**Supplementary material**

***Figure A Flowchart of the study’s participants***



***Table A Unadjusted and adjusted odds ratios (OR) of taking folic acid supplement before or during the first trimester of pregnancy (n=947) with interaction term (migration background\*education), Bielefeld 2013-2016***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Main effect** | **Unadjusted odds ratio (unOR)** | **95% confidence interval** | **p-value** | **Adjusted odds ratio (aOR)** | **95% confidence interval** | **p-value** |
| **Age (n=947)** | 1.05 | 1.01 | 1.09 | 0.009 | 1.01 | 0.97 | 1.05 | 0.676 |
| **Primipara** **(n=366)** (ref=no, n=581) | 1.04 | 0.77 | 1.57 | 0.583 | 0.95 | 0.64 | 1.40 | 0.787 |
| **Did not plan the pregnancy (n=201)** (ref=planned the pregnancy, n=746) | 0.27 | 0.19 | 0.39 | <.0001 | 0.34 | 0.23 | 0.50 | <.0001 |
| **Formal education level** (ref=Bachelor degree (or equivalent) and above, n=487) |  |  |  |  |  |  |  |  |
| *High school (n=137)* | 0.27 | 0.17 | 0.44 | <.0001 | 0.39 | 0.18 | 0.82 | 0.013 |
| *Vocational training/diploma (n=323)* | 0.45 | 0.31 | 0.68 | 0.0001 | 0.50 | 0.30 | 0.85 | 0.010 |
| **Migration status** (ref= no migration background, n=601) |  |  |  |  |  |  |  |  |
| *2****nd****/3****rd*** *generation woman (n=104)*  | 1.11 | 0.63 | 1.95 | 0.706 | 1.15 | 0.35 | 3.73 | 0.820 |
| *1****st*** *generation migrant (n=242)* | 0.58 | 0.40 | 0.84 | 0.004 | 0.89 | 0.39 | 2.03 | 0.784 |
| **Interaction terms education level\*migration background** |  |  |  |  |  |  |  |  |
| *2****nd****/3****rd*** *gen. woman\*low edu. (n=24)* | - | - | - | - | 0.60 | 0.14 | 2.61 | 0.593 |
| *2****nd****/3****rd*** *gen. woman\*middle edu. (n=46)* | - | - | - | - | 1.11 | 0.27 | 4.70 | 0.297 |
| *1****st*** *generation migrant\*low edu (n=58)* | - | - | - | - | 0.55 | 0.23 | 1.31 | 0.548 |
| *1****st*** *generation migrant\*middle edu (n=93)* | - | - | - | - | 0.47 | 0.21 | 1.02 | 0.878 |
| **Not native German speaker (n=193)** (ref= native speaker n=754) | 0.56 | 0.38 | 0.82 | 0.003 | 0.78 | 0.43 | 1.47 | 0.457 |
| **Had understanding problem during antenatal appointments** **(n=22)** (ref= no problem n=925) | 0.42 | 0.17 | 1.04 | 0.061 | 0.86 | 0.28 | 2.64 | 0.799 |
| **Originally from Turkey** **(n=96)** (ref= not from Turkey, n=851) | 0.56 | 0.34 | 0.92 | 0.023 | 0.69 | 0.35 | 1.37 | 0.289 |
| **In Germany since < 5 years** **(n=27)** (ref=born in Germany or in Germany > 5 years, n=920) | 0.46 | 0.20 | 1.08 | 0.007 | 0.89 | 0.31 | 2.53 | 0.833 |

***Table B Unadjusted and adjusted odds ratios (OR) of taking folic acid supplement before or during the first trimester of pregnancy among women without migration background (n=601), Bielefeld 2013-2016***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Main effect** | **Unadjusted odds ratio (unOR)** | **95% confidence interval** | **p-value** | **Adjusted odds ratio (aOR)** | **95% confidence interval** | **p-value** |
| **Age (n=601)** | 1.13 | 1.07 | 1.18 | <.0001 | 1.07 | 1.01 | 1.13 | 0.025 |
| **Primipara** (**n=263)** (ref=no, n=338) | 0.77 | 0.49 | 1.21 | 0.250 | 0.82 | 0.49 | 1.36 | 0.440 |
| **Did not plan the pregnancy (n=106)** (ref=planned the pregnancy n=495) | 0.17 | 0.11 | 0.28 | <.0001 | 0.22 | 0.12 | 0.38 | <.0001 |
| **Formal education level** (ref=Bachelor degree (or equivalent) and above, n=362) |  |  |  |  |  |  |  |  |
| *High school (n=55)* | 0.21 | 0.11 | 0.41 | <.0001 | 0.70 | 0.30 | 1.63 | 0.406 |
| *Vocational training/diploma (n=184)* | 0.44 | 0.26 | 0.73 | <.0001 | 0.58 | 0.33 | 0.99 | 0.048 |

***Table C Unadjusted and adjusted odds ratios (OR) of taking folic acid supplement before or during the first trimester of pregnancy among women with a migration background (n=346), Bielefeld 2013-2016***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Main effect** | **Unadjusted odds ratio (unOR)** | **95% confidence interval** | **p-value** | **Adjusted odds ratio (aOR)** | **95% confidence interval** | **p-value** |
| **Age (n=346)** | 1.05 | 1.01 | 1.09 | 0.009 | 0.95 | 0.90 | 1.00 | 0.071 |
| **Primipara** **(n=103)** (ref=no, n=243) | 1.04 | 0.78 | 1.57 | 0.583 | 1.37 | 0.70 | 2.65 | 0.356 |
| **Did not plan the pregnancy (n=95)** (ref=planned the pregnancy, n=251) | 0.27 | 0.19 | 0.39 | <.0001 | 0.54 | 0.30 | 0.96 | 0.037 |
| **Formal education level** (ref=Bachelor degree (or equivalent) and above, n=125) |  |  |  |  |  |  |  |  |
| *High school (n=82)* | 0.27 | 0.17 | 0.44 | <.0001 | 0.44 | 0.20 | 0.95 | 0.036 |
| *Vocational training/diploma (n=139)* | 0.45 | 0.31 | 0.68 | 0.0001 | 0.50 | 0.25 | 0.99 | 0.050 |
| **Migration status** (ref=2nd/3rd generation woman, n=104)  |  |  |  |  |  |  |  |  |
| *1****st*** *generation migrant (n=242)* | 0.58 | 0.40 | 0.84 | 0.004 | 0.61 | 0.30 | 1.27 | 0.187 |
| **Not native German speaker (n=193)** (ref= native speaker, n=153) | 0.56 | 0.38 | 0.82 | 0.003 | 0.88 | 0.43 | 1.69 | 0.675 |
| **Had understanding problem during antenatal appointments** **(n=22)** (ref= no problem, n=324) | 0.42 | 0.17 | 1.04 | 0.061 | 0.70 | 0.23 | 2.11 | 0.526 |
| **Originally from Turkey** **(n=96)** (ref= not from Turkey, n=250) | 0.56 | 0.34 | 0.92 | 0.023 | 0.85 | 0.43 | 1.69 | 0.646 |
| **In Germany since < 5 years** **(n=27)** (ref=born in Germany or in Germany > 5 years, n=319) | 0.46 | 0.20 | 1.08 | 0.007 | 0.75 | 0.27 | 2.08 | 0.586 |

***Table D Unadjusted and adjusted odds ratios (OR) of taking folic acid supplement before pregnancy, looking at country or region of origin (n=947), Bielefeld 2013-2016***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Main effect** | **Unadjusted odds ratio (unOR)** | **95% confidence interval** | **p-value** | **Adjusted odds ratio (aOR)** | **95% confidence interval** | **p-value** |
| **Age** | 1.05 | 1.01 | 1.09 | 0.009 | 1.00 | 0.97 | 1.04 | 0.769 |
| **Primipara** **(n=366)** (ref=no, n=581) | 1.04 | 0.77 | 1.57 | 0.583 | 0.95 | 0.82 | 1.52 | 0.782 |
| **Did not plan the pregnancy (n=201)** (ref=planned the pregnancy, n=746) | 0.27 | 0.19 | 0.39 | <.0001 | 0.34 | 0.23 | 0.50 | <.0001 |
| **Formal education level** (ref=Bachelor degree (or equivalent) and above, n=487) |  |  |  |  |  |  |  |  |
| *High school (n=137)* | 0.27 | 0.17 | 0.44 | <.0001 | 0.43 | 0.25 | 0.74 | 0.002 |
| *Vocational training/diploma (n=323)* | 0.45 | 0.31 | 0.68 | 0.0001 | 0.51 | 0.33 | 0.78 | 0.002 |
| **Country or region of origin** (ref= no migration background, n=601) |  |  |  |  |  |  |  |  |
| *Originally from Turkey (n=96)*  | 0.56 | 0.34 | 0.92 | 0.023 | 1.02 | 0.52 | 2.01 | 0.955 |
| *Aussiedler (n=96)* | 1.19 | 0.66 | 2.16 | 0.561 | 1.34 | 0.67 | 2.66 | 0.406 |
| *Other (n=154)* | 0.70 | 0.45 | 1.10 | 0.102 | 0.97 | 0.52 | 1.81 | 0.935 |
| **Not native German speaker (n=193)** (ref= native speaker, n=754) | 0.56 | 0.38 | 0.82 | 0.003 | 0.75 | 0.41 | 1.37 | 0.345 |
| **Had understanding problem during antenatal appointments** **(n=22)** (ref= no problem n=925) | 0.42 | 0.17 | 1.04 | 0.061 | 0.83 | 0.27 | 2.52 | 0.744 |
| **In Germany since < 5 years** **(n=27)** (ref=born in Germany or in Germany > 5 years, n=920) | 0.46 | 0.20 | 1.08 | 0.007 | 0.65 | 0.29 | 2.28 | 0.692 |

***Table E Unadjusted and adjusted odds ratios (OR) of taking folic acid supplement before pregnancy (n=947), Bielefeld 2013-2016***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Main effect** | **Unadjusted odds ratio (unOR)** | **95% confidence interval** | **p-value** | **Adjusted odds ratio (aOR)** | **95% confidence interval** | **p-value** |
| **Age** | 1.05 | 1.02 | 1.07 | 0.001 | 1.00 | 0.97 | 1.04 | 0.773 |
| **Primipara** **(n=366)** (ref=no, n=581) | 1.34 | 1.03 | 1.75 | 0.028 | 1.12 | 0.82 | 1.52 | 0.484 |
| **Did not plan the pregnancy (n=201)** (ref=planned the pregnancy, n=746) | 0.09 | 0.05 | 0.14 | <.0001 | 0.11 | 0.07 | 0.18 | <.0001 |
| **Formal education level** (ref=Bachelor degree (or equivalent) and above, n=487) |  |  |  |  |  |  |  |  |
| *High school (n=137)* | 0.16 | 0.10 | 0.26 | <.0001 | 0.30 | 0.18 | 0.52 | <.0001 |
| *Vocational training/diploma (n=323)* | 0.51 | 0.38 | 0.67 | <.0001 | 0.60 | 0.43 | 0.82 | 0.002 |
| **Migration status** (ref= no migration background, n=601) |  |  |  |  |  |  |  |  |
| *2****nd****/3****rd*** *generation woman (n=104)*  | 0.87 | 0.58 | 1.31 | 0.491 | 1.17 | 0.65 | 2.09 | 0.600 |
| *1****st*** *generation migrant (n=242)* | 0.44 | 0.32 | 0.59 | <.0001 | 0.72 | 0.45 | 1.14 | 0.159 |
| **Not native German speaker (n=193)** (ref= native speaker, n=754) | 0.37 | 0.27 | 0.53 | <.0001 | 0.66 | 0.39 | 1.12 | 0.126 |
| **Had understanding problem during antenatal appointments** **(n=22)** (ref= no problem n=925) | 0.24 | 0.08 | 0.71 | 0.010 | 0.71 | 0.19 | 2.61 | 0.608 |
| **Originally from Turkey** **(n=96)** (ref= not from Turkey, n=851) | 0.52 | 0.33 | 0.81 | 0.004 | 1.13 | 0.61 | 2.11 | 0.698 |
| **In Germany since < 5 years** **(n=27)** (ref=born in Germany or in Germany > 5 years, n=920) | 0.24 | 0.09 | 0.65 | 0.005 | 0.65 | 0.21 | 2.09 | 0.474 |

***Table F Unadjusted and adjusted odds ratios (OR) of taking folic acid supplement before or during the first trimester of pregnancy (n=947) controlling for the time at which participants answered the survey (during pregnancy vs. after birth), Bielefeld 2013-2016***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Main effect** | **Unadjusted odds ratio (unOR)** | **95% confidence interval** | **p-value** | **Adjusted odds ratio (aOR)** | **95% confidence interval** | **p-value** |
| **Interviewed during pregnancy (n=300)** (ref=Interviewed post-birth, n=647) | 1.34 | 0.91 | 1.97 | 0.132 | 0.92 | 0.61 | 1.40 | 0.735 |
| **Age (n=947)** | 1.05 | 1.01 | 1.09 | 0.009 | 1.01 | 0.97 | 1.05 | 0.615 |
| **Primipara** **(n=366)** (ref=no, n=581) | 1.04 | 0.77 | 1.57 | 0.583 | 0.94 | 0.64 | 1.39 | 0.769 |
| **Did not plan the pregnancy (n=201)** (ref=planned the pregnancy n=746) | 0.27 | 0.19 | 0.39 | <.0001 | 0.33 | 0.22 | 0.49 | <.0001 |
| **Formal education level** (ref=Bachelor degree (or equivalent) and above, n=487) |  |  |  |  |  |  |  |  |
| *High school (n=137)* | 0.27 | 0.17 | 0.44 | <.0001 | 0.45 | 0.26 | 0.79 | 0.005 |
| *Vocational training/diploma (n=323)* | 0.45 | 0.31 | 0.68 | 0.0001 | 0.52 | 0.34 | 0.80 | 0.002 |
| **Migration status** (ref= no migration background, n=601) |  |  |  |  |  |  |  |  |
| *2****nd****/3****rd*** *generation woman (n=104)*  | 1.11 | 0.63 | 1.95 | 0.706 | 1.76 | 0.81 | 3.80 | 0.151 |
| *1****st*** *generation migrant (n=242)* | 0.58 | 0.40 | 0.84 | 0.004 | 0.91 | 0.51 | 1.60 | 0.735 |
| **Not native German speaker (n=193)** (ref= native speaker, n=754) | 0.56 | 0.38 | 0.82 | 0.003 | 0.80 | 0.44 | 1.49 | 0.484 |
| **Had understanding problem during antenatal appointments** **(n=22)** (ref= no problem, n=925) | 0.42 | 0.17 | 1.04 | 0.061 | 0.88 | 0.29 | 2.71 | 0.830 |
| **Originally from Turkey** **(n=96)** (ref= not from Turkey, n=851) | 0.56 | 0.34 | 0.92 | 0.023 | 0.73 | 0.37 | 1.42 | 0.351 |
| **In Germany since < 5 years** **(n=27)** (ref=born in Germany or in Germany > 5 years, n=920) | 0.46 | 0.20 | 1.08 | 0.007 | 0.88 | 0.31 | 2.48 | 0.810 |