

Table S1 Prevalence of measures used in first order factor analyses of childhood psychosocial adversity and model fit statistics

| Factor | Question | Prevalence N (% exposed) | Factor loading | Model fit statistics |
|---|--|--------------------------------|-------------------|---------------------------------------|
| Sexual abuse | Did anyone masturbate in front of you before you were 16 without your consent? | 8,841 (4.1) | 0.757 | RMSEA 0.037 CFI 0.993 TLI 0.986 |
| | Did anyone have sexual intercourse with you before you were 16 without your consent? | 8,984 (2.1) | 0.889 | |
| | Did anybody rub their genitals against your body in a sexual way before you were 16 without your consent? | 8,984 (6.0) | 0.924 | |
| | Did anyone ever touch or fondle your body, including your breast or genitals, or attempt to arouse you sexually before you were 16 without your consent? | 8,984 (10.2) | 0.895 | |
| | Did anyone ever try to put their penis into your mouth before you were 16? | 8,758 (1.8) | 0.803 | |
| Non-sexual abuse | A parent was emotionally cruel to you before you were 17 | 8,984 (8.0) | 0.940 | RMSEA 0.060 CFI 0.991 TLI 0.972 |
| | A parent was physically cruel to you before you were 17 | 8,984 (3.4) | 0.900 | |
| | Did you feel neglected emotionally during your childhood? | 7,198 (21.4) | 0.781 | |
| | Were you physically neglected as a child (e.g. not fed or clothed properly)? | 7,203 (1.7) | 0.738 | |
| Maladaptive family functioning | Home stability (RS) ^a | 8,959 (12.1) | 0.771 | RMSEA 0.062 CFI 0.961 TLI 0.952 |
| | Did your parents have serious arguments? | 8,984 (27.7) | 0.788 | |
| | Was your parent's relationship violent? | 6,696 (13.3) | 0.893 | |
| | Was your parent's relationship affectionate? (RS) | 6,797 (12.4) | 0.782 | |
| | Was your parent's relationship quarrelsome? | 6,832 (77.8) | 0.629 | |
| | Was your parent's relationship happy? (RS) | 6,833 (4.9) | 0.905 | |
| | Was your parent's relationship frightening? | 6,756 (19.2) | 0.869 | |
| | Was your parent's relationship friendly? (RS) | 6,802 (3.6) | 0.910 | |
| | Was your parent's relationship respectful? (RS) | 6,776 (8.5) | 0.884 | |
| | Was your parent's relationship remote or distant? | 6,747 (42.5) | 0.757 | |
| | Before age 17 years were your parents separated or divorced? | 8,984 (16.3) | 0.700 | |
| Any paternal absence before 11 years of age | 8,984 (12.7) | 0.462 | | |
| Parental mental illness | Was either parent mentally ill before age 17 years? | 8,984 (4.6) | 0.711 | RMSEA 0.048 CFI 0.967 TLI 0.900 |
| | Did your mother have depression or nerves? | 8,657 (22.5) | 0.600 | |
| | Did your mother have an alcohol problem? | 8,900 (2.7) | 0.811 | |
| | Did your father have an alcohol problem? | 8,717 (6.5) | 0.387 | |

| | | | | |
|---|--|--------------|-------|---------------------------------------|
| Maternal lack of care | Did your mother speak to you in a warm and friendly voice? (RS) | 8,938 (20.3) | 0.877 | RMSEA 0.062 CFI 0.984 TLI 0.980 |
| | Did your mother help you as much as you needed? (RS) | 8,954 (19.3) | 0.902 | |
| | Did your mother seem emotionally cold to you? | 8,945 (4.9) | 0.755 | |
| | Problems understood by the mother (RS) | 8,966 (49.1) | 0.838 | |
| | Was your mother affectionate towards you? (RS) | 8,967 (29.1) | 0.877 | |
| | Did your mother make you feel you were not wanted? | 8,973 (3.6) | 0.640 | |
| | Did your mother talk things over with you? (RS) | 8,979 (55.2) | 0.829 | |
| | Did your mother praise you? (RS) | 8,959 (47.2) | 0.816 | |
| | Did your mother enjoy talking things over with you? (RS) | 8,858 (19.5) | 0.897 | |
| | Did your mother frequently smile at you? (RS) | 8,913 (10.5) | 0.892 | |
| | Did your mother seem to understand what you needed or wanted? (RS) | 8,859 (22.3) | 0.907 | |
| Did your mother make you feel better when you were upset? (RS) | 8,892 (13.3) | 0.890 | | |
| Maternal overprotection | Did your mother allow you to do things you liked doing? (RS) | 8,976 (41.5) | 0.662 | RMSEA 0.082 CFI 0.953 TLI 0.930 |
| | Did your mother try to control what you did? | 8,966 (25.2) | 0.507 | |
| | Did your mother let you decide things for yourself? (RS) | 8,981 (54.1) | 0.717 | |
| | Did your mother give you the freedom you wanted? (RS) | 8,973 (63.9) | 0.851 | |
| | Did your mother let you go out as often as you wanted? (RS) | 8,915 (54.7) | 0.775 | |
| | Was your mother overprotective of you? | 8,934 (21.0) | 0.491 | |
| Did your mother allow you to dress in any way you pleased? (RS) | 8,919 (42.8) | 0.665 | | |
| Second order factor analysis of cumulative psychosocial adversity | Sexual abuse | NA | 0.442 | RMSEA 0.040 CFI 0.935 TLI 0.931 |
| | Non-sexual abuse | NA | 0.975 | |
| | Maladaptive family functioning | NA | 0.706 | |
| | Parental mental illness | NA | 0.704 | |
| | Lack of care | NA | 0.753 | |
| Overprotection | NA | 0.552 | | |

RS: reversed scale

^a Home stability was defined based on a general question of self-evaluation of whether the childhood home was very stable, fairly stable, unstable or very unstable.

Table S2 Distribution of background characteristics among included and excluded individuals

| Characteristics | Women with information needed to be included in analysis of age at menarche | | |
|-------------------------------------|---|------------------|----------|
| | Yes (n= 8,984) | No (n= 5,557) | p-values |
| Age at delivery/enrolment, Mean(SD) | 28.5 (4.8) | 27.1 (5.2) | <0.001 |
| Missing, N(%) | 0 | 645 | |
| Ethnicity, N(%) | | | <0.001 |
| White/European | 8,798 (97.9) | 3,129 (95.9) | |
| Other | 186 (2.1) | 135 (4.1) | |
| Missing | 0 | 2,293 | |
| Education, N(%) | | | <0.001 |
| A level or above | 3,499 (39.0) | 859 (25.6) | |
| O level or below | 5,485 (61.0) | 2,497 (74.4) | |
| Missing | 0 | 2,201 | |
| Age at menarche, Mean(SD) | 12.9 (1.5) | 12.8 (1.6) | 0.016 |
| Missing, N(%) | 0 | 3,436 | |

Percentages are based on observed values to facilitate comparability.

Table S3 Associations between the latent constructs from the first order factor analysis

| Latent construct | Maladaptive family functioning | Parental mental illness | Lack of care | Maternal overprotection | Sexual abuse | Non-sexual abuse |
|--------------------------------|--------------------------------|-------------------------|--------------|-------------------------|--------------|------------------|
| Maladaptive family functioning | 1 | | | | | |
| Parental mental illness | 0.706 | 1 | | | | |
| Lack of care | 0.501 | 0.447 | 1 | | | |
| Maternal overprotection | 0.207 | 0.185 | 0.558 | 1 | | |
| Sexual abuse | 0.378 | 0.404 | 0.281 | 0.159 | 1 | |
| Non-sexual abuse | 0.804 | 0.681 | 0.679 | 0.363 | 0.513 | 1 |

The coefficients reflect the change in the standard deviation in one factor per standard deviation increase in the other factor

Table S4 Associations of childhood psychosocial adversity with age at menarche: sensitivity analysis restricted to individuals with direct information on childhood socio-economic position

(n=5,389)

| Exposure | Unadjusted | | Adjusted | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | -0.013 (-0.062, 0.036) | 0.601 | -0.015 (-0.064, 0.034) | 0.540 |
| Lack of care | 0.006 (-0.039, 0.051) | 0.784 | -0.001 (-0.046, 0.044) | 0.982 |
| Maladaptive family functioning | 0.003 (-0.046, 0.052) | 0.913 | 0.012 (-0.037, 0.061) | 0.631 |
| Nonsexual abuse | -0.018 (-0.081, 0.045) | 0.560 | -0.016 (-0.077, 0.045) | 0.604 |
| Overprotective parenting | -0.024 (-0.069, 0.021) | 0.301 | -0.033 (-0.078, 0.012) | 0.160 |
| Parental mental illness | -0.019 (-0.080, 0.042) | 0.548 | 0.001 (-0.062, 0.064) | 0.969 |
| Sexual abuse | -0.165 (-0.230, -0.100) | <0.001 | -0.158 (-0.223, -0.093) | <0.001 |

Beta coefficients are interpreted as a mean difference in age at menarche in years per standard deviation increase in psychosocial adversity.

Adjusted for age at recruitment, ethnicity, paternal occupational status and parental highest educational qualifications.

Table S5 Associations of childhood psychosocial adversity with age at menopause: sensitivity analysis restricted to individuals with direct information on childhood socio-economic position

(n=626)

| Exposure | Unadjusted | | Adjusted | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | 0.082 (-0.269, 0.433) | 0.644 | 0.046 (-0.266, 0.358) | 0.771 |
| Lack of care | 0.127 (-0.204, 0.458) | 0.452 | 0.070 (-0.214, 0.354) | 0.627 |
| Maladaptive family functioning | 0.018 (-0.327, 0.363) | 0.918 | 0.064 (-0.252, 0.380) | 0.693 |
| Nonsexual abuse | 0.027 (-0.406, 0.460) | 0.904 | -0.037 (-0.409, 0.335) | 0.845 |
| Overprotective parenting | 0.012 (-0.323, 0.347) | 0.946 | -0.055 (-0.361, 0.251) | 0.726 |
| Parental mental illness | -0.127 (-0.582, 0.328) | 0.585 | -0.018 (-0.408, 0.372) | 0.928 |
| Sexual abuse | -0.054 (-0.546, 0.438) | 0.830 | -0.116 (-0.579, 0.347) | 0.622 |

Beta coefficients are interpreted as a mean difference in age at menopause in years per standard deviation increase in psychosocial adversity.

Adjusted for age at recruitment, ethnicity, paternal occupational status and parental highest educational qualifications.

Table S6 Associations of childhood psychosocial adversity with length of reproductive lifespan: sensitivity analysis restricted to individuals with direct information on childhood socio-economic position

(n=557)

| Exposure | Unadjusted | | Adjusted | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | -0.046 (-0.434, 0.342) | 0.816 | -0.098 (-0.437, 0.241) | 0.572 |
| Lack of care | -0.040 (-0.403, 0.323) | 0.829 | -0.104 (-0.408, 0.200) | 0.501 |
| Maladaptive family functioning | 0.049 (-0.330, 0.427) | 0.798 | 0.082 (-0.255, 0.419) | 0.633 |
| Nonsexual abuse | -0.064 (-0.499, 0.371) | 0.774 | -0.145 (-0.513, 0.223) | 0.438 |
| Overprotective parenting | -0.055 (-0.429, 0.319) | 0.773 | -0.154 (-0.499, 0.191) | 0.380 |
| Parental mental illness | 0.053 (-0.441, 0.547) | 0.832 | 0.105 (-0.324, 0.534) | 0.631 |
| Sexual abuse | -0.157 (-0.676, 0.362) | 0.552 | -0.210 (-0.694, 0.274) | 0.394 |

Beta coefficients are interpreted as a mean difference in length of reproductive lifespan in years per standard deviation increase in psychosocial adversity.

Adjusted for age at recruitment, ethnicity, paternal occupational status and parental highest educational qualifications.

Table S7 Associations of childhood psychosocial adversity with age at menarche: sensitivity analysis using a complete case analysis for all covariates used to inform the latent constructs in first order factors

(n=5,568)

| Exposure | Model 1 | | Model 2 | | Model 3 | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | 0.013 (-0.036, 0.062) | | 0.014 (-0.035, 0.063) | | 0.014 (-0.035, 0.063) | |
| Lack of care | 0.031 (-0.014, 0.076) | 0.167 | 0.031 (-0.014, 0.076) | 0.179 | 0.030 (-0.015, 0.075) | 0.192 |
| Maladaptive family functioning | 0.012 (-0.035, 0.059) | 0.611 | 0.017 (-0.030, 0.064) | 0.472 | 0.017 (-0.030, 0.064) | 0.468 |
| Nonsexual abuse | -0.005 (-0.066, 0.056) | 0.874 | -0.003 (-0.064, 0.058) | 0.925 | -0.002 (-0.063, 0.059) | 0.958 |
| Overprotective parenting | 0.000 (-0.045, 0.045) | 0.983 | -0.003 (-0.048, 0.042) | 0.891 | -0.004 (-0.049, 0.041) | 0.860 |
| Parental mental illness | -0.021 (-0.084, 0.042) | 0.503 | -0.022 (-0.083, 0.039) | 0.480 | -0.022 (-0.083, 0.039) | 0.480 |
| Sexual abuse | -0.169 (-0.238, -0.100) | <0.001 | -0.164 (-0.233, -0.095) | <0.001 | -0.164 (-0.233, -0.095) | <0.001 |

Beta coefficients are interpreted as a mean difference in age at menarche in years per standard deviation increase in psychosocial adversity.

Model 1 Unadjusted.

Model 2 Adjusted for age at recruitment and ethnicity.

Model 3 Adjusted for age at recruitment, educational qualifications and ethnicity.

Table S8 Associations of childhood psychosocial adversity with age at menopause: sensitivity analysis using a complete case analysis for all covariates used to inform the latent constructs in first order factors

(n=709)

| Exposure | Model 1 | | Model 2 | | Model 3 | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | 0.094 (-0.237, 0.425) | 0.576 | 0.092 (-0.194, 0.378) | 0.529 | 0.075 (-0.209, 0.360) | 0.602 |
| Lack of care | 0.131 (-0.181, 0.443) | 0.411 | 0.120 (-0.152, 0.392) | 0.389 | 0.109 (-0.161, 0.380) | 0.430 |
| Maladaptive family functioning | -0.030 (-0.352, 0.291) | 0.851 | 0.057 (-0.227, 0.341) | 0.696 | 0.056 (-0.228, 0.340) | 0.701 |
| Nonsexual abuse | 0.030 (-0.464, 0.524) | 0.851 | 0.002 (-0.323, 0.327) | 0.990 | -0.041 (-0.353, 0.271) | 0.798 |
| Overprotective parenting | 0.108 (-0.202, 0.418) | 0.494 | 0.020 (-0.262, 0.302) | 0.888 | 0.007 (-0.273, 0.002) | 0.963 |
| Parental mental illness | -0.179 (-0.644, 0.286) | 0.450 | -0.057 (-0.484, 0.370) | 0.795 | -0.082 (-0.513, 0.349) | 0.707 |
| Sexual abuse | 0.220 (-0.292, 0.732) | 0.397 | 0.262 (-0.240, 0.764) | 0.306 | 0.258 (-0.230, 0.746) | 0.300 |

Beta coefficients are interpreted as a mean difference in age at menopause in years per standard deviation increase in psychosocial adversity.

Model 1 Unadjusted.

Model 2 Adjusted for age at recruitment and ethnicity.

Model 3 Adjusted for age at recruitment, educational qualifications and ethnicity.

Table S9 Associations of childhood psychosocial adversity with length of reproductive lifespan: sensitivity analysis using a complete case analysis for all covariates used to inform the latent constructs in first order factors

(n=632)

| Exposure | Model 1 | | Model 2 | | Model 3 | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | 0.049 (-0.318, 0.416) | 0.794 | 0.056 (-0.265, 0.377) | 0.738 | 0.032 (-0.286, 0.350) | 0.845 |
| Lack of care | 0.016 (-0.325, 0.357) | 0.926 | 0.007 (-0.290, 0.305) | 0.961 | -0.009 (-0.303, 0.285) | 0.954 |
| Maladaptive family functioning | 0.047 (-0.318, 0.412) | 0.799 | 0.156 (-0.165, 0.477) | 0.342 | 0.155 (-0.164, 0.474) | 0.342 |
| Nonsexual abuse | 0.030 (-0.464, 0.524) | 0.905 | -0.050 (-0.413, 0.313) | 0.786 | -0.102 (-0.453, 0.249) | 0.566 |
| Overprotective parenting | 0.110 (-0.243, 0.463) | 0.542 | 0.005 (-0.326, 0.336) | 0.977 | -0.019 (-0.348, 0.310) | 0.911 |
| Parental mental illness | -0.070 (-0.570, 0.430) | 0.785 | 0.122 (-0.364, 0.608) | 0.622 | 0.114 (-0.370, 0.598) | 0.643 |
| Sexual abuse | 0.275 (-0.280, 0.830) | 0.331 | 0.354 (-0.216, 0.924) | 0.223 | 0.347 (-0.206, 0.900) | 0.218 |

Beta coefficients are interpreted as a mean difference in length of reproductive lifespan in years per standard deviation increase in psychosocial adversity.

Model 1 Unadjusted.

Model 2 Adjusted for age at recruitment and ethnicity.

Model 3 Adjusted for age at recruitment, educational qualifications and ethnicity.

Table S10 Associations of childhood psychosocial adversity with age at menarche: sensitivity analysis including all individuals with information on at least one measure of childhood adversity

(n=10,372)

| Exposure | Model 1 | | Model 2 | | Model 3 | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | 0.006 (-0.031, 0.043) | 0.734 | 0.007 (-0.028, 0.042) | 0.712 | 0.006 (-0.029, 0.041) | 0.765 |
| Lack of care | 0.032 (-0.001, 0.065) | 0.062 | 0.027 (-0.006, 0.060) | 0.106 | 0.026 (-0.007, 0.059) | 0.124 |
| Maladaptive family functioning | 0.012 (-0.025, 0.049) | 0.538 | 0.022 (-0.015, 0.059) | 0.253 | 0.021 (-0.016, 0.058) | 0.270 |
| Nonsexual abuse | -0.020 (-0.065, 0.025) | 0.371 | -0.019 (-0.064, 0.026) | 0.413 | -0.018 (-0.063, 0.027) | 0.431 |
| Overprotective parenting | -0.001 (-0.034, 0.032) | 0.955 | -0.008 (-0.041, 0.025) | 0.664 | -0.009 (-0.042, 0.024) | 0.624 |
| Parental mental illness | -0.030 (-0.075, 0.015) | 0.199 | -0.032 (-0.077, 0.013) | 0.166 | -0.032 (-0.077, 0.013) | 0.166 |
| Sexual abuse | -0.184 (-0.235, -0.133) | <0.001 | -0.175 (-0.226, -0.124) | <0.001 | -0.175 (-0.226, -0.124) | <0.001 |

Beta coefficients are interpreted as a mean difference in age at menarche in years per standard deviation increase in psychosocial adversity.

Model 1 Unadjusted.

Model 2 Adjusted for age at recruitment and ethnicity.

Model 3 Adjusted for age at recruitment, educational qualifications and ethnicity.

Table S11 Associations of childhood psychosocial adversity with age at menopause: sensitivity analysis including all individuals with information on at least one measure of childhood adversity

(n=1,076)

| Exposure | Model 1 | | Model 2 | | Model 3 | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | 0.057 (-0.221, 0.335) | 0.691 | 0.050 (-0.203, 0.303) | 0.696 | 0.040 (-0.209, 0.289) | 0.755 |
| Lack of care | 0.122 (-0.136, 0.381) | 0.357 | 0.105 (-0.126, 0.336) | 0.374 | 0.094 (-0.135, 0.323) | 0.424 |
| Maladaptive family functioning | -0.075 (-0.355, 0.205) | 0.599 | 0.009 (-0.242, 0.260) | 0.945 | 0.014 (-0.237, 0.265) | 0.910 |
| Nonsexual abuse | 0.046 (-0.326, 0.418) | 0.808 | 0.049 (-0.282, 0.380) | 0.771 | 0.034 (-0.282, 0.350) | 0.831 |
| Overprotective parenting | 0.083 (-0.189, 0.355) | 0.551 | -0.060 (-0.309, 0.189) | 0.637 | -0.072 (-0.319, 0.175) | 0.571 |
| Parental mental illness | -0.161 (-0.543, 0.221) | 0.407 | -0.053 (-0.382, 0.276) | 0.754 | -0.082 (-0.413, 0.249) | 0.630 |
| Sexual abuse | -0.147 (-0.537, 0.243) | 0.460 | -0.126 (-0.473, 0.221) | 0.476 | -0.134 (-0.479, 0.211) | 0.446 |

Beta coefficients are interpreted as a mean difference in age at menopause in years per standard deviation increase in psychosocial adversity.

Model 1 Unadjusted.

Model 2 Adjusted for age at recruitment and ethnicity.

Model 3 Adjusted for age at recruitment, educational qualifications and ethnicity.

Table S12 Associations of childhood psychosocial adversity with length of reproductive lifespan: sensitivity analysis including all individuals with information on at least one measure of childhood adversity

(n=945)

| Exposure | Model 1 | | Model 2 | | Model 3 | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | 0.024 (-0.284, 0.332) | 0.878 | 0.018 (-0.264, 0.300) | 0.900 | 0.005 (-0.273, 0.283) | 0.974 |
| Lack of care | 0.022 (-0.260, 0.304) | 0.877 | -0.004 (-0.259, 0.251) | 0.977 | -0.022 (-0.275, 0.231) | 0.862 |
| Maladaptive family functioning | 0.006 (-0.304, 0.316) | 0.969 | 0.119 (-0.161, 0.399) | 0.405 | 0.131 (-0.149, 0.411) | 0.360 |
| Nonsexual abuse | -0.033 (-0.331, 0.265) | 0.827 | -0.006 (-0.355, 0.343) | 0.973 | -0.007 (-0.342, 0.328) | 0.965 |
| Overprotective parenting | 0.061 (-0.241, 0.363) | 0.694 | -0.116 (-0.398, 0.166) | 0.419 | -0.138 (-0.418, 0.142) | 0.333 |
| Parental mental illness | -0.017 (-0.442, 0.408) | 0.938 | 0.071 (-0.315, 0.457) | 0.719 | 0.040 (-0.342, 0.422) | 0.836 |
| Sexual abuse | -0.006 (-0.429, 0.417) | 0.980 | 0.044 (-0.348, 0.436) | 0.828 | 0.023 (-0.183, 0.229) | 0.903 |

Beta coefficients are interpreted as a mean difference in length of reproductive lifespan in years per standard deviation increase in psychosocial adversity.

Model 1 Unadjusted.

Model 2 Adjusted for age at recruitment and ethnicity.

Model 3 Adjusted for age at recruitment, educational qualifications and ethnicity.

Table S13 Associations of childhood psychosocial adversity with age at menarche: sensitivity analysis in the sample used to analyse length of reproductive lifespan

(n=841)

| Exposure | Model 1 | | Model 2 | | Model 3 | |
|--------------------------------|-----------------------------------|---------|-----------------------------------|---------|-----------------------------------|---------|
| | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value | Mean difference in years (95% CI) | p-value |
| Total psychosocial adversity | 0.043 (-0.079, 0.165) | 0.485 | 0.042 (-0.078, 0.162) | 0.494 | 0.039 (-0.081, 0.159) | 0.527 |
| Lack of care | 0.085 (-0.027, 0.197) | 0.141 | 0.085 (-0.025, 0.195) | 0.132 | 0.084 (-0.026, 0.194) | 0.135 |
| Maladaptive family functioning | -0.059 (-0.188, 0.070) | 0.367 | -0.062 (-0.189, 0.065) | 0.336 | -0.062 (-0.187, 0.063) | 0.340 |
| Nonsexual abuse | 0.001 (-0.146, 0.148) | 0.993 | 0.000 (-0.145, 0.145) | 1.000 | -0.002 (-0.147, 0.143) | 0.977 |
| Overprotective parenting | 0.081 (-0.031, 0.193) | 0.157 | 0.081 (-0.031, 0.193) | 0.158 | 0.081 (-0.031, 0.193) | 0.154 |
| Parental mental illness | -0.096 (-0.255, 0.063) | 0.234 | -0.095 (-0.252, 0.062) | 0.234 | -0.114 (-0.261, 0.033) | 0.128 |
| Sexual abuse | -0.083 (-0.248, 0.082) | 0.325 | -0.075 (-0.232, 0.082) | 0.345 | -0.086 (-0.237, 0.065) | 0.265 |

Beta coefficients are interpreted as a mean difference in age at menarche in years per standard deviation increase in psychosocial adversity.

Model 1 Unadjusted.

Model 2 Adjusted for age at recruitment and ethnicity.

Model 3 Adjusted for age at recruitment, educational qualifications and ethnicity.

Table S14 Associations of biological father absence and age at menarche, age at menopause and length of reproductive lifespan

| Outcome | Model | None | Absent by 5 years of age Mean difference in years (95% CI) | Absent first between 6-11 years of age Mean difference in years (95% CI) |
|--|---------|------|---|---|
| Age at menarche in years (n=8,984) | Model 1 | Ref | 0.026 (-0.101, 0.153) | -0.111 (-0.241, 0.018) |
| | Model 2 | Ref | 0.078 (-0.051, 0.207) | -0.061 (-0.192, 0.070) |
| | Model 3 | Ref | 0.067 (-0.062, 0.196) | -0.066 (-0.196, 0.065) |
| Age at menopause in years (n=945) | Model 1 | Ref | -1.415 (-2.671, -0.158) | -1.881 (-3.380, -0.382) |
| | Model 2 | Ref | -0.745 (-1.888, 0.398) | -1.791 (-3.144, -0.438) |
| | Model 3 | Ref | -0.694 (-1.837, 0.449) | -1.733 (-3.086, -0.380) |
| Length of reproductive lifespan in years (n=841) | Model 1 | Ref | -1.228 (-2.686, 0.230) | -1.310 (-3.004, 0.384) |
| | Model 2 | Ref | -0.880 (-2.221, 0.460) | -1.002 (-2.551, 0.546) |
| | Model 3 | Ref | -0.768 (-2.110, 0.573) | -0.884 (-2.433, 0.665) |

Model 1 Unadjusted.

Model 2 Adjusted for age at recruitment and ethnicity.

Model 3 Adjusted for age at recruitment, educational qualifications and ethnicity.

Table S15 Associations between paternal absence the first 11 years of life and the other latent constructs for childhood psychosocial adversity from the first order factor analysis

| Outcome | Mean difference in standard deviation (95% CI) | p-value |
|--------------------------|--|---------|
| Lack of care | 0.269 (0.198, 0.340) | <0.001 |
| Nonsexual abuse | 0.636 (0.554, 0.718) | <0.001 |
| Overprotective parenting | 0.121 (0.048, 0.009) | 0.001 |
| Parental mental illness | 0.451 (0.355, 0.547) | <0.001 |
| Sexual abuse | 0.509 (0.417, 0.601) | <0.001 |

Beta coefficients are interpreted as the difference in standard deviation of the latent construct for psychosocial adversity between those who experienced paternal absence the first 11 years of life compared to those who did not experience paternal absence.

Figure S1 A figure illustrating the second order factor analysis of childhood psychosocial adversity in relation to female reproductive timing



