

SUPPLEMENTARY FIGURES AND TABLES

Table S1 Maternal demographic and outcome descriptive statistics by Asia-Pacific BMI categories (overweight and obese groups separated).

Variable	All	Underweight ($<18.5\text{kg/m}^2$)	Normal ($18.5 - 22.9\text{kg/m}^2$)	Overweight ($23 - 24.9\text{kg/m}^2$)	Obese ($\geq 25\text{kg/m}^2$)
Total women	17194	3019 (17.6)	10115 (58.8)	2085 (12.1)	1975 (11.5)
Median Age (IQR), years	25 (20-30)	23 (20-28)	24 (20-30)	27 (22-32)	29 (24-33)
Nulliparous (%)	6231 (36.2)	1345 (44.6)	3933 (38.9)	590 (28.3)	363 (18.4)
Ethnicity					
Karen (%)	8994 (52.3)	1383 (45.8)	5427 (53.7)	1165 (55.9)	1019 (51.6)
Burmese (%)	4160 (24.2)	884 (29.3)	2154 (21.3)	503 (24.1)	619 (31.3)
Other (%)	4040 (23.5)	752 (24.9)	2534 (25.1)	417 (20.0)	337 (17.1)
Mean Height (SD), cm	151.4 (5.4)	152 (5.5)	151.1 (5.4)	151.6 (5.4)	152.1 (5.4)
Height $<153\text{cm}$ (%)	10205 (59.4)	1692 (56.0)	6198 (61.3)	1205 (57.8)	1110 (56.2)
Mean GWG (SD), kg	9.3 (4)	10.2 (3.5)	9.5 (3.8)	8.8 (4.3)	7.5 (4.4)
NAM GWG Recommendation (kg)	NA	12.5–18	11.5–16	7–11.5	5–9
Below NAM (%)	10725 (62.4)	2266 (75.1)	7305 (72.2)	666 (31.9)	488 (24.7)
Within NAM (%)	4814 (28.0)	696 (23.1)	2363 (23.4)	902 (43.3)	853 (43.2)
Above NAM (%)	1655 (9.6)	57 (1.9)	447 (4.4)	517 (24.8)	634 (32.1)
Smokers (%)	2650 (15.4)	558 (18.5)	1673 (16.5)	258 (12.4)	160 (8.2)
Hypertensive Disorder of Pregnancy (%)	1127 (6.6)	110 (3.6)	557 (5.5)	164 (7.9)	296 (15.0)
Gestational Diabetes Mellitus (%)	628 (3.7)	77 (2.6)	219 (2.2)	106 (5.1)	226 (11.4)
Malaria in Pregnancy (%)	1703 (9.9)	385 (12.8)	1077 (10.6)	150 (7.2)	91 (4.6)
Caesarean Section (%)	857 (5.0)	86 (2.8)	405 (4.0)	151 (7.2)	215 (10.9)

Table S2 Neonatal descriptive statistics by maternal Asia-Pacific BMI categories (overweight and obese groups separated).

Variable	All	Underweight ($<18.5\text{kg/m}^2$)	Normal (18.5 - 22.9kg/m^2)	Overweight (23 - 24.9kg/m^2)	Obese (\geq 25kg/m^2)
All births with known outcome (%)	17194	3019 (17.6)	10115 (58.8)	2085 (12.1)	1975 (11.5)
Live births	17109 (99.5)	2999 (99.3)	10065 (99.5)	2079 (99.7)	1966 (99.5)
Stillbirths	85 (0.5)	20 (0.7)	50 (0.5)	6 (0.3)	9 (0.5)

Male	8648 (50.3)	1494 (49.5)	5096 (50.4)	1061 (50.9)	997 (50.5)
Median EGA (IQR), weeks	39.3 (38.4–40.1)	39.2 (38.3–40)	39.3 (38.4–40.1)	39.4 (38.5–40.2)	39.4 (38.6–40.2)
Preterm births <37 weeks (%)	1048 (6.1)	259 (8.6)	645 (6.4)	90 (4.3)	54 (2.7)
Birthweight measured <72 hours (%)	15783	2672 (16.9)	9284 (58.8)	1959 (12.4)	1868 (11.8)
Mean Birthweight (SD), g	2982 (446.8)	2843.5 (440.9)	2959 (434.4)	3085.7 (426.4)	3185.8 (444.8)
SGA (%)	2463 (15.6)	470 (17.6)	1414 (15.2)	288 (14.7)	291 (15.6)
AGA (%)	12402 (78.6)	2061 (77.1)	7333 (79.0)	1561 (79.7)	1447 (77.5)
LGA (%)	918 (5.8)	141 (5.3)	537 (5.8)	110 (5.6)	130 (7.0)

Fig S1. Maternal BMI distribution in the cohort. Bars are coloured according to Asia-Pacific BMI categories; black vertical lines indicate WHO classification cut-offs (at 18.5, 25 and 30kg/m²).

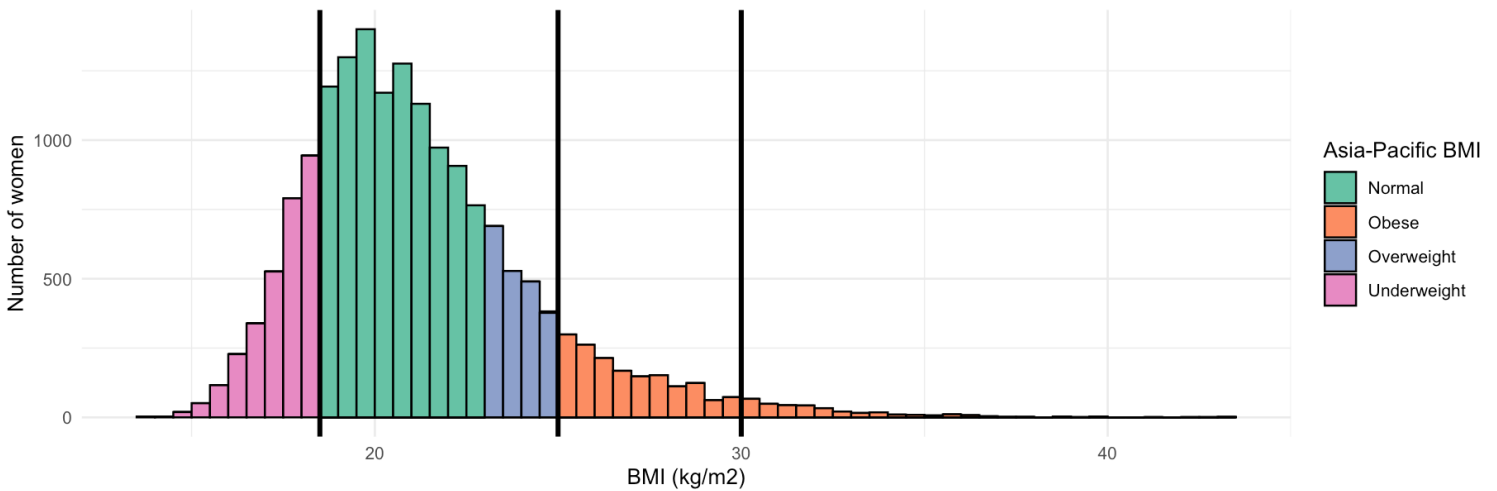


Fig S2. Distribution of height (cm) in the cohort, with red line at height of 153cm, corresponding to the IG-21 study’s inclusion cut-off.

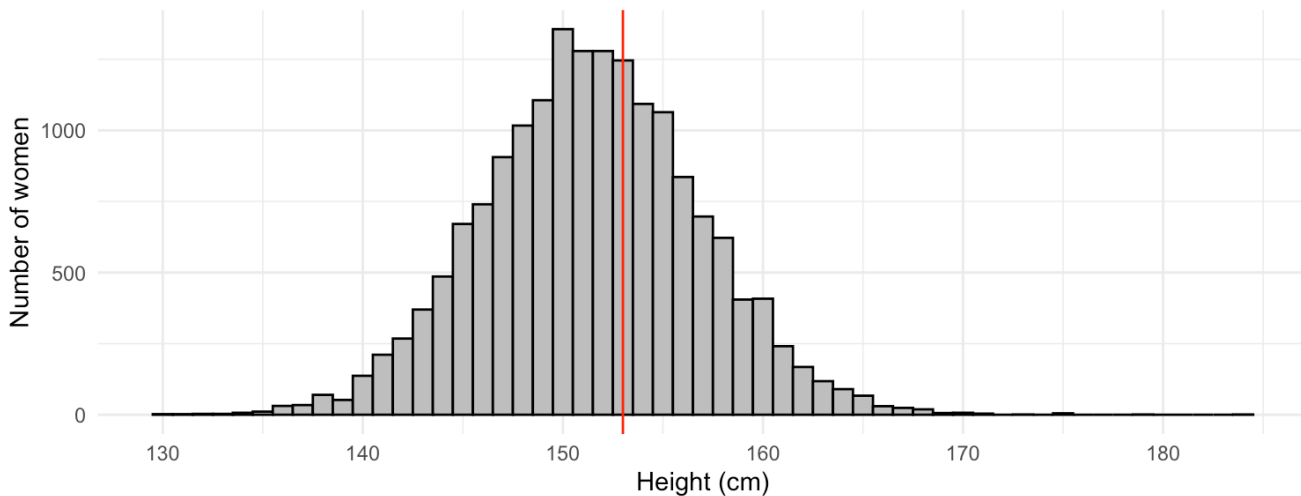


Table S3. Multivariable logistic regression showing adjusted odds ratios (OR, 95% CI, p-value) for maternal and neonatal health outcomes against continuous predictor variables of GWG, BMI, and height. All models adjusted for age & parity combined, smoking status, malaria, ethnicity and year group.

Predictor	HDoP N=1127	GDM N=628	Caesarean Section N=857	Preterm delivery N=1048	SGA N=2463	LGA N=918
GWG (per 10kg change)	1.79 (1.54–2.09) p<0.001	0.67 (0.53–0.83) p<0.001	1.64 (1.38–1.95) p<0.001	0.22 (0.19–0.26) p<0.001	0.12 (0.05–0.24) p<0.001	2.25 (1.95–2.60) p<0.001
BMI (kg/m ²)	1.13 (1.12–1.15) p<0.001	1.12 (1.09–1.14) p<0.001	1.13 (1.10–1.15) p<0.001	0.93 (0.91–0.95) p<0.001	0.93 (0.90–0.95) p<0.001	1.02 (1.00–1.04) p=0.063
Height (per 10cm change)	1.10 (0.98–1.23) p=0.098	1.04 (0.88–1.21) p=0.660	0.59 (0.52–0.67) p<0.001	0.85 (0.75–0.96) p=0.007	0.99 (0.92–1.08) p=0.872	0.99 (0.89–1.10) p=0.803

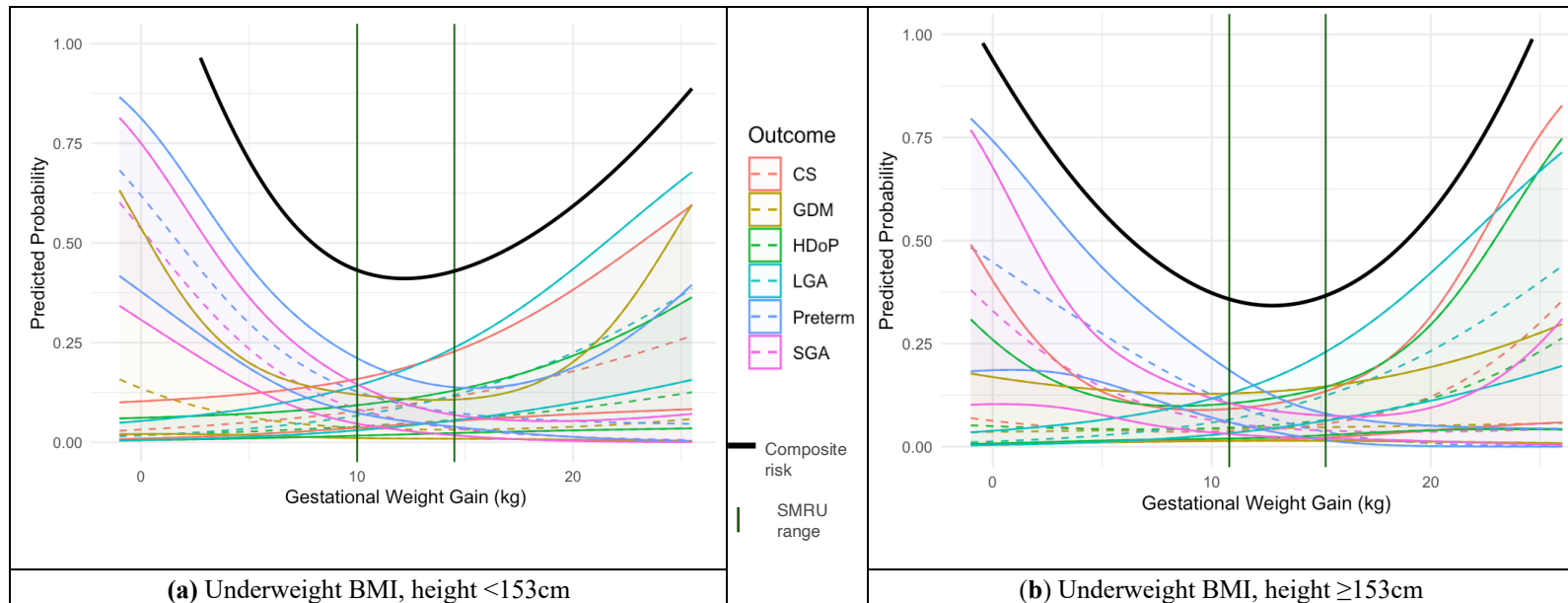
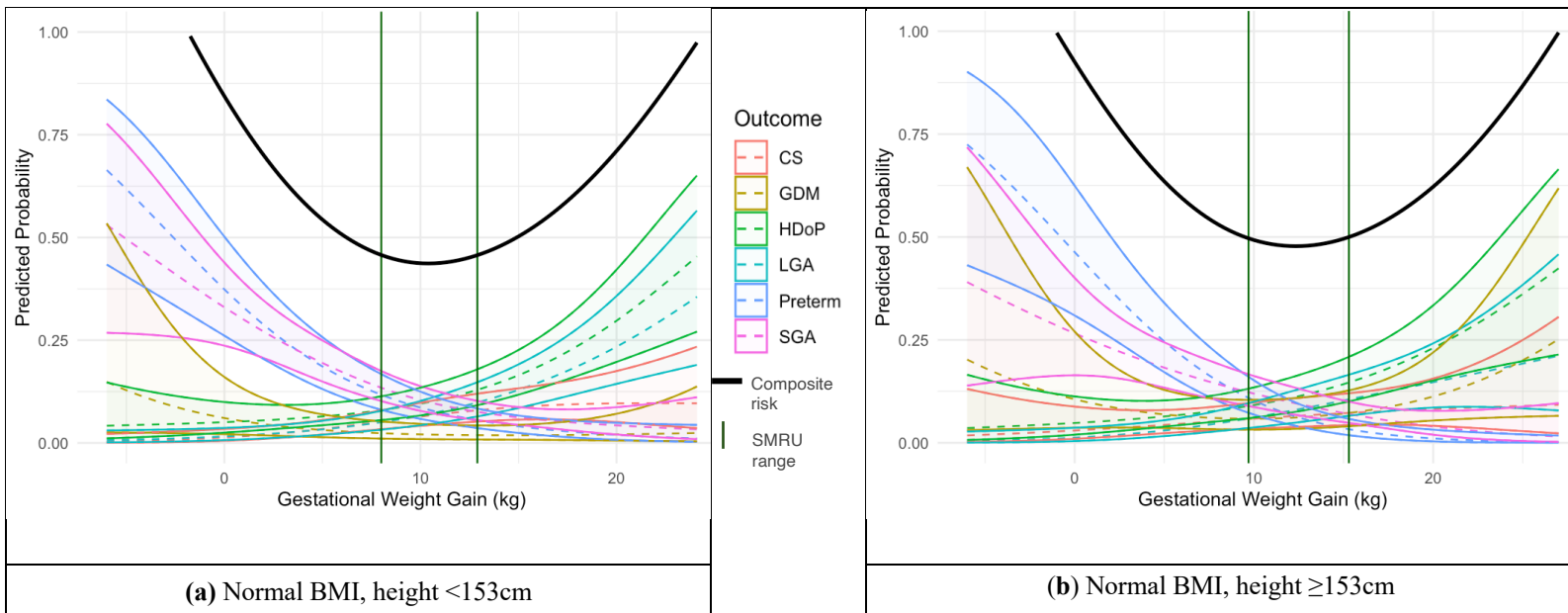


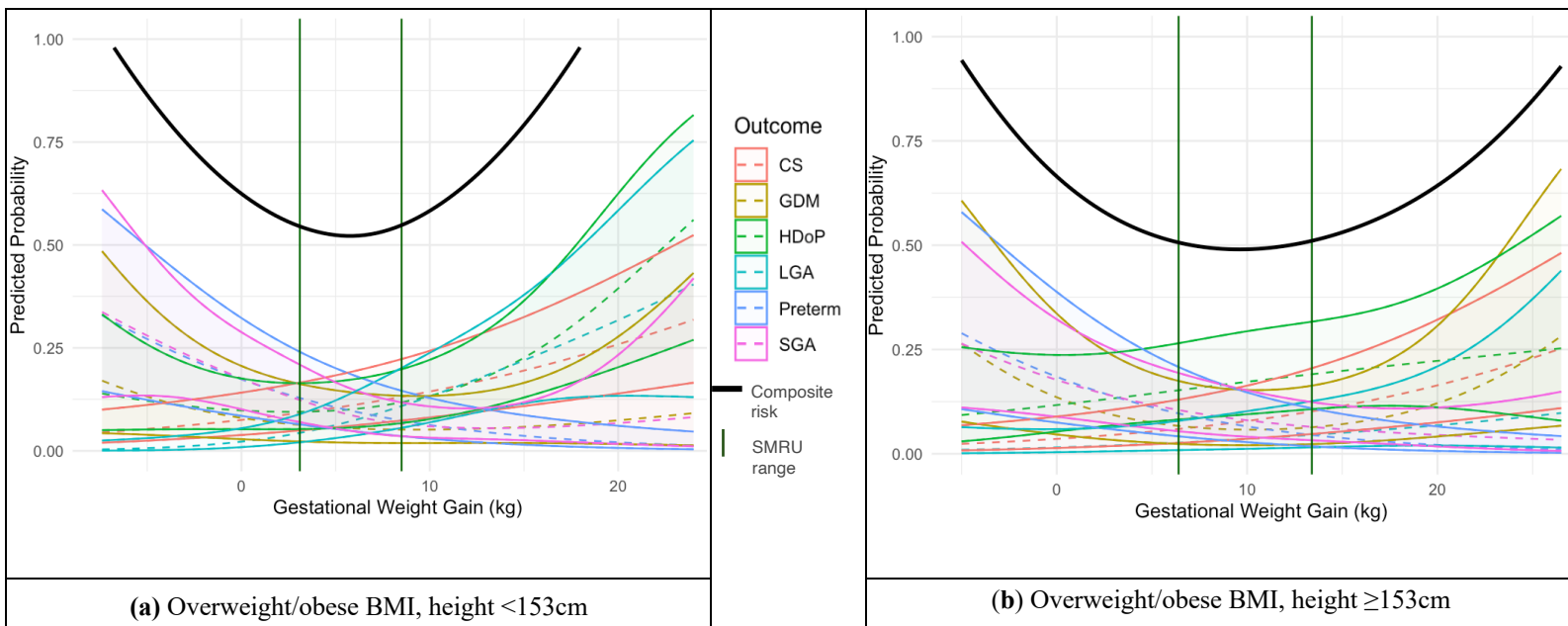
Figure S3. Predicted probabilities with 95% confidence intervals (y) of adverse outcomes across GWG (x) for women with a normal first trimester BMI. Calculated using logistic regression models incorporating cubic splines. **(a)** Women with underweight BMI and height <153cm, N=1,692. SMRU GWG recommendations superimposed as vertical green lines at 10.0 and 14.5kg; **(b)** Women with underweight BMI and height ≥153cm, N=1,327. SMRU GWG recommendations superimposed as vertical green lines at 11.0 and 15.1kg.



(a) Normal BMI, height <153cm

(b) Normal BMI, height ≥153cm

Figure S4. Predicted probabilities with 95% confidence intervals (y) of adverse outcomes across GWG (x) for women with a normal first trimester BMI. Calculated using logistic regression models incorporating cubic splines. **(a)** Women with normal BMI and height <153cm, N=6,198. SMRU GWG recommendations superimposed as vertical green lines at 8.0 and 12.9kg **(b)** Women with normal BMI and height ≥153cm, N=3,917. Calculated SMRU GWG recommendations superimposed as vertical green lines at 9.7 and 15.3kg.



(a) Overweight/obese BMI, height <153cm

(b) Overweight/obese BMI, height ≥153cm

Figure S5. Predicted probabilities with 95% confidence intervals (y) of adverse outcomes across GWG (x) for women with an overweight/obese first trimester BMI. Calculated using logistic regression models incorporating cubic splines. **(a)** Women with overweight or obese BMI and height <153cm, N=2,315. SMRU GWG recommendations superimposed as vertical green lines at 3.1 and 8.5kg **(b)** Women with overweight or obese BMI and height ≥153cm, N=1,745. SMRU GWG recommendations superimposed as vertical green lines at 6.4 and 13.4kg.