

**Agreement between the laboratory- and non-laboratory-based WHO cardiovascular risk charts:
a cross-sectional analysis of a national health survey in Peru**

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Supplementary Figure 1. Formula to compute the survey sample size

$$n_h = \frac{N_h Z^2 P_h Q_h}{(N_h - 1)d^2 + Z^2 P_h Q_h} * TNR$$

Where:

N_h : number of people within an age group in the “h” conglomerate

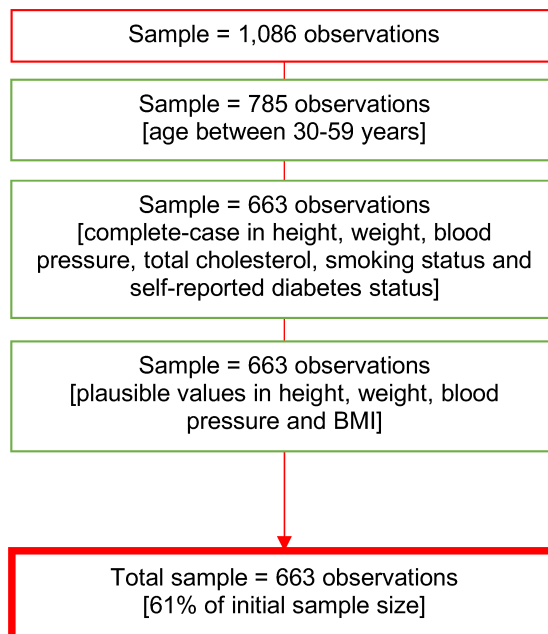
n_h : number of people in the sample within an age group in the “h” conglomerate

d: error margin assumed in the estimation of P_h

Z: 95% confidence level

TNR (*Tasa de No Respuesta* in Spanish): Expected refusal rate

P_h : prevalence of overweight in adults in the “h” conglomerate

Supplementary Figure 2. Flowchart of data cleaning and inclusion criteria

Supplementary Table 1. Summary statistics of the first and second systolic blood pressure (SBP) records in the overall sample

	First SBP record	Second SBP record
Minimum value	78	75
1st quartile	101	99
Median	109	108
Mean	110.33	109.54
3rd quartile	118	118
Maximum value	203	198

Supplementary Table 2. Sensitivity Analysis: Lin's concordance coefficient correlation showing agreement between laboratory and non-laboratory-based risk models according to the predictors in the 2019 WHO CVD risk models and urban/rural location

Variables	Categories	Lin's concordance coefficient correlation (95% CI)
Sex	Men	0.87 (0.84 - 0.89)
Sex	Women	0.85 (0.83 - 0.87)
Age (years)	30-39	0.87 (0.84 - 0.9)
Age (years)	40-49	0.74 (0.68 - 0.79)
Age (years)	50-59	0.83 (0.78 - 0.87)
Body mass index category	Normal	0.9 (0.87 - 0.92)
Body mass index category	Overweight	0.87 (0.85 - 0.9)
Body mass index category	Obese	0.86 (0.82 - 0.89)
Smoking status	Smoker	0.82 (0.73 - 0.88)
Smoking status	Non-smoker	0.86 (0.84 - 0.88)
Diabetes status	With self-reported diabetes	0.74 (0.63 - 0.82)
Diabetes status	Not with self-reported diabetes	0.91 (0.9 - 0.92)
Urban or rural	Urban	0.88 (0.86 - 0.9)
Urban or rural	Rural	0.86 (0.82 - 0.88)

Supplementary Table 3. Kappa statistics showing agreement between laboratory and non-laboratory-based risk scores in the overall sample

Laboratory-based-risk category	Non-laboratory-based-risk category			kappa
	0-5	5-9	10-19	
0-5	618	4	0	0.62
5-9	17	19	1	
10-19	0	3	1	

Supplementary Table 4. Kappa statistics showing agreement between laboratory and non-laboratory-based risk scores by sex

Laboratory-based-risk category	Sex	Non-laboratory-based-risk category			kappa
		0-5	5-9	10-19	
0-5	Men	251	4	0	0.7
5-9	Men	7	15	1	
10-19	Men	0	1	1	
0-5	Women	367	0	0	0.44
5-9	Women	10	4	0	
10-19	Women	0	2	0	

Supplementary Table 5. Kappa statistics showing agreement between laboratory and non-laboratory-based risk scores by age groups

Laboratory-based-risk category	Age group	Non-laboratory-based-risk category			kappa
		0-5	5-9	10-19	
0-5	30-39	236	0	0	0
5-9	30-39	1	0	0	
10-19	30-39	0	0	0	
0-5	40-49	216	1	0	0.45
5-9	40-49	4	2	1	
10-19	40-49	0	1	0	
0-5	50-59	166	3	0	0.65
5-9	50-59	12	17	0	
10-19	50-59	0	2	1	

Supplementary Table 6. Kappa statistics showing agreement between laboratory and non-laboratory-based risk scores by body mass index categories

Laboratory-based-risk category	Body mass index category	Non-laboratory-based-risk category			kappa
		0-5	5-9	10-19	
0-5	Normal	161	1	0	0.66
5-9	Normal	1	2	0	
10-19	Normal	0	0	0	
0-5	Obese	202	3	0	0.65
5-9	Obese	7	11	1	
10-19	Obese	0	2	1	
0-5	Overweight	255	0	0	0.55
5-9	Overweight	9	6	0	
10-19	Overweight	0	1	0	

Supplementary Table 7. Kappa statistics showing agreement between laboratory and non-laboratory-based risk scores by smoking status

Laboratory-based-risk category	Smoking status	Non-laboratory-based-risk category			kappa
		0-5	5-9	10-19	
0-5	Non-smoker	568	3	0	0.53
5-9	Non-smoker	12	9	0	
10-19	Non-smoker	0	1	0	
0-5	Smoker	50	1	0	0.67
5-9	Smoker	5	10	1	
10-19	Smoker	0	2	1	

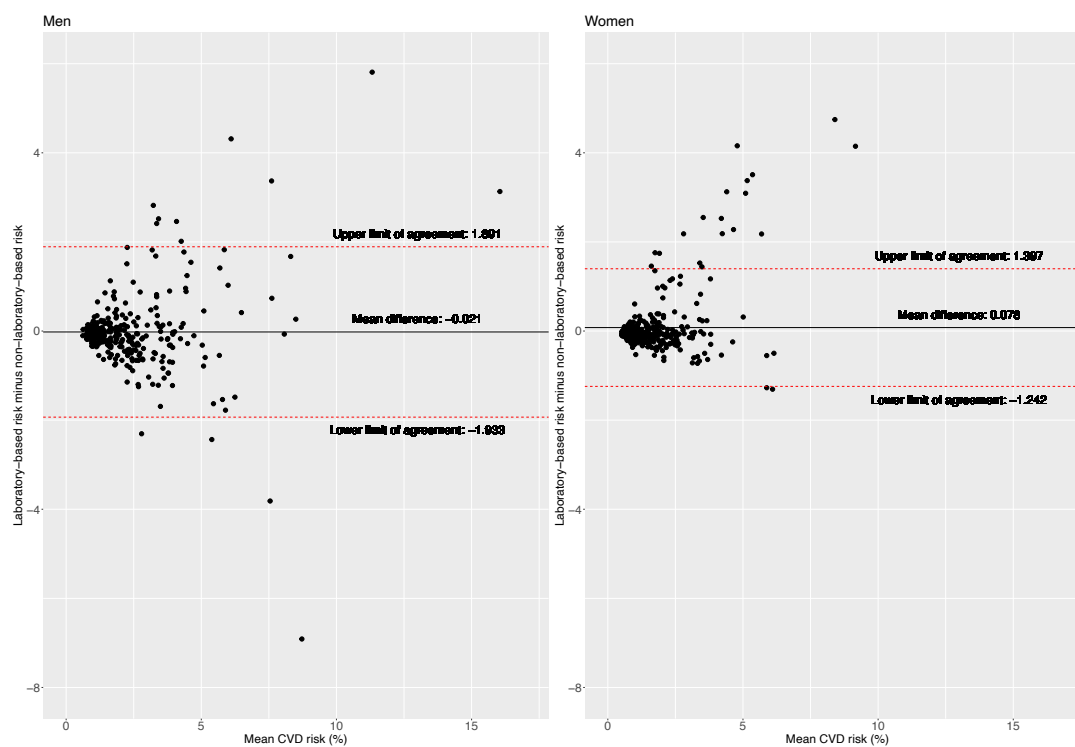
Supplementary Table 8. Kappa statistics showing agreement between laboratory and non-laboratory-based risk scores by diabetes status

Laboratory-based-risk category	Diabetes status	Non-laboratory-based-risk category			kappa
		0-5	5-9	10-19	
0-5	Not with self-reported diabetes	592	4	0	0.71
5-9	Not with self-reported diabetes	7	15	1	
10-19	Not with self-reported diabetes	0	0	0	
0-5	With self-reported diabetes	26	0	0	0.36
5-9	With self-reported diabetes	10	4	0	
10-19	With self-reported diabetes	0	3	1	

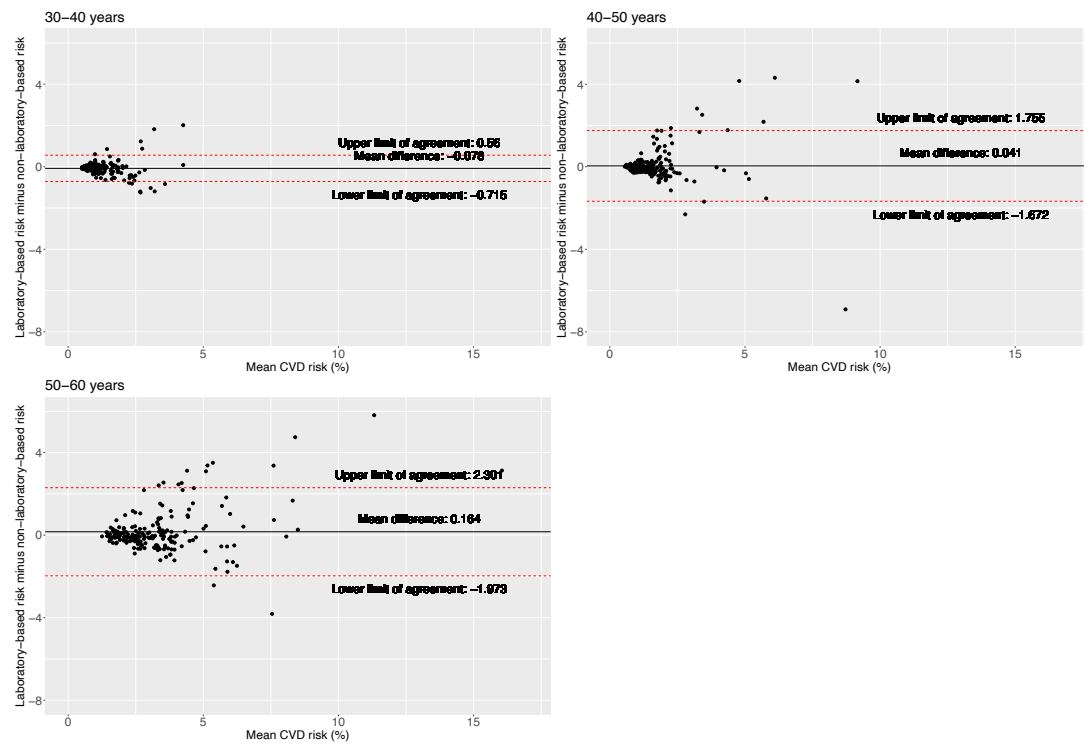
Supplementary Table 9. Kappa statistics showing agreement between laboratory and non-laboratory-based risk scores by urban/rural location

Laboratory-based-risk category	Urban/Rural	Non-laboratory-based-risk category			kappa
		0-5	5-9	10-19	
0-5	Rural	224	1	0	0.53
5-9	Rural	4	3	0	
10-19	Rural	0	1	0	
0-5	Urban	394	3	0	0.64
5-9	Urban	13	16	1	
10-19	Urban	0	2	1	

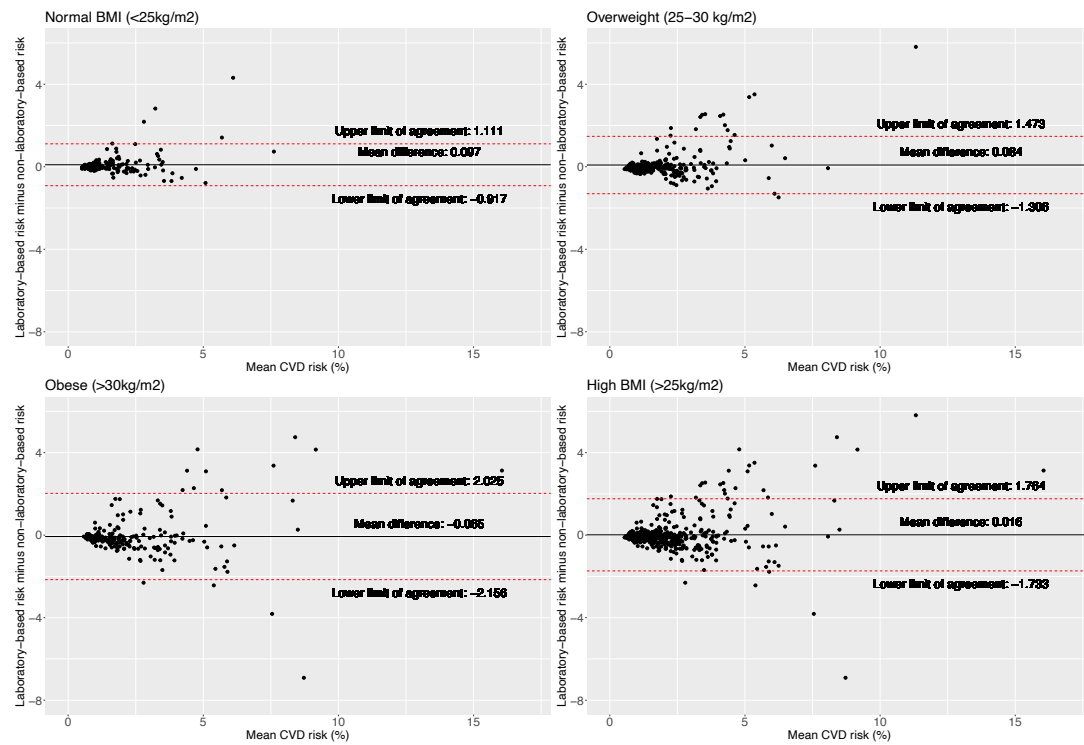
Supplementary Figure 3. Sensitivity Analysis: Bland Altman plots showing agreement between laboratory and non-laboratory-based risk scores according to sex.



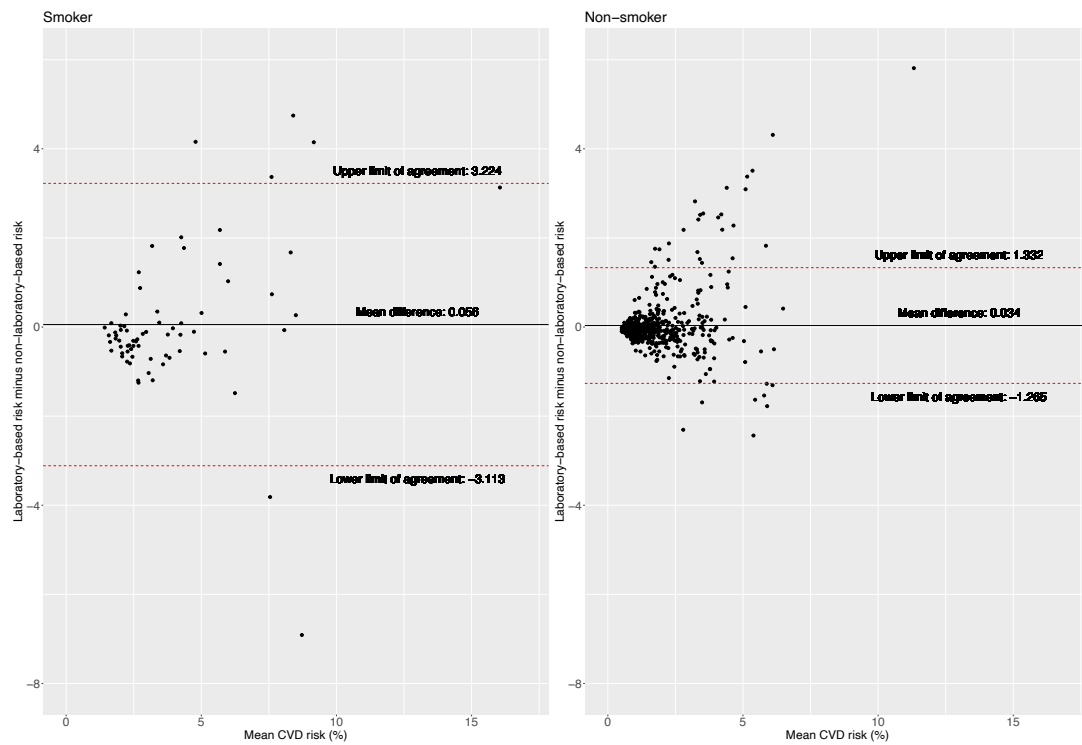
Supplementary Figure 4. Sensitivity Analysis: Bland Altman plots showing agreement between laboratory and non-laboratory-based risk scores according to age groups.



Supplementary Figure 5. Sensitivity Analysis: Bland Altman plots showing agreement between laboratory and non-laboratory-based risk scores according to body mass index categories.



Supplementary Figure 6. Sensitivity Analysis: Bland Altman plots showing agreement between laboratory and non-laboratory-based risk scores according to smoking status.



Supplementary Figure 7. Sensitivity Analysis: Bland Altman plots showing agreement between laboratory and non-laboratory-based risk scores according to self-reported diabetes status.

