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| **First Author (year)****Sample Size, Population/Study** | **Year(s) of Data Collection****Mean Participant Age (SD)****Gender (% female)****Race (% white)****Ethnicity (% Hispanic)** | **Analytic approach** | **ACE Variable(s) Used in Analyses** * **Types of ACEs Measured**
 | **Outcome of interest** | **Associations Reported in Fully Adjusted Models (when conducted)** |
| **Alcohol (59 studies)** |  |  |  |  |  |
| Agorastos (2014)[1]N=1,254Never-deployed, young male Marines participating in the Marine Resiliency Study  | 2008-201221.5 years (2.4) 0% female83.8% White  | Logistic regression  | Summary child maltreatment (CM) score based on the following variables:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | Current alcohol consumption  | No significant associations found in adjusted models.  |
| Allem (2015)[2]N=1,420Young Hispanic adults in Southern California participating in Project RED study | 2012-201322.6 years (0.02) 59% female100% Hispanic  | Logistic regression | Summary adversity score and individual exposure to the following variables:* Verbal abuse
* Child physical abuse (CPA)
* Child sexual abuse (CSA)
* Battered mother
* Household substance abuse
* Household mental illness
* Incarcerated household member
* Parental separation or divorce
 | Past-month binge drinking  | Increase in adversity score was associated with binge drinking (OR = 1.24, 95% CI [1.13, 1.35]).CSA, Verbal abuse, CPA, Household substance abuse, Incarcerated household member, and Household mental illness were associated with binge drinking. ORs not reported.  |
| Anderson (2010)[3]N=153Community sample of right-handed, healthy, not medicated young adults. | Year not reported21.9 years (2.2) 65% female70.6% White7.9% Hispanic  | Linear mixed effect modeling | Summary physical CM score based on the following variables:* Physical violence
* Corporal punishment

Summary emotional CM score based on the following variables:* Witnessing domestic violence
* Emotional abuse
 | * Alcohol quantity during typical drinking occasions
* Monthly frequency of alcohol consumption
 | Physical CM (vs. no Physical CM and Emotional CM) was associated with:* Consumption of hard liquor

(*F2, 150* = 14.07, *p* < .001) * Alcohol use (*F 2, 150*= 5.19, *p* = .012)

No CM types were associated with consumption of wine or beer.  |
| Banducci (2014)[4]N=280Majority African American sample recruited from a residential substance use treatment center in inner city Washington D.C. | Year not reported43.3 years (9.8) 30.3% female <13% White  | Hierarchical linear regression; Logistic regression, Chi square | Summary abuse score based on the following variables:* CSA
* CPA
* Emotional abuse
 | Lifetime alcohol dependence  | Abuse score was associated with alcohol dependence (OR = 1.05, 95% CI [1.02, 1.07]).  |
| Blanco (2013)[5]N= 34,653 (6,780 included in analyses)National Epidemiologic Survey on Alcohol and Related Conditions (NESARC); Wave 2  | 2004-2005Demographics not reported for entire sample.  | Logistic regression | Summary adversity score and individual exposure to the following variables: * Verbal abuse
* CPA
* CSA
* Neglect
* Parental absence or separation from a biological parent
* Parental divorce
* Parental substance abuse
* Parental behavioral problem
* Partner with alcohol problem
 | Lifetime Alcohol Dependence  | Individuals with PTSD-AD (compared to PTSD only) were more likely to have experienced:* Verbal abuse (OR = 2.55, 95% CI [2.01, 3.24])
* CPA (OR = 2.23, 95% CI [1.77, 2.81])
* CSA (OR = 1.91, 95% CI [1.50, 2.44])
* Neglect (OR = 1.89, 95% CI [1.48, 2.40])
* Parental absence (OR = 1.72, 95% CI [1.36, 2.17])
* Parental divorce (OR = 1.86, 95% CI [1.42, 2.43])
* Parental behavioral problem (OR = 2.15, 95% CI [1.60, 2.89])
* Parental substance abuse (OR = 2.31, 95% CI [1.82, 2.94])
 |
| Campbell (2016)[6]N=48,526Behavioral Risk Factor Surveillance System (BRFSS), 2011: Minnesota, Montana, Vermont, Washington, and Wisconsin  | 2011Mean age and SD not reported (26.8% 18-34 years37.1% 35-54 years17.3% 55-64 years18.8% 65+ years )50.4% female 85.2% White4.8% Hispanic  | Multiple logistic regression | Summary ACE score and individual exposure to the following:* CPA
* CSA
* Verbal abuse
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental separation/ divorce
* Incarcerated household member
 | * Binge drinking
* Heavy drinking
 | ACE score of 4+ (compared to 0) was associated with:* Binge drinking (AOR = 1.50, 95% CI [1.24, 1.80])
* Heavy drinking (AOR = 1.80, 95% CI [1.39, 2.32])

Verbal abuse was associated with binge drinking (AOR = 1.29, 95% CI [1.04, 1.44]) only. No ACEs were associated with heavy drinking. |
| Carlson, Harden (2015)[7]N=367University of Texas Experience (UTE) study | 2004(baseline) - 2012 Wave 1126.9 years at Wave 1 (SD not reported) 65% female 62% White 14% Hispanic | SEM | Summary adversity score based on the following variables:* CPA
* CSA
 | Alcohol dependence  | Adversity was associated with higher mean alcohol dependence symptoms (b = 0.24, *p* < .05). |
| Carlson, Oshri (2015)[8]N=361Undergraduate students in a U.S. public university  | Year not reported19.1 years (1.7) 62% female 87.2% White  | SEM  | Summary CM score based on the following variables: * CSA
* CPA
* Emotional abuse
* Verbal abuse
 | Binge drinking  | Path between CM and binge drinking was not significant.  |
| Corstorphine (2007)[9]N=102Participants who met DSM-IV criteria for an eating disorder | Year not reported29.3 years (9) 99% femaleR/E not reported  | Chi square  | Exposure to the following:* Emotional abuse
* CSA
* CPA
* Bullying by peers
 | Alcohol abuse  | CSA was associated with alcohol abuse (*χ*² = 4.21, *p* = .02). |
| Drabble (2013)[10]N=11,169National Alcohol Survey (NAS) ; women participants only  | 2000-2010Heterosexual (n=10, 723)45.8 years (SD not reported)Bisexual (n=140)33.6 years  (SD not reported) Lesbians (n=122)40.3 years (SD not reported)Heterosexual reporting same-sex partners (n=184)40.6 years (SD not reported)100% femaleR/E not reported | Chi square; ANOVA  | Exposure to the following:* CPA
* CSA
 | * Alcohol consumption in previous year
* Drinking to intoxication in previous year
* Lifetime alcohol-related dependence symptoms
* Lifetime hazardous drinking
 | CPA was associated with hazardous drinking (AOR = 1.5; 95% CI [1.2, 1.8]).CSA was associated with hazardous drinking (AOR = 1.8, 95% CI [1.3-2.5]).Experiencing both CPA and CSA was associated with hazardous drinking (AOR = 3.3, 95% CI [2.5, 4.5]). |
| Eames (2014)[11]N=77Alcohol-dependent males recruited from a residential treatment center for alcohol dependence at the Dallas Veterans Administration Medical Center and from Homeward Bound, Inc. | Year not reported41.9 years (9.9) 0% female71.8% White 7.0% Hispanic  | Partial correlations; Regression analysis  | Summary CM score based on the following variables:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | Drinks per drinking day prior to treatment | CM was associated with alcohol consumption prior to treatment (*r* = .32, *p* < .01).Among men with high ongoing stress in adult life, higher CM (compared to no/low CM) was associated with higher alcohol consumption prior to treatment (*t* = 2.71, *p* = .011). Among men with high romantic relationship stress in adult life, higher CM (compared to no/low CM) was associated with higher alcohol consumption prior to treatment (*t* = 3.59, *p* = .002). |
| Elliott (2016)[12]N=1,172NESARC, Waves 1 & 2;Alcohol dependent sample | 2001-2002 (Wave 1);2004-2005 (Wave 2)Mean age and SD not reported (75.2% aged < 40 years)32% female69.9% White 13.7% Hispanic | SEM | Summary CM score based on the following variables:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | * Alcohol dependence
* Alcohol persistence
 | One standard deviation increase in CM predicted an 8.7% (95% CI [5.7-11.7]) increase in the risk of persistent alcohol dependence.  |
| Elliott (2014)[13]N= 1,172 NESARC, Waves 1 & 2; Alcohol dependent sample | 2001-2002(Wave 1);2004-2005 (Wave 2)Mean age and SD not reported (75.2% aged < 40 years)32% female69.9% White13.7% Hispanic | Logistic regression | Summary CM score and individual exposure to the following:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | * Alcohol dependence
* Alcohol persistence
 | CM score had an incremental effect on alcohol persistence (AOR = 1.31, 95% CI [1.15, 1.48]).In fully adjusted models, CSA was associated with alcohol persistence (AOR = 2.62, 95% CI [1.62, 4.23]).  |
| Fenton (2013)[14]N=27,712NESARC, Waves 1 & 2 | 2001-2002(Wave 1);2004-2005 (Wave 2)Mean age and SD not reported (61.3% aged < 40 years)56.9% female68.3% White12.6% Hispanic  | Logistic regression | Exposure to the following: * CPA
* CSA
* Emotional abuse
* Physical neglect
* Emotional neglect
 | Lifetime alcohol dependence  | CSA was associated with alcohol dependence (AOR = 2.28, 95% CI [2.00, 2.60]).CPA was associated with alcohol dependence (AOR = 2.28, 95% CI [2.05, 2.54]).Emotional abuse was associated with alcohol dependence (AOR = 2.29, 95% CI [2.06, 2.55]). Physical neglect was associated with alcohol dependence (AOR = 1.90, 95% CI [1.70, 2.14]). Emotional neglect was associated with alcohol dependence (AOR = 1.45, 95% CI [1.25, 1.68]). |
| Fetzner (2011)[15]N=34,160NESARC, Waves 1 & 2 | 2001-2002(Wave 1);2004-2005 (Wave 2)No Alcohol Use Disorder (n=23,350)Mean age and SD not reported (41% aged < 44 years)61.7% female67.1% White13% HispanicAlcohol Use Disorder (n=11, 303)Mean age and SD not reported ( 53.9% aged < 44 years )33.8% female78.1% White8.9% Hispanic  | Logistic regression | Exposure to the following: * CPA
* CSA
* Emotional abuse
* Physical neglect
* Emotional neglect
 | Lifetime alcohol-use disorder (AUD) | Any CM was associated with AUD (OR = 1.31, 95% CI [1.23, 1.40]).CPA was associated with AUD (OR = 1.31, 95% CI [1.21, 1.42]). Emotional abuse was associated with AUD (OR = 1.29, 95% CI [1.15, 1.45]). CSA was associated with AUD (OR = 1.16, 95% CI [1.03, 1.29]).Physical neglect was associated with AUD (OR = 1.16, 95% CI [1.03, 1.29]). Emotional neglect was associated with AUD (OR = 1.26, 95% CI [1.17, 1.36]).Among participants with PTSD:* Any CM was associated with AUD (OR = 1.40, 95% CI [1.08, 1.83])
* CSA was associated with AUD (OR = 1.47, CI [1.11-1.94])
 |
| Font (2016)[16]N=29,229BRFSS; 2012: Iowa, North Carolina, Wisconsin, Tennessee, and Oklahoma  | 2012 47.7 years (0.33) 50.3% female80.5% White 4.7% Hispanic  | SEM  | Summary ACE score and individual exposure to the following:* CPA
* Emotional abuse
* CSA
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | Binge drinking in previous month | ACE scores were associated with recent binge drinking:* 1 ACE (β =.0.22, *p* < .05)
* 2-3 ACEs (β = 0.033, *p* < .001)
* 4+ ACEs (β = 0.031, *p* < .01)

Household mental illness and substance abuse was associated with recent binge drinking (β = 0.017, *p* < .05).Physical and emotional abuse were directly associated with binge drinking (β = 0.025, *p* < .01). |
| Gilmore (2014)[17]N=1,094Lesbian and bisexual women aged 18 to 25  | Year not reported20.88 years (2.11) 100% female70.5% White 11.1% Hispanic  | SEM | Severity of CSA exposure  | Daily drinking frequency | CSA Severity was associated with drinking (*r* =.13, *p* < .001).  |
| Gjelsvik (2013)[18]N=81,910BRFSS; 2009 & 2010: Arkansas, Hawaii, Louisiana, Maine, Nevada, New Mexico, Pennsylvania, Vermont, Washington, and Wisconsin. | 2009-2010Mean age and SD not reportedNo Incarcerated Household Member (n=78,193)47.1% < 40 years 51.9% female82.9% White4.5% HispanicIncarcerated Household Member (n=3,717)73.3% < 40 years47.6% female68.5% White8.1% Hispanic | Logistic regression | Exposure to an Incarcerated household member  | * Heavy drinking in previous 30 days
* Binge drinking in previous 30 days
 | Household incarceration was not significantly associated with binge drinking.Among Hispanic participants, Household incarceration was associated with heavy drinking (AOR = 3.01, 95% CI [1.45, 6.25]), but not for non-Hispanic white or black participants.  |
| Goldstein (2010)[19]N=218College student drinkers | Year not reported20.3 years (3.9) 60.6% female 50.2% White 3.7% Hispanic | Bivariate correlations  | Summary abuse and neglect score based on the following: * CPA
* CSA
* Emotional abuse
* Physical neglect
* Emotional neglect
 | * Alcohol consumption
* Alcohol consequences
 | Among men: * Abuse was associated with alcohol consequences (*r* = 0.32, *p* < .01), but not consumption
* Neglect was associated with alcohol consequences (*r* = 0.28, *p* < .05), and consumption (*r* = 0.22, *p* < .05)

Among women:* Abuse was associated with alcohol consequences (*r* = 0.20, *p* < .05), but not consumption
* Neglect was not associated with alcohol consequences
 |
| Grayson (2005)[20]N=697 (1327 original sample)Participants from a metropolitan area on the West Coast | Year not reportedMean age and SD not reported (40% aged: 45-55 years)100% female 71% White 9% Hispanic  | SEM  | Exposure to CSA  | * Alcohol-related problems
* Past year drinking frequency
 | History of CSA was associated with alcohol-related problems (27% vs 13% of women with no CSA; *χ* 2 (1, N = 697) = 17.40, *p* < .001). History of CSA was associated with being drunk in the last year (43% vs. 27% of women with no CSA; *χ* 2 (1, N = 477) = 11.48, *p* < .01). CSA had significant direct paths to alcohol problems (b = 0.10 & β = 0.08, *p* < .05). |
| Horan (2015)[21]N=896 (at second follow-up)Cases with substantiated CAN and matched controls from a metropolitan area in the Midwest  | 1967-1971 (cases and controls identified); 1987-1998 & 1994 (criminal arrest records); 1989-1995 (first follow-up interview); 2000-2002 (2nd follow-up)39.5 years at 2nd follow-up(SD not reported) 52.8% female 59.3% White | Mediation analyses; Bivariate associations; SEM  | Summary CM score based on substantiated reports of the following:* CPA
* CSA
* Neglect
 | Alcohol use  | Substantiated CM (compared to non-abused controls) was not associated with alcohol use.  |
| Hostinar (2015)[22]N=1,180National Survey of Midlife Development in the United States (MIDUS) II study   | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)57.3 years (11.5)56% female 74.9% White 3.2% Hispanic | Multiple regression; SEM  | Summary ACE score based on the following variables:* CPA
* Emotional abuse
* CSA
* Physical neglect
* Emotional neglect
* Household substance abuse
* Household mental illness
* Parental divorce
 | Alcohol consumption  | No significant associations found between ACE score and alcohol in a model predicting inflammation.  |
| Hughes & McCabe (2010)[23]N=34,653NESARC, Wave 2 | 2004-2005Mean age and SD not reported (7.61% 20-24 years 38.47% 25-44 years34.61% 45-64 years19.31% 65+ years)52% female71% White 12% Hispanic | Multivariate analyses  | Summary CM score and individual exposure to the following: * CSA
* CPA
* Neglect
 | Alcohol abuse and dependence  | Among women:* None of the individual CM experiences were associated with alcohol abuse.
* 2+ CM experiences (compared to 0) had higher odds of alcohol dependence (AOR = 2.1, 95% CI [1.4-3.0])
* Among lesbians, neglect (compared to heterosexual women exposed to neglect) was associated with alcohol dependence (AOR = 30.5, 95% CI [5.2-181.2])

Among men: * None of the individual CM experiences were associated with alcohol abuse
* 2+ CM experiences (compared to 0) had higher odds of alcohol dependence (AOR = 1.8, 95% CI [1.4-2.4])
* There were no differences by sexual orientation
 |
| Hughes, Szalacha (2010)[24]N=953National Study of Health and Life Experiences of Women (NSHLEW) & Chicago Health and Life Experiences of Women study (CHLEW) | 2000 (CHLEW); 2001 (NSHLEW)Mean age and SD not reported (age range: 21-70 years)100% femaleR/E not reported  | Multivariate analysis  | Exposure to CSA | Hazardous drinking in previous 12 months | The highest levels of hazardous drinking were reported by bisexual women with histories of CSA (*M* = 2.99, *SE* = 0.02) compared to other women with CSA histories [i.e., mostly lesbian (*M* = 1.55, *SE* = 0.01), mostly heterosexual (*M* = 1.46, *SE* = 0.07), exclusively lesbian (*M*=1.39, *SE* = 0.04), and exclusively heterosexual (*M* = 1.37, *SE* = 0.03)] and those who experienced adult SV. |
| Hughes (2007)[25]N=447CHLEW – sample of lesbian women | 200037.5 years (SD not reported)100% female 47% White20% Hispanic | Multivariate analyses; Logistic regression  | Exposure to the following:* CSA
* CPA
 | Lifetime alcohol abuse  | CSA predicted lifetime alcohol abuse (β = .10, *p* < .05).CSA was associated with:* Lifetime alcohol dependence symptoms (70.8% vs. 58.8, *p* = .02)
* Early onset of drinking (43.1% vs. 29.6%, *p* = .01)

CPA was not associated with lifetime alcohol abuse. CPA was associated with:* Early onset of drinking (45.4% vs. 30.1%, *p* =.005)
 |
| Jenkins (2011)[26]N=1,158Missouri Adolescent Female Twin Study  | Year not reportedMean age and SD not reported (Age range: 18–29 years) 100% female88.2% White | Univariate and multivariate logistic regression  | Exposure to the following:* Traumatic event
* CSA
* CPA
 | Alcohol abuse and dependence  | Among early-onset alcohol users with alcohol use disorders:* Trauma was more common (OR = 1.4, 95% CI [1.1, 1.9])
* CPA was more common (OR = 2.7, 95% CI [1.6, 4.5])
* CSA was not significant

CPA was associated with alcohol abuse disorder (OR = 2.49, 95% CI [1.46, 5.35]). |
| Keyes (2012)[27]N=1,013Detroit Neighborhood Health Study  | 2008-2009 (Wave 1);2010 (Wave 2)Mean age and SD not reported (27.5% aged < 44 years)60.4% female11% White  | Bivariate and multivariate associations  | Summary CM score and individual exposure based on the following: * CPA
* Emotional abuse
* CSA
 | * Maximum drinks in previous 30 days
* Binge drinking  in previous 30 days
 | Increase in CM score was associated with binge drinking (OR = 1.1, 95% CI [1.01, 1.23]).CSA was associated with binge drinking (OR = 3.1, 95% CI [1.04, 9.35]).CM score and individual CM types were not significantly associated with mean maximum drinks. |
| Kim (2014)[28]N=22,147NESARC, Wave 2 | 2004-2006Mean age and SD not reported (17% 18-29 years35% 30-45 years35% 44-65 years14% 65+ years) 53% female63.3% White17.4% Hispanic | Bivariate association; multivariable logistic regression  | Summary CM score based on the following:* CPA
* Emotional abuse
* CSA
* Emotional neglect
* Physical neglect
 | Alcohol craving  | CM was associated with:* Moderate craving of alcohol (AOR = 1.32, 95% CI [1.05, 1.67])
* Severe craving of alcohol (AOR = 1.88, 95% CI [1.21, 2.91])
 |
| Klanecky (2015)[29]N=200Undergraduate students from a private Midwestern university  | Year not reported19.45 years (1.62) 62% female 72.2% White 5.2% Hispanic  | Multiple hierarchical regression  | Summary adversity and trauma scores based on the following: * CPA
* CSA
* Emotional abuse
* General trauma (witnessing trauma, natural disasters, etc.)
 | Problem drinking | Adversity score and trauma score were not significantly associated with problem drinking. |
| Klanecky (2012)[30]N=298Midwestern undergraduate students  | Year not reported19.9 years (1.9) 54% female88.6% White 2.0% Hispanic  | Multiple hierarchical regression  | Summary trauma score based on the following:* CPA
* Emotional abuse
* General trauma (witnessing trauma, natural disasters, etc.)

Exposure to CSA | Problematic alcohol use  | CSA and trauma score were not directly associated with problematic alcohol use in adjusted models.  |
| La Flair (2013)[31]N=11,750NESARC, Waves 1 & 2; women participants only | 2001-2002 (Wave 1); 2004-2005 (Wave 2)Mean age and SD not reported(17% 18-35 years47% 36-49 years36% 50+ years)100% female 65.2% White18.4% Hispanic | Latent class analysis; Latent transition analysis | Summary CM score and individual exposure to the following:* CSA
* CPA
* Witnessed domestic violence
* Neglect
 | * Alcohol dependence
* Alcohol abuse
 | Increased risk of transition to hazardous use from no alcohol problems at Wave 1 was observed among those who experienced:* Any CM (AOR = 1.6, 95% CI [1.2, 2.0])

Increased risk of transition from hazardous use to severe at Wave 1 was observed among those who experienced:* CSA (AOR = 1.8, 95% CI [1.4–2.4])

Increased risk of transition to severe from no problems at Wave 1 was observed among those who experienced:* CSA (AOR = 4.8, 95% CI [1.9, 12.0])
* CPA (AOR = 5.0, 95% CI [1.7, 14.5])
* Witnessing domestic violence (AOR = 2.6, 95% CI [1.0, 6.6])
* Neglect (AOR = 6.2, 95% CI [2.1, 17.9])
* Poly-victimization (1+ CM) (AOR = 4.6, 95% CI [1.8, 11.8])
* Any CM (AOR = 3.9, 95% CI [1.8, 8.5])
 |
| Lown (2011)[32]N=3,680NAS, 2005; women participants only | 2005Mean age and SD not reported(30% 18-34 years 38% 35-54 years 30% 55+ years)100% female 71% White 11.4% Hispanic  | Bivariate analysis; Logistic regression; Chi squares | Summary abuse score based on the following:* CPA
* CSA
 | * Current alcohol misuse
* Lifetime alcohol misuse
 | Lifetime alcohol-related consequences (2+) were more common in women reporting:* CPA (vs. no abuse)

(AOR = 2.1, 95% CI [1.5, 3.0])* CSA (vs. no abuse)

(AOR,= 3.5, 95% CI [2.6, 4.8]) Lifetime alcohol dependence was more common among women with:* CPA (vs. no abuse)

(AOR = 2.1, 95% CI [1.4, 3.1])* CSA (vs. no abuse)

(AOR = 3.7, 95% CI [2.6, 5.3]) Controlling for drinking volume:* CPA was associated with lifetime alcohol consequences

(AOR = 2.0, 95% CI [1.4, 2.9])* CSA was associated with lifetime alcohol consequences

(AOR = 3.4, 95% CI [2.5, 4.6]) CSA with/without CPA (vs. no abuse) were more likely to report: * Past year heavy episodic drinking (AOR = 1.7, 95% CI [1.0, 2.9])
* Alcohol dependence

(AOR = 7.2, 95% CI [3.2, 16.5])* Alcohol consequences

(AOR=3.6, 95% CI [1.8, 7.3]) CSA (vs. no abuse) was associated with:* Greater number of past year drinks (124 vs.74 drinks, *p* = .002)

CPA (vs. no abuse) was associated with:* Current alcohol patterns for intoxication

(AOR = 1.8, 95% CI [1.1, 2.9])* Current alcohol dependence

(AOR = 5.0, 95% CI [2.1, 11.7]) |
| McCarty (2012)[33]N=484Adult African American men in Atlanta, Georgia who participated in the Be Healthy study  | 2010-201139.6 years (13.7) 0% female0% White  | Logistic regression  | Exposure to the following: * Emotional abuse
* CPA
* CSA
 | Alcohol consumption in previous 90 days  | CPA was associated with been drunk (OR = 2.03, 95% CI [1.12, 3.71]).CSA was associated with been drunk (OR = 2.07, 95% CI [1.02, 4.18]).No abuse items were associated with regular drinking. |
| McMillan (2005)[34]N=1,964First time driving-while-intoxicated offenders who participated in The Lovelace Comprehensive Screening Program  | Year not reported50% ≤39.5 years (Mean age and SD not reported)18% femaleR/E not reported | Logistic regression; Bivariate dale model  | Exposure to CSA  | * Frequency of beer consumption (monthly)
* Quantity of beer consumed
 | CSA was associated with:* Frequency of beer consumption (OR = 2.14, 95% CI [1.49, 3.07])
* Quantity of beer consumption

(OR = 2.95, 95% CI [1.84, 4.72])  |
| Najdowski (2009)[35]N=555Women with unwanted sexual experiences residing in the Chicago metropolitan area | Year not reported32 years (11) 100% female 39% White 6% Hispanic  | SEM | Exposure to CSA | Past year problem drinking  | CSA was associated with problem drinking (*r* = 0.13, *p* < .01; β = 0.14).  |
| Nikulina (2012)[36]N=802Cases with substantiated CAN and matched controls from a metropolitan area in the Midwest  | 2003-200541 years (3.85) 48.7% female 60.8% White 4.1% Hispanic  | Regression  | Exposure to the following:* CPA
* CSA
* Neglect
 | Alcohol abuse  | No significant associations found. |
| Oberleitner (2015)[37]N=34,653NESARC, Waves 1 & 2 | 2001-2002 (Wave 1); 2004-2005 (Wave 2)Demographics not reported for entire sample. | Linear and Poisson regression  | Summary CM score based on the following:* CPA
* Neglect
 | * Age of onset of drinking
* Time to alcohol dependence
 | CM (vs. no CM) was associated with earlier onset of drinking (β = -1.00, *p* < .001). * Among women, those with a CM history developed dependence earlier than those without CM (IRR = 0.85, 95% CI [0.76, 0.94])
* Among men, there was no difference between those with or without CM
* Among those with CM history, women developed alcohol dependence earlier than men

(IRR = 0.86, 95% CI [0.77, 0.96])  |
| Park (2011)[38]N=234First year students at a large Midwestern university | Year not reported18.5 years (0.6) 56% female100% White  | SEM  | Summary adversity score based on the following:* Childhood abandonment
* Neglect
* CPA
* Emotional abuse
* CSA
 | Alcohol dependence  | Among carriers of the long allele (vs. non-carriers), adversity was associated with alcohol dependence (b = 0.12 (β = .33), *p* = .01). |
| Pilowsky (2009)[39]N=43,093NESARC, Waves 1 & 2 | 2001-2002 (Wave 1);2004-2005 (Wave 2)Demographics not reported for entire sample. | Logistic regression  | Summary adversity score and individual exposure to the following:* Parental divorce
* Death of a biological parent
* Living with foster parents
* Living in an institution outside the home
 | * Lifetime alcohol dependence
* Binge drinking
* Early onset of drinking
 | Parental divorce was associated with lifetime alcohol dependence (OR=1.81; 95% CI: 1.65, 1.99). Adversity score was associated with lifetime alcohol dependence:* 2+ ACEs (AOR = 1.37, 95% CI [1.06, 1.77])

Adversity score was associated with lifetime binge drinking: * 1 ACE (AOR = 1.16, 95% CI [1.08,1.26])
* 2+ ACEs (AOR = 1.24, 95% CI [1.06, 1.49])

Adversity score was associated with early onset drinking:* 1 ACE (AOR = 1.49, 95% CI [1.34, 1.65])
* 2+ ACEs (AOR = 1.53, 95% CI [1.16, 2.02])
 |
| Salem (2013)[40]N=157Recently paroled men  | Year not reported41.9 years (10.1) 0% female14.7% White 29.3% Hispanic  | Logistic regression  | Exposure to the following: * CSA
* CPA
* Verbal abuse
* Family not close
* Two parent family
 | * Alcohol-related problems
* Risky alcohol use
 | Adversity was not associated with alcohol use in regression models. |
| Sartor (2012)[41]N=3,787The Missouri Adolescent Female Twin Study, Wave 4 | 2002-2005 21.7 years (2.8) 100% female 85.4% White  | Logistic regression; Chi-square; Cox proportional hazards regression | Exposure to CSA using:* Behavioral questions
* Checklist
 | AUD | CSA derived from behavioral questions was associated with AUD (HR) = 1.67, 95% CI [1.27, 2.19]).CSA derived from checklist items was associated with AUD (HR = 1.41, 95% CI [1.08, 1.84]). Women who endorsed only behavioral questions were at higher risk for AUD (HR = 3.26, 95% CI [1.72, 6.21]) than for all other groups. |
| Sartor (2014)[42]N=4,053A multisite study of the genetics of alcohol dependence, cocaine dependence, and opioid dependence. | Year not reported40 years (SD not reported) 42% female35% White | Ordinal regression  | Summary adversity score based on the following:* Parental death
* Witnessing a violence crime
* CSA
* CPA
 | * Maximum drinks consumed in a 24-hour period
* AUD symptoms
 | Among black women, adversity was associated with:* A higher number of max drinks

(OR = 1.92, 95% CI [1.45, 2.53])* AUD symptoms (OR = 1.71, 95% CI [1.31, 2.22])

Among black men, adversity was associated with:* A higher number of max drinks

(OR = 1.67, 95% CI [1.32, 2.12])* AUD symptoms (OR = 1.78, 95% CI [1.41, 2.25])

Among white women, adversity was associated with:* A higher number of max drinks

 (OR = 1.77, 95% CI [1.28, 2.44])  |
| Schellekens (2013)[43]N=209Male patients admitted to a detoxification clinic and healthy controls  | Year not reportedHealthy controls (n=99)39 years (9)Alcohol-dependent patients (n=110)41 years (11)0% female100% White | Logistic regression; ANOVA | Summary adversity score based on the following:* Psychological abuse
* CPA
* CSA
* Physical neglect
* Emotional neglect

Summary parental acceptance/rejection scoreSummary stressful life events score | Alcohol dependence  | Adversity score predicted alcohol dependence (OR = 1.12, 95% CI [1.07, 1.17]).Parental acceptance score predicted less alcohol dependence (OR =.97, 95% CI [.96-.98]).Life events score predicted alcohol dependence (OR = 1.21, 95% CI [1.12, 1.27]). |
| Schwandt (2013)[44]N=417Treatment-seeking individuals with alcohol dependence (AD) and controls with no past or current alcohol dependence.  | Year not reportedCases (n=280)41.4 years (10)32% female 56.4% White5.7% Hispanic Controls (n=137)28.7 years (8.4) 38% female 62.4% White5.8% Hispanic  | Chi square; ANOVA; bivariate correlations; multiple mediation analyses | Summary CM score and individual exposure based on the following:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | Alcohol use in previous 90 days | CM exposure was significantly more prevalent in the AD subjects (vs. controls):* CPA (OR = 3.5, 95% CI [2.1, 5.9])
* CSA (OR = 4.3, 95% CI [2.0, 9.3])
* Emotional Abuse (OR = 11.5, 95% CI [5.8, 22.8])
* Emotional neglect (OR = 5.0, 95% CI [3.1, 7.8])
* Physical neglect (OR = 1.9, 95% CI [1.9, 6.8])

Among treatment-seeking alcoholics: * CPA had a significant direct effect on alcohol dependence severity

(β = 0.28, *p* = .04)* Emotional abuse had a significant direct effect on alcohol dependence severity

(β = 0.34, *p* = .01)* Physical neglect was associated with alcohol dependence severity score (β = -0.36, *p* = 0.03)
* Neither CSA nor neglect had significant effects on alcohol use

Among control group, CM was not significantly associated with alcohol use in adjusted models.  |
| Shin, Hassamal (2015)[45]N=337Community sample of young adults  | Year not reported21.7 years (2.1)52.5% female 55.7% White 8.6% Hispanic  | SEM | Summary CM score and individual exposure to the following: * Emotional abuse
* CPA
* CSA
* Neglect
 | * Alcohol use in past 12 months
* Binge drinking
* Alcohol-related problems
* Lifetime alcohol dependence
 | Adversity did not have significant direct paths to drinking behaviors.  |
| Shin, Lee (2015) [46]N=268Healthy young adults  | Year not reported21.9 years (2.1) 51.9% female 64.6% White 5.6% Hispanic  | SEM | Severity and exposure to the following: * Emotional abuse
* CPA
* CSA
* Neglect
 | * Frequency of alcohol use
* Binge drinking
* Alcohol-related problems
* Alcohol use disorders
 | Emotional abuse was not directly associated with alcohol use. CSA had a significant direct path to:* Alcohol problems (β = 0.12, *p* < .05)
* Alcohol use disorders

(β = 0.22, *p* < .05)CPA had a significant direct path to:* Alcohol use disorders

(β = 0.19, p < .05) |
| Skinner (2016)[47]N=313Lehigh Longitudinal Study | 1976-1977 (Wave 1);1980-1982 (Wave 2); 1990-1992 (Wave 3); 2008-2010 (Wave 4)36.2 years (2.12) 46% females80.7% White 7% Hispanic  | Confirmatory factor analysis; SEM  | Exposure to CSA  | Binge drinking  | Among males, CSA was not associated with binge drinking.Among women, the path from CSA to binge drinking was significant (β = 0.16, *p* < .05).  |
| Snyder (2016)[48]N=11,117The National Longitudinal Study of Adolescent to Adult Health (Add Health), Waves 1 & 3 | 1994-1995 (Wave 1)2001-2002 (Wave 2)Female (n=5,949)21.61 years (SD not reported; Age range: 18-25 years)Male (n=5,168)21.72 years (SD not reported; Age range: 18-25 years)53% female62% White15.4% Hispanic  | Latent class analysis  | Exposure to neglect | Alcohol use  | Among males, neglect was associated with membership in the multiple-risk drinkers’ class (OR = 2.16, 95% CI [1.11, 4.21]). Among females, neglect was associated with membership in the multiple-risk drinkers’ class (OR = 2.41, 95% CI [1.22, 4.77]).  |
| Strine (2012)[49]N=7,279Adverse Childhood Experiences (ACE) Study, Wave 2 | 1997Female (n=3,922)54.8 years (15)74.2% White11% Hispanic Male (n=3,357)57.1 years (14)76% White10.3% Hispanic 53.8% female | Logistic regression  | Summary ACE score and individual exposure to the following variables: * Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental separation/ divorce
* Incarcerated household member
 | Alcohol-related problems  | Among women, alcohol problems were associated with:* Emotional abuse (OR = 1.7, 95% CI [1.2, 2.3])
* CPA (OR = 1.5, 95% CI [1.2, 2.0])
* CSA (OR = 1.6, 95% CI [1.3, 2.1])
* Emotional neglect (OR = 1.6, 95% CI [1.2-2.2])
* Physical neglect (OR = 1.5, 95% CI [1.1-2.2])
* Parental separation/divorce (OR = 1.5, 95% CI [1.1-1.9])
* Household substance abuse (OR = 2.3, 95% CI [1.6-3.3])
* Household mental illness (OR = 1.7, 95% CI [1.3-2.2])
* 4+ ACEs (vs. 0 ACEs) (OR = 2.7, 95% CI [1.8, 3.9])

Among men, alcohol problems were associated with:* CPA (OR = 1.4, 95% CI [1.1, 1.7])
* CSA (OR = 1.5, 95% CI [1.2, 1.9])
* Emotional neglect (OR = 1.5, 95% CI [1.1, 1.9])
* Household substance abuse (OR = 1.7, 95% CI [1.1, 2.4])
* Household mental illness (OR = 1.5, 95% CI [1.2, 1.9])
* Incarcerated household member

(OR = 1.6, 95% CI [1.1, 2.3]) * 4+ ACEs (vs. 0 ACEs) (OR = 1.9, 95% CI [1.4, 2.6])
 |
| Trent (2007)[50]N=5,697Navy recruits | Year not reported19.9 years (SD not reported)46.6% female 62.2% white11.1% Hispanic  | MANOVA; ANOVA | Exposure to the following:* CPA
* CSA
 | Lifetime alcohol abuse | Among women:CSA was associated with:* Alcohol abuser (OR = 1.47, 95% CI [1.22, 1.77])
* Binge drinking (OR = 1.36, 95% CI [1.14, 1.62])
* Ever drank (OR = 2.53, 95% CI [1.99, 3.21])
* Drink until drunk (OR = 1.39, 95% CI [1.15, 1.67])
* Alcoholic (OR = 1.56, 95% CI [1.27, 1.91])

CPA was associated with:* Alcohol abuser (OR = 1.26, 95% CI [1.05, 1.52])
* Ever drank (OR = 1.80 (95% CI [1.43, 2.25])
* Drink until drunk (OR = 1.30, 95% CI [1.08, 1.57])
* Alcoholic (OR = 1.91, 95% CI [1.55, 2.35])

Among men:CSA was associated with:* Current drinker (OR = 1.49, 95% CI [1.17, 1.90])
* Alcohol abuser (OR = 1.78, 95% CI [1.38, 2.29])
* Binge drinking (OR = 1.85, 95% CI [1.50, 2.28])
* Ever drank (OR = 1.59, 95% CI [1.21, 2.09])
* Alcoholic (OR = 2.07, 95% CI [1.69, 2.54])

CPA was associated with:* Alcohol abuser (OR = 1.42, 95% CI [1.16, 1.72])
* Binge drinking (OR = 1.23 95% CI [1.04, 1.16])
* Ever drank (OR = 1.35, 95% CI [1.09, 1.67])
* Drink until drunk (OR = 1.37, 95% CI [1.15, 1.63])
* Alcoholic (OR = 1.75, 95% CI [1.47, 2.08])

Among drinkers: CPA was associated with:* Alcohol abuser (F1, 3877 = 51.31, *p* < .001)
* Binge drinking (F1, 3877 = 6.12, *p* < .05)
* Drink until drunk (F1, 3877 = 15.14,

*p* < .001) CSA was associated with:* Alcohol abuse score (F1, 3877 = 39.37,

*p* < .001) * Binge drinking (F1, 3877 = 44.80, *p* < .001)
* Drink until drunk (F1, 3877 = 7.65,

*p* < .01)The severity of alcohol related problems was higher for men than women.  |
| Tyler (2015)[51]N=704College students enrolled in undergraduate courses at a large Midwestern university | 2013-2014Age not reported60% female 81% White 4.6% Hispanic  | SEM  | Exposure to CSA | Drinking behavior  | CSA was not associated with drinking behavior in adjusted models.  |
| Ulibarri (2015)[52]N=204Latina women recruited from a program providing nutrition and health education services for low-income women and children in San Diego, CA | Year not reported25.04 years (4.2) 100% female100% Hispanic  | Linear regressions; SEM  | Exposure to CSA | Alcohol abuse  | CSA was not associated with alcohol abuse in adjusted models.  |
| Ullman (2015)[53]N=1,863Women with sexual assault histories from a large Midwestern metropolitan area  | Year not reported31.1 years (12.2) 100% female 35% White 14% Hispanic  | Bivariate correlations; Multiple regression  | Severity and exposure to CSA  | * Typical drinking frequency in previous year
* Alcohol-related problems in previous year
 | CSA was not associated with drinking measures in adjusted models. |
| Waldrop (2007)[54]N=58 (sample for reported results)The study included individuals with comorbid alcohol dependence and PTSD (n = 28), PTSD only (n = 30), alcohol dependence only (n= 35), and neither PTSD nor alcohol dependence (n = 31). | Year not reportedRange: 18-60 years (Mean age and SD not reported)52% female R/E not reported | Regression; ANCOVA  | Summary adversity score based on the following:* CSA
* CPA
* Witnessing violence
* Other traumas
 | * Daily drinking in previous 90-day period
* Age at first drink
* Age at heaviest drink
 | Experiencing childhood trauma (compared to adult trauma) was associated with:* Earlier age of first drink [F1,53 = 3.84, *p* = .055, *M* = 14.74 (2.63) versus

*M* = 16.16 (2.65)]* Earlier age of heaviest drinking [F1,41 = 6.69, *p* = .01, *M* = 22.22 (5.30) versus *M* = 29.44 (10.93)]
* Shorter delay from onset of alcohol use to heavy alcohol use [F1,40 = 3.03, *p* = .09, *M* = 7.94 years (5.96) versus *M* = 13.88 years (10.63)]
 |
| Walsh & Latzman (2014)[55]N=1,169College students at a large, public urban Southeastern university  | Year not reported20.7 years (4.65) 72.9% female33.6% White | Path analyses  | Exposure to the following:* CSA
* CPA
 | Alcohol-related problems in previous six months | Among women:* CSA was directly associated with alcohol problems (β = 0.12, *SE* = 0.04)
* CPA was directly associated with alcohol problems (β = 0.25, *SE* = 0.04)

Among men:* CSA was directly associated with alcohol problems (β = 0.09, *SE* = 0.03)
* CPA was directly associated with alcohol problems (β = 0.22, *SE* = 0.03)
 |
| Wu (2010)[56]N=402Participants recruited from residential drug abuse treatment programs that provided publicly funded treatment to adults within Los Angeles, CA. | 1999-200236.4 years (8.4) 47.2% female 44% White 13% Hispanic  | Logistic regression | Summary adversity score based on the following: * Emotional abuse
* Emotional neglect
* Physical neglect
* CPA
* CSA
* Witnessing family violence
* Parental separation/divorce
* Incarcerated family member
* Out-of-home placement
* Death of someone close
 | * Lifetime alcohol dependence
* Current alcohol dependence
 | Adversity was associated with lifetime alcohol dependence (AOR = 1.16, 95% CI [1.02, 1.33]).  |
| Young (2006)[57]N=41,482Men from the Recruit Assessment Program study | 2002-2006Mean age and SD not reported (56% aged 18 years; Age range: 18-20 years)0% female66.1% White21.2% Hispanic  | Logistic regression | Exposure to the following:* Physical neglect
* Emotional abuse
* Witnessing domestic violence
* CPA
* CSA
* Household problem drinker
* Household mental illness
 | Risky drinking  | Emotional abuse was associated with risky drinking (OR = 1.2, 95% CI [1.1, 1.3]).CPA was associated with risky drinking (OR = 1.1, 95% CI [1.0, 1.4]). CSA was associated with risky drinking (OR = 1.3, 95% CI [1.0, 1.6]).Household mental illness was associated with risky drinking (OR = 1.3, 95% CI [1.2, 1.4]).Household problem drinking was associated with risky drinking (OR = 1.3, 95% CI [1.2, 1.5]). |
| Young-Wolff (2011)[58]N=3,527Virginia Adult Twin Study of Psychiatric and Substance Use Disorders | 1993-199635 years (SD not reported; Age range: 19-56 years)0% femaleR/E not reported | Logistic regression | Summary CM score based on the following:* CPA
* CSA or molestation
* Serious neglect
 | Lifetime alcohol dependence  | CM (vs. no CM) was associated with criteria for lifetime alcohol dependence (OR = 1.74, 95% CI [1.38, 2.19]).  |
| Yuan (2014)[59]N=294Urban, lesbian, gay, and bisexual American Indian and Alaska Native adults | 2005-2007Female (n=117) 38.9 years (10.4)Male (n=177)37.9 (10.2)39.8% female0% White | Logistic regression  | Summary CM score and individual exposure to the following:* CPA
* Physical neglect
* CSA
* Emotional abuse
* Emotional neglect

Out-of-home placement:* Boarding school
* Being adopted
* Foster care
 | * Diagnosis of alcohol disorders
* Past-year alcohol dependence
* Hazardous and harmful alcohol consumption
* Binge drinking
 | Among women: Out-of-home placement (being adopted) was associated with:* Decreased risk of binge drinking (OR = 0.12, 95% CI [0.002, 0.60]) in fully adjusted models

Among men:Out-of-home placement (boarding school) was associated with:* Alcohol dependence (OR = 3.34, 95% CI [1.28, 8.75]) in fully adjusted models

Out-of home placement (foster care) was associated with:* Alcohol dependence (OR = 2.99, 95% CI [1.19,7.53]) in fully adjusted models

For men and women, CM score was not associated with alcohol dependence.  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Inflammation (22 studies)** |  |  |  |  |  |
| Appleton (2012)[60]N=430The New England Family Study (NEFS) | Year not reported42 years (SD not reported)59% female80% White | Linear regression  | Exposure to the following variables:* Childhood socioeconomic status
* Parental occupation
* Parental education at age 7
 | C-reactive protein (CRP) | No significant associations found in adjusted models |
| Bertone-Johnson (2012)[61]N=702Nurses’ Health Study II | 1989 (baseline); 1996-1999 (blood sample);2001 (violence questions asked)43.9 years (SD not reported) at time of blood sample100% female>90% White | General linear models | Summary abuse score and severity of individual exposure to the following variables: * CPA
* CSA
* Adolescent physical abuse (ages 11-17 years)
* Adolescent sexual abuse (ages 11-17 years)
 | * CRP
* Interleukin-6 (IL-6)
* Soluble fraction of tumor necrosis for factor alpha receptor 2
 | Sexual abuse: No significant associations found in fully adjusted models Physical abuse: No significant associations found in fully adjusted models Summary abuse in adolescence: No significant associations found in fully adjusted models Summary abuse in childhood: No significant associations found in fully adjusted models  |
| Carpenter (2010)[62]N=69Community sample who experienced Child Maltreatment (CM) and healthy controls  | Year not reportedControls (n=50):24.5 years (8.8)56% females R/E not reportedCases (n=19):32.8 years (13.9)73.7% females R/E not reported | General linear models | Summary CM score based of the following variables: * Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | Plasma IL-6 response to the Trier Social Stress Test  | CM (versus never) was associated with: * Greater acute IL-6 release (*F* = 8.5, *p* = .005)
* Higher IL-6 concentrations over time (*F* = 4.6, *p* = 0.03)
 |
| Cho (2012)[63]N=2716Coronary Artery Risk Development in Young Adults (CARDIA) study | 1985-1986 (study inception); 2000-2001 (Year 15 exam - baseline); 2005-2006 (Year 20 exam - follow-up)40.3 years (3.6)54.6% female57.3 White | Linear regression with Sobel–Goodman mediation test | Summary early life stress score based on the following variables: * Neglect
* Abuse
* Household substance abuse
* Family environment
 | * CRP
* IL-6
 | No significant associations found in adjusted models for early life stress and CRP. Early life stress accounted for variation in IL-6 (β = 0.062, *p* = .001). |
| Copeland (2014)[64]N=1420Great Smoky Mountains Study | 1992-2003Mean age and SD not reported (Aged 9, 11, and 13 at baseline)54.6% female 89.7% White <1% Hispanic  | Linear regression  | Exposure to bullying in school  | CRP at age 19 and 21 | Compared to those uninvolved in bullying:* Being a bully predicted lower levels of CRP: (β(SE) = -0.09 (0.04), *p* = .01).
* Being a victim predicted higher levels of CRP (β(SE) = 0.09 (0.04), *p* = .02).
 |
| Crosswell (2014)[65]N=152Breast cancer survivors | 2007-201251.7 years (7.8)100% female83% White | Logistic regression  | Summary adversity score, and exposure to individual categories based on the following variables: * Childhood abuse (physical and verbal)
* Neglect
* Chaotic home environment
 | * IL-6
* IL-1B
* Soluble tumor necrosis factor (TNF-α)
* CRP
 | Total adversity score associated with:* Elevated IL-6 (β = 0.009, *p* = .027,

η2 = 0.027)* Relationships with the other inflammatory markers were nonsignificant.

Individual adversity categories:* Abuse and IL-6 (β = 0.043, *p* = .030, η2 = 0.026)
* Chaotic home environment and IL-6

(β = 0.031, *p* = .005, η2 = 0.043)* Chaotic home environment and TNF-α (β = 0.012, *p* = .009, η2 = 0.037)
 |
| Dube (2009)[66]N=15,357ACE Study | 1995-1997; 2005 (follow-up of medical charts)56 years (15)54% female76% White11% Hispanic  | Cox proportional hazards regression  | Summary ACE score based the following variables:* CPA
* Emotional abuse
* CSA
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | Hospitalizations for 21 selected autoimmune diseases and 4 immunopathology groupings: * T- helper 1 (Th1) (e.g., idiopathic myocarditis)
* T-helper 2 (Th2) (e.g., myasthenia gravis)
* T- helper 2 rheumatic (e.g., rheumatoid arthritis)
* Th1/Th2 (e.g., autoimmune hemolytic anemia)
 | ≥2 ACEs (compared to 0 ACEs) were at increased risk for hospitalization with:* Th1-types (HR = 1.7, 95% CI [1.2-2.5])
* Th2 types (HR = 1.8, 95% CI [1.3-2.4])
* Th2 rheumatic diseases (HR = 2.0, 95% CI [1.3-2.4])
 |
| Friedman (2015)[67]N=1180MIDUS II study | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)54.5 years (11.7)57% female78% White | Linear regression  | Summary adversity score based the following variables: * Childhood socioeconomic disadvantage (i.e. on welfare, perceived low income, less-educated parents)
* Other stressors (e.g., parental death, divorce, and CPA)
 | Summary Inflammation score based on the following variables:* CRP
* Fibrinogen
* IL-6
* Soluble adhesion molecule-1 (ICAM-1)
 | Early adversity was associated with inflammation: β = 0.023, *SE* = 0.007, *p* < .001. |
| Gouin (2012)[68]N=130Family dementia caregivers and non-caregiving controls  | 2004-2009Non-Abused (n=73):67.2 years (13.7)83.5% females R/E not reportedAbused (n=77):62.5 years (12.1)80.7% females R/E not reported | Hierarchical linear regression  | Summary abuse score based on the following variables: * CPA
* CSA
* Emotional abuse
 | * IL-6
* Tumor necrosis factor-α (TNF-α)
* CRP
 | Summary abuse score:* Associated with greater IL-6 levels (β = 0.09 (*SE* = 0.03), *p* = .01, *R2* = 0.055)
* Was not significantly associated with TNF-α and CRP
 |
| Hartwell (2013)[69]N=38Healthy adults from Charleston, NC | Year not reported35.7 years (12.0)52.6% female69.2 % White | Linear regression  | Summary trauma score, and exposure to individual categories based on the following variables: * CSA
* CPA
* Emotional abuse
* General forms of trauma
 | * IL-6
* TNF-α
* interleukin-1β (IL1-β)
* CRP
 | Total trauma score was associated with elevated:* IL-6 (F1,30 = 4.05; *p* = .05)
* IL1-β (F1,29 = 5.24; *p* < .05)
* TNF-α (F1,25 = 7.86; *p* = .01)

Individual trauma categories:* General trauma and IL-6 (F1, 30 = 13.65; *p* < .01.
* No other trauma categories were significant

There were no significant associations between trauma and CRP. |
| Hostinar (2015)[22]N=1,180MIDUS II study  | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)57.3 years (11.5)56% female74.9% White3.2% Hispanic  | Multiple regression; Structural equation modeling (SEM) | Summary ACE score based on the following variables:* CPA
* Emotional abuse
* CSA
* Physical neglect
* Emotional neglect
* Household substance abuse
* Household mental illness
* Parental divorce
 | Composite inflammation score based on the following:* IL-6
* CRP
* Fibrinogen
* E-Selectin
* Intercellular Adhesion Molecule-1 (ICAM-1)
 | In an adjusted model, ACE score was associated with inflammation (β =0 .07, *t* = 2.29, *p* = .02). |
| Joung (2014)[70]N=95General population in Boston  | 2009-201245.7 years (3.4)54.7% female44.2% White | Linear regression  | Summary adversity score based on the following variables:* Number of adversities
* Severity of adversity
* Chronicity of adversity
 | CRP | No significant associations found in adjusted models. |
| Kiecolt-Glaser (2011)[71]N=132Family dementia caregivers and non-caregiving controls  | 2004-2009 Care-givers (n=58):70.1 years (9.4)71% females 72.5% WhiteControls (n=74):69.4 years (10.7)73% females 72.5% White | Mixed linear models | Summary abuse score, based on the following variables: * CSA
* CPA
* Emotional abuse

Summary adversity score, based on the following variables: * Death of the mother
* Death of the father
* Severe parental marital problems
* Immediate family member mental illness
* Immediate family member abusing alcohol
* Lack of at least one close relationship with an adult
 | * IL-6
* TNF-α
 | Childhood abuse was associated with:* Heightened IL-6 (F1,126 = 9.51, *p* = .003)
* Not significantly associated with TNF-α levels or telomere length

Childhood adversity was associated with:* Elevated IL-6 (F1,125 = 1.96, *p* = .05)
* Not significantly associated with TNF-α levels
 |
| Matthews (2014)[72]N=326Study of Women’s Health Across the Nation  | 1996-200547.5 years (2.5)100% female68.1% White | Generalized estimating equations; Generalized linear regression  | Summary CM score and exposure to individual categories based on the following variables: * CSA
* CPA
* Emotional abuse
* Physical neglect
* Emotional neglect
 | CRP  | Any abuse or neglect was associated with elevated CRP (*p* < .02).Emotional neglect was associated with elevated CRP (*p* = .004). Emotional abuse was associated with greater percent change in CRP over 7 years (*b(SE)* = 0.02(.01), *p* = .005).Neglect was associated with greater percent change in CRP over 7 years (*b(SE)* = 0.02 (.01), *p* = .02). |
| Nikulina (2014)[73]N=675Court-substantiated cases of childhood neglect and matched controls from the Midwest followed into adulthood | 1967-1971 (when abuse occurred);2003-2005 (follow-up)Mean age and SD not reported51% female59% White0% Hispanic  | Hierarchical linear regression | Exposure to the following variables:* Physical neglect
* Family poverty
* Neighborhood poverty
 | CRP | Among white participants only, neglect was associated with elevated CRP (OR = 2.18, 95% CI [1.29, 3.67]).Family and neighborhood poverty: No significant associations found in adjusted models. |
| Rooks (2012)[74]N=482Male twins (241 pairs) born between 1946-1956 from the Vietnam Era Twin Registry | 2002- 2006 (the Twins Heart Study); 2005-2008 (Stress and Vascular Evaluation in Twins)55 years (3)0% femaleR/E not reported  | Mixed model linear regression; Generalized estimating equation | Summary trauma score and exposure to individual categories based on the following variables:* CPA
* CSA
* Emotional abuse
* General trauma
 | * CRP
* IL-6
 | Total trauma score: Within-pair analyses:* Trauma scores were not associated with CRP and IL-6.

Between pair:* Trauma scores were associated with elevated CRP (β = 0.05, *p* = .01) and IL-6 (β = 0.03, *p* = .02).

Emotional abuse was associated with elevated CRP (β = 0.04, *p* = .04).  |
| Schrepf (2014)[75]N=687MIDUS II: participants who did not have a history of cardiovascular disease, transient ischemic attack/stroke, diabetes, or cancer. | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)52 years (10.9)56% female92.5% White4.6% Hispanic  | SEM | Summary child trauma score and exposure to individual categories based on the following variables:* Emotional abuse
* CPA
* CSA
* Physical neglect
* Emotional neglect
 | CRP | Childhood trauma was not directly associated with elevated CRP. |
| Slopen (2015)[76]N=355NEFS | 1959-1966 (enrollment); 2005-2007 (follow-up)42.2 years (1.7)57.8% female80.7% White | Linear and quantile regression  | Summary prenatal adversity score based on: * Family structure
* Parental education
* Parental occupation
* Family income

Summary childhood adversity score based on: * Characteristics of the respondents’ social environment
 | CRP | Prenatal adversity was associated with elevated CRP (OR=3.3, 95% CI [1.15, 8.02]).No significant associations found in adjusted models for childhood adversity.  |
| Slopen (2014)[77]N=550Chicago Community Adult Health Study | 2001-200344.3 years (17.1)54.3% female44.5% White20.2% Hispanic  | Generalized linear models  | Summary adversity score, based on the following parental variables: * Physical neglect
* Emotional neglect
* CPA
* Emotional abuse
* Family socioeconomic status
 | CRP | No significant associations found in adjusted models. |
| Slopen (2010)[78]N=999MIDUS study and African Americans from Milwaukee, WI who participated in MIDUS II | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)57.9 years (SD not reported)55.4% female82.3% White | Multivariate linear regression  | Summary early life adversity score, based on the following variables: * Stressful events (i.e., school failure, sent away from home for misbehavior, parental unemployment, parental substance abuse, dropped out of school, expelled/suspended from school, receipt of welfare, moved 2+ times)
* Rating of parental relationships
* Verbal and physical assault by parents
 | * CRP
* IL-6
* Fibrinogen, endothelial leukocyte adhesion molecule-1 (E-selectin)
* Soluble intercellular adhesion molecule-1 (sICAM-1)
 | Among African Americans, adversity was associated with:* IL-6 (b = 0.11, *SE* = 0.05, *p* < .05)
* Fibrinogen (b = 15.66, S*E* = 7.03, *p* < .05)
* E-selectin (b = 3.54, *SE* = 1.70, *p* < .05)
* sICAM-1 (b = 29.49, *SE* = 12.90, *p* < .05)

Among Whites, no significant associations found in adjusted models for adversity. |
| Smith (2011)[79]N=110Urban population of African-Americans with low socioeconomic status recruited from a public hospital  | Year not reportedAge not reportedGender not reported0% white | Linear mixed model | Summary abuse score based on the following variables:* CPA
* CSA
* Emotional abuse
 | * IL-6
* IFNa
* IL1b
* TNF-α
* IL4
* IL10
 | Child abuse was associated with TNF-α (*t* = 2.78, p = 0.0076). |
| Tietjen (2012)[80]N=141Women with physician-diagnosed migraine and age-matched controls | 2006-2008Cases (n=100)37 years (8.3)100% female92% WhiteControls (n=41)36.9 years (10.2)100% female 88% White  | Logistic regression  | Summary ACE score based on the following variables: * CPA
* Emotional abuse
* CSA
* Emotional neglect
* Physical neglect
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | * CRP
* TNF-α
* IL-6
 | ACE score associated with:* CRP (OR = 4.05, 95% CI [1.56, 10.51])
* IL-6 (OR = 2.23, 95% CI [1.02, 4.86])
* TNF-α (OR = 2.99, 95% CI [1.33, 6.72])
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| **Infectious Agents (12 studies)** |  |  |  |  |  |
| NIMH Multisite HIV/STD Prevention Trial for African American Couples Group (2010)[81]N=1,070The Eban Study: African American couples recruited from HIV service providers | Year not reported43.4 years (8.1)50% female0% White | Multinomial regression  | Exposure to CSA | * HIV infection
* Hepatitis C infection
 | The odds of having a CSA history for HIV-positive men was greater compared to HIV-negative men (OR = 1.90, 95% CI [1.28, 2.80]); association was not significant for women. CSA was not significantly associated with Hepatitis C.  |
| Arreola (2008)[82]N=2,881Gay and bisexual men from Los Angeles, San Francisco, Chicago, and New York  | 1996-1998Mean age and SD not reported0% femaleR/E not reported  | Logistic regression  | Exposure to CSA: * Consensual sex
* Forced sex
 | HIV infection  | Consensual sex (compared to no sex group) associated with HIV infection (AOR = 2.01, 95% CI [1.42, 2.83], *p* < .001). Forced sex (compared to no sex group) associated with HIV infection (AOR = 2.67, 95% CI [1.77, 4.03]).Consensual sex and forced sex were not significantly different from each other.  |
| Brennan (2007)[83]N=936Gay and bisexual men attending Pride festivals in Minneapolis | 1997-199834 years (SD not reported)0% female88.8% White | Logistic regression  | Exposure and frequency to CSA | HIV infection | Those who regularly experienced CSA (compared to no CSA) were more likely to report HIV infection (AOR = 2.87, 95% CI [1.05, 7.85]). |
| Fagundes (2013)[84]N=108Breast cancer survivors | Year not reported51.6 years (9.4)100% female90.7% White  | Hierarchical linear regression  | Summary childhood adversity score based the following variables: * Death of the mother or father
* Severe parental marital problems
* Immediate family member suffering from a mental illness or abusing alcohol
* No close adult relationship
 | Antibodies to two latent herpesviruses:* Epstein-Barr virus
* Cytomegalo virus
 | Childhood adversity was associated with elevated Epstein-Barr virus (β = 0.08, *p* = .05) and Cytomegalo virus antibody titers (β2 = 0.17, *p* = .04). |
| Friedman (2008)[85]N=1,383Men who have sex with men (MSM) from the Urban Men’s Health Study | 1996-199832.5 years (SD not reported; Age range: 18-40 years)0% female77.1% White10.8% Hispanic | Multiple regression  | Exposure to the following early adversities:* CPA
* Gay-related harassment
* Forced sex
 | HIV infection | Forced sex (compared to those without) was associated with HIV seropositive (β = 1.45, *p* < .05).There were no other significant associations. |
| Mimiaga (2009)[86]N=4,295The EXPLORE study: a randomized HIV prevention trial among MSM | 1999-200119% <25 years60% 26-40 years21% 40+ years (Mean age and SD not reported)0% female72.6% White 15.2% Hispanic | Cox proportional hazards regression  | Exposure to CSA | HIV infection  | A history of CSA (compared to no CSA) was associated with HIV infection (adjusted HR = 1.30, 95% CI [1.02, 1.69]).  |
| Phillips (2014)[87]N=500National HIV Behavioral Surveillance System: MSM from Washington, DC  | 2008Mean age and SD not reported (62.8% aged 18-35 years)0% female51.7% White | Logistic regression  | Exposure to CSA | HIV infection  | A history of CSA was more likely among HIV-positive MSM compared to HIV negative MSM (AOR = 4.19, 95% CI [2.26, 7.75]). |
| Reisner (2011)[88]N=13,274NESARC, Wave 2 | 2004-200547.6 years(SD not reported)0% female76.1% White13.1% Hispanic  | Logistic regression; Attributable risk fraction  | Summary adversity score, based the following variables: * CPA
* CSA
* Emotional abuse
* Neglect
* Witnessing parental violence
 | HIV infection | Each additional adversity was associated with an elevated odds of HIV infection (AOR = 1.32, 95% CI [1.16, 1.50]). Attributable risk fraction of any early life adversity on HIV infection = 0.1776. |
| Rosenberg (2007)[89]N=569Adults with schizophrenia or schizoaffective disorders | 1997-199842 years (9)32.2% female38% White13% Hispanic | Logistic regression  | Summary adversity score,= based the following variables: * CPA
* CSA
* Parental mental illnesses
* Loss of a parent
* Parental separation or divorce
* Witnessing domestic violence
* Foster or kinship care
 | * HIV infection
* Hepatitis B infection
* Hepatitis C infection
 | Adversity score was associated with HIV infection (OR = 1.62, 95% CI [1.21-2.18]).There was no significant association between adversity score and Hepatitis B and C infection. |
| Slopen (2013)[90]N=13,162Add Health,Wave 4 | 1994 (Wave 1);2008-2009 (Wave 4)29 years (0.12)50.5% female66.3% White11% Hispanic  | Logistic regression  | Socioeconomic disadvantage during adolescence based on: * Parental education
* Family income
* Parental occupation

Exposure to abuse based on: * CSA
* CPA
 | Epstein Barr virus antibody levels  | Income was not associated with elevated Epstein Barr virus antibodies. Elevated Epstein Barr virus antibodies were associated with:* Individuals with parents who had a high school degree (β = 0.10(0.03), *p* < .01) or some college (β = 0.09(0.03),

*p* < .01), compared to those with parents with more than a college degree.* Individuals with parents who worked in service/construction/military (β = 0.07(0.02), *p* < .01) or technical/sales/office worker (β = 0.05(0.02), *p* < .05), compared to those with parents who worked as professional/managers
* Individuals who reported CSA occurring 10+ times (β = 0.13 (.06),

*p* < .05), compared to individuals without CSA * Individuals who experienced CPA in preschool (β = 0.17 (0.04), *p < .01*), compared to individuals that were never exposed to abuse or CPA that began during adolescence (β = 0.15 (0.05), *p < .01*)
 |
| Widom (2012)[91]N=598Individuals with documented cases of CM from a Midwestern county and matched non-maltreated controls. | 1967-1971 (CM documented); 2003-2005 (medical status exams and interviews)41.2 years (SD not reported; Age range: 32-49 years)52.9% female63.4% White0% Hispanic  | Logistic regression; Ordinary least square regression  | Summary abuse score and individual exposure based on official records: * CPA
* CSA
* Neglect
 | * Hepatitis C infection
* HIV infection
 | No significant associations or paths found in adjusted models. |
| Wilson (2008)[92]N=630 Individuals with documented cases of CM from a Midwestern county and matched non-maltreated controls.  | 1967-1971 (CM documented); 2003-2005 (medical status exams and interviews)41.2 years (SD not reported; Age range: 32-49 years)55.2% female60.6 % white<6.3% Hispanic  | Logistic regression; SEM | Summary abuse score and individual exposure based on official records: * CPA
* CSA
* Neglect
 | * HIV infection
 | No significant associations or paths found in adjusted models. |

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| **Obesity (43 studies)** |  |  |  |  |  |
| Aaron (2007)[93]N=416CHLEW, Lesbian women from Wave 1  | 2001-2002 37.8 years (SD not reported; Age range: 18-83 years)100% female50% White21% Hispanic  | Multinomial logistic regression | Exposure to CSA | Body Mass Index(BMI) score | CSA (vs. no CSA) increased risk for:* BMI between 30.0 and 39.9 kg/m2 (AOR = 1.9, 95% CI [1.1, 3.4])
* BMI ≥ 40 kg/m2 (AOR = 2.3, 95% CI [1.1, 5.2])
 |
| Afifi (2013)[94]N=34,226NESARC Wave 2: Representative US population 20 years or older  | 2004-2005Mean age and SD not reportedGender not reportedR/E not reported | Multiple logistic regression  | Exposure to the following:* Harsh physical punishment
* CM total score (i.e., severe CPA, CSA, emotional abuse, physical neglect, emotional neglect, and exposure to intimate partner violence)
 | BMI score | Harsh physical punishment (vs. no physical punishment) was associated with:* Obesity (AOR = 1.20, 95% CI [1.02, 1.42])

CM (vs. no physical punishment) was associated with:* Obesity (AOR = 1.13, 95% CI [1.07, 1.20])
 |
| Alvarez (2007)[95]N=11,115California Women’s Health Survey | 2002-2004Mean age and SD not reported (56.1% aged 18-45 years)100% female51.3% White26.4% Hispanic | Logistic regression; Population Attributable Fractions (PAF) | Summary child abuse score based on the following variables:* CPA
* CSA
 | BMI score  | Child abuse (vs. no abuse) was associated with obesity (AOR = 1.26, 95% CI [1.13, 1.40]).The PAF of adult obesity associated with abuse was 4.5% (95% CI [2.28, 6.55]). |
| Bae (2014)[96]N=11,075Add Health, Waves 1-4 | 1994-1995 (Wave 1);1996 (Wave 2); 2001 (Wave 3); 2008-2009 (Wave 4)15.5 years at Wave 1 (SD not reported; Age range: 12-19 years) 54% female>60% White13% Hispanic  | Latent growth curve; SEM | Summary early socioeconomic adversity score based on the following variables: * Low parent education
* High family economic hardship
* Low parental marital stability
* High community adversity
 | BMI score  | Early socioeconomic adversity was associated with:* Higher rate of change in BMI from 1996 to 2008 (b = 0.06, *p* < .001)
 |
| Bentley (2009)[97]N=713Cases of CM from a Midwestern county and matched non-maltreated controls  | 1967-1971 (when CM occurred); 2003-2004 (follow-up medical exams)Cases (n=410)Controls (n=303)Mean age and SD not reported (Age range: 0-11 years at the time CM occurred)52.8% female63.4% white <6.6% Hispanic  | Ordinary least squares regression | Summary CM score and individual exposure based on official records of the following:* CPA
* CSA
* Neglect
 | BMI score  | CPA (vs. no CPA controls) was associated with higher BMI (β = 0.16, *p* < .001). CSA and neglect were not associated with BMI.  |
| Bertone-Johnson (2012)[61]N=702Nurses' Health Study II | 1989 (baseline); 1996-1999 (blood sample);2001 (violence questions asked)43.9 years (SD not reported)100% female>90% White | F-test  | Summary abuse score and severity of individual exposure to the following variables: * CPA (before age 11 years)
* CSA (before age 11 years)
* Adolescent physical abuse (ages 11-17 years)
* Adolescent sexual abuse (ages 11-17 years)
 | * Physical activity
* BMI score
 | Physical abuse was not associated with outcomes. Sexual abuse was associated with physical activity:* Physical activity was higher for CSA involving touch only (*M* = 34.3, *SD* = 6.3) and forced sex (*M* = 29.9, *SD* = 9.4) than those reporting no CSA (*M* = 15.9, *SD* = 3.9), *p* = .02.
 |
| Boynton-Jarrett (2012)[98]N=33,298Black Women’s Health study  | 1991 (Baseline); 2005 (Follow-up)40 years (SD not reported; Age range: 21-69 years)100% female0% White | Log-binomial regression  | Severity of abuse based on a summary score and exposure to individual categories based on the following variables:* CPA
* CSA
 | * BMI score
* Waist Circumference (WC)
 | Compared to those with no abuse:Moderate CPA and/or CSA associated with:* BMI ≥ 30 (aRR = 1.07, 95% CI [1.04, 1.10])
* WC > 35 inches (aRR = 1.05, 95% CI [1.02, 1.08])

Severe CPA or CSA associated with: * BMI ≥ 30 (aRR = 1.09, 95% CI [1.05, 1.14])
* WC > 35 inches (aRR = 1.12 (95% CI [1.05, 1.12])

Severe CPA and CSA associated with:* BMI ≥ 30 (aRR = 1.14, 95% CI [1.08, 1.21])
* WC > 35 inches (aRR = 1.18, 95% CI [1.10, 1.27])
 |
| Campbell (2016)[6]N=48,526BRFSS, 2011: Minnesota, Montana, Vermont, Washington, and Wisconsin  | 2011Mean age and SD not reported (26.8% 18-34 years37.1% 35-54 years17.3% 55-64 years18.8% 65+ years)50.4% female 85.2% White 4.8% Hispanic  | Multiple logistic regression | Summary ACE score and individual exposure to the following variables: * CPA
* CSA
* Verbal abuse
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental separation/ divorce
* Incarcerated household member
 | BMI score  | ACE score:* Not associated with BMI in adjusted models

CSA (vs. no CSA) was associated with:* BMI (AOR = 1.59, 95% CI [1.31, 1.92])

Other ACEs were not associated with BMI.  |
| Crowell (2016)[99]N=210A representative, middle-aged sample of white and black adults from Boston, MA. | Year not reported45.8 years (3.3)53% female 43% White | Path analysis model | Summary adversity score based on life time stressors and chronicity and severity of trauma exposure. | Waist-to-hip ratio | Path between adversity and waist-to-hip ratio was significant (β = 0.16, *p* < .05). |
| Davis & Usher (2014)[100]N=215A representative, middle-aged sample of white and black adults from Boston, MA.  | 2010-201345.8 years (3.3)52% female45% White | Correlation (Path analysis model used to predict MetS sum score) | Summary adversity score based on number of experiences, severity, and chronicity of the following variables:* Parental divorce
* CPA
* Prolonged separation from parent
* CSA
* Domestic violence
* Emotional abuse
* Parental substance abuse
* Death of a first-degree family member
 | * Waist-to-hip ratio
* Physical exercise
 | Childhood adversity was:* Associated with waist-to-hip ratio

(*r* = 0.18, *p* = .047)* Was not associated with physical exercise
 |
| Davis & Dearing (2014)[101]N=210A representative, middle-aged sample of white and black adults from Boston, MA. | 2010-201345.8 years (3.3)48% female42% White | Linear regression  | Summary adversity score based on number of experiences, severity, and chronicity of the following variables:* Parental divorce
* CPA
* Separation from parent
* CSA
* Domestic violence
* Emotional abuse
* Parental substance abuse
* Death of a first-degree family member
 | * Waist-to-hip ratio
* BMI score
 | No significant associations found in adjusted models. |
| Dube (2010)[102]N=5,378BRFSS, 2002: Texas  | 2002Mean age and SD not reported61% female64% White23.2% Hispanic  | Multivariate logistic regression | Exposure to categories of ACEs and individual ACEs based on the following variables:* Abuse (CPA, CSA, and/or emotional abuse)
* Household dysfunction (witnessing domestic violence, household substance abuse, household mental illness, parental divorce, and incarcerated household member)
 | BMI score | Exposure to any childhood abuse (vs. no abuse) was associated with obesity (OR = 1.5, 95% CI [1.1, 1.9]). Experiencing household dysfunction was not significantly associated with obesity. Experiencing abuse and household dysfunction (vs. none) increased risk of obesity (OR = 1.3, 95% CI [1.1, 1.6]). |
| Duncan & Sartor (2015)[103]N=3,699The Missouri Adolescent Female Twin Study  | 1975-1985 (twins born); 1995 (Wave 1); 3 year follow up (Wave 3); Approximately 6 years after baseline (Wave 4); approximately two years later (Wave 5)24 years at Wave 5 (SD not reported) 100% female85.4% White  | Multinomial logistic regression  | Summary CM score and individual exposure to the following variables: * CSA
* CPA
* Neglect
 | BMI score at Wave 4 | CSA (vs. no CSA) was associated with obesity (OR = 2.21, 95% CI [1.63, 3.00]).Exposure to all 3 forms of CM (compared to those who reported 0) was associated with:* Being underweight (OR = 4.66, 95% CI [1.21, 17.91])
* Being obese (OR = 4.81, 95% CI [1.57–9.26])

Exposure to 1-2 forms of CM (compared to those who reported 0) was associated with:* Being underweight (OR = 1.48, 95% CI [1.05, 2.09])
* Being obese (OR = 1.55, 95% CI [1.20, 2.00])
 |
| Duncan & Auslander (2015)[104]N=14,493Add health | 1994-1995 (Wave 1);1996 (Wave 2); 2001 (Wave 3); 2008-2009 (Wave 4)Age not reported at Wave 4 (SD not reported; Age range: 24-34 years) 53.9% female65.7% White | Logistic regression  | Frequency of CM exposure based on the following variables:* Emotional abuse
* CSA
* CPA
* Neglect
 | BMI score at Wave 4 | CPA (vs. no CPA) was associated with:* Higher BMI category in men (*p* = .012)
* Higher BMI category in women

(*p* = .04) There were no significant associations between BMI and other categories of CM. |
| Font (2016)[16]N=29,229BRFSS, 2012: Iowa, North Carolina, Wisconsin, Tennessee, and Oklahoma | 201247.7 years (SD not reported)49% female80.5% White4.7% Hispanic  | SEM | Summary ACE score and individual exposure to the following variables: * CPA
* Emotional abuse
* CSA
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | BMI score  | ACE scores (compared to 0) were associated with increased BMI:* 1 ACE (β =0.035, *p* < .01)
* 2-3 ACEs (β = 0.047, *p* < .001)
* 4+ ACEs (β =0.064, *p* < .001)

Household mental illness or substance abuse (vs. no exposure) was associated with obesity (β = 0.027, *p* < .01).CSA (vs. no CSA) was associated with obesity (β = 0.056, *p* < .001). |
| Francis (2015)[105]N=427Court-substantiated cases of childhood CPA and matched non-maltreated controls | 1967-1971 (when CM occurred)1989–1995; 2000–2002; 2003–2005 Cases (n=78)41.3 years (3.8) at third interview48.7% female 79.2% White 0% Hispanic Controls (n=349) 41.2 years (3.6) at third interview50.7% female 63.4% White0% Hispanic  | T test; Mediational analyses | Exposure to CPA | BMI score | Among women, CPA (vs. no CPA) was associated with:* Higher BMI (*t* = 2.08, *p* < .05, direct effect = 3.11)

Among men, no significant associations were found. |
| Friedman (2015)[106]N=3,996MIDUS II | 2004-200656.2 years (12.4)Gender not reported91.9% White | Logistic regression  | Summary adversity score and individual exposure to the following variables:* Academic adversity
* Interpersonal
* CPA
* CSA
* Work/financial problems
* Death/illness of a loved one
* Parental substance abuse

Timing of adversity (0-5 years; 6-10 years; 11-14 years; 15-17 years; multiple age groups) | BMI score | Any adversity (vs. none) associated with:* Obesity (OR = 1.22, *SE* = 0.09, *p* < .01)

Total # of events associated with:* Obesity (OR = 1.14, *SE* = 0.04, *p* < .001)
	+ Obesity for men (OR = 1.18, *SE* = 0.04)
	+ Obesity for women (OR = 1.04, *SE* = 0.04, *p* < .10)

Experiencing events at multiple age groups (compared to 0 experiences) associated with:* Obesity (OR = 1.54, SE = 0.16, *p* < .001)

Academic events (vs. none) associated with:* Obesity (OR = 1.54, *SE* = 0.13, *p* < .001)

No other types of adversity were associated with obesity.  |
| Gjelsvik (2013)[18]N=81,910BRFSS, 2009 & 2010: Arkansas, Hawaii, Louisiana, Maine, Nevada, New Mexico, Pennsylvania, Vermont, Washington, Washington D.C., and Wisconsin | 2009 & 2010Mean age and SD not reportedNo incarcerated household member (n=78,193)47.1% < 40 years51.9% female82.9% White4.5% HispanicIncarcerated household member (n=3,717)73.3% < 40 years47.6% female68.5% White8.1% Hispanic | Multivariable logistic regression  | Exposure to an incarcerated household member | * BMI score
* Physical activity
 | Having an incarcerated household member (vs. not having an incarcerated household member) was associated with:* Less physical activity (23.9% vs. 27.2%, *p* = .04)

No significant associations between having an incarcerated household member and weight status. |
| Greenfield (2009)[107]N=1,650MIDUS I & II study | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)56.6 years (12.5) at MIDUS II54% female85% White3% Hispanic  | Multivariate regression  | Summary violence score based on frequency of the following:* Physical violence by parents
* Psychological violence by parents
 | BMI score | Compared to no violence:* Exposure to rarely one type of violence and frequently the other type of violence was associated with obesity (OR = 1.65, 95% CI [1.11, 2.44])
* Exposure to frequently both types of violence was associated with obesity (OR = 1.41, 95% CI [1.00, 2.00])
 |
| Grilo (2005)[108]N=340Obese patients seeking gastric bypass surgery | Year not reported43.1 years (10.5)82.9% female68.8% White11.8% Hispanic | ANOVA | Summary CM score and individual exposure to the following variables:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | BMI score | No significant associations found in adjusted models. |
| Hodge (2014)[109]N=459American Indians living in California | Year not reported42.7 years (SD not reported)74.2% female0% White | Generalized regression  | Exposure to the following variables:* CPA
* CSA
* Verbal abuse
* Neglect
 | BMI score | Verbal abuse (vs. no abuse) was associated with higher BMI compared to those without history (*t* = 2.22, *p* = .03).Other CM variables did not have significant associations with BMI. |
| Hostinar (2015)[22]N=1,180MIDUS II study  | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)57.3 years (11.5)56% female74.9% White3.2% Hispanic  | Multiple regression analyses; SEM | Summary ACE score based on the following variables:* CPA
* Emotional abuse
* CSA
* Physical neglect
* Emotional neglect
* Household substance abuse
* Household mental illness
* Parental divorce
 | * Physical activity
* WC
 | In model predicting inflammation, ACE score had significant paths to:* WC (β =0.07, *p* < .05)
* Physical activity (β = 0.-10, *p* < .05)
 |
| Lehavot (2011)[110]N=1,224National sample of sexual minority women | Year not reported33.8 years (12.2)100% female76% White4% Hispanic  | Correlations (SEM used to predict physical health, a latent variable that included BMI) | Exposure to the following variables:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | BMI score | BMI was associated with:* Emotional abuse (*r* = 0.20, *p* < .001)
* CPA (*r* = 0.20, *p* < .001)
* CSA (*r* = 0.18, *p* < .001)
* Emotional neglect ( *r* =0.15, *p* < .001)
* Physical neglect ( *r* =0.12, *p* < .001)
 |
| Lehman (2005)[111]N=3,225CARDIA Study | 1985-1986 (Baseline); 2000-2001 (Follow-up)Mean and SD not reported (Age range: 33-45 years at final assessment)66% female54% White  | Correlation (SEM used to predict composite metabolic functioning factor that included waist girth) | Summary early family environment score based on the following variables:* Neglect
* Verbal abuse
* CPA
* Household substance abuse
* Lived in a well-organized house
* Childhood socioeconomic status
 | Waist girth | Childhood SES was associated with waist girth (*r* = - 0.13, *p* < .001). Early family environment was not associated with waist girth. |
| Li (2015)[112]N=75Cases of CM from the Office of Psychiatric Clinical Research at University of Alabama Birmingham and non-maltreated controls  | Year not reportedNon-CM (n=37)36.1 years (12.3)75.7% female56.8% WhiteCM (n=38)39.7 years (10.9)68.4% female 50% White | Correlations; T Test | Summary CM score and individual exposure to the following variables: * Emotional abuse
* CPA
* Sexual abuse
* Emotional neglect
* Physical neglect
 | * BMI score
* Waist-to-hip ratio
* Body composition (i.e., visceral fat mass, android fat mass, and total body fat mass)
 | CM (compared to no CM) was associated with higher visceral fat mass (1,136 [160] g vs. 836 [116] g, *p* < .05).No significant association between CM and BMI, total body fat mass, android fat mass, or waist-to-hip ratio.CPA was associated with visceral fat mass (*r* = 0.22, *p* = .04).  |
| Mason (2015)[113]N=4,377Women from the Growing Up Today Study  | 1996 (Baseline);2010 (Follow-up)Mean age and SD not reported (Age range: 22-29 years) 100% femaleR/E not reported | Poisson marginal structural models | Severity of child abuse exposure and individual exposure to each type of abuse using the following variables:* Emotional abuse
* CPA
* CSA
 | BMI score from 2010 data | Mild emotional abuse was associated with an adjusted BMI difference of .39 kg/m2 (95% CI [0.01-0.78]). Exposures to other individual abuse categories and severity of categories were not associated with BMI.  |
| McCauley (2015)[114]N= 36,485BRFSS, 2010: Hawaii, Nevada, Vermont, Wisconsin, DC, Maine, Nebraska, Ohio, Pennsylvania, Utah, and Washington | 2010Veterans (n=631)50.5 years (1.1)100% female84.9% White Non-veterans (n=35,854)49.4 years (0.18)100% female83.6% White  | Multivariate logistic regression | Summary ACE score based on the variables: * CPA
* Emotional abuse
* CSA
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | BMI score | ACE score associated with being overweight/obese (OR = 1.06, 95% CI [1.04, 1.09]). |
| McIntyre (2012)[115]N=373Outpatients seeking clinical services for major depressive disorder | 2007-201042.9 years (14.4)61.7% female90% White  | Logistic and linear regression | Summary adversity score and individual exposure to the following variables:* CPA
* CSA
* Parental loss
* Neglect
 | * BMI score
* WC
 | No significant associations found in adjusted models. |
| Midei (2010)[116]N=311Study of Women’s Health Across the Nation (SWAN), Pittsburgh site | 1996-1997 (Baseline); 9 years of follow-up45.7 years (2.5) at baseline100% female65.9% White | ANCOVA | Summary CM score and individual exposure to the following variables:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | * BMI score
* WC
 | At baseline, any abuse/neglect (vs. no CM) associated with:* Higher WC (*F* = 4.17, *p* =.04)
* Higher BMI (*F* = 4.79, *p* =.03)

At baseline, CPA (vs. no CPA) associated with:* Higher WC (*F* = 3.99, *p* < .05)
* Higher BMI (*F* = 4.90, *p* =.03)

At baseline, CSA (vs. no CSA) associated with:* Higher WC (*F* = 4.36, *p* = .04) and BMI (*F* = 7.44, *p* < .01)

Among women with BMI < 30, CM was associated with greater increases in WC over time (compared to non-abused):* Any abuse/neglect (*F* = 13.98, *p* < .01)
* Emotional abuse (*F* = 15.31, *p* < .01)
* CPA (*F* = 4.30, *p* =.04)
* CSA (*F* = 9.42, *p* <.01)
* Physical neglect (*F* = 4.83, *p* = .03)

Among women with BMI ≥ 30, CPA (compared to no abuse) was associated with a smaller increase in WC over time: (*F* = 4.37, *p* = .04).Among women with BMI >/= 30, CSA (compared to non-abused) was associated with a decrease in WC over time: (*F* = 10.43, *p* < .01). |
| Min (2013)[117]N=279Women from a longitudinal, prospective study examining the effects of prenatal cocaine exposure on child development | 1994-1996 (recruited) 40.3 years (5.3) at 12 year follow-up100% female<20 % White | Correlation | Severity of abuse based on a summary score using the following:* CPA
* Emotional abuse
* CSA
* Physical neglect
* Emotional neglect
 | BMI score | No significant associations found in adjusted models. |
| Noll (2007)[118]N= 173 Court-substantiated CSA cases from Washington DC and matched controls | 1987 (baseline); 1988-2006 (6 follow-ups)Cases (n=84) 25 years (4)100% female57% White2% Hispanic Controls (n=89)24 years (3) at 6th follow-up100% female52% White1% Hispanic  | Logistic regression; Hierarchical linear model | Exposure to CSA | BMI score | CSA (vs. no CSA) was associated with obesity (OR = 2.85, 95% CI [1.06, 4.64]). |
| Pederson (2009)[119]N=207Community sample from Ohio | Year not reported26.5 years (6.7)100% femaleR/E not reported  | ANOVAS; MANCOVAS; Regressions | Summary CM score and severity of CM categories based on the following variables:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | BMI score | Those who reported more forms of CM (vs. had higher BMIs (*F*5, 201 = 3.02, *p* = .01; η2p = .07). Those who reported greater severity of emotional neglect had higher BMIs (*F*3, 189  = 2.76, *p* < .05; η2p = .04). |
| Ramirez (2016)[120]N=186Women from a low-income city | Year not reported41.58 years (8.04)100% female22% White 58% Hispanic  | MANCOVA | Exposure to CSA | BMI score | No significant associations found in adjusted models. |
| Richardson (2014)[121]N=10,744Add Health | 1994-1995 (Wave 1);1996 (Wave 2); 2001 (Wave 3); 2008-2009 (Wave 4)28.3 years at Wave 4 (SD not reported) 49.8% female54.6% White | Discrete time hazards model | Summary abuse score and individual exposure to the following variables:* CPA
* CSA
 | BMI score | Childhood abuse (vs. no child abuse) was associated with:* Severe obesity in non-minority females (HR = 2.5, 95% CI [1.3, 4.8])
* Severe obesity in non-minority males (HR = 3.6, 95% CI [1.5, 8.5])

No significant associations between abuse and BMI for minority females and males.  |
| Rich-Edwards (2010)[122]N=67,853Nurses’ Health Study II | 1989 (Baseline) – 2005Mean age and SD not reported (Age range: 25-42 years) 100% female87.4% White | ANOVA | Severity of abuse based on the following variables:* CPA
* CSA
 | BMI score | At age 18 years, BMI was associated with:* Severe CPA (0.09 SDs higher than non-abused, *p* < .0001)
* Repeated forced sex (0.18 SDs higher than non-abused, *p* < .0001)

At baseline (in adulthood) BMI trajectories between abused and non-abused girls grew wider:* Severe CPA (BMI was 0.15 SDs higher than non-abused, *p* < .0001)
* Repeated forced sex (0.23 SDs higher than non-abused, *p* < .0001)
 |
| Riley (2010)[123]N=68,505Nurses’ Health Study II | 1989 (Baseline) – 2005Mean age and SD not reported (Age range: 25-42 years) 100% female87.4% White1% Hispanic  | Cox proportional hazardsregression (hypertension as the outcome) | Severity of abuse based on the following variables:* CPA
* CSA
 | * BMI score
* Physical activity
 | Abuse severity was associated with an upward trend in BMI. Analysis not reported. No significant associations found in adjusted models for physical activity by exposure to abuse. |
| Rohde (2008)[124]N=4,641Women enrolled in a large health plan in the Pacific Northwest | Year not reported52 years (SD not reported)100% female82.3% White3.7% Hispanic  | Logistic regression  | Exposure to the following:* CPA
* CSA
 | BMI score | CSA (vs. no CSA) was associated with obesity (OR = 1.84, 95% CI [1.47-2.31]).CPA (vs. no CPA) was associated with obesity (OR = 2.05, 95% CI [1.59-2.63]). |
| Schrepf (2014)[75]N=687MIDUS II: participants who did not have a history of cardiovascular disease, transient ischemic attack/stroke, diabetes, or cancer | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)52.2 years (10.9)56% female92.5% White4.6% Hispanic  | SEM | Summary childhood trauma score based on the following variables:* Emotional abuse
* CPA
* CSA
* Physical neglect
* Emotional neglect
 | BMI score | Path between childhood trauma and BMI was not significant.  |
| Shinozaki (2012)[125]N=185Women with European ancestry hospitalized for a major depressive episode at the Mayo Clinic, Rochester Mood Disorder Unit  | 2005-2007Age not reported100% female100% White | T-Test | Summary abuse score based on the following variables:* CSA
* CPA
* Emotional abuse
 | BMI score | Abuse history (vs. not abused) was associated with higher BMI (abused = 30.7 kg/m2 vs. non-abused = 26.8 kg/m2, *p* = .0023). |
| Smith (2010)[126]N=864Epidemiologic Study of Health Risk in Women (ESTHER) Project in Pittsburgh | 2003-2006Heterosexual women (n=392)47.9 years (7.6)100% female92.1% WhiteLesbian women (n=474)47.4 years (7.6)100% female92% White | Logistic regression | Exposure to CSA:* Intrafamilial CSA
* Extrafamilial CSA
 | BMI score | Intrafamilial CSA (vs. no CSA) was associated with obesity (AOR = 1.58, 95% CI [1.10-2.27]).Extrafamilial CSA was not associated with obesity.  |
| Spann (2014)[127]N=452Participants recruited predominately African American families from Georgia primary care clinic waiting room.  | Year not reportedLow Child Abuse (n=238)43.3 years (0.9)52.5% female<10% white High Child Abuse (n=214)41.2 years (0.8)68.7% female<10% White | ANOVA | Summary abuse score based on the following variables:* CSA
* CPA
* Emotional abuse
 | BMI score | High abuse scores associated with higher BMI compared to those with low abuse scores (*F1, 419*= 4.71, *p* = .03). |
| Tietjen (2012)[80]N=141Women with physician-diagnosed migraine and age-matched controls | 2006-2008Cases (n=100) 37 years (8.3) 100% female 92% WhiteControls (n=41)36.9 years (10.2)100% female 88% White | T-tests  | Summary ACE score based the following variables: * CPA
* Emotional abuse
* CSA
* Emotional neglect
* Physical neglect
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | BMI score | Exposure to 1+ ACEs was associated with higher BMI compared to those with no adversity (*t* = 4.209, *p* < .001).  |
| Wickrama (2014)[128]N=12,424Add Health, Wave 1, 3, and 4 | 1994-1995 (Wave 1);2001 (Wave 3);2008-2009 (Wave 4)15.5 years at baseline(SD not reported; Age range: 12-19 years)53% female> 50 % White10% Hispanic  | Bivariate parallel latent growth curve | Summary socioeconomic adversity score based on the following variables:* Parental education
* Family economic hardship
* US census measures of community adversity
 | BMI score | Socioeconomic adversity associated with:* Higher BMI levels initially

(β =0.02, *p* < .001)* Faster increases in BMI over time

(β = 0.16, p < .001) |

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| **Tobacco (41 studies)** |  |  |  |  |  |
| Agorastos (2014)[1]N=1,254 Never-deployed, young male Marines participating in the Marine Resiliency Study  | 2008-201221.5 years (2.4)0% female 83.8% White   | Logistic regression  | Summary CM score based on the following:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | Current tobacco use status | No significant associations found in adjusted models. |
| Allem (2015)[2]N=1420 Young Hispanic adults in Southern California participating in Project RED study  | 2012-2013 22.6 year (0.02)59% female 100% Hispanic | Logistic regression  | Summary adversity score and individual exposure to the following variables:* Verbal abuse
* CPA
* CSA
* Battered mother
* Household substance abuse
* Household mental illness
* Incarcerated household member
* Parental separation or divorce
 | Past-month cigarette use | ACE score was associated with % cigarette smoking (OR=1.22, 95% CI: 11, 35). Verbal abuse, Household substance abuse, Household mental illness, Parental separation or divorce was associated with cigarette smoking. ORs not reported.  |
| Bertone-Johnson (2012) [61]N=702Nurses’ Health Study II  | 1989 (baseline); 1996-1999 (blood sample);2001 (violence questions asked)48.9 years (SD not reported)100% female >90% White | F-tests | Summary abuse score and severity of individual exposure to the following variables: * CPA (before age 11 years)
* CSA (before age 11 years)
* Adolescent physical abuse (ages 11-17 years)
* Adolescent sexual abuse (ages 11-17 years)
 | Current smoking status  | Physical abuse was associated with smoking:* 30.8% smoked among those who experienced none, 36.6% smoked among those who experienced mild CPA, 45.8% among those who experienced moderate CPA, 53.3% among those who experienced severe CPA (*p* = .0003)

Sexual abuse was associated with smoking:* 35.2% smoked among those who experienced none, 39.8% among those who experienced touch only, 54.2% among those who experienced forced sex (*p* = .01)
 |
| Brown (2010)[129]N=17,337ACE Study, Waves 1 & 2 | 1995-1997Mean age and SD not reported (9.9% 18-34 years25.9% 35-49 years 31.9% 50-64 years21.4% 65-74 years10.8% 75+ years)54% female75% White  | Multivariable adjusted logistic regression | Summary ACE score based on the following:* CPA
* Emotional abuse
* CSA
* Violence against mother
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | * Early smoking initiation
* Lifetime smoking status
* Current smoking status
* Frequency of smoking
 | Compared to 0 ACEs: ACE score associated with being a current smoker: * 2 ACEs (OR = 1.28, 95% CI [1.09, 1.52])
* 3 ACEs (OR = 1.60, 95% CI [1.33, 1.93])
* 4/5 ACEs (OR = 1.78, 95% CI [1.49, 2.13])
* 6+ ACEs (OR = 2.08, 95% CI [1.59, 2.72])

ACE score associated with being a heavy smoker: * 2 ACEs (OR = 1.38, 95% CI [1.06, 1.80])
* 3 ACEs (OR = 2.05, 95% CI [1.55, 2.72])
* 4/5 ACEs (OR = 2.39, 95% CI [1.83, 3.13])
* 6+ ACEs (OR = 2.46, 95% CI [1.63, 3.71])

ACE score associated with ever smoked: * 1 ACE (OR = 1.29, 95% CI [1.19, 1.40])
* 2 ACEs (OR = 1.62, 95% CI [1.47, 1.78])
* 3 ACEs (OR = 1.91, 95% CI [1.70, 2.14])
* 4/5 ACEs (OR = 2.44, 95% CI [2.17, 2.74])
* 6+ ACEs (OR = 3.27, 95% CI [2.67, 4.01])

ACE score associated with early smoking initiation: * 1 ACE (OR = 1.53, 95% CI: [1.26, 1.87])
* 2 ACEs (OR = 1.88, 95% CI [1.51, 2.32])
* 3 ACEs (OR = 2.69, 95% CI [2.14, 3.39])
* 4/5 ACEs (OR = 3.55, 95% CI [2.85, 4.42])
* 6+ ACEs (OR = 7.06, 95% CI [5.27, 9.45])

ACE score associated with smoking initiation after age 18 years:* 1 ACE (OR = 1.15, 95% CI [1.04, 1.28])
* 2 ACEs (OR = 1.32, 95% CI [1.17, 1.50])
* 3 ACEs (OR = 1.56, 95% CI [1.34, 1.81])
* 4/5 ACEs (OR = 1.56, 95% CI [1.33, 1.83])
* 6+ ACEs (OR = 1.93, 95% CI [1.45, 2.58])
 |
| Campbell (2016)[6]N=48,526BRFSS, 2011: Minnesota, Montana, Vermont, Washington, and Wisconsin | 2011Mean age and SD not reported (26.8% 18-34 years37.1% 35-54 years17.3% 55-64 years18.8% 65+ years)50.4% female 85.2% White4.8% Hispanic  | Multiple logistic regression | Summary ACE score and individual exposure to the following:* CPA
* CSA
* Verbal abuse
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental separation/ divorce
* Incarcerated household member
 | Current smoking status  | ACE score was associated with current smoking:* 1 ACE (AOR = 1.61, 95% CI [1.36, 1.91])
* 2 ACEs (AOR = 1.90, 95% CI [1.57, 2.31])
* 3 ACEs (AOR = 2.10, 95% CI [1.68, 2.64])
* 4+ ACEs (AOR = 2.70, 95% CI [2.24, 3.24])

CSA was associated with current smoking (AOR = 1.26, 95% CI [1.01, 1.58]).Verbal abuse was associated with current smoking (AOR = 1.22, 95% CI [1.04, 1.44]).Household substance abuse was associated with current smoking (AOR = 1.38, 95% CI [1.19, 1.60]).Parental separation/divorce was associated with current smoking (AOR = 1.52, 95% CI [1.30, 1.78]). |
| Chapman (2013)[130]N=16,474BRFSS, 2009: Arkansas, Louisiana, New Mexico, Tennessee, and Washington  | 2009Mean age and SD not reported (8.1% 18-24 years 17.2% 25-34 years23.3% 35-44 years19.5% 45-54 years15.1% 55-64 years16.8% 65+ years)52% female 77.1% White 6.7% Hispanic  | Logistic regression | Summary ACE score and individual exposure to the following:* CPA
* Verbal abuse
* CSA
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental separation/ divorce
* Incarcerated household member
 | Lifetime smoking status  | Smoking prevalence was greater for all ACEs (compared to no exposure):* CPA: 28.5%, 95% CI [25.8-31.2] vs. 17.1%, 95% CI [16.1-18.1]
* Verbal abuse: 26.4%, 95% CI [24.4-28.4] vs 16.1%, 95% CI [15.0-17.2]
* CSA: 27.4%, 95% CI [24.5-30.3] vs 17.6%, 95% CI [16.6-18.6]
* Witnessing domestic violence: 27.7%, 95% CI [24.7-30.6] vs 17.1%, 95% CI [16.1-18.0]
* Household substance abuse: 26.7%, 95% CI [24.6-28.8] vs 15.5%, 95% CI [14.5-16.6]
* Household mental illness: 24.6%, 95% CI [22.4-26.9] vs 17.4%, 95% CI [16.3-18.4]
* Parental separation/divorce: 27.1%, 95% CI [24.7-29.5] vs. 15.8%, 95% CI [14.8-16.7]
* Incarcerated household member: 37.5%, 95% CI [32.0-43.0] vs 17.3%, 95% CI [16.4-18.3]

ACE score was associated with smoking: * The prevalence of current smoking was 37.8% among those with 5+ ACEs compared to 13.0% among those with 0 ACEs (*p* < 0.05)
 |
| De Von Figueroa-Moseley (2010)[131]N=296Women taking psychology courses in a California university  | Year not reported34.5 years (19.8)100% female 49.7% White 24.9% Hispanic  | Logistic regression  | Summary abuse score and individual exposure to the following:* Emotional abuse
* CPA
* Neglect
* Touched in a sexual way
* Victim of attempted rape
* Rape
 | * Current smoking status
* Early smoking initiation
 | Exposure to abuse (compared to non-abused) was associated with current smoking status (OR = 3.93, 95% CI [1.6, 9.9]). Experiencing 2 or more abuses (compared to 1 or non-abused) was associated with current smoking status (OR = 7.39, 95% CI [2.5, 21.7]). Being touched in a sexual way was associated with current smoking status (OR = 6.80, 95% CI [2.6, 17.5]).No other abuse status were significantly associated with current smoking status.  |
| Dong (2005)[132] N=8,116ACE Study, Wave 2 | 1995-199756 years (15.1) 53.8% female75% White  | Logistic regression | Summary ACE score based on the following:* CPA
* Emotional abuse
* CSA
* Emotional neglect
* Physical neglect
* Violence against mother
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | Lifetime smoking status  | ACE score (compared to 0 ACEs) was associated with ever smoked:* 1 ACE (AOR = 1.3, 95% CI [1.1, 1.4])
* 2 ACEs (AOR = 1.5, 95% CI [1.2, 1.8])
* 3 ACEs (AOR = 1.7, 95% CI [1.5, 2.2])
* 4/5 ACEs (AOR = 2.0, 95% CI [1.7, 2.4])
* 6+ ACEs (AOR = 2.8, 95% CI [2.2, 3.6])
 |
| Dube (2010)[102]N=5,378BRFSS, 2002: Texas | 2002Mean age and SD not reported61% female64% White23.2% Hispanic  | Logistic regression | Summary ACE score based on the following categories:* Abuse (CPA, CSA, and/or emotional abuse)
* Household dysfunction (witnessing domestic violence, household substance abuse, household mental illness, parental divorce, and incarcerated household member)
 | Current smoking status  | Exposure to any abuse was not significantly associated with smoking status. Exposure to any household dysfunction was associated with smoking (AOR = 1.4, 95% CI [1.2, 1.8]).Exposure to both abuse and household dysfunction was associated with smoking (AOR = 1.9, 95% CI [1.6, 2.4]). |
| Edwards (2007)[133]N=17,337ACE Study, Waves 1 & 2  | 1996-199754.8 years (15.7) 54% female >75% White  | Logistic regression | Summary ACE score based on the following:* CPA
* Emotional abuse
* CSA
* Violence against mother
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | Current smoking status | ACE score (compared to 0 ACEs) was associated with current smoking:* 1 ACE (OR = 1.08, 95% CI [0.89, 1.36])
* 2 ACEs (OR = 1.26, 95% CI [1.00, 1.60])
* 3 ACEs (OR = 1.61, 95% CI [1.24, 2.10])
* 4+ ACEs (OR = 1.69, 95% CI [1.34, 2.13])
 |
| Elliott (2014)[13] N=4,017 NESARC, Waves 1 & 2: participants who met criteria for nicotine dependence | 2001-2002 (Wave 1); 2004-2005 (Wave 2)Mean age and SD not reported(51.4% aged 40+ years) 48.1% female79.6% White | Logistic regression | Summary CM score and individual exposure to the following:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | Nicotine dependence  | CM score had an incremental effect on tobacco persistence (AOR = 1.19, 95% CI [1.11, 1.26]).In fully adjusted models, tobacco persistence was associated with:* CSA (AOR = 1.38, 95% CI [1.07, 1.78])
* CPA (AOR = 1.34, 95% CI [1.09, 1.66])
* Emotional abuse (AOR = 1.43, 95% CI [1.12, 1.81])
* Emotional neglect (AOR = 0.68, 95% CI [0.51, 0.90])
 |
| Francis (2015)[105]N=427Court-substantiated cases of childhood CPA and matched non-maltreated controls  | 1967-1971 (when CM occurred)1989–1995; 2000–2002; 2003–2005 Cases (n=78)41.3 years (3.8) at third interview48.7% Female 79.2% White0% Hispanic Controls (n=349) 41.2 years (3.6) at third interview50.7% female 63.4% White0% Hispanic | Bivariate analyses  | Exposure to CPA | Total pack years of smoking (number of cigarettes smoked per day divided by 20 cigarettes per pack, multiplied by the number of years of smoking)  | CPA was not associated with smoking. |
| Font (2016)[16] N=29,229 BRFSS, 2012: Iowa, North Carolina, Wisconsin, Tennessee, Oklahoma | 2012 48 years (0.33)49% female 80.5% White 4.7% Hispanic  | SEM  | Summary ACE score and individual exposure to the following:* CPA
* Emotional abuse
* CSA
* Witnessing domestic violence
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | Current smoking status  | ACE score was associated with smoking:* 1 ACE (β = 0.031, *SE* =.009, *p* < .001)
* 2-3 ACEs (β = 0.073, *SE* = .010,

*p* <.001)* 4+ ACEs (β =.034, SE =.002, *p* < .001)

CSA was associated with smoking (β = 0.039, SE=.013, *p* < .01).Household mental illness was associated with smoking (β = 0.042, *SE* =.009, *p* < .001).Parental divorce was associated with smoking (β = 0.060, *SE* = .010, *p* < .001).Incarcerated household member was associated with smoking (β = 0.093, *SE* =.018, *p* < .001). |
| Ford (2011)[134]N=25,809BRFSS, 2009: Arkansas, Louisiana, New Mexico, Tennessee, and Washington  | 2009Mean age and SD not reported(15.3% 18-29 years 20.2% 30-39 years22.2% 40-49 years18.1% 50-59 years12.8% 60-69 years11.4% 70+ years)51.6% female77% White3.8% Hispanic  | Multiple regression  | Summary ACE score and individual exposure to the following:* CPA
* Emotional abuse
* CSA
* Domestic violence
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | Lifetime smoking status  | ACE score was associated with current smoking:* 1 ACE (adjusted prevalence ratio [aPR] = 1.31, 95% CI [1.14, 1.5])
* 2 ACEs (aPR = 1.35, 95% CI [1.15, 1.59])
* 3 ACEs (aPR = 1.52, 95% CI [1.28, 1.79])
* 4 ACEs (aPR = 1.81, 95% CI [1.46, 2.23])
* 5+ ACEs (aPR = 2.22, 95% CI [1.92, 2.57])

ACE score was associated with ever smoking:* 1 ACE (aPR = 1.16, 95% CI [1.09, 1.24])
* 2 ACEs (aPR = 1.29, 95% CI [1.20, 1.40])
* 3 ACEs (aPR = 1.40, 95% CI [1.29, 1.52])
* 4 ACEs (aPR = 1.56, 95% CI [1.41, 1.72])
* 5+ ACEs (aPR = 1.80, 95% CI []1.67, 1.93])

Individual ACEs were associated with current smoking:* CPA (aPR = 1.46, 95% CI [1.31, 1.63])
* Emotional abuse (aPR = 1.54, 95% CI [1.40, 1.70])
* CSA (aPR = 1.51, 95% CI [1.35, 1.69[)
* Domestic violence (aPR = 1.39, 95% CI [1.25, 1.56])
* Household substance abuse (aPR = 1.52, 95% CI [1.38, 1.68])
* Household mental illness (aPR = 1.31, 95% CI [1.17, 1.46])
* Parental divorce (aPR = 1.36, 95% CI [1.23, 1.52])
* Incarcerated household member (aPR = 1.49, 95% CI [1.27, 1.75])
 |
| Fuller-Thomson (2013)[135] N=19,356BRFSS, 2010: District of Columbia, Hawaii, Nevada, Vermont, and Wisconsin  | 2010Mean age and SD not reported (16.8% aged < 49 years)59.4% female76.5% White | Logistic regression  | Exposure to the following:* CPA
* Verbal abuse
* CSA
* Household drug abuse
* Household alcohol abuse
* Parental separation/divorce
 | Lifetime smoking status  | Among females, ever smoking (vs. never) was associated with:* Household alcohol abuse (AOR = 1.41, 95% CI [1.28, 1.56])
* Household drug abuse (AOR = 1.59, 95% CI [1.37, 1.83])
* Parental separation/divorce (AOR = 1.39, 95% CI [1.25, 1.53])
* CSA (AOR = 1.36, 95% CI [1.13, 1.63])
* Verbal abuse (AOR = 1.14, 95% CI [1.02, 1.27])
* CPA (AOR = 1.29, 95% CI [1.14, 1.46])

Among females, current smoking (vs. former smoker) was associated with:* Household alcohol abuse (AOR = 0.83, 95% CI [0.71, 0.96])
* Household drug abuse (AOR = 1.40, 95% CI [1.15, 1.71])
* Verbal abuse (AOR = 0.72, 95% CI [0.61, 0.86])
* CPA (AOR = 1.27, 95% CI [1.06, 1.52])

Among males, ever smoking (vs. never) was associated with:* Household alcohol abuse (AOR = 1.53, 95% CI [1.34, 1.74])
* Household drug abuse (AOR = 1.58, 95% CI [1.34, 1.87])
* Parental divorce/separation (AOR = 1.48, 95% CI [1.31, 1.68])
* CPA (AOR = 1.19, 95% CI [1.03, 1.36])

Among males, current smoking (vs. former smoker) was associated with:* Household drug abuse (OR = 1.35, 95% CI [1.08, 1.69])
* Parental separation/divorce (OR = 1.25, 95% CI [1.05, 1.49])
 |
| Gjelsvik (2013)[18]N=81,910 BRFSS, 2009 & 2010: Arkansas, Hawaii, Louisiana, Maine, Nevada, New Mexico, Pennsylvania, Vermont, Washington, and Wisconsin  | 2009-2010 Mean age and SD not reportedNo incarcerated household member (n=78,193)47.1% < 40 years51.9% female82.9% White4.5% HispanicIncarcerated household member (n=3,717)73.3% < 40 years47.6% female68.5% White8.1% Hispanic | Logistic regression  | Exposure to an incarcerated household member | Current smoking status  | Living with an incarcerated household member was associated with smoking (AOR = 1.50, 95% CI [1.27, 1.77]): * Among Hispanics (AOR = 1.71, 95% CI [1.07, 2.76])
* Among non-Hispanic white (AOR = 1.48, 95% CI [1.20, 1.83])
* Not significant among non-Hispanic black
 |
| Hodge (2011)[136]N=457Patients from 13 Indian health clinic registries in California  | Year not reported44.8 years (15.9)69% female0% White  | Chi square test | Exposure to the following:* Neglect
* CPA
* CSA
 | Lifetime smoking status  | Neglect was associated with smoking status:* 19.6% of current smokers, 22.9% of former smokers, and 9.9% of never smokers (*p* = .02) experienced neglect in childhood
* 20.9% of current smokers, 26.3% of former smokers, and 10.7% of never smokers (*p* = .01) experienced neglect in adolescence

CPA was associated with smoking status:* 21.9% of current smokers, 16.4% of former smokers, and 8.6% of never smokers (*p* =.008) experienced CPA in childhood
* 18.1% of current smokers, 13.1% of former smokers, and 4.7% of never smokers (*p* = .003) experienced CPA in adolescence

CSA was not associated with smoking. |
| Hostinar (2015)[22] N=1180 MIDUS II study  | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)57.3 years (11.5)56% female 74.9% White3.2% Hispanic  | Multiple regression; SEM  | Summary ACE score based on the following variables:* CPA
* Emotional abuse
* CSA
* Physical neglect
* Emotional neglect
* Household substance abuse
* Household mental illness
* Parental divorce
 | Lifetime smoking status  | ACE score had a direct path to smoking in the model predicting inflammation (β = 0.16, *p* < .05). |
| Jessup (2012)[137] N=1,021California residents at a fifth grade level in English proficiency  | 2008-200941.2 years (17.6)100% female50% White 11.8% Hispanic  | Logistic regression  | Exposure to the following:* CPA
* CSA
 | Current smoking status  | CPA associated with smoking status (*χ*²= 37.6, *p* < .001); 40% of smokers and 21% of nonsmokers reported CPA.CSA associated with smoking status (*χ*²= 37.6, p < .001); 42% of smokers and 28% of nonsmokers reported CSA. |
| Kim (2009)[138]N=513Students from a Southeastern university | Year not reported19.5 years (1.3) 66% female83% White2% Hispanic  | SEM | Severity of exposure to the following:* Emotional abuse
* CPA
* CSA
* Physical neglect
 | Frequency of cigarette use  | CM types were not directly associated with cigarette use in the full model.  |
| Kristman-Valente (2013)[139] N=357Participants recruited from child welfare abuse and protective service programs, Head Start classrooms, daycare programs, and private nursery programs. | 1976-1977 (Wave 1); 1980-1982 (Wave 2); 1990-1992(Wave 3); 2008-2010 (Wave 4)36 years (Wave 4)(Mean age and SD not reported) 48% female80.7% White 7.2% Hispanic  | Path modeling  | Exposure to the following:* CPA
* CSA
 | * Lifetime smoking status
* Lifetime smoking frequency
* Past year smoking status
* Past year smoking frequency
 | CPA and CSA were not associated with adult smoking.  |
| Larson (2013)[140]N=6,536Alameda County Study  | 1965 (Baseline); 1974; 1983; 1994; 1999Mean age and SD not reported (47% ≤ 40 years 37% 41-60 years17% 60+ years at baseline)54% female80% White | Bivariate associations | Exposure to the following:* Parental separation/divorce
* Parental death
 | Current smoking status  | Parental death and parental separation/divorce were associated with smoking; 57% of those with no family disruption/separation at age 15 were NOT current smokers compared to:* 47% of those whose parents were divorced at age 15 were NOT current smokers (*p* < .05)
* 52% of those who had a parent die by age 15 were NOT current smokers (*p* < .05)
 |
| Lehavot (2011)[110]N=1,224 National sample of sexual minority women | Year not reported33.8 years (12.2) 100% female 76% White 4% Hispanic  | SEM  | Summary CM score and individual exposure to the following:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | Smoking status:* Lifetime
* Current
* Quit
 | In the model, CM score had a direct path to smoking status (β = 0.020, *p* < .001).All CM types were significantly correlated with all smoking outcomes.  |
| Mersky (2013)[141] N=1,142 Chicago Longitudinal Study (CLS); cohort of racial and ethnic minority children born into underprivileged, urban-dwelling families | 2002-2004 Mean age and SD not reported (Age range: 22-24 years)54.3% female<7% White 7% Hispanic  | Regression  | Summary adversity score based on the following:* Household Child Protective Service record for reported abuse or neglect
* Personal victim or witness of violent crime
* Parent substance abuse
* Prolonged absence of parent
* Divorce of parents
* Death of close friend or relative
* Frequent family conflict
* Family financial problems
 | Current tobacco use  | ACE score (compared to no ACEs) was associated with frequent tobacco use:* 2 ACEs (OR = 2.31 95% CI [1.47, 3.63])
* 3-4 ACEs (OR = 2.52 95% CI [1.60, 3.98])
* 4+ ACEs (OR = 4.70 95% CI [2.69, 8.21])
 |
| Min (2013)[117]N=279Women from a longitudinal, prospective study examining the effects of prenatal cocaine exposure on child development. | 1994-1996 (recruited)40.3 years at 12 year follow-up (5.3) 100% female<20 % White | Regression  | Summary CM score based on the following:* Emotional abuse
* CPA
* CSA
* Emotional neglect
* Physical neglect
 | Current smoking status  | No significant associations found.  |
| Mingione (2012)[142]N=256Alcohol dependent men and women between the ages of 21 and 65. | Year not reportedEver-smoker (n=177)44.9 years (9.6)42.1% female79% WhiteNever smoker (n=79)47.2 years (8.0)41.4% female 82% White | Logistic regression  | Summary adversity score based on the following:* CPA
* CSA
* Poverty
* Witnessing domestic violence
 | * Lifetime smoking status
* Nicotine dependence
 | For every additional adversity, the odds of being nicotine dependent increased (OR = 1.40, 95% CI [1.03–, 1.90]). For every additional adversity, the odds of being an ever-smoker increased (OR = 2.04, 95% CI [1.32, 3.15]).  |
| Morton (2014)[143]N=3,032MIDUS study  | 1995-199654.6 years (11.1)51% femaleR/E not reported | Cox proportional hazard  | Summary child misfortune score and summary categories based on the following:* Childhood socioeconomic status (e.g., family receipt of welfare, being financially worse off than other families, low parental education)
* Household structure (e.g., female household head, parental divorce, death of a parent)
* CM (e.g., physical and/or emotional abuse by father, mother, sibling or other)
* Poor mental or physical health at age sixteen
 | Total pack-years of smoking  | Child misfortune score was associated with smoking (b = 1.047, p < .001).CM was associated with smoking (b = 2.738, *p* < .01). |
| O’Cleirigh (2015)[144]N=1,309Sexual minority male patients recruited from a community-based health clinic in Massachusetts. | Year not reported 38.6 years (9.8)0% female82.8% White6.1% Hispanic  | Binary and multinomial logistic regressions | Exposure to CSA | Lifetime smoking status | CSA was associated with smoking (OR = 2.17, 95% CI [1.33, 3.07]).  |
| Pederson (2008)[145] N=811 Women ages 18-59 | Year not reported26 years (6.5) 100% female80.5% White  | Logistic regression | Exposure to the following:* Emotional abuse
* CPA
* CSA
 | Lifetime nicotine use  | CSA was associated with nicotine use (OR = 1.94, *p* < .001).CPA was associated with nicotine use (OR = 2.40, *p* < .001).Emotional abuse was associated with nicotine use (OR = 2.56, *p* < .001).  |
| Sacco (2007)[146]N=101Chronically mentally ill outpatients and non-psychiatric controls in New Haven, Connecticut. | Year not reportedPsychiatric cases (n=51)Smoker: 41.6 years (8.2)51.9% female44.4% White11.1% Hispanic Non-smoker: 42.9 years (9.2)45.8% female79.2% White0% Hispanic Controls (n=50)Smoker: 44.2 years (10.4)48% female76% White4% Hispanic Non-smoker: 36.4 years (14.2) 48% female 76% White 0% Hispanic   | ANCOVA; Logistic regression | Summary ACE score and severity of exposure to the following:* CPA
* Verbal abuse
* CSA
* Domestic violence
* Household substance abuse
* Household mental illness
* Parental separation/divorce
* Incarcerated family member
 | Current smoking status  | Verbal abuse differed significantly across the four participant groups (F5,94 = 2.51, *p* < .05):* The smoker groups had significantly higher verbal abuse scores than the non-smoker groups (*p* = .001)

Severe CPA differed significantly across groups (F5,94 = 2.26, *p* = 0.05):* Smoker scores were significantly higher than non-smoker scores (*p* < .01).

For less severe CSA there was a significant main effect for group differences (β = -3.97, *SE* = 1.99, χ2 = 3.98, *p* < .05):* The smoker group reported more occurrences than the non-smoker group (χ2 = 7.07, *p* < .01)

ACE score did not differ with respect to smoking status in the psychiatric groups (smoker vs. non-smoker, *p* = .74) but was significantly different between the control groups (Current smoker vs. non-smoker, *p* < .05).  |
| Slopen (2012)[147]N=592 MIDUS II: Black participants from Milwaukee, WI  | 2004-2006Mean age and SD not reported62.5% female0% White | Logistic regression  | Summary adversity score based on the following:* Stressful events
* Childhood relationship with parents
* Verbal abuse
* CPA
 | Lifetime smoking status  | Childhood adversity was associated with:* Current smoking (OR = 1.28, 95% CI [1.04, 1.57])
* Past smoking (OR = 1.45, 95% CI [1.17, 1.79])
 |
| Spratt (2009)[148]N=57Control group from a larger study of substance dependence. | Year not reported36.6 years (12.3) 54% female54% White | Logistic regression | Summary severity of trauma score based on the following:* CPA
* CSA
* Emotional abuse

  | Current smoking status  | Exposure to severe trauma was associated with current smoking (OR = 4.0, 95% CI [1.1, 14.7]). |
| Strine (2012)[49] N=7,210 ACE Study, Wave 2  | 199755.9 years (SD not reported)54% female 74.7% White10.7% Hispanic  | Mediation analysis; Logistic regression  | Summary ACE score and individual exposure to the following:* CPA
* Emotional abuse
* CSA
* Physical neglect
* Emotional neglect
* Violence against mother
* Household substance abuse
* Household mental illness
* Parental separation/divorce
* Incarcerated household member
 | * Smoked 100 cigarettes during entire life
* Current smoking status
 | Among women:* CPA was associated with smoking (OR = 1.4, 95% CI [1.1, 1.8])
* Emotional abuse was associated with smoking (OR = 1.4, 95% CI [1.1, 2.0])
* Physical neglect was associated with smoking (OR = 1.5, 95% CI [1.1, 2.2])
* Parental separation/divorce was associated with smoking (OR = 1.4, 95% CI [1.1, 1.9])
* Incarcerated household member was associated with smoking (OR = 2.3, 95% CI [1.6, 3.2])

Among men, individual ACEs were not associated with smoking. ACE score was not associated with smoking.  |
| Su (2015)[149]N=394Baseline: Children 5-16 years in 1989 who were African American or European American and living in Richmond County, GA; Follow up to 2012 (up to 38 years of age) | 1989-2012Mean age and SD not reported 53% female46% White0% Hispanic  | Logistic regression  | Summary adversity score based on the following:* CPA
* Emotional abuse
* CSA
* Physical neglect
* Emotional neglect
* Domestic violence
* Household substance abuse
* Household mental illness
* Parental divorce
* Incarcerated household member
 | Lifetime smoking status  | ACE score was associated with smoking (*p* < .001):* 0 ACEs (31.2% smoked)
* 1-2 ACEs (36.2% smoked)
* 3 ACEs (40.8% smoked)
* 4+ ACEs (58.1% smoked)

Odds Ratios were not reported. |
| Taha (2014)[150] N=2,101MIDUS study, Waves 1 & 2 | 1995-1996 (MIDUS); 2004-2005 (MIDUS II)Demographics not reported for entire sample. | Logistic regression  | Severity and exposure to the following:* Emotional abuse
* CPA
 | Lifetime smoking status | Rare emotional abuse was associated with: * Ever smoked (AOR = 2.23, 95% CI [1.51, 3.30])
* Daily smoker (AOR = 2.23, 95% CI [1.50, 3.32])
* Persistent daily smoker (AOR = 3.97, 95% CI [1.90, 8.31])

Intermittent emotional abuse was associated with:* Ever smoked (AOR = 2.81, 95% CI [1.78, 4.43])
* Daily smoker (AOR = 2.20, 95% CI [1.41, 3.42])
* Persistent daily smoker (AOR = 3.42, 95% CI [1.53, 7.63])

Frequent emotional abuse was associated with: * Ever smoked (AOR = 2.68, 95% CI [1.12, 6.44])
* Daily smoker (AOR = 3.82, 95% CI [1.61, 9.07])
* Persistent daily smoker (AOR = 7.00, 95% CI [1.93, 25.32])

Rare CPA was associated with: * Ever smoked (AOR = 1.96, 95% CI [1.34, 2.87])
* Daily smoker (AOR = 1.73, 95% CI [1.18, 2.54])
* Persistent daily smoker (AOR = 2.44, 95% CI [1.26, 4.73])

Intermittent CPA was associated with: * Ever smoked (AOR = 1.99, 95% CI [1.36, 2.89])
* Daily smoker (AOR = 1.77, 95% CI [1.22, 2.58])
* Persistent daily smoker (AOR = 2.50, 95% CI [1.35, 4.64])

Frequent CPA was associated with:* Ever smoked (AOR = 2.67, 95% CI [1.66, 4.29])
* Daily smoker (AOR = 2.79, 95% CI [1.78, 4.28])
* Persistent daily smoker (AOR = 4.34, 95% CI [1.78, 4.38])

Rare severe CPA was associated with:* Ever smoked (AOR = 1.86, 95% CI [1.45, 2.40])
* Daily smoker (AOR = 1.73, 95% CI [1.37, 2.19])
* Persistent daily smoker (AOR = 2.68, 95% CI [1.81, 3.99])

Intermittent severe CPA was associated with:* Daily smoker (AOR = 1.42, 95% CI [1.00, 2.03])

Frequent severe CPA was associated with: * Daily smoker (AOR = 3.36, 95% CI [1.34, 8.47])
* Persistent daily smoker (AOR = 4.08, 95% CI [1.18, 14.16])
 |
| Thompson (2011)[151]N=424Young adults who entered a crisis shelter.  | 2007-200818-21 years (Mean age and SD not reported)36% female 7% White26% Hispanic  | Logistic regression  | Exposure to the following:* Foster care
* CPA
* Emotional abuse
* CSA
 | Lifetime smoking status  | Foster care history was associated with smoking (AOR = 3.09, *p* < .01). Abuse categories were not significantly associated with current cigarette use. |
| Topitzes (2010)[152] N=1,125CLS; cohort of racial and ethnic minority children born into underprivileged, urban-dwelling families | 1980 (participants born) – 2002/2004Mean age and SD not reported (Age range: 22-44 years) 50% female <6% White | Multivariate probit regression | Summary CM based on the following:* Neglect
* CPA
* CSA
 | Smoking frequency  | CM was associated with smoking (*p* = .006), with a 58.3% increase in the likelihood of daily smoking (18.0% vs. 28.5%). |
| Vander (2011)[153] N=10,277BRFSS, 2009: Arkansas and Louisiana  | 2009Mean age and SD not reported (8.1% 18-24 years19.7% 25-34 years20.3% 35-44 years19.5% 45-54 years15.8% 55-64 years16.6% 65+ years)51.3% female 73.6% White  | Logistic regression | Summary ACE score and individual exposure to the following:* CPA
* Emotional abuse
* CSA
* Domestic violence
* Household substance abuse
* Household mental illness
* Parental separation/divorce
* Incarcerated household member
 | Smoking status (current and lifetime) | Among Arkansas participants:ACE score was associated with current smoking: * 3 ACEs (AOR = 2.61, (95% CI [1.61, 4.21])
* 4 ACEs (AOR = 2.03, 95% CI [1.16, 3.56])
* 5+ ACEs (AOR = 2.70, 95% CI [1.64, 4.43])

ACE score was associated with lifetime smoking: * 1 ACE (AOR = 1.61, 95% CI [1.22, 2.14])
* 2 ACEs not associated
* 3 ACEs (AOR = 2.33, 95% CI [1.50, 3.60])
* 4 ACEs (AOR = 2.11, 95% CI [1.24-3.59])
* 5+ ACEs (AOR = 3.97, 95% CI [2.46, 6.41])

Among Louisiana participants:ACE score was associated with current smoking: * 1 ACE (AOR = 1.29, 95% CI [1.02, 1.65])
* 2 ACEs (AOR = 1.34, 95% CI [1.00, 1.80])
* 3 ACEs (AOR = 1.48, 95% CI [1.08, 2.03])
* 4 ACEs (AOR = 2.03, 95% CI [1.38-2.99])
* 5+ ACEs (AOR = 2.80, 95% CI [2.07, 3.77])

ACE score was associated with lifetime smoking: * 1 ACE (AOR = 1.31, 95% CI [1.09, 1.58])
* 2 ACEs (AOR = 1.82, 95% CI [1.45, 2.30])
* 3 ACEs (AOR = 1.80, 95% CI [1.38, 2.34])
* 4 ACEs (AOR = 2.11, 95% CI [1.48-3.02])
* 5+ ACEs (AOR = 3.06, 95% CI [2.32, 4.02])

Individually, each ACE type was significantly associated with current and lifetime smoking for Louisiana and Arkansas samples.  |
| Walsh & Cawthon (2014)[154] N=20,711BRFSS, 2010: Hawaii, Nevada, Vermont, and Wisconsin  | 201056.4 years (SD not reported)59.6% female72.5% White3.8% Hispanic   | Path modeling using multiple regression  | Summary ACE score based on the following:* CPA
* Emotional abuse
* CSA
* Domestic violence
* Household substance abuse
* Household mental illness
* Parental separation/divorce
* Incarcerated household member
 | Lifetime smoking status  | ACE score was associated smoking (*b* = .088, β = 0.158, *p* < .001).  |
| Wu (2010)[56]N=402Adults with comorbid substance use disorders and mental health problems in residential treatment programs within Los Angeles County, CA. | 1999-200236.4 years (8.4) 47.2% female44% White 13% Hispanic  | Logistic regression | Summary adversity score based on the following:* Emotional abuse
* Emotional neglect
* Physical neglect
* CPA
* CSA
* Witnessing family violence
* Parental separation/divorce
* Incarcerated family member
* Out-of-home placement
* Death of someone close
 | Current tobacco use status | Each unit increase in exposure to adversity was associated with current smoking (OR = 1.18, 95% CI [1.01, 1.39]). |
| Yeoman (2013)[155] N=6,348 BRFSS, 2011: Nebraska  | 2011Demographics not reported for entire sample. | Relative risks | Summary ACE scores based on the following categories:* Direct ACEs (psychological abuse, CPA, and CSA)
* Environmental ACEs (substance abuse, mental illness, intimate partner violence, and incarceration)
 | Lifetime smoking status  | Direct ACEs were associated with smoking (aRR = 1.5, 95% CI [1.1, 2.1]).Environmental ACEs were associated with smoking (aRR = 1.8, 95% CI [1.4, 2.3]).Both Direct and Environmental ACEs were associated with smoking (aRR = 2.7, 95% CI [2.2, 3.3]).  |

Key: Add health, The National Longitudinal Study of Adolescent to Adult Health; ACE, adverse childhood experiences; AD, alcohol dependence; ANOVA, analysis of variance; BRFSS, Behavioral Risk Factor Surveillance System; Cardia, Coronary Artery Risk Development in Young Adults study; CHLEW, Chicago Health and Life Experiences of Women study; CM, child maltreatment; CPA, childhood physical abuse; CSA, childhood sexual abuse; HR, hazard ratio; MIDUS, National Survey of Midlife Development in the United States; NAS, National Alcohol Survey; NEFS, The New England Family Study; NESARC, National Epidemiologic Survey on Alcohol and Related Conditions; NSHLEW, National Study of Health and Life Experiences of Women; OR, odds ratio; PTSD, post-traumatic stress disorder; RR, risk ratio; SEM, structural equation modeling; SD, standard deviation; WC, waist circumference.

Note. % Hispanic may also include Latino/a participants

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