

Table 4. Summary of studies estimating association of postnatal PbB with verbal scale IQ

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| Study Population* (ref., type, n) | PbB Age | Outcome Age | Mean PbB (ug/dL) | Estimated Delta IQ for PbB 5 -> 15** | | Covariates in Model | | | | | | | | |
|--------------------------------------|-------------------------|-------------------|---|--------------------------------------|------------|--|--|----------------------------|---|---|-------|-------------|-------------|---|
| | | | | Crude | Adj | SES | Smoking | Fetal Growth | Family Environment | HOME | Race | Parental IQ | Iron Status | Other |
| | | | | | | | | | | | | | | |
| Port Pirie (35, L ,367) | 15 months | 11-13 years | 20.9 (GM) | -7 (ln)^ | -3.2 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu. | Parental smoking habits | Birth Weight | Family Structure, Family Functioning, Marital Status, Maternal Age, Life Events | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex, Child's Age, School Grade, School Absence |
| Port Pirie (4, L ,494) | Lifetime avg. 2 years | 7 years | 16.6-20.5 (means of 2nd & 3rd quartiles) (GM) | not stated | -6.4 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu., Pat. Edu. | Parental smoking | Birth Weight | Family Structure, Maternal Age | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex |
| Port Pirie (4, L ,494) | Lifetime avg. 15 months | 7 years | 14.3-18.0 (means of 2nd & 3rd quartiles) (GM) | not stated | -5.5 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu., Pat. Edu. | Parental smoking | Birth Weight | Family Structure, Maternal Age | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex |
| Cincinnati (13, L ,253) | Mean 15-24 months | 6.5 years | 17.1 | -0.3 | 0.2 | | Cigarette consumption during pregnancy | Birth Weight, Birth Length | | unspecified | | Maternal | | Child's Sex |
| Cleveland (16, L ,149) | 2 years | 4 years 10 months | 16.70 | r=-.37 | not stated | Mat. Edu. | Cigarettes per day | Birth Weight, Gestation | Authoritarian Family Ideology | total (mean of 1, 2, 3, and 4 yrs 10 mos) | Child | Maternal | | Child Stress, Maternal Medication/Drug Use, Maternal Alcohol Consumption, Birth Order, Child's Sex, History Alcohol Abuse |
| Costa Rica (41, L ,184) | 12-23 months | 5 years | 11.0 | r=+.06 | not stated | | | | | | | | | |
| Cincinnati (13, L ,253) | Mean 3-12 months | 6.5 years | 10.6 | 0 | 1.2 | | Cigarette consumption during pregnancy | Birth Weight, Birth Length | | unspecified | | Maternal | | Child's Sex |

* L=Longitudinal cohort, X=Cross-sectional.

** (ln)/(log10) = Original coefficient reported in log scale.

^ statistically significant (p < 0.05)

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| Study Population* (ref., type, n) | PbB Age | Outcome Age | Mean PbB (ug/dL) | Estimated Delta IQ for PbB 5 -> 15** | | Covariates in Model | | | | | | | | |
|-----------------------------------|-----------|-------------------|------------------|--------------------------------------|-------------------|--|--|----------------------------|--|---|-------|-------------|---|-------|
| | | | | Crude | Adj | SES | Smoking | Fetal Growth | Family Environment | HOME | Race | Parental IQ | Iron Status | Other |
| Cleveland (16, L, 122) | 6 months | 4 years 10 months | 9.99 | r=-.05 | not stated | Mat. Edu. | Cigarettes per day | Birth Weight, Gestation | Authoritarian Family Ideology | total (mean of 1, 2, 3, and 4 yrs 10 mos) | Child | Maternal | Child Stress, Maternal Medication/Drug Use, Maternal Alcohol Consumption, Birth Order, Child's Sex, History Alcohol Abuse | |
| Boston (7, L, 116) | 18 months | 10 years | 7.8 | not stated | -2 | Hollingshead Four-Factor Index of Social Class | | | Family Stress, Marital Status, Res Changes, Maternal Age | scales V & VI @ 120 mo, total @ 57 mo | Child | Maternal | Child Stress, Birth Order, Child's Sex | |
| Boston (7, L, 116) | 12 months | 10 years | 7.7 | not stated | -1.3 | Hollingshead Four-Factor Index of Social Class | | | Family Balance, Family Stress, Marital Status | scales V & VI @ 120 mo, total @ 57 mo | Child | Maternal | Child Stress, Parents' Sense Competence, Birth Order, Child's Sex | |
| Boston (7, L, 116) | 6 months | 10 years | 6.7 | not stated | -2.4 | Hollingshead Four-Factor Index of Social Class | | | Marital Status | scales V & VI @ 120 mo, total @ 57 mo | Child | Maternal | Child Stress, Birth Order, Child's Sex | |
| Boston (7, L, 116) | 24 months | 10 years | 6.5 | not stated | -6.3 [^] | Hollingshead Four-Factor Index of Social Class | | | Marital Status, Res Changes, Maternal Age | scales V & VI @ 120 mo, total @ 57 mo | Child | Maternal | Child Stress, Birth Order, Child's Sex | |
| Cincinnati (13, L, 253) | 10 Days | 6.5 years | 5 | -0.1 | 1.1 | | Cigarette consumption during pregnancy | Birth Weight, Birth Length | | unspecified | | Maternal | Child's Sex | |
| Boston (34, L, 148) | 24 months | 10 years | < 8 | not stated | -6.3 [^] | Hollingshead Four-Factor Index of Social Class | | | Marital Status, Res Changes, Maternal Age | scales V & VI @ 120 mo, total @ 57 mo | Child | Maternal | Child Stress, Birth Order, Child's Sex | |

* L=Longitudinal cohort, X=Cross-sectional.

** (ln)/(log10) = Original coefficient reported in log scale.

[^] statistically significant (p < 0.05)

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| Study Population* (ref., type, n) | PbB Age | Outcome Age | Mean PbB (ug/dL) | Estimated Delta IQ for PbB 5 -> 15** | | Covariates in Model | | | | | | | | |
|-----------------------------------|-----------------------|-------------------|---|--------------------------------------|------------|--|--|----------------------------|---|---|-------|-------------|-------------|---|
| | | | | Crude | Adj | SES | Smoking | Fetal Growth | Family Environment | HOME | Race | Parental IQ | Iron Status | Other |
| | | | | | | | | | | | | | | |
| | | (>2 - <4 years) | (>= 4 years) | | | | | | | | | | | |
| Port Pirie (4, L ,494) | Lifetime avg. 3 years | 7 years | 17.4-21.7 (means of 2nd & 3rd quartiles) (GM) | not stated | -6.3 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu., Pat. Edu. | Parental smoking | Birth Weight | Family Structure, Maternal Age | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex |
| Port Pirie (35, L ,372) | 3 years | 11-13 years | 19.3 (GM) | -9.3 (ln)^ | -2.9 (ln) | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu. | Parental smoking habits | Birth Weight | Family Structure, Family Functioning, Marital Status, Maternal Age, Life Events | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex, Child's Age, School Grade, School Absence |
| Cleveland (16, L ,155) | 3 years | 4 years 10 months | 16.70 | r=-.37 | not stated | Mat. Edu. | Cigarettes per day | Birth Weight, Gestation | Authoritarian Family Ideology | total (mean of 1, 2, 3, and 4 yrs 10 mos) | Child | Maternal | | Child Stress, Maternal Medication/Drug Use, Maternal Alcohol Consumption, Birth Order, Child's Sex, History Alcohol Abuse |
| Cincinnati (13, L ,253) | Mean 27-36 months | 6.5 years | 16.3 | -1.4 | -0.4 | | Cigarette consumption during pregnancy | Birth Weight, Birth Length | | unspecified | | Maternal | | Child's Sex |
| Cleveland (16, L ,212) | Mean 0.5 - 3 years | 4 years 10 months | 9.99 @ 6 months & 16.70 @ both 2 yrs & 3 yrs | r=-.29 | not stated | Mat. Edu. | Cigarettes per day | Birth Weight, Gestation | Authoritarian Family Ideology | total (mean of 1, 2, 3, and 4 yrs 10 mos) | Child | Maternal | | Child Stress, Maternal Medication/Drug Use, Maternal Alcohol Consumption, Birth Order, Child's Sex, History Alcohol Abuse |
| Port Pirie (35, L ,326) | Lifetime avg. 3 years | 11-13 years | not stated | -10.2 (ln)^ | -5.1 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu. | Parental smoking habits | Birth Weight | Family Structure, Family Functioning, Marital Status, Maternal Age, Life Events | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex, Child's Age, School Grade, School Absence |

* L=Longitudinal cohort, X=Cross-sectional.

** (ln)/(log10) = Original coefficient reported in log scale.

^ statistically significant (p < 0.05)

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| Study Population* (ref., type, n) | PbB Age | Outcome Age | Mean PbB (ug/dL) | Estimated Delta IQ for PbB 5 -> 15** | | Covariates in Model | | | | | | | | |
|-----------------------------------|---|---|---|--------------------------------------|-------------|--|-------------------------|--------------|---|-------------|------|-------------|-------------|---|
| | | | | Crude | Adj | SES | Smoking | Fetal Growth | Family Environment | HOME | Race | Parental IQ | Iron Status | Other |
| | (≥ 4 years) | (≥ 4 years) | | | | | | | | | | | | |
| Lavrion, Greece (20, X ,509) | primary school children - not specified years | primary school children - not specified years | 23.7 | not stated | -2.52^ | Mat. Edu., Pat. Edu., Pat. Occ. | | Birth Weight | Family Structure, Marital Status, Life Events | | | Both | | Birth Order, Child's Age, Child's Medical History, History Alcohol Abuse, Father's age, Bilingualism, Length of child's hospital stay after birth |
| Port Pirie (4, L ,494) | Lifetime avg. 4 years | 7 years | 17.6-21.5 (means of 2nd & 3rd quartiles) (GM) | not stated | -5.5 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu., Pat. Edu. | Parental smoking | Birth Weight | Family Structure, Maternal Age | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex |
| Port Pirie (4, L ,494) | Lifetime avg. 7 years | 7 years | 15.7-19.7 (means of 2nd & 3rd quartiles) (GM) | not stated | -4.7 (ln) | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu., Pat. Edu. | Parental smoking | Birth Weight | Family Structure, Maternal Age | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex |
| Mexico City II (26, X ,139) | 7-9 years | 7-9 years | 19.4 | r=-.24 (ln) | r=-.19 (ln) | Income, Mat. Edu., Pat. Edu. | | | | | | | | Child's Sex, Type of housing, Nutritional status (wgt for ht & ht for age) |
| Port Pirie (35, L ,368) | 5 years | 11-13 years | 14.3 (GM) | -9.2 (ln)^ | -4.1 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu. | Parental smoking habits | Birth Weight | Family Structure, Family Functioning, Marital Status, Maternal Age, Life Events | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex, Child's Age, School Grade, School Absence |
| Port Pirie (35, L ,326) | Lifetime avg. 11-13 years | 11-13 years | 14.1 (GM) | -11.9 (ln)^ | -4.3 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu. | Parental smoking habits | Birth Weight | Family Structure, Family Functioning, Marital Status, Maternal Age, Life Events | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex, Child's Age, School Grade, School Absence |

* L=Longitudinal cohort, X=Cross-sectional.

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| Study Population* (ref., type, n) | PbB Age | Outcome Age | Mean PbB (ug/dL) | Estimated Delta IQ for PbB 5 -> 15** | | Covariates in Model | | | | | | | | |
|---|-------------------|-------------|------------------|--------------------------------------|-------------|---|--|----------------------------|---|---------------------------------------|-------|-------------|-------------|---|
| | | | | Crude | Adj | SES | Smoking | Fetal Growth | Family Environment | HOME | Race | Parental IQ | Iron Status | Other |
| Cincinnati (13, L ,253) | Mean 39-48 months | 6.5 years | 14.0 | -1.4 | -0.2 | | Cigarette consumption during pregnancy | Birth Weight, Birth Length | | unspecified | | Maternal | | Child's Sex |
| Cincinnati (13, L ,253) | Mean 51-60 months | 6.5 years | 11.8 | -2.2 | -0.7 | | Cigarette consumption during pregnancy | Birth Weight, Birth Length | | unspecified | | Maternal | | Child's Sex |
| Port Pirie (35, L ,360) | 7 years | 11-13 years | 11.6 (GM) | -8.7 (ln)^ | -3.1 (ln) | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu. | Parental smoking habits | Birth Weight | Family Structure, Family Functioning, Marital Status, Maternal Age, Life Events | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex, Child's Age, School Grade, School Absence |
| Dunedin, New Zealand (33, L ,579) | 11 years | 11 years | 11.1 | r=-0.06 (ln) | not stated | | | | | | | | | |
| Sassuolo, Italy (8, X ,212) | 7-8 years | 7-8 years | 10.99 (GM) | r = -0.101 (log10) | not stated | | | | | | | | | |
| San Luis Potosi, Mexico (10, X ,39) [reference group] | 6-9 years | 6-9 years | 9.73 (GM) | r=+.04 (ln) | r=+.07 (ln) | Bronffman Index of Socioeconomic Status, Mat. Edu., Pat. Edu. | | | | | | | | Child's Sex, Child's Age |
| San Luis Potosi, Mexico (10, X ,41) [exposed group] | 6-9 years | 6-9 years | 8.98 (GM) | r=-.12 (ln) | r=-.25 (ln) | Bronffman Index of Socioeconomic Status, Mat. Edu., Pat. Edu. | | | | | | | | Child's Sex, Child's Age |
| Port Pirie (35, L ,326) | 11-13 years | 11-13 years | 7.9 (GM) | -6.3 (ln)^ | -2.6 (ln) | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu. | Parental smoking habits | Birth Weight | Family Structure, Family Functioning, Marital Status, Maternal Age, Life Events | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex, Child's Age, School Grade, School Absence |
| Boston (7, L ,116) | 57 months | 10 years | 6.3 | not stated | -0.7 | Hollingshead Four-Factor Index of Social Class | | Birth Weight | Family Stress, Marital Status, Maternal Age | scales V & VI @ 120 mo, total @ 57 mo | Child | Maternal | | Child Stress, Birth Order, Child's Sex |

* L=Longitudinal cohort, X=Cross-sectional.

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| Study Population* (ref., type, n) | PbB Age | Outcome Age | Mean PbB (ug/dL) | Estimated Delta IQ for PbB 5 -> 15** | | Covariates in Model | | | | | | | | |
|-----------------------------------|-------------------------|-------------|---------------------------------|--------------------------------------|---------------|---|--|----------------------------|---|---------------------------------------|-------|-------------|-------------|---|
| | | | | Crude | Adj | SES | Smoking | Fetal Growth | Family Environment | HOME | Race | Parental IQ | Iron Status | Other |
| Boston (7, L ,116) | 10 years | 10 years | 2.9 | not stated | -5.9 | Hollingshead Four-Factor Index of Social Class | | Birth Weight | Family Stress, Marital Status, Day Care, Maternal Age | scales V & VI @ 120 mo, total @ 57 mo | Child | Maternal | | Child Stress, Birth Order, Child's Sex |
| Kosovo (38, L ,259) | Mean AUC7 years | 7 years | age7=21.2; cumulative age7=1.21 | not stated | -3.4 (log10)^ | Mat. Edu. | | Birth Weight | Family Structure, Maternal Age | unspecified | Child | Maternal | | Child's Sex |
| Port Pirie (35, L ,326) | Lifetime avg. 5 years | 11-13 years | not stated | -10.8 (ln)^ | -5.5 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu. | Parental smoking habits | Birth Weight | Family Structure, Family Functioning, Marital Status, Maternal Age, Life Events | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex, Child's Age, School Grade, School Absence |
| Port Pirie (35, L ,326) | Lifetime avg. 7 years | 11-13 years | not stated | -10.5 (ln)^ | -4.7 (ln)^ | Daniel's Scale of Prestige of Occupations in Australia, Mat. Edu. | Parental smoking habits | Birth Weight | Family Structure, Family Functioning, Marital Status, Maternal Age, Life Events | unspecified | | Maternal | | Breast Feeding, Feeding Method, Birth Order, Child's Sex, Child's Age, School Grade, School Absence |
| Cincinnati (13, L ,253) | Mean 66-72 months | 6.5 years | not stated | -3.3^ | -1.2 | | Cigarette consumption during pregnancy | Birth Weight, Birth Length | | unspecified | | Maternal | | Child's Sex |
| Cincinnati (13, L ,253) | Lifetime avg. 72 months | 6.5 years | not stated | -1.3 | -0.1 | | Cigarette consumption during pregnancy | Birth Weight, Birth Length | | unspecified | | Maternal | | Child's Sex |

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