

**Supplementary Table S1.** Diagnostic criteria for the determination of metabolic syndrome defined by IDF, TPA, JIS-Adult, and IDF–TPA

MetS criteria	MetS abnormal components					Diagnostic criteria for MetS
	Abdominal obesity	Low HDL-C	Increased TG	High FPG	Elevated blood pressure	
<b>IDF (for 10-18 yrs) [23]</b>	WC ≥90 percentile (or adult cutoff if lower) <sup>1</sup>	<40 mg/dL (10-15 years); <40 mg/dL in males, <50 mg/dL in females (16-18 years)	≥150 mg/dL	≥100 mg/dL (or diagnosed T2DM before)	SBP ≥130 / DBP ≥85 mmHg (or antihypertensive drug treatment)	<b>Central obesity + 2 other RCs</b>
<b>TPA (for 8-18 yrs) [24]</b>	BMI >95 percentile for age-sex-specific groups <sup>2</sup>	<40 mg/dL in males, <50 mg/dL in females	≥150 mg/dL	≥100 mg/dL (or diagnosed T2DM before)	SBP ≥130 / DBP ≥85 mmHg (or SBP/DBP > 95 percentile for age-sex-specific groups)	<b>Central obesity + 2 other RCs</b>
<b>JIS-Ad (for Asians ≥18 years) [6]</b>	WC ≥90 cm in males, WC ≥80 cm in females <sup>3</sup>	<40 mg/dL in males, <50 mg/dL in females	≥150 mg/dL	≥100 mg/dL (or diagnosed T2DM before)	SBP ≥130 / DBP ≥85 mmHg (or antihypertensive drug treatment)	<b>Any 3 or more RCs</b>
<b>IDF–TPA (for 12-18 yrs) [15,26]</b>	WC ≥90 percentile (or adult cutoff if lower) <sup>1</sup> , or BMI >95 percentile for age-sex-specific groups <sup>2</sup>	<40 mg/dL in males, <50 mg/dL in females	≥150 mg/dL	≥100 mg/dL (or diagnosed T2DM before)	SBP ≥130 / DBP ≥85 mmHg (or SBP/DBP > 95 percentile for age-sex-specific groups, use antihypertensive drug)	<b>Central obesity + 2 other RCs</b>

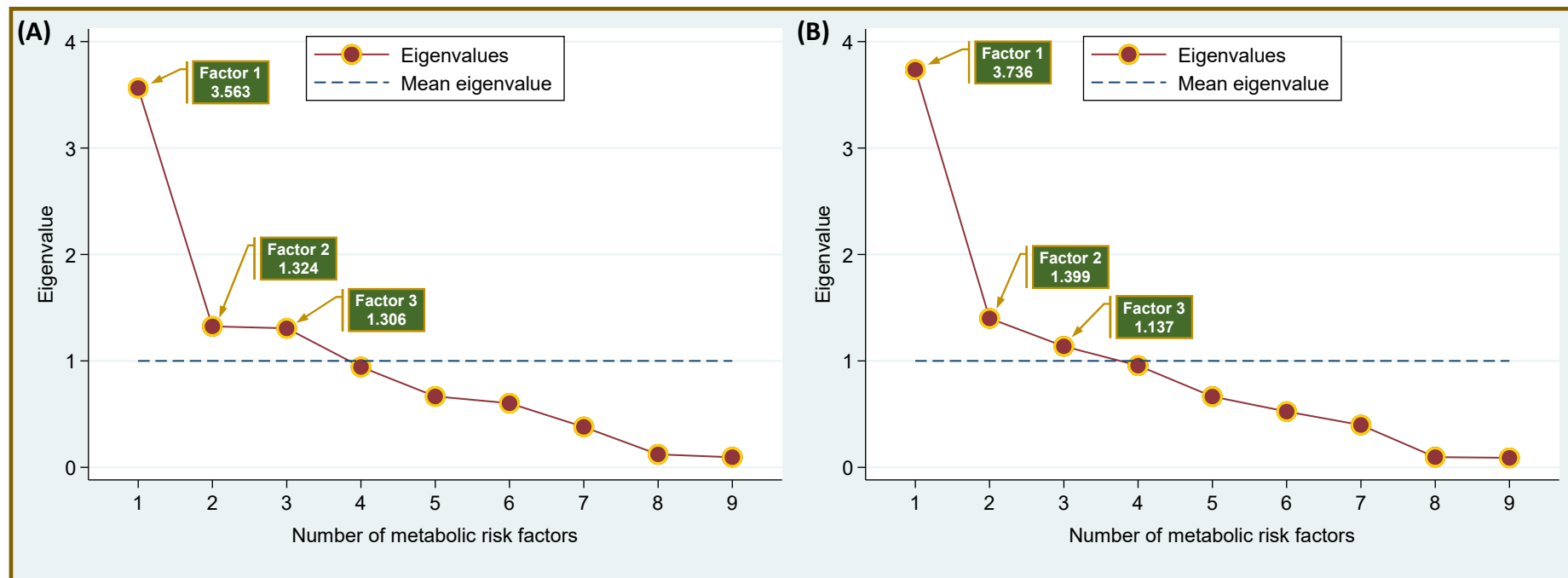
**Abbreviation:** MetS, metabolic syndrome; HDL-C, high-density lipoprotein cholesterol; TG, triglyceride; FPG, fasting plasma glucose; IDF, International Diabetes Federation; TPA, Taiwan Pediatric Association; JIS-Ad, Joint Interim Statement of MetS for adults; WC, waist circumference; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; T2DM, type 2 diabetes; RC, risk component.

<sup>1</sup>If BMI is > 30kg/m<sup>2</sup>, abdominal obesity can be assumed, waist circumference does not need to be considered.

<sup>2</sup>The cut-off points of abdominal obesity for age-sex-specific adolescents are defined by the TPA.

<sup>3</sup>The WC thresholds (i.e., WC ≥90 cm in males and ≥80 cm in females) suggested for Asian adult abdominal obesity were applied.

<sup>4</sup>The combined MetS criteria were used to include adolescents who meet the IDF or TPA criteria.



**Supplementary Figure S1.** Scree plots for exploratory factor analysis of 9 metabolic risk variables measured at (A) baseline and (B) follow-up, respectively.

**Note:** There were three factors in that their eigenvalues were >1 and surpassed the break in the scree plots at baseline and follow-up, respectively.