Note: This is Online Appendix 1 of Nweke, M. & Pillay, J., 2026, 'Risk factors of hypertension in South Africa: A systematic review and meta-analysis to inform the development of a clinical prediction model', *Health SA Gesondheid* 31(0), a3385. https://doi.org/10.4102/hsag.v31i0.3385

Online Appendix 1

TABLE 1-A1: Risk Factor Combinations (Models) with Summative Rw ≥ 7.9

Model	Combination	k (size)	Threshold (Summative Rw)	Summative GTT	Interaction Density (0–1)
Model 1	Age, BMI, Diabetes, Dyslipidemia, Gold Mine Dust, Region/Province	6	8.28	5.05	0.267
Model 2	Age, Family History, Diabetes, Dyslipidemia, Gold Mine Dust, Settlement, Region/Province	7	7.91	5.52	0.143
Model 3	Age, BMI, Family History, Diabetes, Dyslipidemia, Gold Mine Dust, Settlement	7	7.94	5.46	0.238
Model 4	Age, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Region/Province	7	8.02	5.52	0.095
Model 5	Age, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust	7	8.05	5.46	0.238
Model 6	Age, Education, Family History, Diabetes, Dyslipidemia, Gold Mine Dust, Region/Province	7	8.13	5.7	0.095
Model 7	Age, Education, BMI, Family History, Diabetes, Dyslipidemia, Gold Mine Dust	7	8.16	5.64	0.286
Model 8	Age, BMI, Diabetes, Dyslipidemia, Gold Mine Dust, Settlement, Region/Province	7	8.4	5.75	0.286
Model 9	Age, BMI, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Region/Province	7	8.51	5.75	0.238
Model 10	Age, Education, BMI, Diabetes, Dyslipidemia, Gold Mine Dust, Region/Province	7	8.62	5.93	0.286
Model 11	Age, BMI, Family History, Diabetes, Dyslipidemia, Gold Mine Dust, Region/Province	7	8.83	5.76	0.19
Model 12	Education, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Region/Province	8	7.9	6.41	0.179

Model 13	Age, Education, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	8	7.93	6.39	0.214
Model 14	Age, Education, BMI, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement	8	7.96	6.33	0.321
Model 15	Age, Education, BMI, Family History, Diabetes, Fruits & Vegetables, Gold Mine Dust, Region/Province	8	7.98	6.63	0.25
Model 16	Age, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	8	8.14	6.22	0.143
Model 17	Age, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement	8	8.17	6.16	0.214
Model 18	Age, Education, Family History, Diabetes, Dyslipidemia, Gold Mine Dust, Settlement, Region/Province	8	8.25	6.4	0.143
Model 19	Age, Education, BMI, Family History, Diabetes, Dyslipidemia, Gold Mine Dust, Settlement	8	8.28	6.34	0.25
Model 20	Age, Education, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Region/Province	8	8.36	6.4	0.143
Model 21	Age, Education, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust	8	8.39	6.34	0.286
Model 22	Age, BMI, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	8	8.63	6.45	0.25
Model 23	Age, Education, BMI, Diabetes, Dyslipidemia, Gold Mine Dust, Settlement, Region/Province	8	8.74	6.63	0.286
Model 24	Age, Education, BMI, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Region/Province	8	8.85	6.63	0.286
Model 25	Age, BMI, Family History, Diabetes, Dyslipidemia, Gold Mine Dust, Settlement, Region/Province	8	8.95	6.46	0.214
Model 26	Age, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Region/Province	8	9.06	6.46	0.179

Model 27	Age, Education, BMI, Family History, Diabetes, Dyslipidemia, Gold Mine Dust, Region/Province	8	9.17	6.64	0.214
Model 28	Age, Education, BMI, Family History, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	9	7.97	7.14	0.194
Model 29	Education, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	9	8.02	7.11	0.194
Model 30	Age, Education, BMI, Family History, Diabetes, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	9	8.1	7.33	0.25
Model 31	Age, Education, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	9	8.48	7.1	0.167
Model 32	Age, Education, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement	9	8.51	7.04	0.25
Model 33	Age, Education, BMI, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	9	8.97	7.33	0.278
Model 34	Age, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	9	9.18	7.16	0.194
Model 35	Age, Education, BMI, Family History, Diabetes, Dyslipidemia, Gold Mine Dust, Settlement, Region/Province	9	9.29	7.34	0.222
Model 36	Age, Education, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Region/Province	9	9.4	7.34	0.222
Model 37	Age, Education, BMI, Family History, Diabetes, Dyslipidemia, Fruits & Vegetables, Gold Mine Dust, Settlement, Region/Province	10	9.52	8.04	0.222

TABLE 2-A1: Meta-analysis of factors associated with hypertension in South Africa

Factors	Ref	Exposure	Odds ratio	95% CI	I^2 (%)	Egger's test *p-value*	k	Ri	RW	GTT
Sociodemographic										
Age (years)	-	Per unit increase	2.06	1.25–3.41	98.9	0.120	12	0.83	1.71	0.75
Age (years)	<50	>50	3.49	1.82-6.70	97.8	0.263	7	0.86	3.00	0.93
Gender	Female	Male	0.84	0.70–1.01	93.2	0.27	28	NS	-	1.0
Marital status	Single	Married	0.77	0.44-1.34	94.6	0.370	8	NS	-	1.0
Education	None	Primary	0.96	0.75-1.21	88.3	0.19	12	NS	-	1.0
V	None	Secondary	0.64	0.48-0.86	97.0	0.91	16	0.56	1.14*	0.78
V	None	Tertiary	0.56	0.39-0.80	95	0.81	12	0.75	1.34	0.88
Employment status	No	Yes	1.07	0.87-1.32	79.3	0.54	12	NS	-	1.0
Biologic										
BMI	Cont.	Per unit increase	1.64	1.17-2.30	96.0	0.050	7	0.71	1.16	0.52
V	Normal	Obesity	2.35	1.89-2.91	88.3	0.630	17	0.88	2.07	0.94
V	Normal	Overweight	1.58	1.42-1.76	71.1	0.280	15	0.53	0.84	0.78
V	Normal	Underweight	0.89	0.65-1.21	77.1	0.78	6	0.16	-	1.0
Family History of HTN	No	Yes	1.45	1.22-1.71	48.8	0.58	4	0.75	1.09	0.71
Diabetes	No	Yes	2.57	1.86-3.53	89.1	0.180	15	0.80	2.06	0.90
Dyslipidemia	No	Yes	3.79	1.84-7.80	90.5	0.420	4	0.75	2.84	0.71
HIV Status	Negative	Positive	0.87	0.59-1.30	81.5	0.58	6	NS	-	0.67
Behavioural										
Alcohol use	No	Yes	0.89	0.70-1.12	89.0	0.045	15	NS	-	1.0
Physical activity	Inactive/low	Active	0.91	0.72-1.15	68.5	0.670	12	NS	-	0.67
Fruits & vegetables	Sufficient	Low intake	1.16	1.02-1.33	51.7	0.83	5	0.40	0.46	0.7
Salt intake	Low/moderate	Perceived high intake	1.05	0.79-1.38	67.3	1.00	6	0.16	-	0.58
Environmental										
Gold mine dust	Unexposed (> 5km away)	Exposed (<5km away)	2.35	1.70-3.25	78.0	0.60	3	1.0	2.35	0.57
Settlement	Rural	Urban	1.20	1.00-1.43	87.4	0.77	10	0.4	0.48	0.70
Region/ province	Limpopo	Gauteng	1.64	1.49-1.81	0.00	0.683	5	1.0	1.64	1.0
V	Limpopo	Eastern Cape	2.21	1.91-2.55	51.3	0.026	5	1.0	2.21	1.0
V	Limpopo	Free state	2.46	2.11-2.85	25.4	0.152	5	1.0	2.46	1.0
V	Limpopo	KwaZulu-Natal	2.14	1.72-2.65	70.9	0.696	5	0.8	1.71	0.90
V	Limpopo	Mpumalanga	1.94	1.55-2.43	78.3	0.053	5	1.0	1.94	1.0
V	Limpopo	Northern Cape	2.56	2.13-3.08	13.3	0.018	5	1.0	2.56	1.0
V	Limpopo	North West	1.76	1.45-2.13	59.9	0.992	5	0.8	1.41	0.90
V	Limpopo	Western Cape	2.23	1.90-2.61	39.1	0.118	5	1.0	2.23	1.0

I^2, heterogeneity; k, number of studies involved in the synthesis of a given risk factor; Ri, risk responsiveness; RW, risk weight; GTT, geotemporal trend.