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## Trends in Adverse Childhood Experiences (ACEs) in the United States



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### ABSTRACT

**Background:** It is important for those called upon to discuss major social determinants of health such as adverse childhood experiences (ACEs) to have accurate knowledge about generational trends in their prevalence.

**Objective:** To review available trend data on major forms of ACEs.

**Methods:** A search of academic data bases was conducted by combining the term “trend” with a variety of terms referring to childhood adversities.

**Results:** Available trend data on ACEs from the 20th century show multi-decade declines in parental death, parental illness, sibling death, and poverty, but multi-decade increases in parental divorce, parental drug abuse and parental incarceration. More recent trend data on ACEs for the first fifteen to eighteen years of the 21st century show declines in parental illness, sibling death, exposure to domestic violence, childhood poverty, parental divorce, serious childhood illness, physical abuse, sexual abuse, physical and emotional bullying and exposure to community violence. Two 21st century ACE increases were for parental alcohol and drug abuse. Overall, there appear to have been more historical and recent improvements in ACEs than deteriorations. But the US still lags conspicuously behind other developed countries on many of these indicators.

**Conclusion:** Awareness of improvements, as well as persistent challenges, are important to motivate policy makers and practitioners and to prompt them to recognize the feasibility of success in the prevention of ACEs.

### 1. Introduction

The idea that children face unprecedented burdens in today’s world is an opinion frequently heard from advocates, journalists, practitioners and policy-makers. Not surprisingly, the public shares this pessimism. In a survey of the general population of the US over 80% of adults said that the well-being of children has worsened over time (Freed et al., 2018).

In recent years, research on child well-being has increasingly focused on a cluster of childhood experiences thought to be particularly damaging to healthy development, what have been termed Adverse Childhood Experiences (ACEs) (Javier, Hoffman, Shah, & Pediatric Policy, 2019). ACEs are a subset of childhood conditions that have been consistently associated with many long-term negative effects, both behavioral problems like substance abuse and depression and physical health problems such as heart disease (Felitti et al., 1998; Nurius, Green, Logan-Greene, & Borja, 2015; Nurius, Fleming, & Brindle, 2019; Petrucci, Davis, & Berman, 2019; Schilling, Aseltine, & Gore, 2007; Shonkoff et al., 2012). The working model to explain such effects is that ACEs have particular developmental toxicity and reprogram the stress response system and neuro-developmental processes.

Some commentators have asserted that these toxic stressors in particular have been multiplying. For example, observing an

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**Table 1**  
Childhood Adversities Trends.

Adversity: Indicator	Pre-2000	Post-2000	Source
Parental death: Maternal mortality	↓ 1900 – 2000	→ 2000 – 2017	Flaherty (2000); World Health Organization (2015); Woolf and Schoomaker (2019)
Parental illness, incapacity: TB mortality	↓ 1900 – 2000	↓ 2000 – 2014	Iskrant and Rogot (1953); Barnes et al. (2011); el Bcheraoui et al. (2018)
Sibling death: Child mortality	↓ 1900 – 2000	↓ 2000 – 2016	Guyer et al. (2000); Child Trends (2019)
Parental alcohol abuse: Cirrhosis mortality, Alcohol related deaths	↓ 1973 – 1997	↑ 2000 – 2016	Yoon et al. (2012); Spillane et al. (2020)
Parental drug abuse: Overdose /Poisoning Fatal and nonfatal	↑ 1979 – 2000	↑ 2005 – 2016	Paulozzi et al. (2006); Hempstead and Phillips (2019)
Exposure to domestic violence: Intimate partner violence victimization survey	↓ 1990 – 2000	↓ 2000 – 2013	Lauritsen and Rezey (2018)
Family poverty: Children in poverty	↓ 1967 – 2000	↓ 2000 – 2018	Wimer et al. (2013); Fox (2019); Chaudry et al., 2016
Parental incarceration: Adult incarceration rate	↑ 1900 – 2000	→ 2000 – 2015	Cahalan (1979); Kaeble, Glaze, Tsoutis, and Minton (2016); Carson (2020)
Parental divorce: Divorce rate	↑ 1950 – 2000	↓ 2000 – 2017	Ellwood and Jencks (2004); Allred (2019)
Serious childhood illness: Child hospitalization rate	NA	↓ 2000 – 2016	Sun et al. (2018); Bucholz et al. (2019)
Physical abuse: Substantiated physical abuse	↓ 1992 – 2000	↓ 2000 – 2018	Finkelhor, Saito et al. (2020)
Sexual abuse: Substantiated sexual abuse	↓ 1992 – 2000	↓ 2000 – 2018	Finkelhor, Saito et al. (2020); Planty et al. (2013)
Neglect: Substantiated neglect	→ 1992 – 2000	→ 2000 – 2018	Finkelhor, Saito et al. (2020)
Physical and verbal bullying: Victimization survey rates	NA	↓ 2005 – 2016	Kennedy (2019)
Exposure to community violence: Violent crime rate	↓ 1992 – 2000	↓ 2000 – 2017	Lartey and Li (2019)

↓ or ↑ indicates a change of at least 20% over the time period. → signifies any fluctuation of less than 20%.

increase in some childhood conditions like obesity, asthma and ADHD, Halfon and Newacheck (2010) wrote that, “The epidemiologic shift ...seems to be associated with a shift in the social ecology of childhood. This changing ecology includes exposures to higher levels of toxic stress...” Increases in suicides and school shootings have led other researchers to connect those current trends with a “time when childhood trauma is rising” (Densley & Peterson, 2019). But is this true? While public discussion of ACEs has grown in recent years, this does not necessarily mean their prevalence has been on the rise.

## 2. Methods

There is no fully agreed upon list of ACEs. ACEs are generally considered developmental experiences that are not typical in child development and often overwhelm the normal coping resources of a typical child. They generally include various forms of violence and threat exposure (physical and sexual abuse, bullying, domestic violence and crime) and various forms of deprivation and loss exposure (parental death, incapacitation, and absence).

Trend data about certain ACEs are available from a variety of sources, including vital statistics, US Census, repeated population surveys and nationally compiled agency sources like child protection and police. This article relied on a literature search for trend analyses without any new calculations from unanalyzed data. The search was conducted in academic search data bases by combining the term “trend” with a variety of terms referring to childhood adversities listed in Table 1. Articles were limited to those using national data for the US from government-collected or supported data sources. The included indicators, however, are not necessarily systematic representations of the adversity types and may be vulnerable to bias since indicators with dramatic increases or decreases may be more prone to analysis and publication. Some of the identified sources covered a single generation period of the last 20–25 years, but some sources covered several generations extending back to the early 20th century or before. Given the variability in the source articles, it was not possible to impose a standardized set of time periods for all adversities. Where available, we have tried to distinguish between trends in the 20th century and those applying primarily to the first fifteen to twenty years of the 21st century.

Table 1 presents a list of exposures that are common to many ACE inventories. There is currently no formally agreed ACE set, but all the widely used ACE measures include items concerning parental death, absence or incapacitation and children’s exposure to violence and maltreatment in the home and the community (Koita et al., 2018). Some relevant trend data are available on each of these 15 ACEs. The designation of an increase or decrease is limited to a change of at least 20% across the time frame.

### 3. Observations

#### 3.1. Parental death

There is little dispute that adults of child-rearing age are far less likely to die today than in the past. The magnitude of the improvement is large. Mothers dying in childbirth, for example, which deprived many children of parents throughout history, dropped 98% from 1900 to 2000 (from 800 to below 20 deaths per 100,000 live births), according to the US Mortality data base and the CDC Wonder data base (Flaherty, 2000). In the 21st century there has been a relatively small increase in maternal mortality (from 18 to 23 per 100,000 live births), which researchers ascribe to a better ascertainment of cases (MacDorman, Declercq, Cabral, & Morton, 2016). Other big mortality risks to child-rearing age adults with available data are motor vehicle accidents, occupational accidents, and infectious diseases, all of which declined markedly over the 20th century (Armstrong, Conn, & Pinner, 1999; Bandi, Silver, Mijanovich, & Macinko, 2015; Kraus, 1985). In the 21st century, there was at first a continuing decline in all-cause mortality for parent-aged adults 25–44, but then an increase from 2010 to 2017 related primarily to drug overdoses, yielding about a 10% increase for the period (Woolf & Schoemaker, 2019).

#### 3.2. Parental incapacitating illness

Many of the same health improvements over the last century that kept parents from dying also saved them from chronic disabling conditions that would impair parenting. Among the formerly widespread incapacitating conditions of parents that have been nearly eliminated in the US is tuberculosis as shown by death certificate data, US Vital statistics and the National Tuberculosis Surveillance System (Barnes et al., 2011; Iskrant & Rogot, 1953). TB deaths declined 93% from 1900 when the rate was 194 per 100 K (75% under age 45) to 13 per 100 K in 1950 (42% under age 45) (Iskrant & Rogot, 1953). TB deaths continued to decline by 83% from 1980 down to only .25 deaths per 100 K in 2014 (el Bcheraoui et al., 2018).

#### 3.3. Sibling death

It is also well recognized that the child death rate has plummeted, reducing the adversity of sibling bereavement. The mortality decline in the 20th century was 98% for ages 1–4, 96% for ages 5–6, 93% for ages 10–14 and 85% for ages 15–19, respectively according to state death record certificates (Guyer, Freedman, Strobino, & Sondik, 2000). Child death from all causes continued a decline in the 21st century for all ages with a small uptick only for ages 15–19 from 2014 to 2017, but an overall 28% decline for children ages 1–14 from 2000 to 2016 (Child Trends, 2019; Woolf & Schoemaker, 2019). The mortality rate by 2016 was below 2 per 1000 (Woolf & Schoemaker, 2019). While the impact of this improved child survival has been discussed in terms of greater parental willingness to invest emotionally in their children and have smaller families, its positive effect on the life course of siblings spared from early traumatic loss has not been as much acknowledged.

#### 3.4. Parental substance abuse: alcohol

Substance abuse is typically subdivided into alcohol and drug abuse. The malign impact on families of alcoholism was a strong motivator for passage of the 18th amendment, which did reduce alcohol consumption, morbidity and mortality in the first part of the 20th century. After a rise with the end the Prohibition Era, the rates then started to fall again beginning in the 1970s as indicated by both cirrhosis deaths assessed from death certificates and alcohol related liver disease from hospital admission data (Singal & Anand, 2013; Yoon, Yi, & Thomson, 2012). From 1973–1997, cirrhosis deaths declined 75% along with a decline in alcohol consumption as well (Singh & Hoyert, 2000). However, from 2000 to 2016, alcohol related deaths rose by about 25% to 12 per 100 K, and particularly in the 2008–2016 period and among those aged 25–35 (Spillane et al., 2020). This suggests a worsening of alcohol abuse in the 21st century in the parent-aged population.

#### 3.5. Parental substance abuse: drugs

Drug abuse among adults increased continuously from the 1970s to the present as indicated by overdose and poisoning deaths according to CDC's WISQARS data base (Hempstead & Phillips, 2019; Paulozzi, Ballesteros, & Stevens, 2006). In the period 2005–2018, unintentional drug poisoning deaths increased 126% and as did non-fatal poisonings 174% (Paulozzi et al., 2006). Both reflect the exacerbating problem of drug abuse among the adult population, likely resulting in children's increased exposure to both impaired parenting and traumatic overdose episodes.

#### 3.6. Exposure to domestic violence

Violence between parents and domestic partners living in households has declined substantially since the early 1990s. Rates for intimate partner violence and children exposed to violence in their households have declined over 50% from 1990 through 2013 according to the National Crime Victimization Survey data, from about 35 per 1000 to under 15 per 1000 (40% decline from 1990 to 2000 and 27% decline from 2000 to 2013) (Lauritsen & Rezey, 2018).

### 3.7. Growing up in poverty

Poverty for children has been a stubborn problem to reduce in various eras. However, measures of poverty using US Census data that factor in the effect of government programs such as housing subsidies, the earned income tax credit, food stamps and other transfer payments show a decline for children in poverty of 41% from 1967 to 2000 and another 20% from 2000 to 2018 (Chaudry et al., 2016; Fox, 2019; Glaze & Maruschak, 2008; Wimer, Fox, Garfinkel, Kaushal, & Waldfogel, 2013). The rate for children in poverty for 2018 was 13.7%.

### 3.8. Parental incarceration

The US had an increase in the number of incarcerated adults throughout the 20th century according to studies using US census reports and prison survey data, over 50% between the turn of the century and the 1970s (Cahalan, 1979). Parents in state and federal prison then increased 60% just between 1990 and 2000 (Glaze & Maruschak, 2008). The prison population largely consists of men, and about half of all inmates have at least one child. As of the early years of the 21st century an estimated 7% of children under the age of 18 had experienced the incarceration of a parent (Glaze & Maruschak, 2008). However, from 2007 to 2018, the rate of incarceration began to decline from 506 per million to 431 based on the US Justice Department National Prisoner Statistics Program (Carson, 2020), a drop of 15%.

### 3.9. Parental divorce

Parental divorce has been widely cited as a major, widespread destabilizing factor for children. The peak of concern coincided with the period from the 1960s to the 1980s, when there was a 30% increase in divorce among parents of children according to the US Census Survey of Income and Program Participation (Ellwood & Jencks, 2004). However, after the 1980s the divorce rate began a slow decline according to the US Census Bureau's American Community Survey (Rotz, 2016). Since 2009, the decline accelerated, dropping over 20% to 2018, and reaching a 40 year low of 15.7 per 1000 women (Allred, 2019). There is also evidence that parental divorce has become less predictive of poor child outcomes, perhaps because the stigma associated with divorce has declined or parents manage divorces in a more child-sensitive fashion (Finkelhor, Shattuck, Turner, & Hamby, 2013).

### 3.10. Serious childhood illness

An important measure of serious childhood illness is the rate at which children are hospitalized. The rates of hospitalization of children under 18 years excluding newborns declined 19% from 2000 to 2015 according to National Inpatient Sample gathered by the federal Agency for Healthcare Research and Quality (Sun, Karaca, & Wong, 2018) and then further in 2016 according to the Healthcare Cost and Utilization Project (Bucholz, Toomey, & Schuster, 2019). The rate was around 2100 per 100 K. This decline may have been influenced by increasing efforts to treat all medical conditions on an outpatient basis. But since hospitalization can be a traumatic experience for children whatever their condition, the reduction in rates may be interpreted as possible reduction in childhood adversities.

### 3.11. Physical abuse

Physical abuse by parents and caregivers is a clearly established major toxic stressor. Rates of physical abuse substantiated by child protection agencies have declined in the US by 53% starting in 1992 through 2018 to about 17 per 10 K (34% decline from 1990 to 2000 and 28% decline from 2000 to 2018) according to the National Child Abuse and Neglect Data System (NCANDS) (Finkelhor, Saito, & Jones, 2020). Other indicators about physical abuse come from surveys of the parents and youth and provide additional evidence of a decline in the frequency of physical abuse and corporal punishment (Finkelhor, Saito, & Jones, 2020; Finkelhor, Turner, Wormuth, Vanderminden, & Hamby, 2019; Ryan, Kalil, Ziol-Guest, & Padilla, 2016).

### 3.12. Sexual abuse

Although discussion of childhood sexual abuse has increased in recent years, many indicators have shown prevalence declines since the early 1990s. These trends include a 62% decline in substantiated sexual abuse from 1992 to 2018 (down 46% from 1990 to 2000 and down 30% from 2000 to 2018) as shown in NCANDS data to a rate of 8 per 10,000 (Finkelhor, Saito et al., 2020; Finkelhor, Turner et al., 2019). Parallel declines in sex crimes against children appear in victimization surveys such as the Minnesota state student survey (all 6th, 9th and 12th graders in the state) (Minnesota Department of Education, 2019) and the National Crime Victimization Survey (Planty, Langton, Krebs, Berzofsky, & Smiley-McDonald, 2013). The decline evidenced in population surveys of victims strongly suggests that the decline in cases substantiated by child welfare agencies is not primarily an artifact of changing investigation or reporting practices or standards.

### 3.13. Neglect

Neglect is the most common form of maltreatment reported to child protection agencies. Neglect substantiations by child

protection authorities have fluctuated but remained relatively stable since the late 1990s at around 75 per 10 K according to NCANDS (Finkelhor, Saito et al., 2020). There is some evidence in the National Incidence Study of Child Abuse and Neglect that the rate of neglect has been inflated in recent years as a consequence of a definitional expansion of neglect to include children exposed to domestic violence and parental drug usage (Sedlak, 2012). But it is not possible to confirm a trend for neglect.

### 3.14. Bullying

Bullying has been frequently measured in repeated youth surveys such as the CDC's Youth Risk Behavior Survey. A meta-analysis concluded that from 2005 through 2016 physical bullying declined by three-quarters and verbal bullying by about one half (Kennedy, 2019). Increases in cyber-bullying over this same time period complicate the picture, but cyberbullying is not as prevalent as face-to-face bullying used to be. In addition, the research shows that cyber-bullying alone is much less impactful than when combined with face-to-face bullying (Mitchell, Jones, Turner, Shattuck, & Wolak, 2016). The overall trend here is complex but with some encouraging evidence.

### 3.15. Exposure to community violence

Community crime rates have fallen dramatically in the US since the early 1990s. Police reports collected by the FBI's Uniform Crime Reporting program showed violent crime down 48% from 1992 to 2017 (Lartey & Li, 2019). The National Crime Victimization Survey showed an even larger drop from 1993 to 2018 of over 70% to 23.2 violent victimizations per 1000, although there was a relatively small uptick from 2015 to 2017 (Morgan & Oudekerk, 2019). The drop from 1993 to 2000 was 38% and the drop from 2000 to 2018 was 39%. Surveys of school violence, youth victimization and delinquency show comparable declines from the 1990s through 2017 (Office of Juvenile Justice & Delinquency Prevention, 2019).

### 3.16. Summary

There were three clearly worsening adversities extending into the later 20th century – parental drug abuse, parental incarceration and parental divorce. Of these, in the most recent generation – the early part of the 21st century – divorce has gone down, incarceration has plateaued and then declined, but drug abuse has continued to increase and alcohol abuse joined the increase as well. On the other side of the ledger there were 10 adversities with reductions in the late 20th and early 21st century. The declines in the 20th century were for parental death, parental illness, sibling death and child poverty. The more recently documented declines in the 21st century were for exposure to parental illness, sibling death, child poverty, domestic violence, serious childhood illness, parental divorce, physical abuse, sexual abuse, bullying and exposure to community violence. Parent-age alcohol abuse went down in the late 20th century but has risen in the 21st. The overall balance is 10 recent or long-term improvements vs 4 deteriorations, 2 of which (incarceration and divorce) have moderated or reversed more recently.

There were some other worsening, non-ACE child indicators that have received a great deal of attention. Adolescent suicide has climbed (Ruch et al., 2019), as have some, but not all, indicators of suicidal ideation and depression (Child Trends Databank, 2019). Childhood obesity has been increasing (Ogden et al., 2016). These trends raise the question of why improving ACEs have not yielded more beneficial effects on such mental and physical health outcomes. Some features of social disconnection and isolation (Ang, 2019) or other factors not considered in the ACE conceptualization may be at work. At the same time some other measures of childhood problem behavior have improved: juvenile delinquency is down substantially (Office of Juvenile Justice & Delinquency Prevention, 2018; Puzanchera, C. 2019. *Arrests of Juveniles in 2018 Reached Lowest Level in Nearly 4 Decades.*), as are illicit drug usage (Child Trends, 2018), problem drinking (Child Trends Databank, 2018) and risky sexual behavior (Child Trends Databank, 2017).

All of the trends highlighted above are vulnerable to critique. They rely on government-collected, national data sources, like the US Census, Vital Statistics and the National Crime Victimization Survey, but even these are subject to methodological or artifactual distortions (Howell & Blondel, 1994). The recording of deaths and diseases, as well as police and child protective standards change over time (Jones, Finkelhor, & Kopiec, 2001). Survey methodology evolves, survey response rates have dropped, and disclosure incentives may change (Czajka & Beyler, 2016). Such possibilities might be alternative explanations for increases or decreases, and add some caution about the trends reported here.

Another serious limitation is the unavailability of trend information by population subgroup and particularly racial categories. In the source material used for this article, only trend information on divorce, poverty and crime victimization are available by race, and not even over the whole time period for all of these. It is well-established that most ACEs are more frequent in communities of color (Sacks & Murphey, 2018). For these reasons, it cannot be assumed that the trends identified in this article apply to minority children. It should be an obvious high priority to acquire and analyze trend information that examines whether such subgroups have similar patterns to the population of children as a whole.

In the public discussions about trends, many of the current alarms about childhood are focused on the impact of technology, no doubt because it has been so visibly transformative of ordinary social life. Concerns are widespread about technology's potential to promote social isolation, invidious social comparisons, over-usage and negative effects on attention and schoolwork. This is then often linked to the trends in childhood depression and suicide, which have been increasing since about 2010 (Stein, 2019). The literature on the impact of technology is still recent and inconclusive with at least one study showing an association with greater depression (Twenge, 2019), but others finding no effect (Heffer, Good, Daly, MacDonell, & Willoughby, 2019; Orben & Przybylski, 2019; Orben, Dienlin, & Przybylski, 2019). Other speculations about the suicide and depression trends blame the adult opioid

epidemic, increases in academic and career stress, changes in psychiatric medication usage, media and social contagion, social disconnection and declines in religious belief (Stein, 2019). It is relevant, however, to contrast technology's possible lifestyle impacts on children with ACE-type adversities like parental death, poverty, serious illness, physical and sexual abuse. The ACE adversities compared to the technology effects have enduring, negative impacts that are well-established and uncontroversial and are not seen as having any countervailing benefits.

Somewhat exaggerated alarmism about a pervasive deteriorating condition of childhood, what I have termed "juvenonia," has a long history, and may be a cognitive or social normative bias related to reflexive parental concern for the well-being of their children, among a variety of other factors (Finkelhor, 2011). While this bias may have some benefits in mobilizing collective action to protect children, it also can have malign effects to the extent that it increases parental anxiety, catalyzes unnecessary and potentially harmful restraints on children, misallocates resources among problems and perhaps deters people from having children at all. Examples of possibly harmful alarmist mobilizations include the stranger abduction scare of the 1980s (Best, 1993) and the super-predator warnings of the 1990s (Boghani, 2017). Mistaken perceptions about trends may also leave policy makers and practitioners pessimistic about the possibility of change.

But evidence that certain serious childhood adversities have declined should not be mistaken for the idea that the conditions for children in the US are satisfactory. In fact, comparisons with other developed countries show the US ranks 26th out of 30 on a composite indicator of child well-being, and is particularly lagging on measures of infant and child mortality, children in poverty, and overall physical health (UNICEF-IRC, 2013). US child mortality, for example, is over 6 per 1000 births when most developed countries fall well below 4 per 1000 (Adamson, 2013). These suggest that the US could still reduce childhood adversity considerably based on resources available. The challenge is to sustain and convey an accurate and nuanced picture of child adversities as having improved in some ways but still lagging far behind what is clearly possible.

#### 4. Conclusions and relevance

Some ACEs have improved over the last generation and prior generations as well, although a smaller number have deteriorated. Advocates, practitioners, educators and others who work with and represent children to the public and policy makers need to have an unbiased awareness of progress that has been made in improving the condition of childhood as well as knowledge about the serious challenges they still face.

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NA

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NA

#### Declaration of Competing Interest

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