| **Table S-1a. Characteristics of mothers of liveborn infants without a birth defects employed during the pre-pregnancy period by major occupational group, National Birth Defects Prevention Study, 1997–2011** | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Occupational Group** | **Maternal age at conception** | | **Maternal race/ethnicity** | | | **Nativity (born in U.S.)** | | | **Maternal education** | | | **Pre-pregnancy diabetes** | | |
| *Mean*  *(y)* | *SD* |  | *n* | *%* |  | *n* | *%* |  | *n* | *%* |  | *n* | *%* |
| Management (n=491) | 31.6 | 4.7 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 411  28  30 22 | 83.7 5.7 6.1 4.5 | No Yes | 38 453 | 7.7 92.3 | <High school =High school >High school | 5 31 455 | 1.0 6.3 92.7 | No Yes | 490 1 | 99.8 0.2 |
| Business and Financial Operations (n=308) | 29.8 | 4.8 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 237 28 21 22 | 76.9 9.1 6.8 7.1 | No Yes Missing | 22 285 1 | 7.2 92.8 | <High school =High school >High school Missing | 1 20 286 1 | 0.3 6.5 93.2 | No Yes | 306 2 | 99.4 0.6 |
| Computer and Mathematical (n=117) | 30.6 | 4.7 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 75 8 7 27 | 64.1 6.8 6.0 23.1 | No Yes | 33 84 | 28.2 71.8 | <High school =High school >High school | 0 4 113 | 0.0 3.4 96.6 | No Yes | 117 0 | 100.0 0.0 |
| Architecture and Engineering (n=34) | 30.6 | 3.9 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 26 1 3 4 | 76.5 2.9 8.8 11.8 | No Yes | 4 30 | 11.8 88.2 | <High school =High school >High school | 0 2 32 | 0.0 5.9 94.1 | No Yes | 34 0 | 100.0 0.0 |
| Life, Physical, and Social Sciences (n=118) | 30.8 | 4.9 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 90 6 8 14 | 76.3 5.1 6.8 11.9 | No Yes | 22 96 | 18.6 81.4 | <High school =High school >High school | 0 2 116 | 0.0 1.7 98.3 | No Yes | 118 0 | 100.0 0.0 |
| Community and Social Service (n=180) | 30.5 | 4.7 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 138 22 19 1 | 76.7 12.2 10.6 0.6 | No Yes | 18 162 | 10.0 90.0 | <High school =High school >High school Missing | 4 9 166 1 | 2.2 5.0 92.7 | No Yes | 179 1 | 99.4 0.6 |
| Legal (n=89) | 31.3 | 4.1 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 73 6 4 6 | 82.0 6.7 4.5 6.7 | No Yes | 5 84 | 5.6 94.4 | <High school =High school >High school | 0 7 82 | 0.0 7.9 92.1 | No Yes | 88 1 | 98.9 1.1 |
| Education, Training, and Library (n=710) | 29.6 | 4.7 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 541 52 76 41 | 76.2 7.3 10.7 5.8 | No Yes | 57 653 | 8.0 92.0 | <High school =High school >High school | 5 37 668 | 0.7 5.2 94.1 | No Yes | 708 2 | 99.7 0.3 |
| Arts, Design, Entertainment, Sports, and Media (n=146) | 30.2 | 5.4 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 106 5 16 19 | 72.6 3.4 11.0 13.0 | No Yes | 21 125 | 14.4 85.6 | <High school =High school >High school | 5 15 126 | 3.4 10.3 86.3 | No Yes | 144 2 | 98.6 1.4 |
| Healthcare Practitioners and Technical (n=637) | 29.9 | 4.7 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 498 46 42 51 | 78.2 7.2 6.6 8.0 | No Yes | 70 567 | 11.0 89.0 | <High school =High school >High school | 2 17 618 | 0.3 2.7 97.0 | No Yes | 636 1 | 99.8 0.2 |
| Healthcare Support (n=339) | 26.0 | 5.1 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 197 78 41 23 | 58.1 23.0 12.1 6.8 | No Yes | 39 300 | 11.5 88.5 | <High school =High school >High school | 23 112 204 | 6.8 33.0 60.2 | No Yes Missing | 331 6 2 | 98.2 1.8 |
| Protective Service (n=64) | 27.7 | 5.4 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 35 12 10 7 | 54.7 18.8 15.6 10.9 | No Yes | 4 60 | 6.3 93.8 | <High school =High school >High school | 3 16 45 | 4.7 25.0 70.3 | No Yes | 63 1 | 98.4 1.6 |
| Food Preparation and Serving Related (n=667) | 23.4 | 5.4 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 377 79 171 40 | 56.5 11.8 25.6 6.0 | No Yes | 145 522 | 21.7 78.3 | <High school =High school >High school | 148 283 236 | 22.2 42.4 35.4 | No Yes | 664 3 | 99.6 0.4 |
| Building and Grounds Cleaning (n=197) | 25.9 | 6.1 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 67 28 93 9 | 34.0 14.2 47.2 4.6 | No Yes | 88 109 | 44.7 55.3 | <High school =High school >High school | 65 80 52 | 33.0 40.6 26.4 | No Yes | 196 1 | 99.5 0.5 |
| Personal Care and Service (n=441) | 26.5 | 5.4 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 291 48 80 22 | 66.0 10.9 18.1 5.0 | No Yes Missing | 65 375 1 | 14.8 85.2 | <High school =High school >High school Missing | 29 127 284 1 | 6.6 28.9 64.6 | No Yes | 433 8 | 98.2 1.8 |
| Sales and Related (n=807) | 25.1 | 6.1 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 462 114 187 44 | 57.2 14.1 23.2 5.5 | No Yes Missing | 109 696 2 | 13.5 86.5 | <High school =High school >High school Missing | 107 264 434 2 | 13.3 32.8 53.9 | No Yes Missing | 799 7 1 | 99.1 0.9 |
| Office and Administrative Support (n=1406) | 27.3 | 5.3 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 915 180 243 68 | 65.1 12.8 17.3 4.8 | No Yes Missing | 147 1257 2 | 10.5 89.5 | <High school =High school >High school Missing | 58 386 958 4 | 4.1 27.5 68.3 | No Yes Missing | 1395 7 4 | 99.5 0.5 |
| Farming, Fishing, and Forestry (n=84) | 26.4 | 6.1 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 12 2 67 3 | 14.3 2.4 79.8 3.6 | No Yes Missing | 60 23 1 | 72.3 27.7 | <High school =High school >High school Missing | 52 18 13 1 | 62.7 21.7 15.7 | No Yes | 84 0 | 100.0 0.0 |
| Construction and Extraction (n=20) | 26.5 | 6.1 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 10 3 5 2 | 50.0 15.0 25.0 10.0 | No Yes | 6 14 | 30.0 70.0 | <High school =High school >High school | 7 6 7 | 35.0 30.0 35.0 | No Yes | 19 1 | 95.0 5.0 |
| Installation, Maintenance, and Repair (n=14) | 26.5 | 5.2 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 10 2 1 1 | 71.4 14.3 7.1 7.1 | No Yes | 0 14 | 0.0 100.0 | <High school =High school >High school | 1 3 10 | 7.1 21.4 71.4 | No Yes | 14 0 | 100.0 0.0 |
| Production (n=308) | 26.1 | 5.5 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 140 35 116 17 | 45.5 11.4 37.7 5.5 | No Yes | 114 194 | 37.0 63.0 | <High school =High school >High school Missing | 98 128 81 1 | 31.9 41.7 26.4 | No Yes Missing | 304 3 1 | 99.0 1.0 |
| Transportation and Material Moving (n=159) | 26.7 | 6.2 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 64 24 65 6 | 40.3 15.1 40.9 3.8 | No Yes | 60 99 | 37.7 62.3 | <High school =High school >High school | 45 71 43 | 28.3 44.7 27.0 | No Yes | 158 1 | 99.4 0.6 |
| Military Specific (n=5) | 28.6 | 7.1 | Non-Hispanic white  Non-Hispanic black Hispanic Other | 0  4 1  0 | 0.0  80.0 20.0  0.0 | No Yes | 1 4 | 20.0 80.0 | <High school =High school >High school | 0 0 5 | 0.0 0.0 100.0 | No Yes | 5 0 | 100.0 0.0 |

| **Table S-1b. Additional characteristics of mothers of liveborn infants without a birth defect employed during the pre-pregnancy period by major occupational group, National Birth Defects Prevention Study, 1997–2011** | | | | | | | | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Occupational Group** | | **Pre-pregnancy**  **body mass index\*** | | | | | | **Pre-pregnancy folic acid**  **supplement use**† | | | | | | **Pre-pregnancy**  **smoking** | | | | | | **Pre-pregnancy**  **alcohol consumption** | | | | | |
|  | | *n* | | *%* | |  | | *n* | | *%* | |  | | *n* | | *%* | |  | | *n* | | *%* | |
| Management (n=491) | | Underweight  Normal weight  Overweight  Obese  Missing | | 16 288 119 66 2 | | 3.3 58.9 24.3 13.5 | | <=30 days <1/day  Daily use Missing | | 211 37 235 8 | | 43.7 7.7 48.7 | | No Yes | | 426 65 | | 86.8 13.2 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 183 81 222 5 | | 37.7 16.7 45.7 | |
| Business and Financial Operations (n=308) | | Underweight  Normal weight  Overweight  Obese | | 12 202 58 36 | | 3.9 65.6 18.8 11.7 | | <=30 days <1/day  Daily use Missing | | 137 22 148 1 | | 44.6 7.2 48.2 | | No Yes | | 273 35 | | 88.6 11.4 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 132 50 123 3 | | 43.3 16.4 40.3 | |
| Computer and Mathematical (n=117) | | Underweight  Normal weight  Overweight  Obese | | 5 73 23 16 | | 4.3 62.4 19.7 13.7 | | <=30 days <1/day  Daily use Missing | | 48 12 56 1 | | 41.4 10.3 48.3 | | No Yes | | 109 8 | | 93.2 6.8 | | No drinking Binge drinking (>=4) < 4 drinks | | 55 16 46 | | 47.0 13.7 39.3 | |
| Architecture and Engineering (n=34) | | Underweight  Normal weight  Overweight  Obese | | 0 24 7 3 | | 0.0 70.6 20.6 8.9 | | <=30 days <1/day  Daily use Missing | | 13 2 18 1 | | 39.4 6.1 54.6 | | No Yes | | 32 2 | | 94.1 5.9 | | No drinking Binge drinking (>=4) < 4 drinks | | 11 8 15 | | 32.4 23.5 44.1 | |
| Life, Physical, and Social Sciences (n=118) | | Underweight  Normal weight  Overweight  Obese | | 5 82 24 7 | | 4.2 69.5 20.3 5.9 | | <=30 days <1/day  Daily use | | 46 19 53 | | 39.0 16.1 44.9 | | No Yes | | 109 9 | | 92.4 7.6 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 48 15 54 1 | | 41.0 12.8 46.2 | |
| Community and Social Service (n=180) | | Underweight  Normal weight  Overweight  Obese  Missing | | 6 94 37 42 1 | | 3.4 52.5 20.7 23.5 | | <=30 days <1/day  Daily use Missing | | 85 10 83 2 | | 47.8 5.6 46.6 | | No Yes | | 155 25 | | 86.1 13.9 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 83 23 73 1 | | 46.4 12.8 40.8 | |
| Legal (n=89) | | Underweight  Normal weight  Overweight  Obese  Missing | | 5 57 18 8 1 | | 5.7 64.8 20.4 9.1 | | <=30 days <1/day  Daily use Missing | | 39 9 40 1 | | 44.3 10.2 45.5 | | No Yes | | 75 14 | | 84.3 15.7 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 31 15 41 2 | | 35.6 17.2 47.1 | |
| Education, Training, and Library (n=710) | | Underweight  Normal weight  Overweight  Obese | | 20 400 180 110 | | 2.8 56.3 25.4 15.5 | | <=30 days <1/day  Daily use Missing | | 351 64 287 8 | | 50.0 9.1 40.9 | | No Yes | | 665 45 | | 93.7 6.3 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 402 81 223 4 | | 56.9 11.5 31.6 | |
| Arts, Design, Entertainment, Sports, and Media (n=146) | | Underweight  Normal weight  Overweight  Obese  Missing | | 9 90 30 14 3 | | 6.3 62.9 21.0 9.8 | | <=30 days <1/day  Daily use Missing | | 74 9 59 4 | | 52.1 6.3 41.5 | | No Yes | | 124 22 | | 84.9 15.1 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 65 22 57 2 | | 45.1 15.3 39.6 | |
| Healthcare Practitioners and Technical (n=637) | | Underweight  Normal weight  Overweight  Obese  Missing | | 14 378 148 95 2 | | 2.2 59.5 23.3 15.0 | | <=30 days <1/day  Daily use Missing | | 301 49 283 4 | | 47.6 7.7 44.7 | | No Yes | | 568 69 | | 89.2 10.8 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 324 101 210 2 | | 51.0 15.9 33.1 | |
| Healthcare Support (n=339) | | Underweight  Normal weight  Overweight  Obese  Missing | | 17 135 96 88 3 | | 5.1 40.2 28.6 26.2 | | <=30 days <1/day  Daily use Missing | | 263 15 60 1 | | 77.8 4.4 17.8 | | No Yes | | 249 90 | | 73.5 26.5 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 200 68 69 2 | | 59.3 20.2 20.5 | |
| Protective Service (n=64) | | Underweight  Normal weight  Overweight  Obese | | 1 28 18 17 | | 1.6 43.8 28.1 26.6 | | <=30 days <1/day  Daily use | | 44 3 17 | | 68.8 4.7 26.6 | | No Yes | | 43 21 | | 67.2 32.8 | | No drinking Binge drinking (>=4) < 4 drinks | | 34 12 18 | | 53.1 18.8 28.1 | |
| Food Preparation and Serving Related (n=667) | | Underweight  Normal weight  Overweight  Obese  Missing | | 44 353 137 101 32 | | 6.9 55.6 21.6 15.9 | | <=30 days <1/day  Daily use Missing | | 539 18 101 9 | | 81.9 2.7 15.3 | | No Yes Missing | | 415 251 1 | | 62.3 37.7 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 358 164 139 6 | | 54.2 24.8 21.0 | |
| Building and Grounds Cleaning (n=197) | | Underweight  Normal weight  Overweight  Obese  Missing | | 9 96 35 33 24 | | 5.2 55.5 20.2 19.1 | | <=30 days <1/day  Daily use Missing | | 173 3 19 2 | | 88.7 1.5 9.7 | | No Yes | | 147 50 | | 74.6 25.4 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 131 28 37 1 | | 66.8 14.3 18.9 | |
| Personal Care and Service (n=441) | | Underweight  Normal weight  Overweight  Obese  Missing | | 20 221 89 101 10 | | 4.6 51.3 20.7 23.4 | | <=30 days <1/day  Daily use Missing | | 313 25 99 4 | | 71.6 5.7 22.67 | | No Yes | | 343 98 | | 77.8 22.2 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 265 75 96 5 | | 60.8 17.2 22.0 | |
| Sales and Related (n=807) | | Underweight  Normal weight  Overweight  Obese  Missing | | 49 423 174 152 9 | | 6.1 53.0 21.8 19.0 | | <=30 days <1/day  Daily use Missing | | 607 33 157 10 | | 76.2 4.1 19.7 | | No Yes | | 611 196 | | 75.7 24.3 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 442 147 215 3 | | 55.0 18.3 26.7 | |
| Office and Administrative Support (n=1406) | | Underweight  Normal weight  Overweight  Obese  Missing | | 65 695 332 311 3 | | 4.6 49.5 23.7 22.2 | | <=30 days <1/day  Daily use Missing | | 978 79 337 12 | | 70.2 5.7 24.2 | | No Yes | | 1123 283 | | 79.9 20.1 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 802 246 351 7 | | 57.3 17.6 25.1 | |
| Farming, Fishing, and Forestry (n=84) | Underweight  Normal weight  Overweight  Obese  Missing | | 5 25 22 17 15 | | 7.2 36.2 31.9 24.6 | | <=30 days <1/day  Daily use | | 75 4 5 | | 89.3 4.8 6.0 | | No Yes | | 77 7 | | 91.7 8.3 | | No drinking Binge drinking (>=4) < 4 drinks | | 69 5 10 | | 82.1 6.0 11.9 | |
| Construction and Extraction (n=20) | Underweight  Normal weight  Overweight  Obese  Missing | | 1 5 9 4 1 | | 5.3 26.3 47.4 21.1 | | <=30 days <1/day  Daily use | | 20 0 0 | | 100.0 0.0 0.0 | | No Yes | | 13 7 | | 65.0 35.0 | | No drinking Binge drinking (>=4) < 4 drinks | | 12 4 4 | | 60.0 20.0 20.0 | |
| Installation, Maintenance, and Repair (n=14) | Underweight  Normal weight  Overweight  Obese | | 0 7 6 1 | | 0.0 50.0 42.9 7.1 | | <=30 days <1/day  Daily use | | 7 2 5 | | 50.0 14.3 35.7 | | No Yes | | 10 4 | | 71.4 28.6 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 6 5 2 1 | | 46.2 38.5 15.4 | |
| Production (n=308) | Underweight  Normal weight  Overweight  Obese  Missing | | 16 132 66 63 31 | | 5.8 47.7 23.8 22.7 | | <=30 days <1/day  Daily use Missing | | 253 8 39 8 | | 84.3 2.7 13.0 | | No Yes | | 231 77 | | 75.0 25.0 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 206 43 57 2 | | 67.3 14.1 18.6 | |
| Transportation and Material Moving (n=159) | Underweight  Normal weight  Overweight  Obese  Missing | | 7 68 37 30 17 | | 4.9 47.9 26.1 21.1 | | <=30 days <1/day  Daily use Missing | | 127 8 21 3 | | 81.4 5.1 13.5 | | No Yes | | 116 43 | | 73.0 27.0 | | No drinking Binge drinking (>=4) < 4 drinks Missing | | 105 20 32 2 | | 66.9 12.7 20.4 | |
| Military Specific (n=5) | Underweight  Normal weight  Overweight  Obese | | 1 4 0 0 | | 20.0 80.0 0.0 0.0 | | <=30 days <1/day Daily use | | 4 0 1 | | 80.0 0.0 20.0 | | No Yes | | 4 1 | | 80.0 20.0 | | No drinking Binge drinking (>=4) < 4 drinks | | 2 1 2 | | 40.0 20.0 40.0 | |