Misery Loves Company, but Does Adversity? Individual and Partner Adverse Childhood Experiences, Health, and Life Satisfaction

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Abstract

Adverse Childhood Experiences (ACEs) include abuse, neglect, and general household dysfunction. Operating through complex pathways, ACEs exert a strong negative influence on adult health and health behaviors. Yet most of the research on the intragenerational consequences of ACEs examines associations and effects for those who directly experienced the adversity, obscuring how ACEs might be associated with the health and well-being of one's partner. In this paper, we investigate the relationship between respondent and partner ACEs and the associations between respondent's ACEs count and their self-rated health and life satisfaction as well as their partner's health and life satisfaction. Results reveal that people with ACEs tend to partner with others who have ACEs, and that ACEs are positvely associated with lower self-rated health and lower life satisfaction for both respondents and their partners. These findings begin to illuminate unknown consequential intragenerational associations of ACEs for health and well-being beyond those who experienced the adversity firsthand.

Introduction

Adverse Childhood Experiences (ACEs) include abuse, neglect, and general household dysfunction experienced within the household in childhood. Due to the disadvantageous consequences of ACEs, they are broadly conceptualized as complex forms of trauma that induce chronic stress (Felliti et al. 1998). Extensive bodies of research illustrate the detrimental effects of ACEs on health and well-being not only in childhood, but also throughout adulthood. ACEs are associated with several detrimental health outcomes (e.g., obesity, diabetes, cancer, heart disease, respiratory disease, mental illness) and health behaviors that undermine health (e.g., lower physical activity, smoking, alcohol use, sexually risky behavior, and drug use; Hughes et al. 2017; Kalmakis and Chandler 2015; Petruccelli, Davis, and Berman 2019). In this way, there is ample evidence that adversity in childhood extends a long arm into adulthood and has implications for adult health and well-being.

ACEs operate through complex biological, physiological, psychological, and sociological pathways to shape health and well-being (Ridout, Khan, and Ridout 2018; Williams and Finch 2019). To date, most work has taken place within a biomedical framework, often drawing conclusions from clinical samples that likely differ from the population and ignoring important sociological implications of childhood adversity. Sociological outcomes of ACEs could similarly act as an important pathway through which ACEs might undermine health and well-being. For instance, recent research shows that ACEs are linked to early and nonmarital childbearing, which then shapes health at mid-life (Williams and Finch 2019). Sociological outcomes are also important in their own right, in addition to health, engendering other forms of inequality that might similarly be the result of toxic stress induced by maltreatment and adversity in childhood. One such outcome is life satisfaction, which is an important dimension of social inequality that

provides a global window into one's satisfaction with life, all things considered (Mosley-Johnson et al. 2019).

Yet despite the family and household context in which ACEs occur, the vast majority of research examines the deleterious effects of ACEs at the individual level (see Hughes et al. 2017). Recent research on the consequences of ACEs has theoretically and empirically offered insights that the effects of ACEs are not contained to only one generation. Indeed, burgeoning research illustrates that children bear some of the effects of childhood adversity that their parent experienced while growing up. Parents who experienced multiple ACEs tend to engage in more distant parenting practices, offering children less warmth, engagement, and caregiving, such that parent-child relationship quality is compromised (Shafer and Easton 2021), and tend to have children with heightened behavioral problems relative to those with no ACEs (Schickedanz et al. 2019). Scholars have referred to these detrimental effects as the intergenerational consequences of ACEs. But little research has examined intragenerational associations of ACEs outside of the effects on the individual who experienced childhood maltreatment (see, for exception, Andersson et al. 2021). Just as the consequences of ACEs reach a long arm intergenerationally to impact the children of those who experienced childhood adversity, so too might ACEs be associated with one's partner's health and well-being in addition to one's own. This possibility has, to date, rarely been considered.

This paper examines three key research questions. First, what is the association between respondent and partner's ACEs? Second, how are ACEs associated with one's self-rated health and life satisfaction? Third, how are respondent's ACEs associated with their partner's self-rated health and life satisfaction? Drawing from a nationally representative sample of respondents and

their spouses or partners, we provide important new evidence on the association of ACEs with important dimensions of health and well-being at the population level.

Method

We employ the *National Couples' Health and Time Use Study* (NCHAT), and link main respondent (n = 3,642) and partner data (n = 1,515). The *NCHAT* data collection began at the start of September 2020 and ended in April 2021. *NCHAT* is a nationally representative study of different- and same-gender couples in the United States. Respondents selected for participation in the study were drawn from the Gallup Daily Tracking Survey panel consisting of 110,000 individuals who have been recruited since the late 2000's (Gallup 2021). To be eligible for participation, the main respondent must have been between 20 and 60 years of age, live with a spouse or partner, and be able to read English or Spanish. The average completion time for an *NCHAT* survey was about 40 minutes, and surveys were administered via Qualtrics. After the main respondents completed the survey, they were asked to forward an invitation to participate to their partner/spouse. Partners/spouses who wanted to participate provided their e-mail addresses and were invited to begin the survey within three hours. *NCHAT* is ideally suited for this project because it includes ACES from both members of the couple, along with measures of physical health, life satisfaction, time use, discrimination, and sociodemographic factors.

Health and Life Satisfaction

Our first main dependent variable is self-rated health. Self-rated health has been shown to be an independent and robust predictor of disability, morbidity, and mortality, and is thus conceptualized as an important subjective and global dimension of health status (Idler and Benyamini 1997). Respondents and partners alike were asked, "In general, would you say your health is:" and were given response categories of "poor," "fair," "good," "very good," and

"excellent." From this measure, we created a dichotomous self-rated health variable (0 = excellent, very good, or good; 1 = fair or poor).

Our second main dependent variable is life satisfaction. This measure of life satisfaction is derived from the Cantril Ladder (Cantril, 1965). This measure asks respondents and partners to imagine an 11-step ladder wherein the bottom rung represents their worst possible life, and the top rung represents their best possible life: "Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?" We examine this variable as a continuous indicator. Life satisfaction is an important subjective dimension of well-being, is relatively stable over time, and is generally conceptualized as part of the hedonic dimension of subjective well-being (Levin and Currie 2013). The hedonic dimension of well-being captures evaluations and perceptions of life, as opposed to the eudaimonic dimension, which captures how people function in life (Keyes 2006).

Construction of the ACEs Index

Consistent with prior work (Williams and Finch 2019), we constructed an ACEs index from ten different indicators asked of all respondents (Centers for Disease Control and Prevention 2019; Sacks, Murphey, and Moore 2014). Toward the end of the survey, all respondents were provided with a content warning notifying them that they were about to be asked questions about their past traumatic history and that these questions could make respondents feel uncomfortable. Following this warning, respondents were asked questions about their childhood, living arrangements, experiences of parental death and separation, and experiences of household and neighborhood violence. We constructed and summed our ACEs

index from these ten items inquiring about childhood experiences, that is *prior* to the age of 18: (1) residence with anyone who was mentally ill or suicidal, or severely depressed (0 = no; 1 = yes); (2) residence with a problem drinker or alcoholic (0 = no; 1 = yes); (3) residence with an abuser of street drugs or prescription medicine (0 = no; 1 = yes); (4) residence with someone who was incarcerated or was sentenced to serve time (0 = no; 1 = yes); (5) experienced parental death (0 = no; 1 = yes); (6) experienced parental separation (0 = no; 1 = yes); (7) experienced or witnessed neighborhood violence (0 = no; 1 = yes); (8) witnessed domestic violence between parents or guardians (0 = never or once; 1 = more than once); (9) experienced violence from a parent or guardian (excluding spanking; 0 = never or once; 1 = more than once); and (10) experienced food insecurity often or very often (0 = no; 1 = yes).

For the first set of analyses, where we examine whether individuals with ACEs tend to partner with others who have ACEs, we create a binary indicator (0 = no ACEs; 1 = one or more ACEs). In all subsequent analyses, like past research (Shickedanz et al. 2018; Williams and Finch 2019), we create a categorical ACEs index: 0, 1, 2, 3, and 4 or more. This methodological decision allows us to model nonlinear associations of ACEs on health and life satisfaction, uncovering any graded effects. Past research has shown that ACEs, at relatively low counts, might not have detrimental effects on health and well-being, but at very high counts can be extremely detrimental (Hughes et al. 2017).

Covariates

We adjust for several characteristics that might confound the association between ACEs and self-rated health and life satisfaction. Throughout all of our models, we collectively adjust

for respondent and partner age (in years), gender (0 = men; 1 = women; 2 = other[1]), race (0 = non-Latinx White; 1 = non-Latinx Black; 2 = non-Latinx Asian; 3 = Latinx; 4 = non-Latinx Multirace; 5 = non-Latinx Other Race), nativity status (0 = U.S. born; 1 = non-U.S. born), current employment status (0 = not employed; 1 = employed), education (0 = less than HS; 1 = High school education; 2 = vocational or technical training, some college, or Associate's degree; 3 = Bachelor's degree; 4 = advanced education), and log of total household income (in dollars[2]). Finally, in the four models where we predict the partner's self-rated health and life satisfaction, which we explain in more details below, we adjust for partner's ACEs count (0 = none; 1 = one ACE; 2 = two ACEs; 3 = three ACEs; 4 = four or more ACEs).

Analyses

Our first analysis focuses on whether people with ACEs tend to partner with individuals who have ACEs. To address this research question, we conduct a chi-square test with a binary indicator and then examine a correlation matrix among our top-coded ACEs index. We then run a series of logistic regression models to examine whether ACEs are associated with respondent's self-rated health. In Model 1, we control for basic sociodemographic characteristics: age, gender, race, and nativity status. In Model 2, we add in employment status, education, and log of household income as socioeconomic status characteristics. These variables are added in

[1] The "other" category captures all those respondents who identified as non-binary, two spirit, agender, gender fluid, gender neutral, genderqueer, and as "other" gender to ensure sufficient sample size.

[2] This measure is comprised of income from each household member from various jobs, net business, farm, and rental income, pensions, dividends and inheritance, interest, social security payments, earned income tax credits, child support, and welfare benefits or other direct financial support from the government. If respondents did not enter in their total household income in the nearest dollar amount, respondents were provided to share an estimate for household income, and were provided with response categories. We took the mid-point of each ordinal category to provide an equivalent continuous dollar amount for these respondents.

separately in a second model because they may explain the association between ACEs and poor health and thus be an important pathway through which ACEs undermine health. The second set of analyses focuses on partner's self-rated health and include the same covariates as in the main respondent models. In Model 3, we control for respondent age, gender, race, and nativity status and partner age, gender, race, nativity status and ACEs index. In Model 4, we add in respondent and partner current employment status, education, and log of household income. These models add in the main partner's ACEs to adjust for the partner's ACEs and their association with their own self-reported physical health.

We then run a series of OLS regression models to predict the main respondent's life satisfaction. In Model 5, we control for basic sociodemographic characteristics: age, gender, race, and nativity status. In Model 6, we add in employment status, education, and household income as socioeconomic status characteristics. In Model 7, we control for respondent age, gender, race, and nativity status as well as partner age, gender, race, nativity status, and ACEs index. Finally, in Model 8, we add in respondent and partner current employment status, education, and log of household income. In all regression models, our independent variable of interest is the main respondent's top-coded ACEs index.

We note that sample sizes vary between the series of main respondent and partner's regression models. Our analytic sample size for main respondents is 3,328 after we removed 314 individuals who did not have valid information on one of the dependent variables, independent variables, or control variables. Our analytic sample size for partners is 1,201 after we removed 314 individuals who similarly lacked valid information on one or more of our variables of interest.

Preliminary Results

Our first set of analyses concern whether people with ACEs tend to be in relationships with individuals who have ACEs. Table 2 presents the chi-square results. Using a binary measure of ACEs, results show that there is a significant association between whether one has any ACEs and whether their partner has any ACEs [X^2 (2, N = 1,201) = 16.88 (p <.001)]. For example, 69.2% of those main respondents with one or more ACEs pair with partners who have one or more ACEs, relative to only 30.7% of those main respondents who have one or more ACEs who pair with partners who have no ACEs ($p < 0.001$). Because there are relatively fewer respondents who have no ACEs relative to those who have one or more, we examine a correlation between our top-coded ACEs index. We observe a correlation value of $r = 0.17$ ($p < 0.001$), indicating a moderate association between main respondent's reported ACEs and their partner's reported ACEs. This provides initial evidence that assortative mating operates when it comes to childhood maltreatment, which could have important intragenerational associations with self-rated health and life satisfaction.

Regression Results

Table 3 shows our logistic and OLS regression results predicting self-rated health and life satisfaction for main respondents and their partners. Analysis of the main respondents reveals a significant relationship between ACEs and self-rated health and life satisfaction — and this association holds even after accounting for socioeconomic status characteristics. In Model 1, respondents with four or more ACEs have, on average, 2.8 times greater odds of reporting fair or poor self-rated health ($p < 0.001$), compared with those with no reported ACEs. The magnitude of this association decreases in magnitude slightly once accounting for SES (OR = 2.38; $p <$ 0.001), but remains significant and positive. Turning to life satisfaction and controlling for basic sociodemographic characteristics, respondents with four or more ACEs have, on average, 0.73-

unit lower life satisfaction scores on the Cantril ladder ($p < 0.001$), relative to those who did not report experiencing any of the ten ACEs. Thus, ACEs are associated with poorer overall health and lower life satisfaction for main respondents.

Next, we examine whether the main respondents' ACEs are associated with their partner's self-rated health and life satisfaction. Higher levels of ACEs are associated with greater odds of their partner's self-reported poor or fair health. In Model 3, we control for respondent's and partner's age, gender, race, nativity status, in addition to their partner's ACEs count. We find that the partner of a main respondent, who has four or more ACEs, is, on average, 79% more likely to report fair or poor self-rated health ($p < 0.001$), compared to those partners whose main respondents have no ACEs. Importantly, this model adjusts for partners' ACEs count, indicating that the main respondents' ACEs similarly show a negative association with their partner's health, above and beyond how many ACEs the partner reported experiencing. This association remains virtually unchanged after accounting for socioeconomic status characteristics as well as those of their partners. Similar findings are observed in models estimating life satisfaction. For instance, main respondents with four or more ACEs have partners who report, on average, 0.35-unit lower life satisfaction scores on the Cantril ladder relative to those main respondents who reported no ACEs in Model 7. This finding mirrors results when we control for respondent's and partner's SES characteristics (B = -0.29; $p < 0.001$).

Discussion

In this paper, we examine the association between ACEs and one's self-rated health and life satisfaction as well as with one's partner's self-rated health and life satisfaction. At the individual level, we found that ACEs are associated with detriments in self-rated health and lower life satisfaction. At the partner level, main respondents' ACEs are similarly negatively

related to their partner's self-rated health and life satisfaction. We build on extant research on the consequences of ACEs and our work invites a deeper exploration of the possible mechanisms behind this important finding.

Our work leads to three central conclusions. First, consistent with prior work, we show that ACEs are associated with lower self-rated health and life satisfaction for individuals (Boullier and Blair 2018; Mosley-Johnson et al. 2019). While much research over the years has shown that ACEs are linked to obesity, diabetes, cancer, heart disease, respiratory disease, and mental illness, as well as health behaviors that similarly negative shape overall health (Hughes et al. 2017; Petruccelli, Davis, and Berman 2019), we show that ACEs also are negatively associated with other subjective dimensions of well-being, such as life satisfaction. ACEs are conceptualized as complex forms of trauma, which can induce chronic stress, which could have negative effects on one's ability to cope or could shape important sociological outcomes, thereby undermining well-being. That these associations remained virtually unchanged after accounting for a range of sociodemographic and socioeconomic characteristics highlights the importance of adversity itself in shaping health and well-being. Adverse experiences endured during childhood, a critical period of the life course, are associated with important outcomes in adulthood, which points to the need to better understand how to mitigate the harmful consequences of childhood maltreatment.

Second, we show that the deleterious consequences of ACEs appear not to be concentrated to only the individual who *experienced* the adversity firsthand. Indeed, our results importantly illustrate how ACEs similarly are associated with detriments in partner's self-rated health and diminished life satisfaction. These associations persisted after adjusting for a host of sociodemographic and socioeconomic status characteristics, as well as partner's self-reported

ACEs counts. This implies that other mechanisms connect main respondent's ACEs to their partner's poorer health and lower life satisfaction. This finding importantly complements work on the intergenerational effects of ACEs. For instance, maternal and paternal ACEs tend to be positively related to children's lower health and behavioral problems (Shickedanz et al. 2018). Our contribution of this study begins to shine light on additional intragenerational associations of ACEs on health and well-being, and how these associations transcend the individual level to importantly predict partner's self-rated health and life satisfaction. Just as ACEs are household and family level sources of trauma that children experience, so too are the consequences of ACEs.

Third, in general, for both self-rated health and life satisfaction, our models reveal a graded effect of ACEs. At relatively low levels — for instance, if a respondent only reported experiencing one ACE — then the observed associations with health and life satisfaction are relatively muted compared to at higher levels of ACEs exposure. This finding is in line with prior research that notes how ACEs, when experienced in conjunction with one another, tend to be extremely detrimental (see, for example, Hughes et al. 2017; Williams and Finch 2019), perhaps by starting pathways through which toxic stress proliferates. We add to this central finding that the graded effect of ACEs on health and life satisfaction are similarly observed when we examine whether respondent's ACEs predict their partner's self-rated health and life satisfaction.

Our study is not without limitations, which warrant a deeper discussion. Due to the cross-sectional nature of our data, we are unable to make causal claims and link ACEs to our outcomes of interest. In this way, our findings should be interpreted with caution. In a similar vein, we rely on the retrospective reporting of ACEs, and are unable to examine associations with ACEs as

they are currently happening. This might lead to the underestimation of the association of ACEs, since false negatives are nontrivial, while false positives are relatively rarer, when it comes to reporting on adversity in childhood (Hardt and Rutter 2004). Despite this limitation, retrospective reporting of ACEs is common practice across multiple disciplines, and multiple studies document the validity of self-reported and retrospective data on adversity (Allen, Leadbeater, and Aber 1994; Dube et al. 2004; Pinto, Correia, and Maia 2014). We also are similarly limited in that our data preclude the possibility of including sexual abuse in childhood in our ACEs index. Future research should build on these limitations.

Our study has importantly examined the association between one's ACEs and their health and life satisfaction as well as their partner's self-rated health and life satisfaction. Results show strong negative associations of adversity in childhood on global, subjective dimensions of well-being—self-rated health and life satisfaction—for main respondents and their partners. The magnitude of these findings should be of cause for concern, especially given the prevalence of ACEs at the population level.

Next Steps

We presented our preliminary analyses. We plan to (1) use multiple imputation to include those respondents who provided information on our dependent variables of interest but who lack valid information on our independent variable or other covariates; (2) apply Gallup's sample weights for partner data; (3) incorporate family-of-origin level variables for both main respondents and partner (e.g., highest educational attainment of both parents) to adjust for differential selection into ACEs; (4) examine whether gender composition of the couple moderates observed associations (e.g., examine whether the association between respondent ACEs and partner self-rated health and life satisfaction vary depending on whether the union is

same-gender or different-gender); (5) adjust for sexual identity in models; and (6) conduct sensitivity analyses and limit the sample to those main respondents who had partner data.

Table 1. Descriptive Information for NCHAT Sample

	Main Respondent		Partner	
	M (SD)	**Percent**	**M (SD)**	**Percent**
Self-rated health				
Excellent, very good, or good		83.53		84.70
Fair or poor		16.47		15.32
Life satisfaction	7.04 (1.58)		7.16 (1.57)	
ACEs				
0		31.31		34.55
1		22.87		22.23
2		14.51		15.07
3		10.46		8.91
4 or more		20.85		19.23
Age	44.12 (10.49)		42.60 (11.35)	
Gender				
Man		49.37		51.30
Woman		48.11		46.88
Other		2.52		1.83
Race				
White		62.41		65.78
Black		8.95		6.66
Asian		5.59		5.25
Hispanic or Latinx		16.05		17.40
Multi-racial		5.62		3.83
Other race		1.38		1.08
Nativity				
U.S. born		90.90		87.68
Non-U.S. born		9.10		12.32
Education				
Less than HS		1.17		2.75
High school education		16.14		11.24
Vocational or technical training, some college, or Associate's degree		25.99		29.64
Bachelor's degree		27.82		29.89
Advanced education		28.88		26.48
Current Employment Status				
Not employed		18.54		21.98
Employed		81.46		78.02
Household Income	11.51 (0.98)		11.43 (0.95)	
Sample Size	3,328		1,201	

Table 2. Main Respondent ACEs and Partner ACEs

	ACEs - Partners		
ACEs - Main Respondents	None	One or More	Total
None	165 42.75%	221 57.45%	386 100%
One or More	250 30.67%	565 69.33%	815 100%
Total	415 34.55%	786 65.45%	1,201

Pearson Chi(2)=16.88***

Table 3. Regression Results Estimating Poor/Fair Self-Rated Health and Life Satisfaction

	Poor/Fair Self-Rated Health				Life Satisfaction			
	Main Respondent		Partner		Main Respondent		Partner	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Main Respondent ACEs Index (No ACEs reference group)								
1 ACE	1.20	1.18	1.00	1.04	-0.18*	-0.17*	-0.19	-0.21
	(0.17)	(0.17)	(0.25)	(0.27)	(0.07)	(0.07)	(0.13)	(0.12)
2 ACEs	1.30	1.19	0.92	0.82	-0.37***	-0.33***	0.28	-0.29*
	(0.21)	(0.20)	(0.27)	(0.25)	(0.08)	(0.08)	(0.14)	(0.14)
3 ACEs	2.06***	1.85***	1.74*	1.76	-0.33**	-0.25**	0.06	0.11
	(0.34)	(0.31)	(0.49)	(0.51)	(0.10)	(0.09)	(0.16)	(0.16)
4 or more ACEs	2.76***	2.38***	1.79*	1.64*	-0.73***	-0.63***	-0.35**	-0.29*
	(0.37)	(0.33)	(0.40)	(0.38)	(0.08)	(0.08)	(0.12)	(0.13)
R2	0.03	0.08	0.06		0.07	0.11	0.06	0.10
Samples Size	3,328		1,201		3,328		1,201	

Note: p<0.05*; p<0.01**; p<0.001***

Models 1 and 5 controls for respondent age, gender, race, and nativity status.

Models 2 and 6 control for respondent age, gender, race, nativity status, employment status, education, and log of household income.

Models 3 and 7 control for respondent and partner age, gender, race, and nativity status and partner ACEs count.

Models 4 and 8 control for respondent and partner age, gender, race, nativity status, employment status, education, and log of household income and partner ACEs count.

Source: National Couples' Health and Time Use (NCHAT) study.

References

Allen, Joseph P., Bonnie J. Leadbeater, and J. Lawrence Aber. 1994. “The Development of Problem Behavior Syndromes in At-Risk Adolescents.” *Development and Psychopathology* 6(2):323–42.

Boullier, Mary, and Mitch Blair. 2018. "Adverse childhood experiences." *Paediatrics and Child Health* 28(3): 132-137.

Cantril, Hadley. (1965). The pattern of human concerns. New Brunswick, NJ: Rutgers University Press.

Centers for Disease Control and Prevention. 2019. About the CDC-Kaiser ACE Study. Retrieved from https://www.cdc.gov/violenceprevention/aces/about.html

Dube, Shanta R., David F. Williamson, Ted Thompson, Vincent J. Felliti, and Robert F. Anda. 2004. “Assessing the reliability of retrospective reports of Adverse Childhood Experiences among adult HMO members attending a primary care clinic.” *Child Abuse & Neglect* 28(7): 729-737.

Felitti, Vincent J., Robert F. Anda, Dale Nordenberg, David F. Williamson, Alison M. Spitz, Valerie Edwards, and James S. Marks. 1998. "Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study." *American Journal of Preventive Medicine* 14(4): 245-258.

Gallup. (2021). *How does the Gallup Panel work?* https://www.gallup.com/174158/gallup-panel-methodology.aspx

Hardt, Jochen, and Michael Rutter. 2004. “Validity of Adult Retrospective Reports of Adverse Childhood Experiences: Review of the Evidence.” *Journal of Child Psychology and Psychiatry* 45(2):260–73.

Hughes, Karen, Mark A. Bellis, Katherine A. Hardcastle, Dinesh Sethi, Alexander Butchart, Christopher Mikton, Lisa Jones, and Michael P. Dunne. 2017. "The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis." *The Lancet Public Health* 2(8): e356-e366.

Idler, Ellen L., and Yael Benyamini. 1997. "Self-rated health and mortality: a review of twenty-seven community studies." *Journal of Health and Social Behavior* 38(1): 21-37.

Kalmakis, Karen A., and Genevieve E. Chandler. 2015. "Health consequences of adverse childhood experiences: A systematic review." *Journal of the American Association of Nurse Practitioners* 27(8): 457-465.

Keyes, Corey LM. 2006. “Mental health in adolescence: Is America’s youth flourishing?” *American Journal of Orthopsychiatry* 76(3): 395–402.

Levin, Kate A., and Candace Currie. 2014. "Reliability and validity of an adapted version of the Cantril Ladder for use with adolescent samples." *Social Indicators Research* 119(2): 1047-1063.

Meyer, Ilan H. 1995. "Minority stress and mental health in gay men." *Journal of Health and Social Behavior* 36(1): 38-56.

Meyer, Ilan H. 2003. "Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence." *Psychological Bulletin* 129(5): 674-697.

Mosley-Johnson, Elise, Emma Garacci, Nick Wagner, Carlos Mendez, Joni S. Williams, and Leonard E. Egede. 2019. "Assessing the relationship between adverse childhood experiences and life satisfaction, psychological well-being, and social well-being: United States Longitudinal Cohort 1995–2014." *Quality of Life Research* 28(4): 907-914.

Petruccelli, Kaitlyn, Joshua Davis, and Tara Berman. 2019. "Adverse childhood experiences and associated health outcomes: A systematic review and meta-analysis." *Child Abuse & Neglect* 97: 104127.

Pinto, Ricardo, Liliana Correia, and Ângela Maia. 2014. "Assessing the Reliability of Retrospective Reports of Adverse Childhood Experiences among Adolescents with Documented Childhood Maltreatment." *Journal of Family Violence* 29(4):431–38.

Ridout, Kathryn K., Mariam Khan, and Samuel J. Ridout. 2018. "Adverse childhood experiences run deep: toxic early life stress, telomeres, and mitochondrial DNA copy number, the biological markers of cumulative stress." *Bioessays* 40(9): 1800077.

Sacks, Vanessa, David Murphey, and Kristin Moore. 2014. "Adverse Childhood Experiences: National and state-level prevalence." *Child trends*. Retrieved from https://ncvc.dspacedirect.org/handle/20.500.11990/1143

Schickedanz, Adam, Neal Halfon, Narayan Sastry, and Paul J. Chung. 2018. "Parents' adverse childhood experiences and their children's behavioral health problems." *Pediatrics* 142(2): e20180023.

Williams, Kristi, and Brian Karl Finch. 2019. "Adverse childhood experiences, early and nonmarital fertility, and women's health at midlife." *Journal of Health and Social Behavior* 60(3): 309-325.