Table S1 Population characteristics of different degrees of PTB

Variables	FTB group, N (%)	E-PTB, N (%)	P value	V-PTB, N (%)	P value	ML-PTB, N (%)	P value
All population	14,518,114 (100.0)	92,721 (100.0)	–	170,619 (100.0)	–	1,513,075 (100.0)	–
Year			<0.001		<0.001		<0.001
2016	3,021,461 (20.8)	19,323 (20.9)		34,950 (20.5)		302,011 (20.0)	
2017	2,954,513 (20.4)	19,129 (20.6)		34,779 (20.4)		302,831 (20.0)	
2018	2,913,994 (20.1)	18,391 (19.8)		33,980 (20.0)		302,030 (20.1)	
2019	2,873,800 (19.8)	18,899 (20.4)		35,099 (20.6)		312,093 (19.9)	
2020	2,754,346 (18.9)	16,979 (18.3)		31,811 (18.6)		294,110 (19.4)	
Sex			<0.001		<0.001		<0.001
Male	7,124,839 (49.1)	49,120 (53.0)		90,504 (53.0)		807,777 (53.4)	
Female	7,393,275 (50.9)	43,601 (47.0)		80,115 (47.0)		705,298 (46.6)	
Maternal age			<0.001		<0.001		<0.001
<20	528,824 (3.6)	4,874 (5.3)		8,529 (5.0)		62,963 (4.2)	
20–30	6,835,689 (47.1)	42,302 (45.6)		76,125 (44.6)		666,903 (44.1)	
31–40	6,679,838 (46.0)	41,129 (44.4)		77,008 (45.1)		706,353 (46.7)	
>40	473,763 (3.3)	4,416 (4.8)		8,957 (5.2)		76,856 (5.1)	
Maternal BMI			<0.001		<0.001		<0.001
Normal	6,187,556 (42.6)	29,714 (32.1)		62,009 (36.3)		577,688 (38.2)	
Underweight	429,259 (2.9)	2,831 (3.0)		5,604 (3.3)		49,403 (3.3)	
Overweight	3,828,984 (26.4)	22,901 (24.7)		43,447 (25.5)		391,951 (25.9)	
Obesity	3,827,848 (26.3)	33,826 (36.5)		54,864 (32.2)		462,706 (30.6)	
Unknown	244,467 (1.8)	3,449 (3.7)		4,695 (2.7)		31,327 (2.0)	
Marital status			<0.001		<0.001		<0.001
Married	8,888,021 (61.2)	47,366 (51.1)		91,300 (53.5)		866,719 (57.3)	
Unmarried	4,127,076 (28.4)	37,477 (40.4)		66,415 (38.9)		514,685 (34.0)	
Unknown	1,503,017 (10.4)	7,878 (8.5)		12,908 (7.6)		131,671 (8.7)	
Mother's race			<0.001		<0.001		<0.001
White	11,126,214 (76.6)	55,836 (60.2)		115,603 (67.8)		1,089,157 (72.0)	
Black	1,778,873 (12.3)	27,517 (29.7)		37,556 (22.0)		261,756 (17.3)	
AIAN	118,473 (0.8)	857 (0.9)		1,827 (1.1)		15,017 (1.0)	
Asian	1,095,352 (7.5)	5,591 (6.0)		10,393 (6.1)		102,785 (6.8)	
NHOPI	41,768 (0.3)	352 (0.4)		740 (0.4)		6,055 (0.4)	
>1 race	357,434 (2.5)	2,568 (2.8)		4,500 (2.6)		38,305 (2.5)	
Mother's education			<0.001		<0.001		<0.001
< High school	1,525,921 (10.5)	12,049 (13.0)		23,803 (14.0)		198,378 (13.1)	
High school	3,357,889 (23.1)	26,392 (28.5)		46,559 (27.3)		389,222 (25.7)	
Associate degree	4,086,022 (28.1)	28,548 (30.8)		49,847 (29.2)		437,228 (28.9)	
≥ bachelor's degree	5,376,325 (37.1)	23,913 (25.8)		48,186 (28.2)		469,698 (31.1)	
Unknown	171,957 (1.2)	1,819 (1.9)		2,228 (1.3)		18,549 (1.2)	
Father's education			<0.001		<0.001		<0.001
< High school	1,776,843 (12.3)	13,586 (14.6)		26,587 (15.6)		220,467 (14.6)	
High school	4,149,519 (28.6)	33,113 (35.7)		57,468 (33.7)		482,446 (32.0)	
Associate degree	3,694,278 (25.4)	23,687 (25.6)		42,062 (24.7)		378,174 (24.9)	
≥ bachelor's degree	4,539,764 (31.3)	18,479 (19.9)		38,491 (22.5)		387,033 (25.6)	
Unknown	357,710 (2.4)	3,856 (4.2)		6,015 (3.5)		44,955 (2.9)	
Prenatal care starting time			<0.001		<0.001		<0.001
1st to 3rd month	11,670,225 (80.4)	69,286 (74.7)		120,103 (70.4)		1,145,051 (75.7)	
4th to 6th month	2,130,762 (14.6)	16,081 (17.3)		37,020 (21.7)		275,168 (18.2)	
7th to final month	561,230 (3.9)	1,123 (1.2)		6,904 (4.0)		59,390 (3.9)	
No prenatal care	155,897 (1.1)	6,231 (6.7)		6,592 (3.9)		33,466 (2.2)	
Smoking			<0.001		<0.001		<0.001
No smoking	13,555,015 (93.3)	83,889 (90.5)		153,765 (90.1)		1,384,746 (91.5)	
Smoking cessation	270,926 (1.9)	1,898 (2.0)		3,159 (1.9)		27,943 (1.8)	
Smoking	692,173 (4.8)	6,934 (7.5)		13,695 (8.0)		100,386 (6.6)	
History of PTB			<0.001		<0.001		<0.001
Yes	374,940 (2.6)	9,640 (10.4)		16,472 (9.7)		122,210 (8.1)	
No	14,143,174 (97.4)	83,081 (89.6)		154,147 (90.3)		1,390,865 (91.9)	
Hypertension eclampsia			<0.001		<0.001		<0.001
Yes	26,125 (0.2)	899 (1.0)		2,228 (1.3)		1,500,811 (99.2)	
No	14,491,989 (99.8)	91,822 (99.0)		168,391 (98.7)		12,264 (0.8)	
Infertility treatment			<0.001		<0.001		<0.001
No	14,255,558 (98.2)	86,569 (93.4)		161,379 (94.6)		1,448,711 (95.7)	
FEDT	108,543 (0.1)	2,444 (2.6)		3,564 (2.1)		24,770 (1.6)	
ART	138,200 (0.7)	3,402 (3.7)		5,221 (3.1)		36,041 (2.4)	
Other treatments	15,813 (1.0)	306 (0.3)		455 (0.3)		3,553 (0.1)	
Diabetes			<0.001		<0.001		<0.001
Pre–pregnancy	112,194 (0.8)	1,962 (2.1)		3,960 (2.3)		32,246 (2.1)	
Gestational	970,722 (6.7)	4,017 (4.3)		14,092 (8.3)		146,044 (9.7)	
No	13,435,198 (92.5)	86,742 (93.6)		152,567 (89.4)		1,334,785 (88.2)	
Hypertension			<0.001		<0.001		<0.001
Pre–pregnancy	245,404 (1.7)	5,217 (5.6)		9,618 (5.6)		61,530 (4.1)	
Gestational	886,156 (6.1)	9,305 (10.0)		27,244 (16.0)		222,322 (14.7)	
No	13,386,554 (92.2)	78,199 (84.3)		133,757 (78.4)		1,229,223 (81.2)	
Previous cesareans			0.322		<0.001		<0.001
Yes	2,213,891 (15.2)	14,248 (15.4)		30,296 (17.8)		284,919 (18.8)	
No	12,304,223 (84.8)	78,473 (84.6)		140,323 (82.2)		1,228,156 (81.2)	
Live birth order			<0.001		<0.001		<0.001
1	5,555,199 (38.3)	39,644 (42.7)		62,945 (36.9)		508,140 (33.6)	
2	4,813,305 (33.2)	25,819 (27.9)		50,483 (29.6)		475,037 (31.4)	
3	2,457,445 (16.9)	13,915 (15.0)		29,189 (17.1)		281,452 (18.6)	
4	1,004,828 (6.9)	6,941 (7.5)		14,887 (8.7)		138,779 (9.2)	
5	371,942 (2.6)	3,316 (3.6)		6,709 (3.9)		59,319 (3.9)	
6	151,213 (1.0)	1,488 (1.6)		3,153 (1.9)		25,097 (1.7)	
7	68,075 (0.5)	689 (0.7)		1,404 (0.8)		11,332 (0.7)	
≥8	76,534 (0.5)	712 (0.8)		1,577 (0.9)		11,656 (0.8)	
Unknown	19,573 (0.1)	197 (0.2)		276 (0.2)		2,263 (0.1)	
Mother's nativity			<0.001		<0.001		<0.001
In the US	11,032,782 (76.0)	71,725 (77.4)		132,002 (77.4)		1,150,822 (76.1)	
Outside the US	3,465,698 (23.9)	20,795 (22.4)		38,357 (22.5)		359,975 (23.8)	
Unknown	19,634 (0.1)	201 (0.2)		260 (0.2)		2,278 (0.2)	
Gonorrhea			<0.001		<0.001		<0.001
Yes	23,365 (0.2)	327 (0.4)		513 (0.3)		3,676 (0.2)	
No	14,476,399 (99.7)	91,764 (98.9)		169,295 (99.2)		1,503,870 (99.4)	
Unknown	18,350 (0.1)	630 (0.7)		815 (0.5)		5,529 (0.4)	
Syphilis			<0.001		<0.001		<0.001
Yes	11,995 (0.1)	127 (0.1)		272 (0.2)		1,919 (0.1)	
No	14,487,769 (99.8)	91,964 (99.2)		169,536 (99.3)		1,505,627 (99.5)	
Unknown	18,350 (0.1)	630 (0.7)		815 (0.5)		5,529 (0.4)	
Chlamydia			<0.001		<0.001		<0.001
Yes	185,898 (1.3)	1,697 (1.8)		3,150 (1.8)		23,782 (1.6)	
No	14,313,866 (98.6)	90,394 (97.5)		166,658 (97.7)		1,483,764 (98.0)	
Unknown	18,350 (0.1)	630 (0.7)		815 (0.5)		5,529 (0.4)	
Hepatitis B			0.183		0.020		<0.001
Yes	30,763 (0.2)	214 (0.2)		405 (0.2)		3,483 (0.2)	
No	14,469,001 (99.7)	91,877 (99.1)		169,403 (99.3)		1,504,063 (99.4)	
Unknown	18,350 (0.1)	630 (0.7)		815 (0.5)		5,529 (0.4)	
Hepatitis C			<0.001		<0.001		<0.001
Yes	4,4229 (0.3)	496 (0.5)		1,125 (0.7)		8,270 (0.6)	
No	14,455,535 (99.6)	91,595 (98.8)		168,683 (98.8)		1,499,276 (99.0)	
Unknown	18,350 (0.1)	630 (0.7)		815 (0.5)		5,529 (0.4)	

FTB, full-term birth; E-PTB, extremely preterm birth; V-PTB, very preterm birth; ML-PTB, moderately and late preterm birth; BMI, body mass index; FEDT, fertility-enhancing drugs therapy; ART, assisted reproductive technology; US, United States; AIAN, American Indian/Alaskan Native; NHOPI, Native Hawaiian or Other Pacific Islander.

Table S2 Multivariate logistic regression analyses result on moderately and late preterm birth

Factor	B	S.E.	Wald Z	OR	95% CI	P value
Sex (female *vs.* male)	−0.095	0.002	−54.110	0.910	0.907–0.913	<0.001
Maternal age						
<20 *vs.* 20–30	−0.144	0.005	−30.710	1.155	1.144–1.166	<0.001
31–40 *vs.* 20–30	−0.041	0.005	−8.190	1.108	1.104–1.113	<0.001
>40 *vs.* 20–30	0.185	0.007	28.150	1.389	1.377–1.402	<0.001
Maternal BMI						
Underweight *vs.* normal	−0.202	0.005	−40.260	1.224	1.212–1.236	<0.001
Overweight *vs.* normal	−0.218	0.005	−42.500	0.984	0.980–0.988	<0.001
Obese *vs.* normal	−0.204	0.005	−39.740	0.998	0.993–1.002	<0.001
Marital status (unmarried *vs.* married)	0.132	0.002	61.420	1.142	1.137–1.146	<0.001
Race of mother						
Black *vs.* White	0.354	0.002	146.660	1.425	1.418–1.432	<0.001
AIAN *vs.* White	0.072	0.009	8.020	1.074	1.056–1.093	<0.001
Asian *vs.* White	0.107	0.004	26.160	1.113	1.104–1.122	<0.001
NHOPI *vs.* White	0.270	0.015	18.260	1.310	1.272–1.348	<0.001
>1 race *vs.* White	0.065	0.006	11.340	1.067	1.055–1.079	<0.001
Mother's education						
< High school *vs.* ≥ bachelor's degree	−0.046	0.003	−13.700	1.167	1.158–1.176	<0.001
High school *vs.* ≥ bachelor's degree	−0.077	0.004	−21.890	1.115	1.108–1.122	<0.001
Associate degree *vs.* ≥ bachelor's degree	−0.154	0.004	−38.500	1.080	1.075–1.086	<0.001
Father's education						
< High school vs. ≥ bachelor's degree	−0.006	0.003	−1.980	1.180	1.172–1.189	0.047
High school *vs.* ≥ bachelor's degree	−0.071	0.003	−21.150	1.173	1.166–1.180	<0.001
Associate degree *vs.* ≥ bachelor's degree	−0.165	0.004	−43.400	1.099	1.093–1.105	<0.001
Prenatal care starting time						
4th to 6th month *vs.* 1st to 3rd month	0.222	0.002	95.490	1.249	1.243–1.255	<0.001
7th to final month *vs.* 1st to 3rd month	−0.006	0.005	−1.230	0.994	0.985–1.003	0.217
No *vs.* 1st to 3rd month	0.826	0.006	133.170	2.284	2.256–2.312	<0.001
Smoking						
Smoking cessation *vs.* no smoking	−0.059	0.006	−9.350	0.943	0.932–0.955	<0.001
Smoking *vs.* no smoking	0.189	0.004	51.910	1.208	1.199–1.217	<0.001
History of PTB (yes *vs.* no)	1.019	0.004	285.930	2.771	2.752–2.790	<0.001
Hypertensive eclampsia (yes *vs.* no)	1.405	0.011	126.700	4.075	3.987–4.164	<0.001
Infertility treatment						
Other treatments *vs.* no	0.936	0.018	51.810	2.550	2.462–2.642	<0.001
FED *vs.* no	1.004	0.007	142.320	2.728	2.690–2.766	<0.001
ART *vs.* no	1.091	0.006	173.570	2.977	2.940–3.014	<0.001
Diabetes						
Pre–pregnancy diabetes *vs.* no	0.700	0.007	103.260	2.015	1.988–2.042	<0.001
Gestational diabetes *vs.* no	0.210	0.003	66.110	1.234	1.226–1.241	<0.001
Hypertension						
Pre–pregnancy hypertension *vs.* no	0.808	0.005	169.870	2.243	2.222–2.264	<0.001
Gestational hypertension *vs.* no	0.935	0.003	349.070	2.547	2.534–2.561	<0.001
History of cesareans (yes *vs.* no)	0.085	0.003	34.610	1.089	1.084–1.094	<0.001
LBO						
2 *vs.* 1	0.029	0.002	12.360	1.029	1.024–1.034	<0.001
3 *vs.* 1	0.088	0.003	31.680	1.092	1.086–1.098	<0.001
4 *vs.* 1	0.188	0.004	51.910	1.206	1.198–1.215	<0.001
5 *vs.* 1	0.250	0.005	48.700	1.284	1.271–1.297	<0.001
6 *vs.* 1	0.240	0.008	31.930	1.271	1.253–1.290	<0.001
7 *vs.* 1	0.198	0.011	18.070	1.219	1.193–1.245	<0.001
≥8 *vs.* 1	0.078	0.011	7.300	1.081	1.059–1.104	<0.001
Nativity						
Not in the US *vs.* in the US	−0.023	0.002	−9.310	0.978	0.973–0.982	<0.001
Unknown *vs.* the US	−0.013	0.023	−0.550	0.987	0.943–1.034	0.585
Gonorrhea (yes *vs.* no)	0.131	0.018	7.210	1.140	1.100–1.181	<0.001
Syphilis (yes *vs.* no)	0.091	0.026	3.470	1.095	1.040–1.153	<0.001
Chlamydia (yes *vs.* no)	0.027	0.007	3.860	1.028	1.014–1.042	<0.001

BMI, body mass index; FED, fertility-enhancing drugs; ART, assisted reproductive technology; LBO, live birth order; US, United States; AIAN, American Indian/Alaskan Native; NHOPI, Native Hawaiian or Other Pacific Islander; SE, standard error; OR, odds ratio; CI, confidence interval.

Table S3 Multivariate logistic regression analyses results on very preterm birth

Factor	B	S.E.	Wald Z	OR	95% CI	P value
Sex (female *vs.* male)	−0.076	0.005	−14.360	0.927	0.918–0.937	<0.001
Maternal age						
<20 *vs.* 20–30	0.154	0.013	11.610	1.167	1.137–1.197	<0.001
31–40 *vs.* 20–30	0.144	0.006	22.590	1.154	1.140–1.169	<0.001
>40 *vs.* 20–30	0.373	0.014	27.530	1.452	1.414–1.491	<0.001
Maternal BMI						
Underweight *vs.* normal	0.212	0.015	14.140	1.236	1.200–1.273	<0.001
Overweight *vs.* normal	−0.008	0.007	−1.100	0.993	0.979–1.006	0.269
Obesity *vs.* normal	0.015	0.007	2.150	1.015	1.001–1.028	0.032
Marital status (unmarried *vs.* married)	0.200	0.006	31.170	1.221	1.206–1.237	<0.001
Race of mother						
Black *vs.* White	0.520	0.007	76.440	1.682	1.659–1.704	<0.001
AIAN *vs.* White	0.117	0.026	4.520	1.124	1.069–1.183	<0.001
Asian *vs.* White	0.148	0.013	11.550	1.159	1.131–1.189	<0.001
NHOPI *vs.* White	0.316	0.042	7.450	1.372	1.262–1.491	<0.001
>1 race *vs.* White	0.110	0.017	6.490	1.116	1.080–1.154	<0.001
Mother's education						
< High school vs. ≥ bachelor's degree	−0.041	0.010	−4.220	1.183	1.155–1.211	<0.001
Associate degree *vs.* ≥ bachelor's degree	−0.079	0.010	−7.670	1.136	1.115–1.157	<0.001
High school vs ≥ bachelor's degree	−0.167	0.012	−14.040	1.093	1.075–1.111	<0.001
Father's education						
< High school vs. ≥ bachelor's degree	−0.043	0.009	−4.870	1.307	1.278–1.337	<0.001
Associate degree *vs.* ≥ bachelor's degree	−0.131	0.010	−13.260	1.252	1.230–1.275	<0.001
High school *vs.* ≥ bachelor's degree	−0.268	0.011	−23.430	1.147	1.128–1.166	<0.001
Prenatal care starting time						
4th to 6th month *vs.* 1st to 3rd month	0.423	0.007	64.090	1.527	1.508–1.547	<0.001
7th to final month *vs.* 1st to 3rd month	0.101	0.014	7.420	1.106	1.077–1.136	<0.001
No *vs.* 1st to 3rd month	1.234	0.015	82.700	3.434	3.335–3.536	<0.001
Smoking						
Smoking cessation *vs.* no smoking	−0.094	0.019	−4.920	0.910	0.877–0.945	<0.001
Smoking *vs.* no smoking	0.299	0.010	29.470	1.348	1.322–1.375	<0.001
History of PTB (yes *vs.* no)	1.156	0.010	121.700	3.176	3.117–3.235	<0.001
Hypertensive eclampsia (yes *vs.* no)	1.685	0.024	70.070	5.390	5.142–5.650	<0.001
Infertility treatment						
Other treatments *vs.* no	1.098	0.049	22.410	2.998	2.724–3.300	<0.001
FED *vs.* no	1.275	0.018	69.320	3.579	3.452–3.710	<0.001
ART *vs.* no	1.374	0.016	84.700	3.949	3.826–4.077	<0.001
Diabetes						
Pre–pregnancy diabetes *vs.* no	0.612	0.018	33.220	1.844	1.779–1.912	<0.001
Gestational diabetes *vs.* no	0.062	0.010	6.330	1.064	1.044–1.085	<0.001
Hypertension						
Pre–pregnancy hypertension *vs.* no	1.051	0.012	86.830	2.860	2.793–2.929	<0.001
Gestational hypertension *vs.* no	1.015	0.008	135.780	2.758	2.718–2.799	<0.001
History of cesareans (yes *vs.* no)	0.053	0.008	7.110	1.055	1.039–1.071	<0.001
LBO						
2 *vs.* 1	−0.077	0.007	−10.970	0.926	0.913–0.939	<0.001
3 *vs.* 1	−0.069	0.009	−8.060	0.934	0.918–0.949	<0.001
4 *vs.* 1	0.010	0.011	0.910	1.010	0.989–1.032	0.365
5 *vs.* 1	0.080	0.015	5.280	1.083	1.052–1.116	<0.001
6 *vs.* 1	0.127	0.021	5.980	1.135	1.089–1.183	<0.001
7 *vs.* 1	0.041	0.031	1.320	1.042	0.980–1.107	0.187
≥8 *vs.* 1	0.004	0.029	0.160	1.005	0.948–1.065	0.871
Nativity						
Not in the US *vs.* in the US	−0.080	0.008	−10.730	0.923	0.910–0.937	<0.001
Unknown *vs.* the US	−0.062	0.070	−0.870	0.940	0.819–1.079	0.382
Gonorrhea (yes *vs.* no)	0.088	0.050	1.770	1.092	0.990–1.205	0.077
Syphilis (yes *vs.* no)	0.134	0.070	1.930	1.144	0.998–1.311	0.054
Chlamydia (yes *vs.* no)	0.042	0.020	2.120	1.043	1.003–1.085	0.034

BMI, body mass index; FED, fertility-enhancing drugs; ART, assisted reproductive technology; LBO, live birth order; UN, unknown; AIAN, American Indian/Alaskan Native; NHOPI, Native Hawaiian or Other Pacific Islander; SE, standard error; OR, odds ratio; CI, confidence interval.

Table S4 Multivariate logistic regression analyses result on extremely preterm birth

Factor	B	S.E.	Wald Z	OR	95% CI	P value
Sex (female *vs.* male)	−0.084	0.007	−11.630	0.919	0.906–0.932	<0.001
Maternal age						
<20 *vs.* 20–30	0.101	0.018	5.710	1.106	1.068–1.145	<0.001
31–40 *vs.* 20–30	0.233	0.009	26.730	1.262	1.241–1.284	<0.001
>40 *vs.* 20–30	0.418	0.019	21.740	1.519	1.463–1.577	<0.001
Maternal BMI						
Underweight *vs.* normal	0.214	0.021	10.100	1.239	1.188–1.291	<0.001
Overweight *vs.* normal	0.118	0.010	12.320	1.125	1.104–1.147	<0.001
Obesity *vs.* normal	0.374	0.009	41.090	1.454	1.428–1.48	<0.001
Marital status (unmarried *vs.* married)	0.153	0.009	17.490	1.165	1.146–1.185	<0.001
Race of mother						
Black *vs.* White	0.977	0.009	113.890	2.655	2.611–2.700	<0.001
AIAN *vs.* White	0.162	0.038	4.250	1.176	1.091–1.267	<0.001
Asian vs White	0.293	0.018	16.480	1.340	1.294–1.388	<0.001
NHOPI *vs.* White	0.284	0.063	4.520	1.329	1.175–1.503	<0.001
>1 race *vs.* White	0.279	0.023	12.240	1.322	1.264–1.382	<0.001
Mother's education						
< High school vs. ≥ bachelor's degree	−0.029	0.013	−2.170	1.335	1.293–1.379	0.030
Associate degree *vs.* ≥ bachelor's degree	−0.070	0.014	−4.890	1.297	1.265–1.330	<0.001
High school *vs.* ≥ bachelor's degree	−0.289	0.017	−17.400	1.246	1.219–1.274	<0.001
Father's education						
< High school vs. ≥ bachelor's degree	0.008	0.012	0.630	1.402	1.359–1.446	0.526
Associate degree *vs.* ≥ bachelor's degree	−0.101	0.014	−7.490	1.413	1.378–1.448	<0.001
High school *vs.* ≥ bachelor's degree	−0.338	0.016	−21.200	1.267	1.237–1.297	<0.001
Prenatal care starting time						
4th to 6th month *vs.* 1st to 3rd month	0.101	0.010	10.340	1.106	1.085–1.127	<0.001
7th to final month *vs.* 1st to 3rd month	−1.179	0.032	−36.500	0.308	0.289–0.328	<0.001
No *vs.* 1st to 3rd month	1.681	0.016	106.870	5.373	5.21–5.542	<0.001
Smoking						
Smoking cessation *vs.* no smoking	0.029	0.025	1.180	1.030	0.981–1.081	0.238
Smoking *vs.* no smoking	0.328	0.014	23.150	1.388	1.35–1.427	<0.001
History of preterm (yes *vs.* no)	1.431	0.013	112.760	4.182	4.079–4.287	<0.001
Hypertension eclampsia (yes *vs.* no)	1.361	0.037	36.850	3.902	3.629–4.195	<0.001
Infertility treatment						
Other treatments *vs.* no	1.375	0.060	22.810	3.954	3.513–4.449	<0.001
FED *vs.* no	1.564	0.023	69.100	4.779	4.572–4.996	<0.001
ART *vs.* no	1.663	0.020	81.340	5.273	5.066–5.489	<0.001
Diabetes						
Pre-pregnancy diabetes *vs.* no	0.439	0.026	17.100	1.551	1.475–1.631	<0.001
Gestational diabetes *vs.* no	−0.671	0.018	−36.930	0.511	0.494–0.53	<0.001
Hypertension						
Pre-pregnancy hypertension *vs.* no	0.845	0.016	51.730	2.328	2.255–2.404	<0.001
Gestational hypertension *vs.* no	0.386	0.012	31.690	1.471	1.437–1.507	<0.001
History of cesareans (yes *vs.* no)	−0.054	0.011	−4.910	0.948	0.927–0.968	<0.001
LBO						
2 *vs.* 1	−0.355	0.010	−37.300	0.701	0.688–0.714	<0.001
3 *vs.* 1	−0.479	0.012	−39.860	0.619	0.605–0.634	<0.001
4 *vs.* 1	−0.439	0.016	−28.050	0.644	0.625–0.664	<0.001
5 *vs.* 1	−0.349	0.021	−16.310	0.705	0.676–0.735	<0.001
6 *vs.* 1	−0.349	0.031	−11.450	0.705	0.664–0.749	<0.001
7 *vs.* 1	−0.410	0.044	−9.290	0.664	0.609–0.724	<0.001
≥8 *vs.* 1	−0.510	0.044	−11.710	0.600	0.551–0.654	<0.001
Nativity						
Not in the US *vs.* in the US	−0.014	0.010	−1.330	0.987	0.967–1.006	0.184
Unknown *vs.* the US	0.223	0.083	2.680	1.249	1.061–1.471	0.008
Gonorrhea (yes *vs.* no)	0.223	0.062	3.610	1.249	1.107–1.41	<0.001

BMI, body mass index; FEDT, fertility-enhancing drugs therapy; ART, assisted reproductive technology; LBO, live birth order; UN, unknown; US, United States; AIAN, American Indian/Alaskan Native; NHOPI, Native Hawaiian or Other Pacific Islander; SE, standard error; OR, odds ratio; CI, confidence interval.

Table S5 The score of each variable in the PTB risk model and the prediction probability corresponding to the total points

Variables	Points
Sex	
Female	0
Male	7
Maternal age	
20-29	0
30-39	7
<20	10
≥40	23
Maternal BMI	
Normal	0
Obese	1
Overweight	1
Underweight	15
Marital status	
Married	0
Unmarried	9
Chlamydia	
No	0
Yes	2
History of cesareans	
No	0
Yes	6
Race of mother	
White	0
>1 race	5
AIAN	5
SIAN	8
NHOPI	19
Black	25
History of preterm	
No	0
Yes	73
Education of mother	
≥ Bachelor's degree	0
Associate degree	6
High school	8
< High school	11
Education of father	
≥ Bachelor's degree	0
Associate degree	7
High school	11
< High school	12
Gonorrhea	
No	0
Yes	9
Smoking	
Smoking cessation	0
No	4
Smoking	18
Live birth order	
1	0
2	2
3	6
4	13
5	18
6	17
7	14
≥8	6
Hypertension eclampsia	
No	0
Yes	100
PCST	
1st-3rd	0
7th-final	0
4th-6th	16
No	59
Infertility treatment	
No	0
Other treatment	67
Fertility-enhancing drugs	71
ART	78
Syphilis	
No	0
Yes	6
Hypertension	
No	0
Pre-pregnancy HT	57
Gestational HT	67
Diabetes	
No	0
Gestational diabetes	15
Pre-pregnancy diabetes	50
Nativity	
Not in the US	0
Unknown	1
US	2

PTB, preterm birth; BMI, body mass index; FED, fertility-enhancing drugs; HT, hypertension; ART, assisted reproductive technology; UN, unknown; AIAN, American Indian/Alaskan Native; NHOPI, Native Hawaiian or Other Pacific Islander. The PTB risk probability corresponding to the total score is as follows: 369 to 0.9, 312 to 0.8, 273 to 0.7, 242 to 0.6, 213 to 0.5, 184 to 0.4, 153 to 0.3, 114 to 0.2 and 57 to 0.1.

Table S6 The score of each variable in the moderately and late PTB risk model and the prediction probability corresponding to the total points

Variables	Points
Sex	
Female	0
Male	7
Maternal age	
20-29	0
30-39	7
<20	10
≥40	23
Maternal BMI	
Normal	2
Obese	0
Overweight	0
Underweight	17
Marital status	
Married	0
Unmarried	9
Chlamydia	
No	0
Yes	2
History of cesareans	
No	0
Yes	8
Race of mother	
White	0
>1 race	4
AIAN	5
ASIAN	7
NHOPI	19
Black	21
History of preterm	
No	0
Yes	73
Education of mother	
≥ Bachelor's degree	0
Associate degree	5
High school	8
< High school	11
Education of father	
≥ Bachelor's degree	0
Associate degree	6
High school	11
< High school	11
Gonorrhea	
No	0
Yes	10
Smoking	
Smoking cessation	0
No	5
Smoking	17
Live birth order	
1	0
2	4
3	9
4	13
5	18
6	22
7	26
≥8	31
Hypertension eclampsia	
No	0
Yes	100
PCST	
1st-3rd	0
7th-final	2
4th-6th	15
No	50
Infertility treatment	
No	0
Other treatment	66
Fertility-enhancing drugs	69
ART	76
Syphilis	
No	0
Yes	6
Hypertension	
No	0
Pre-pregnancy HT	71
Gestational HT	57
Diabetes	
No	0
Gestational diabetes	54
Pre-pregnancy diabetes	20
Nativity	
Not in the US	1
Unknown	0
US	2

PTB, preterm birth; BMI, body mass index; FED, fertility-enhancing drugs; HT, hypertension; ART, assisted reproductive technology; UN, unknown; HT, hypertension; AIAN, American Indian/Alaskan Native; NHOPI, Native Hawaiian or Other Pacific Islander. The moderately and late PTB risk probability corresponding to the total score is as follows: 395 to 0.9, 360 to 0.8, 294 to 0.7, 261 to 0.6, 231 to 0.5, 200 to 0.4, 167 to 0.3, and 66 to 0.1.

Table S7 The score of each variable in the very PTB risk model and the prediction probability corresponding to the total points
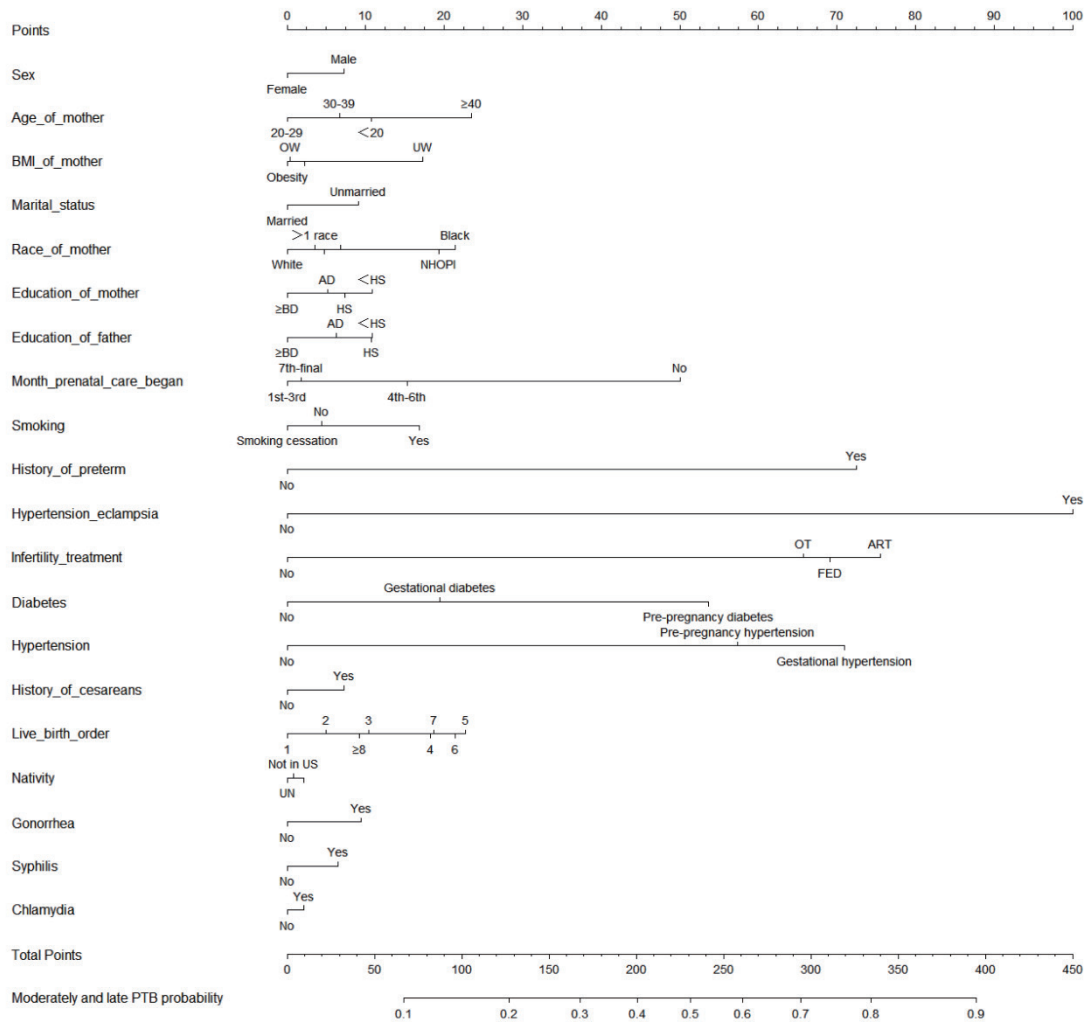
Variables	Points
Sex	
Female	0
Male	4
Maternal age	
20–29	0
30–39	8
<20	11
≥40	22
Maternal BMI	
Normal	0
Obesity	1
Overweight	0
Underweight	13
Marital status	
Married	0
Unmarried	12
Chlamydia	
No	0
Yes	3
History of cesareans	
No	0
Yes	1
Race of mother	
White	0
>1 race	7
AIAN	7
ASIAN	9
NHOPI	19
Black	31
History of preterm	
No	0
Yes	68
Education of mother	
≥ Bachelor's degree	0
Associate degree	5
High school	7
< High school	10
Education of father	
≥ Bachelor's degree	0
Associate degree	8
High school	13
< High school	16
Gonorrhea	
No	0
Yes	5
Smoking	
Smoking cessation	0
No	5
Smoking	23
Live birth order	
1	0
2	1
3	1
4	2
5	3
6	3
7	4
≥8	5
Hypertension eclampsia	
No	0
Yes	100
PCST	
1st-3rd	0
7th-final	6
4th-6th	25
No	73
Infertility treatment	
No	0
Other treatment	65
Fertility-enhancing drugs	76
ART	82
Syphilis	
No	0
Yes	8
Hypertension	
No	0
Pre-pregnancy HT	62
Gestational HT	61
Diabetes	
No	0
Gestational diabetes	36
Pre-pregnancy diabetes	4
Nativity	
Not in the US	0
Unknown	1
US	5

PTB, preterm birth; BMI, body mass index; FEDT, fertility-enhancing drugs therapy; ART, assisted reproductive technology; UN, unknown; HT, hypertension; AIAN, American Indian/Alaskan Native; NHOPI, Native Hawaiian or Other Pacific Islander. The very PTB risk probability corresponding to the total score is as follows: 441 to 0.8, 379 to 0.7, 353 to 0.6, 229 to 0.5, 301 to 0.4, 279 to 0.3, and 199 to 0.1.
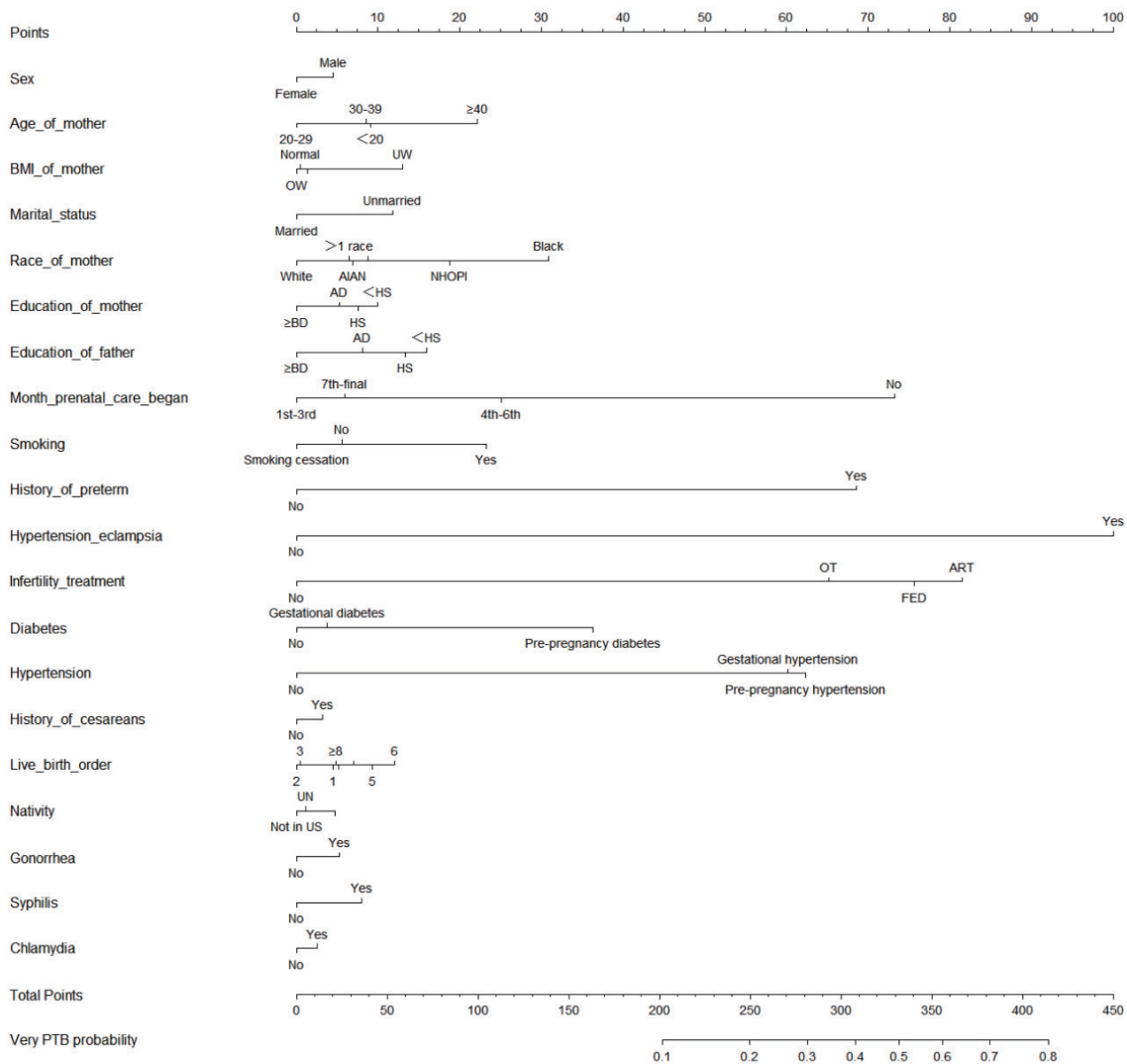
Table S8 The score of each variable in the extremely PTB risk model and the prediction probability corresponding to the total points

Variables	Points
Sex	
Female	0
Male	3
Maternal age	
20–29	0
30–39	8
<20	6
≥40	15
Maternal BMI	
Normal	0
Obesity	13
Overweight	4
Underweight	8
Marital status	
Married	0
Unmarried	6
Chlamydia	
No	0
Yes	7
Live birth order	
1	25
2	21
3	18
4	14
5	11
6	7
7	4
≥8	0
History of preterm	
No	0
Yes	49
Education of mother	
≥ Bachelor's degree	0
Associate degree	7
High school	9
< High school	10
Education of father	
≥ Bachelor's degree	0
Associate degree	8
High school	12
< High school	12
Diabetes	
No	0
Gestational diabetes	39
Pre-pregnancy diabetes	23
Smoking	
Smoking cessation	1
No	0
Smoking	11
Race of mother	
White	0
>1 race	10
AIAN	6
ASIAN	10
NHOPI	11
Black	34
Hypertension eclampsia	
No	0
Yes	48
PCST	
1st-3rd	41
7th-final	0
4th-6th	44
No	100
Infertility treatment	
No	0
Other treatment	49
Fertility-enhancing drugs	56
ART	59
Hypertension	
No	0
Pre-pregnancy HT	14
Gestational HT	30
Nativity	
Not in the US	1
Unknown	0
US	9
History of cesareans	
No	5
Yes	0

PTB, preterm birth; BMI, body mass index; FEDT, fertility-enhancing drugs therapy; ART, assisted reproductive technology; UN, unknown; HT, hypertension; AIAN, American Indian/Alaskan Native; NHOPI, Native Hawaiian or Other Pacific Islander. The extremely PTB risk probability corresponding to the total score is as follows: 371 to 0.85, 359 to 0.8, 340 to 0.7, 325 to 0.6, 311 to 0.5, 297 to 0.4, 281 to 0.3, and 234 to 0.1.
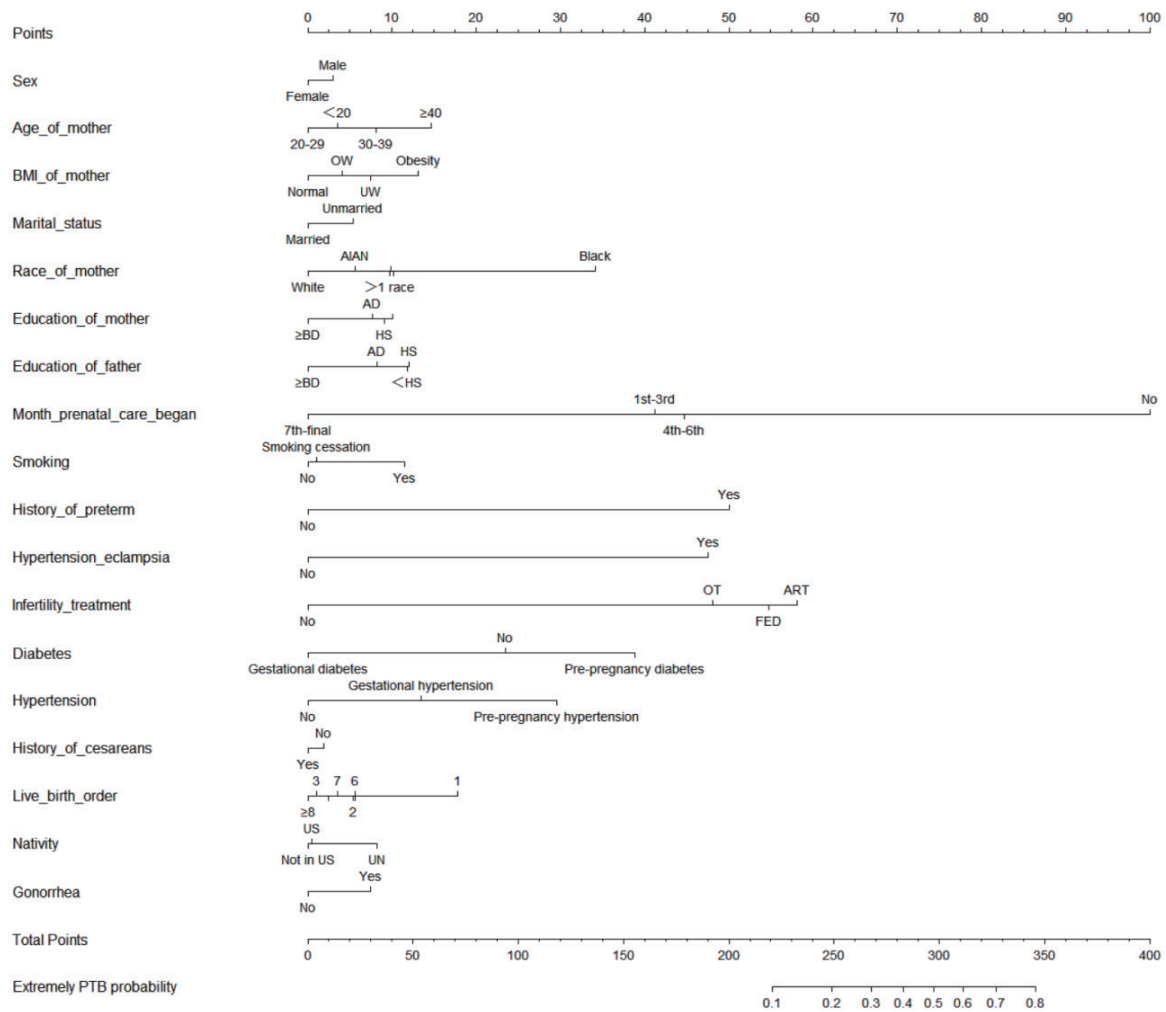
Figure S1 A nomogram for predicting the risk of moderately and late preterm birth. BMI, body mass index; OW, overweight; UW, underweight; HS, high school; AD, associate degree; BD, bachelor's degree; OT, other treatment; FED, infertility-enhancing drugs; ART, assisted reproductive technology; PTB, preterm birth.

Figure S2 A nomogram for predicting the risk of very preterm birth. BMI, body mass index; OW, overweight; UW, underweight; HS, high school; AD, associate degree; BD, bachelor's degree; OT, other treatment; FED, infertility-enhancing drugs; ART, assisted reproductive technology; PTB, preterm birth.

Figure S3 A nomogram for predicting the risk of extremely preterm birth. BMI, body mass index; OW, overweight; UW, underweight; HS, high school; AD, associate degree; BD, bachelor's degree; OT, other treatment; FED, infertility-enhancing drugs; ART, assisted reproductive technology; PTB, preterm birth.