Table 1: Comparison of race and other sociodemographic characteristics with low birth weight and preterm birth among women in the NPHS survey.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Low Birth Weight | |  | Preterm Birth | |  | Total | |
|  | Yesa  n (%) | Noa  n (%) | P-value | Yesa  n (%) | Noa  n (%) | P-value | Totala  n (%) | Totalb  n (%) |
| **Sociodemographic** |  |  |  |  |  |  |  |  |
| ***Race/ethnicity*** |  |  |  |  |  |  |  |  |
| White | 105 (40.39) | 1426 (60.61) | <0.001 | 254 (52.37) | 1277 (60.01) | 0.018 | 1531 (58.50) | 1531 (58.59) |
| Black | 92 (35.38) | 410 (17.42) |  | 112 (23.09) | 390 (18.32) |  | 504 (19.24) | 502 (19.21) |
| Hispanic | 56 (21.54) | 439 (18.66) |  | 102 (21.03) | 393 (18.47) |  | 498 (19.00) | 495 (18.94) |
| Other | 7 (2.69) | 78 (3.31) |  | 17 (3.20) | 68 (3.51) |  | 85 (3.25) | 85 (3.25) |
| ***Mother’s age at delivery*** |  |  |  |  |  |  |  |  |
| <=14 | 5 (1.92) | 39 (1.65) |  | 13 (2.68) | 31 (1.46) | 0.113 | 44 (1.69) | 44 (1.68) |
| 15-24 | 191 (73.46) | 1555 (66.09) | 0.042 | 329 (67.84) | 1417 (66.59) |  | 1749 (66.81) | 1746 (66.82) |
| 25/25+ | 64 (24.62) | 759 (32.26) |  | 143 (29.48) | 680 (31.95) |  | 825 (31.50) | 823 (31.50) |
| ***Mother’s education*** |  |  |  |  |  |  |  |  |
| <12 years | 93 (35.77) | 574 (24.40) | <0.001 | 135 (27.84) | 532 (25.00) | 0.424 | 669 (25.56) | 667 (25.53) |
| 12 years | 108 (41.54) | 840 (35.70) |  | 172 (35.46) | 776 (36.47) |  | 949 (36.24) | 948 (36.28) |
| 13–15 years | 34 (13.08) | 485 (20.61) |  | 99 (20.41) | 420 (19.73) |  | 520 (19.86) | 519 (19.86) |
| 16+ years | 25 (9.62) | 454 (19.29) |  | 79 (16.29) | 400 (18.80) |  | 480 (18.33) | 479 (18.33) |
| ***Marital status (at pregnancy)*** |  |  |  |  |  |  |  |  |
| Married | 124 (47.69) | 1581 (67.19) | <0.001 | 294 (60.62) | 1411 (66.31) | 0.018 | 1707 (65.20) | 1705 (65.25) |
| Not married | 136 (52.31) | 908 (32.81) |  | 191 (39.38) | 717 (33.69) |  | 911 (34.80) | 908 (34.75) |
| **Healthcare Access** |  |  |  |  |  |  |  |  |
| ***Any prenatal care during pregnancy*** |  |  |  |  |  |  |  |  |
| Yes | 242 (93.08) | 2316 (98.47) | <0.001 | 476 (98.14) | 2082 (97.88) | 0.717 | 2558 (97.93) | 2558 (97.93) |
| No | 18 (6.92) | 36 (1.53) |  | 9 (1.86) | 45 (2.11) |  | 54 (2.07) | 54 (2.07) |
| ***Substance Use*** |  |  |  |  |  |  |  |  |
| Yes | 26 (10.00) | 120 (5.10) | 0.001 | 34 (1.30) | 112 (4.29) | 0.131 | 147 (5.61) | 146 (5.59) |
| No | 234 (90.00) | 2233 (94.90) |  | 451 (17.25) | 2016 (77.15) |  | 2471 (94.39) | 2467 (94.41) |
| Total | 261 (9.98) | 2353 (90.02) |  | 486 (18.55) | 2132 (81.45) |  | 2618 (100.00) | 2613 (100.00) |

a = weighted

b = unweighted

This table presents a comparison of various sociodemographic characteristics with low birth weight and preterm birth among women in the NPHS survey. It reveals that racial/ethnic differences play a significant role, with White women showing higher rates of low birth weight (40.39%) and preterm birth (52.37%) compared to Black (35.38% and 23.09%, respectively) and Hispanic women (21.54% and 21.03%, respectively). Maternal age also influences these outcomes, with younger mothers (15-24 years) having higher rates of low birth weight (73.46%) and preterm birth (67.84%) compared to older age groups. Education level is another important factor, as women with less than 12 years of education had higher rates of low birth weight (35.77%) but not preterm birth. Married women had lower incidences of both low birth weight (47.69%) and preterm birth (60.62%) than unmarried women. Access to prenatal care significantly reduced both low birth weight (93.08% in those with care) and preterm birth (98.14% with prenatal care). Finally, substance use during pregnancy was associated with a higher rate of low birth weight (10%) but not preterm birth.

Table 2: Factors associated with race and other sociodemographic characteristics with low birth weight and preterm birth among women in the NPHS survey.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Low Birth Weight | | | | Preterm Birth | | | |
|  | COR (95% CI) | P-value | AOR (95% CI) | P-value | COR (95% CI) | P-value | AOR (95% CI) | P-value |
| **Sociodemographic** |  |  |  |  |  |  |  |  |
| ***Race/ethnicity*** |  |  |  |  |  |  |  |  |
| White | 1.22 (0.73-2.03) | 0.348 | 1.22 (0.73-2.03) | 0.484 | 1.26 (0.36-4.50) | 0.637 |  |  |
| Black | 0.40 (0.13-1.27) | 0.092 | 0.40 (0.13-1.27) | 0.253 | 0.87 (0.18-4.36) | 0.826 |  |  |
| Hispanic | 0.71 (0.23-2.16) | 0.435 | 0.71 (0.23-2.16) | 0.788 | 0.97 (0.25-3.79) | 0.947 |  |  |
| Other | Reference |  | Reference |  | Reference |  |  |  |
| ***Mother’s age at delivery*** |  |  |  |  |  |  |  |  |
| <=14 | 0.66 (0.27-1.63) | 0.267 | 1.12 (0.61-2.05) | 0.297 | 0.50 (0.17-1.48) | 0.152 | 0.55 (0.17-1.83) | 0.577 |
| 15-24 | 0.68 (0.55-0.85) | 0.009 | 0.93 (0.75-1.14) | 0.790 | 0.91 (0.71-1.16) | 0.335 | 0.96 (0.78-1.17) | 0.240 |
| 25/25+ | Reference |  | Reference |  | Reference |  | Reference |  |
| ***Mother’s education*** |  |  |  |  |  |  |  |  |
| <12 years | 0.34 (0.19-0.60) | 0.006 | 0.52 (0.41-0.67) | <0.001 | 0.78 (0.36-1.65) | 0.404 |  |  |
| 12 years | 0.42 (0.30-0.61) | 0.003 | 0.54 (0.37-0.78) | 0.028 | 0.89 (0.45-1.77) | 0.662 |  |  |
| 13–15 years | 0.78 (0.36-1.68) | 0.424 | 0.92 (0.51-1.65) | 0.847 | 0.84 (0.46-1.54) | 0.466 |  |  |
| 16+ years | Reference |  | Reference |  | Reference |  |  |  |
| ***Marital status (at pregnancy)*** |  |  |  |  |  |  |  |  |
| Married | 2.24 (1.27-3.93) | 0.017 | 1.68 (1.22-2.33) | <0.001 | 1.28 (0.93-1.76) | 0.097 | 1.23 (0.94-1.62) | 0.098 |
| Not married | Reference |  | Reference |  | Reference |  | Reference |  |
| **Healthcare Access** |  |  |  |  |  |  |  |  |
| ***Any prenatal care during pregnancy*** |  |  |  |  |  |  |  |  |
| Yes | 4.77 (2.24-10.14) | 0.005 | 3.32 (1.59-6.92) | 0.029 | 0.88 (0.58-1.33) | 0.426 |  |  |
| No | Reference |  | Reference |  | Reference |  |  |  |
| ***Substance Use*** |  |  |  |  |  |  |  |  |
| Yes | 0.49 (0.21-1.15) | 0.080 | 0.67 (0.39-1.16) | 0.181 | 0.74 (0.27-2.01) | 0.447 | 0.80 (0.32-2.01) | 0.533 |
| No | Reference |  | Reference |  | Reference |  | Reference |  |

Women of White ethnicity had 1.22 times higher odds of having a low-birth-weight child (COR: 1.22, 95% CI: 0.73-2.03), but this was not statistically significant (p = 0.348). Black women had 60% lower odds of low birth weight (COR: 0.40, 95% CI: 0.13-1.27), though this was also not significant (p = 0.092). Women aged 15-24 had 32% lower odds of low birth weight (COR: 0.68, 95% CI: 0.55-0.85), but the association became non-significant after adjusting for other variables (AOR = 0.93, p = 0.790). Women with less than 12 years of education had 66% lower odds of low birth weight (COR: 0.34, 95% CI: 0.19-0.60), and the association remained significant in the adjusted model (AOR = 0.52, p < 0.001). Women who were married had 2.24 times higher odds of low birth weight (COR: 2.24, 95% CI: 1.27-3.93), with the adjusted odds being 1.68 times higher (AOR: 1.68, 95% CI: 1.22-2.33). Women who received prenatal care had 4.77 times higher odds of having a low-birth-weight child (COR: 4.77, 95% CI: 2.24-10.14), with the adjusted odds being 3.32 times higher (AOR: 3.32, 95% CI: 1.59-6.92). Women who used substances during pregnancy had 51% lower odds of low birth weight (COR: 0.49, 95% CI: 0.21-1.15), but this was not significant after adjustment (AOR = 0.67, p = 0.181).

Table 3: Goodness of fit of multivariable logistic regression model for Low Birth Weight and Preterm Birth

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Low Birth Weight** | | | **Preterm Birth** | | |
| **Akaike Information Criterion** | 1635.670 | | | 2511.452 | | |
| **Schwarz Criterion** | 1706.107 | | | 2540.803 | | |
| **-2 Log Likelihood** | 1611.670 | | | 2501.452 | | |
| **Percent Concordant** | 64.7% | | | 40.9% | | |
| **ROC Curve (Area)** | 66.41% | | | 53.91% | | |
| **Hosmer and Lemeshow Goodness-of-Fit Test** | **Chi-Square** | **DF** | **P-value** | **Chi-Square** | **DF** | **P-value** |
|  | **7.8899** | 8 | 0.4443 | 1.3116 | 3 | 0.7264 |

Table 3 presents the goodness-of-fit statistics for the multivariable logistic regression models assessing low birth weight and preterm birth. The Akaike Information Criterion (AIC) values were 1635.670 for low birth weight and 2511.452 for preterm birth, while the Schwarz Criterion (SC) values were 1706.107 and 2540.803, respectively. The -2 Log Likelihood values were 1611.670 for low birth weight and 2501.452 for preterm birth. The percentage of concordance was 64.7% for low birth weight and 40.9% for preterm birth. The ROC curve areas were 66.41% for low birth weight and 53.91% for preterm birth. The Hosmer and Lemeshow goodness-of-fit test resulted in chi-square values of 7.8899 (df = 8, p = 0.4443) for low birth weight and 1.3116 (df = 3, p = 0.7264) for preterm birth, suggesting that the models fit the data well.