.1%	33.6%	33.2%	32.3%	32.8%	36.1%	33.1%	33.5%
12-17 years	34.2%	33.9%	30.9%	47.3%	33.4%	58.3%	33.7%	39.8%	33.2%	45.8%	32.0%	55.9%	33.0%	46.5%	32.6%	47.0%	33.0%	58.9%
Sex																		
Male	50.9%	52.0%	51.2%	51.1%	51.2%	50.8%	51.2%	51.0%	51.3%	50.4%	51.0%	54.0%	51.2%	51.0%	51.2%	51.0%	51.2%	50.4%
Female	49.1%	48.0%	48.8%	48.9%	48.8%	49.2%	48.8%	49.0%	48.7%	49.6%	49.0%	46.0%	48.8%	49.0%	48.8%	49.0%	48.8%	49.6%
Race																		
Hispanic	21.8%	28.9%	24.5%	20.1%	23.8%	18.1%	23.8%	22.0%	23.4%	27.0%	23.7%	24.0%	24.3%	17.0%	24.0%	21.3%	23.5%	26.9%
White, NH	54.7%	46.7%	51.7%	56.0%	52.9%	43.2%	53.1%	45.4%	53.2%	45.4%	53.7%	41.0%	52.0%	59.1%	52.1%	56.7%	54.2%	17.9%
Black, NH	12.7%	15.6%	13.2%	14.7%	13.1%	27.9%	12.9%	22.3%	13.2%	16.1%	12.3%	25.6%	13.6%	12.5%	13.6%	12.7%	12.7%	30.2%
Other, NH	10.8%	8.7%	10.5%	9.2%	10.2%	10.8%	10.3%	10.3%	10.1%	11.4%	10.3%	9.3%	10.2%	11.4%	10.4%	9.4%	9.6%	25.0%
Income																		
0-99% FPL	15.6%	41.5%	21.4%	26.5%	22.0%	35.4%	21.1%	40.5%	21.3%	37.1%	21.0%	37.8%	22.0%	26.8%	21.8%	27.9%	22.4%	24.6%
100-199% FPL	18.4%	30.9%	20.4%	26.0%	21.5%	24.7%	21.0%	28.0%	21.2%	25.6%	21.3%	24.4%	21.1%	25.7%	21.0%	25.9%	21.4%	24.0%
200-399% FPL	30.5%	22.0%	28.0%	29.6%	28.4%	24.9%	28.6%	23.4%	28.4%	26.6%	28.6%	24.7%	28.3%	28.6%	28.1%	29.6%	28.3%	27.5%
400% or more FPL	35.5%	5.5%	30.2%	17.9%	28.1%	15.0%	29.2%	8.0%	29.1%	10.7%	29.2%	13.0%	28.6%	18.9%	29.1%	16.6%	27.8%	23.9%
Insurance type																		
Public	29.3%	58.5%	34.6%	46.0%	36.3%	57.5%	34.4%	70.1%	34.9%	60.8%	34.9%	57.6%	35.8%	48.0%	35.1%	51.5%	36.8%	39.6%
Private	66.1%	33.2%	59.9%	48.2%	58.3%	34.2%	60.1%	23.7%	59.6%	32.2%	59.8%	34.6%	58.6%	46.5%	59.6%	40.9%	57.7%	53.1%
Uninsured	4.6%	8.3%	5.5%	5.8%	5.5%	8.3%	5.5%	6.2%	5.4%	7.0%	5.3%	7.8%	5.5%	5.6%	5.3%	7.6%	5.5%	7.3%
Insurance adequacy (among who are insured)																		
Adequate	78.1%	71.7%	76.4%	76.6%	76.5%	77.3%	76.20%	80.9%	76.5%	77.1%	76.7%	74.4%	76.6%	75.6%	76.5%	76.4%	77.0%	65.7%
Inadequate	21.9%	28.3%	23.6%	23.4%	23.5%	22.7%	23.80%	19.1%	23.5%	22.9%	23.3%	25.6%	23.4%	24.4%	23.5%	23.6%	23.0%	34.3%
CSHCN status																		
Non-CSHCN	82.2%	74.0%	82.4%	71.2%	80.4%	70.0%	81.2%	66.5%	81.3%	66.0%	81.8%	62.9%	81.9%	62.4%	81.5%	68.3%	80.5%	69.9%
CSHCN	17.8%	26.0%	17.6%	28.8%	19.6%	30.0%	18.8%	33.5%	18.7%	34.0%	18.2%	37.1%	18.1%	37.6%	18.5%	31.7%	19.5%	30.1%
CSHCN Complexity (among CSHCN)																		
Less complex	39.1%	26.0%	37.4%	28.5%	35.4%	21.3%	36.5%	22.2%	36.6%	21.5%	37.4%	21.1%	37.3%	22.2%	37.1%	23.6%	35.1%	29.8%
More complex	60.9%	74.0%	62.6%	71.5%	64.6%	78.7%	63.5%	77.8%	63.4%	78.5%	62.6%	78.9%	62.7%	77.8%	62.9%	76.4%	64.9%	70.2%



