

| Table DS1 Characteristics of included cohorts and the measures of relationships in the home during childhood | | | |
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| Paper details | Sample size (% women) and age at entry | Start date, length of follow-up, years (% follow-up) | Exposure, source and age assessed |
| Egeland, 1997 ¹³ Minnesota Longitudinal Study of Children and Parents (USA) First-born children of young mothers (mean age 20), 62% unmarried; low SES (41% not completed high school) | 267 (41%) Birth | 1975–77, 6 assessments in first year, then ~18 further assessments to age 28 (64%) | Abuse. Physical (frequent/intense spanking, or outbursts resulting in injuries); sexual abuse by family member. Ratings based on home observations, interview with parent, and child protection records (0–5 years) Neglect. Irresponsible or incompetent care, children with extremely poor hygiene or appearing malnourished, based on home observations and interviews (0–5 years) Psychological unavailability. Based on home observations and interviews (0–5 years) |
| Appleyard <i>et al</i> , 2007 ²² As above | As above | As above, data from follow-up at age 15–16 (69%) | Mother emotional support to child. Composite from observations at 12–42 months including secure attachment (Strange Situation Test at 12 and 18 months), supportive presence (problem-solving tasks at 24 months and teaching task at 42 months), emotional and verbal responsivity on Caldwell HOME inventory at 30 months. Scores converted to z-scores and means calculated |
| Fergusson & Lynskey, 1995 ^{29,30} Christchurch Health and Development Study (New Zealand) Population birth cohort | 1265 (50%) Birth | 1977, annual follow-up to 16 years (75%) | Emotional responsiveness. Observer rating, using Home Observation for Measurement of the Environment Inventory subscale (age 3 years) Parental conflict. Frequency of parental arguments, assault by husband, problems with sex reported by mother (annually) |
| Jaffee <i>et al</i> , 2002 Dunedin Multidisciplinary Health & Development Study (New Zealand). Population birth cohort | 1037 (48%) 3 years | 1975–76, follow-up every 2 years, then at 15, 18, 23 and 26 (66% at every assessment) | Mother–child interactions observed and rated across eight categories during 1-hour testing session at age 3 years – one point for each behaviour rated as hostile or rejecting Parental disagreement about discipline by mother’s report, including frequency; scores standardised and averaged across aged 5–9 years |
| Moffitt, 2007 ¹⁵ As above | As above | As above, follow-up at age 32 (29 years) (91%) | Maltreatment ages 3–11. Behavioural observations of rejecting mother–child interactions at age 3 years; parental reports of harsh discipline at ages 7 and 9 years; two or more changes in primary caregiver before age 11 years; retrospective reports by study members at age 26 years of physical abuse or unwanted sexual contact before age 11 years |
| Lansford <i>et al</i> , 2002 ²⁶ Public (state) school population, Southern USA | 585 (48%) 4–5 years | 1987–88, 12-year follow-up (79%) | Discipline practices and physical maltreatment. ‘Severe harm’ defined as intentional strikes to the child leaving marks visible for >24 h or requiring medical attention, from interview with mothers (interrater agreement 90%) (5 years) |
| Lefkowitz & Tesiny, 1984 ¹⁸ Semi-rural school population, New York state (USA) | 875 (51%) 8 years | 1959–60, 10-year follow-up (49%) | Rejection (mother, father). Parent report of negative rejecting attitudes towards child (modified Rip Van Winkle Child Rearing Questionnaire) (age 8 years) Punishment (mother, father). Parent report from 24 items measuring degree of punishments used (8 years) Parental disharmony. Parent report of disagreements, time spent together, argue in front of children, left home during arguments, interest in each other’s work (8 years) |
| Leve <i>et al</i> , 2005 ²⁴ Community sample via advert Pacific Northwest USA | 373 (48%): 166 recruited at 18 months, 207 recruited at age 5 | Start date not stated, follow-up to age 17 years (i.e. 12 or 15.5 years) (90%) | Harsh parental discipline (age 5 years). Aggregated maternal and paternal reports ($r=0.62$) of frequency of scolding, swearing at, hit/slap/spanking child. Interviewer rating of parental discipline and use of physical discipline Marital adjustment. 32-item Spanier Dyadic Adjustment Scale (score=0 if not married), $r=0.52$ for maternal and paternal scores |
| McCord & Ensminger, 1997 ²⁸ African–American school children in poor district of Chicago, USA | 1242 (51%) 6 years | 1966–67, 26- to 28-year follow-up (77%) | Frequency of spanking. Mother’s report: frequent = ‘a couple of times per week or more’ (6 years) |

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| Paper details | Sample size (% women) and age at entry | Start date, length of follow-up, years (% follow-up) | Exposure, source and age assessed |
| Nomura <i>et al</i> , 2002 ¹¹ Parental depression, recruited from depression treatment clinic + controls (USA) | 220 (47%) 6–23 years | 1975, 10-year follow-up (83%) | Marital adjustment. Parent reports using Short Marital Adjustment Test (6–23 years) Parent–child discord. Mother reports of arguing, fighting or tension between either parent and at least 1 child in the family (6–23 years) Family cohesion. Child self-report using Family Adaptation and Cohesion Evaluation scale (6–23 years) Affectionless control using Parental Bonding Instrument |
| Overbeek <i>et al</i> , 2007 ¹² Solna Study. General population birth cohort (Stockholm, Sweden) | 212 (42%) Birth | 1955–1958, 37 years (87%) | Parent–child relationship quality. Structured interviews with mother; data averaged over ages 4–10 years (minimum four ratings). Ratings of affective quality of mother–child and father–child relationships (year-to-year: $r=0.60$ father–child and $r=0.42$ mother–child) |
| Reinherz <i>et al</i> , 1999 ²⁰ Public (state) school population in predominantly White, low SES community in Northeast USA | 763 5 years (some measures at 9 and 15 years) | 1977, follow-up at age 18 (50%) and 21 (49%) (12–16 years) | Perceived family functioning. Children’s self-report of role in the family using Piers–Harris Self-Concept Scale (age 9 and 15 years) Self-report of violence within family ascertained at age 15 Abuse (physical, sexual, emotional) before ages 9 and 15, by recall at age 21 Family cohesion child report age 15 using Family Adaptability and Cohesion Evaluation Scales |
| Reinherz <i>et al</i> , 2003 ¹⁷ As above | As above | Follow-up age 26 (46%) | As above |
| Roberts & Bengston, 1993 Longitudinal Study of Generations. California HMO | 535 (60%) 16–26 years (mean 19) | 1971, 14-year follow-up (55%) | Parent–child affection. Child and parent answered four questions, e.g. ‘How well do you get along together at this point in your life?’ (16–26 years) |
| Sadowski <i>et al</i> , 1999 ²⁵ Newcastle Thousand Family Study Population birth cohort (UK) | 1142 (50%) Birth | 1947, follow-up to 5 years, then at 33 years (stratified by SES at age 5) | Poor mothering ability and poor physical care of child. Ratings by home visitor (at 5 years) combined in a single ‘composite index of parenting’ |
| Spence <i>et al</i> , 2002 ¹⁹ Mater–University of Queensland Study of Pregnancy, in obstetric hospitals in Brisbane, Australia | 8556 Birth | Follow-up at 6 months then at 5 and 14 years (61%) | Marital distress at 6 months and 5 years from maternal report, using Spanier Dyadic Adjustment Scale. Marital distress defined as dyadic satisfaction score in lowest decile |
| Thomas 1976 ³¹ Thomas <i>et al</i> , 1979 ³² Precursors Study. Johns Hopkins medical students (USA) | 1337 (9%) 21–25 years | 1947–1964, follow-up after 14–31 years (68%) | Closeness-to-parents (including questions about parent–child and parent–parent relationships) by participant self-report at baseline (age 21–25 years) using Family Attitude Questionnaire |
| Thornberry <i>et al</i> , 2001 ²⁷ Rochester Youth Development Study. Population (USA), stratified by risk of delinquency (resident arrest rate in census tract) | 1000 (27%) 13–14 years (with exposure data from birth) | 1988, follow-up every 6 months until age 18 years (12-year follow-up) (74%) | Maltreatment. Physical, sexual or emotional abuse; lack of supervision; or neglect as recorded contemporaneously in child protection services records (0–5 years) |
| Widom <i>et al</i> , 1999 ³³ and 2007 ¹⁶ Horwitz <i>et al</i> , 2001 ¹⁴ Victims of abuse or neglect from Court records, metropolitan Midwest USA + matched controls (age, gender, race, address, school) | 1575 0–11 years at time of abuse/ neglect | 1967–71, follow-up 17–28 (mean 22) years after abuse. Mean age at follow-up 29 years (76%) | Abuse or neglect. Physical abuse including injuries, sexual abuse, severe deficiencies in child care, extreme failure to provide adequate food, clothing, shelter and medical attention, as recorded in County juvenile and adult criminal justice records (0–11 years) |
| SES, socio-economic status; HMO, health maintenance organisation. | | | |

| Table DS2 Depression: outcome measures and confounding factors adjusted for, in included studies | | | | |
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| Cohort | Outcome measure | Factors adjusted for | Quality ^a | Results |
| Appleyard, 2007 ²² | Internalising problems teacher reported CBCL at 10th grade (age 15–16 years) | Gender, internalising problems in 1st grade, quantity, quality and disruption of early childhood support | **** | 12.5-year follow-up: initial negative correlation between mother support to 42 months and internalising problems at age 15–16 years ($r = -0.19, P \leq 0.05$) Adjustment for internalising problems in first grade and quantity, quality and disruption of early support from sources other than mother reduced effect to not significant |
| Egeland, 1997 ¹³ | Depression/mood disorders by standardised interview, using Kiddie-SADS (at age 17.5 years). Withdrawn depressed on CBCL, rated by parent, teacher and child (self-report) (16 years). Score (range 0–3)= number of times adolescent obtained a standard score of ≥ 65 (behaviour problem range; s.d. = 1.5 above the mean for the normative sample) | Parental SES, but note predominantly low SES sample | **** | 12.5-year follow-up: maltreatment correlated with depression on Kiddie-SADS (P -value not given). Abuse correlated with score on CBCL withdrawn depressed scale ($r = 0.18, P < 0.01$). Depression more frequent in children physically (40%) or sexually abused (64%) than non-abused (31%) |
| Leve, 2005 ²⁴ | Internalising behaviour. Withdrawn, somatic complaints, anxiety/depressed subscales of CBCL (parent report at child ages 5, 7, 10, 14 and 17 years) | Family income, maternal depression, fear/shyness/impulsivity at age 5 years | **** | 12-year follow-up: harsh discipline at age 5 years correlated significantly with internalising scores at age 17 years in boys ($r = 0.20, P < 0.05$) but not girls (correlation 0.07, not significant). Marital satisfaction (to age 5 years) correlated with (lower) internalising scores for both boys ($r = -0.32$) and girls ($r = -0.33$) (both $P < 0.001$); neither was significant after adjusting for maternal depression |
| Jaffee <i>et al</i> , 2002 ²¹ | Major depression in previous year, using Diagnostic Interview Schedule to ascertain major depression at ages 18, 21 or 26. Adult depression defined as depression onset between ages 18 and 26 | Gender | **** | 23-year follow-up: mother's rejecting behaviour at age 3 not significantly associated with depression in adulthood. Mean rejecting score 0.54 (s.d.=1.27) for never depressed v. 0.56 (s.d.=1.34) for depressed. Parental disagreement about discipline (ages 5–9 years) associated with depression in adulthood, effect size 0.45 ($P < 0.01$) |
| Moffitt, 2007 ¹⁵ | Major depressive disorder from Diagnostic Interview Schedule defined as any episode between ages 18 and 32 years | Gender | **** | 21-year follow-up: 9% of those with major depressive disorder had maltreatment compared with 3% controls; odds ratio 2.60 (95% CI 1.0–6.6) ($P < 0.05$) |
| Horwitz <i>et al</i> , 2001 ¹⁴ | Dysthymia. Number of lifetime symptoms and lifetime diagnosis of dysthymia, assessed using Diagnostic Interview Schedule (mean age at follow-up 29 years) | Ethnicity, age, parents on welfare, lifetime stressful events (including unemployment, financial, family and relationship problems) | **** | 20-year follow-up: males: abuse/neglect predicted lifetime diagnosis of dysthymia (but not lifetime symptoms) in fully adjusted model ($P < 0.05$). Females: abuse/neglect predicted lifetime dysthymia symptoms ($P < 0.001$) (but not diagnosis), not significant after lifetime events in model |
| Widom, 2007 ¹⁶ | Lifetime and 12-month prevalence of major depressive disorder from Diagnostic Interview Schedule (DIS) using DSM-III-R criteria | Matching for age, gender, ethnicity, family social class and school (or hospital where born if pre-school age at recruitment) | ***** | 22-year follow-up: abused/neglected cohort and controls at similar risk of lifetime and 12-month major depressive disorder. If abused or neglected, lifetime major depressive disorder (OR = 1.27, CI 0.96–1.67); 12-month prevalence (OR = 1.51, CI 1.06–2.14) ($P < 0.05$) Main difference is earlier onset in abused/neglected group (mean age of onset 18.2 v. 20.8 years among controls ($P = 0.01$)) |
| Lansford <i>et al</i> , 2002 ²⁶ | Anxiety/depression on CBCL, rated by mother (age 16 years). Current symptoms/problems implied, although no interval for ratings specified at age 16: children completed Youth Self-Report form of CBCL | Parental SES, single parent, family stress, maternal social support, child's exposure to violence, child temperament, harsh parental treatment. | **** | 12-year follow-up: maltreated mean anxious depressed CBCL score 5.32 (s.e. = 0.61) v. not maltreated mean score 2.67 (s.e. = 0.27), $P < 0.001$. Association with maltreatment greater for girls than boys ($P < 0.001$) |
| Lefkowitz & Tesiny, 1984 ¹⁸ | Depression, by self-report using D scale of the Minnesota Multiphasic Personality Inventory (MMPI) at 10-year follow-up (age 18–19 years) | SES: father's education, father's occupation, mother's education | ** | 10-year follow-up. Females: depression associated with mother rejection ($P < 0.05$), father rejection ($P < 0.01$), mother punishment ($P < 0.05$) but not father punishment or parental disharmony. Males: All associations not significant |
| McCord & Ensminger, 1977 ²⁸ | Depression, using Composite International Diagnostic Interview (CIDI) (age 32–34 years) | None | *** | 26- to 28-year follow-up. Females: among those with depression, 19.0% frequently spanked v. 14.7% not frequently spanked, not significant. Males: 17.4% v. 13.5%, not significant |

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Table DS2 (continued)

| Cohort | Outcome measure | Factors adjusted for | Quality ^a | Results |
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| Nomura <i>et al</i> , 2002 ¹¹ | Major depression between assessments by standardised interview using Kiddie-SADS modified to include DSM-III-R criteria for depression (ages 6–17 years) and Adult SADS-Lifetime version (ages 26–33 years) | Parental depression, gender, age of offspring, SES | **** | 10-year follow-up: if either parent depressed, associations with relationship variables, not significant. If neither parent depressed, parent-child discord (OR = 4.0, $P < 0.05$); affectionless control (OR = 6.3, $P < 0.05$) |
| Reinherz <i>et al</i> , 1999 ²⁰ Reinherz <i>et al</i> , 2003 ¹⁷ | DSM-III-R major depression in past year, by standardised interview using Diagnostic Interview Schedule (18 and 21 years); DSM-IV major depression between age 18 and 26 (assessed at age 26) | At 11- and 17-year follow-up: age, gender, emotional and behavioural problems to adolescence, and family measures. At 12-year follow-up: gender | **** | 11-year follow-up: (exposures age 15) low family cohesion (OR = 1.75, CI 1.05–2.90) and family violence (OR = 3.88, CI 1.56–9.64) associated with depression 12-year follow-up: (exposures age 9): mean poor perceived role in family score for depressed 2.11 (s.d. = 1.83) v. not depressed 1.38 (s.d.=1.23), $P < 0.001$. Abuse or neglect by age 9 more common among depressed (18% v. 5%) ($P < 0.01$). 17-year follow-up: (exposures age 9): mean poor perceived role in family score for depressed v. not depressed, not significant |
| Roberts & Bengston, 1993 ²³ | Depression (self-report) CES-D (30–40 years) | Gender, age, work, education, marital and parenthood status, income | ** | 14-year follow-up: mean depression scores for the low, moderate and high parent-child affection groups were 12.8, 10.6 and 9.4 ($P < 0.05$); association between depression and parent-child affection, not significant after adjusting for confounders ($P = 0.07$) |
| Sadowski <i>et al</i> , 1999 ²⁵ | Major depression in past year, by semi-structured open-ended interview using DSM-III-R criteria (33 years). (Findings validated using depressive symptom checklist) | Marital instability, parental physical illness, over-crowding, dependence on state benefits | *** | 28-year follow-up: depression significantly associated with poor mothering/poor physical care for females (OR = 4.3, CI 1.5–12.4) but not males (OR = 2.5, CI 0.6–11.2). Reverse true for marital instability: men OR = 6.0 (CI 1.3–26.7), women OR = 2.1 (CI 0.8–5.6) |
| Spence <i>et al</i> , 2002 ¹⁹ | Anxiety/depression using CBCL rated by mother and self-report (Youth Self-Report) at age 14 | Poverty, maternal depression, maternal anxiety | *** | 9- to 14-year follow-up: marital distress significantly associated with CBCL anxiety/depression in child in univariate analysis or when only maternal age and child's gender included (OR = 1.5–1.7) ($P < 0.01$); non-significant on further adjusting for maternal depression and anxiety |
| Thornberry <i>et al</i> , 2001 ²⁷ | Depressive symptoms in last 6 months, by self-report of symptom frequency using questionnaire derived from CES-D | Gender, race, SES, family structure, parental education, community poverty | ** | 12-year follow-up: few significant associations, and none between childhood maltreatment and depression in late adolescence |

a. For each study, a quality score was generated with one point for each of the following: (a) representative sample with adequate follow-up; (b) validated exposure and outcome measures; (c) appropriate control for potential confounding; (d) absence of multiple or post hoc hypothesis testing; and (e) subjective rating of overall study quality.
CBCL, Child Behavior Checklist; SES, Socio-economic status; Kiddie-SADS, Kiddie Schedule for Affective Disorders and Schizophrenia; CES-D, Center for Epidemiologic Studies Depression Scale.