

Additional File 6

Supplementary Table 5. Independent associations of three types of impaired blood pressure regulation with demographic, clinical, and geriatric outcomes in participants aged 65 to 74 years

Variable	Value	Orthostatic hypotension		Supine hypertension		Seated hypertension	
		Coefficient (95%CI)	p-value	Coefficient (95%CI)	p-value	Coefficient (95%CI)	p-value
<i>Demographic outcomes</i>							
Age, years*	70.0 ± 3.0	B = 0.06 (-1.62, 1.73)	0.947	B = 1.52 (-0.69, 3.74)	0.174	B = 1.19 (-0.94, 3.32)	0.266
Female	35 (60.3)	OR = 0.60 (0.18, 1.94)	0.389	OR = 0.43 (0.07, 2.54)	0.351	OR = 4.42 (0.72, 27.30)	0.110
Height, m*	1.60 ± 0.09	B = 0.04 (-0.02, 0.09)	0.166	B = 0.04 (-0.03, 0.11)	0.267	B = -0.04 (-0.10, 0.03)	0.288
Weight, kg*	58.2 ± 10.4	B = -0.47 (-6.72, 5.78)	0.881	B = 2.29 (-5.39, 11.19)	0.486	B = -1.01 (-8.98, 6.95)	0.800
Body mass index, kg/m ² *	22.8 ± 3.2	B = -1.15 (-3.07, 0.77)	0.236	B = 0.11 (-2.44, 2.66)	0.934	B = 0.67 (-1.78, 3.11)	0.588
Body mass index of < 18.5 kg/m ²	5 (8.6)	OR = 1.23 (0.17, 8.69)	0.838	OR = 4.35 (0.40, 47.80)	0.823	OR = 0.24 (0.01, 3.95)	0.319
Body mass index of ≥ 25.0 kg/m ²	14 (24.1)	OR = 0.23 (0.04, 1.26)	0.091	OR = 2.61 (0.46, 15.00)	0.281	OR = 1.01 (0.19, 5.33)	0.992
<i>Clinical outcomes</i>							
Polypharmacy	11 (19.0)	OR = 3.85 (0.88, 17.00)	0.074	OR = 0.72 (0.09, 5.87)	0.758	OR = 3.53 (0.50, 25.20)	0.208
Falls	13 (22.4)	OR = 2.89 (0.76, 11.00)	0.119	OR = 5.35 (0.76, 37.90)	0.093	OR = 0.39 (0.05, 3.06)	0.367
At least one comorbidity	17 (29.3)	OR = 11.30 (2.58, 49.10)	0.001	OR = 0.08 (0.01, 0.78)	0.029	OR = 4.70 (0.77, 28.80)	0.095
Articular diseases	7 (12.1)	OR = 5.26 (0.82, 33.80)	0.080	OR = 0.25 (0.02, 3.45)	0.300	OR = 5.55 (0.53, 58.00)	0.152
Cancer	0 (0.0)	NA	NA	NA	NA	NA	NA

Cardiac diseases	5 (8.6)	OR = 0.96 (0.08, 11.90)	0.973	OR = 0.14 (0.01, 2.57)	0.187	OR = 12.40 (1.18, 129.00)	0.036
Diabetes mellitus	4 (6.9)	NA	NA	NA	NA	NA	NA
Respiratory diseases	1 (1.7)	NA	NA	NA	NA	NA	NA
Stroke	2 (3.5)	NA	NA	NA	NA	NA	NA
<i>Geriatric outcomes</i>							
Non-robust	30 (51.7)	OR = 2.13 (0.64, 7.06)	0.217	OR = 2.34 (0.46, 11.80)	0.305	OR = 0.79 (0.17, 3.71)	0.763
Shrinking	6 (10.3)	OR = 1.91 (0.32, 11.30)	0.475	OR = 4.47 (0.45, 44.30)	0.201	OR = 0.50 (0.05, 5.55)	0.575
Exhaustion	12 (20.7)	OR = 1.64 (0.41, 6.60)	0.483	OR = 1.70 (0.28, 10.20)	0.563	OR = 1.65 (0.29, 9.58)	0.574
Low activity	17 (29.3)	OR = 1.86 (0.54, 6.39)	0.323	OR = 1.30 (0.22, 7.65)	0.771	OR = 0.38 (0.06, 2.39)	0.305
Slow gait speed	2 (3.5)	NA	NA	NA	NA	NA	NA
Gait speed, m/s*	1.39 ± 0.28	B = -0.10 (-0.26, 0.06)	0.208	B = 0.10 (-0.11, 0.31)	0.328	B = 0.12 (-0.08, 0.33)	0.225
Weak handgrip strength	3 (5.2)	NA	NA	NA	NA	NA	NA
Handgrip strength, kg*	28.3 ± 8.2	B = 1.03 (-3.77, 5.83)	0.668	B = 4.16 (-2.21, 10.53)	0.196	B = -4.13 (-10.25, 1.98)	0.181
Skin autofluorescence, AU*	2.29 ± 0.34	B = 0.21 (0.02, 0.40)	0.034	B = 0.11 (-0.15, 0.36)	0.414	B = -0.10 (-0.34, 0.15)	0.439

Values are presented as mean ± standard deviation or number (%). The asterisks in the variable column indicate that multiple regression analysis was employed as a multivariate analysis owing to the continuous nature of the dependent variable. Participants with missing values were excluded listwise. P-values marked in bold indicate significance.

B, partial regression coefficient; CI, confidence interval; NA, not applicable; OR, odds ratio.

Supplementary Table 6. Independent associations of three types of impaired blood pressure regulation with demographic, clinical, and geriatric outcomes in participants aged 75 years or more

Variable	Value	Orthostatic hypotension		Supine hypertension		Seated hypertension	
		Coefficient (95%CI)	p-value	Coefficient (95%CI)	p-value	Coefficient (95%CI)	p-value
<i>Demographic outcomes</i>							
Age, years*	81.5 ± 4.9	B = -0.84 (-4.2, 2.59)	0.623	B = 0.995 (-2.47, 4.46)	0.564	B = -3.76 (-7.20, -0.31)	0.033
Female	32 (72.7)	OR = 0.32 (0.07, 1.53)	0.154	OR = 0.74 (0.14, 3.80)	0.716	OR = 1.20 (0.23, 6.33)	0.832
Height, m*	1.54 ± 0.09	B = 0.05 (-0.01, 0.12)	0.106	B = 0.01 (-0.05, 0.08)	0.712	B = 0.00 (-0.06, 0.07)	0.947
Weight, kg*	53.6 ± 9.8	B = 4.38 (-2.60, 11.35)	0.212	B = 3.34 (-3.71, 10.38)	0.344	B = -0.32 (-7.33, 6.68)	0.947
Body mass index, kg/m ² *	22.7 ± 3.6	B = 0.10 (-2.52, 2.72)	0.939	B = 1.17 (-1.48, 3.82)	0.377	B = -0.40 (-3.04, 2.23)	0.758
Body mass index of < 18.5 kg/m ²	3 (6.8)	NA	NA	NA	NA	NA	NA
Body mass index of ≥ 25.0 kg/m ²	13 (29.6)	OR = 1.33 (0.29, 6.06)	0.715	OR = 2.22 (0.46, 10.80)	0.322	OR = 0.78 (0.16, 3.78)	0.759
<i>Clinical outcomes</i>							
Polypharmacy	13 (29.6)	OR = 0.39 (0.07, 2.14)	0.281	OR = 6.53 (1.06, 40.20)	0.043	OR = 0.54 (0.10, 3.04)	0.485
Falls	7 (15.9)	OR = 1.35 (0.21, 8.65)	0.753	OR = 1.49 (0.21, 10.40)	0.686	OR = 1.07 (0.16, 7.27)	0.944
At least one comorbidity	19 (43.2)	OR = 2.00 (0.46, 8.70)	0.357	OR = 5.21 (1.03, 26.30)	0.046	OR = 0.50 (0.10, 2.61)	0.410
Articular diseases	5 (11.4)	OR = 7.63 (0.62, 94.70)	0.114	OR = 1.14 (0.12, 11.30)	0.911	OR = 0.51 (0.04, 6.76)	0.606
Cardiac diseases	8 (18.2)	OR = 1.51 (0.25, 9.26)	0.657	OR = 3.38 (0.46, 24.70)	0.230	OR = 1.31 (0.21, 8.25)	0.774
Cancer	1 (2.3)	NA	NA	NA	NA	NA	NA

Diabetes mellitus	5 (11.4)	OR = 0.22 (0.02, 3.01)	0.256	OR = 3.52 (0.34, 36.90)	0.294	OR = 0.49 (0.05, 4.95)	0.541
Respiratory diseases	4 (9.1)	OR = 3.73 (0.27, 50.80)	0.323	OR = 3.13 (0.22, 45.50)	0.403	OR = 0.46 (0.03, 6.54)	0.565
Stroke	1 (2.3)	NA	NA	NA	NA	NA	NA
<i>Geriatric outcomes</i>							
Non-robust	27 (61.4)	OR = 7.25 (1.21, 43.30)	0.023	OR = 0.43 (0.08, 2.24)	0.317	OR = 3.13 (0.60, 16.20)	0.174
Shrinking	6 (13.6)	NA	NA	NA	NA	NA	NA
Exhaustion	12 (27.3)	OR = 0.46 (0.09, 2.40)	0.355	OR = 1.82 (0.36, 9.29)	0.473	OR = 0.73 (0.15, 3.67)	0.707
Low activity	8 (18.2)	OR = 2.24 (0.38, 13.30)	0.374	OR = 0.81 (0.13, 5.10)	0.819	OR = 1.22 (0.19, 7.68)	0.833
Slow gait speed	14 (31.8)	OR = 1.23 (0.28, 5.43)	0.786	OR = 1.62 (0.34, 7.78)	0.545	OR = 0.42 (0.08, 2.08)	0.287
Gait speed, m/s*	1.18 ± 0.37	B = -0.17 (-0.44, 0.10)	0.208	B = 0.19 (-0.08, 0.46)	0.170	B = -0.02 (-0.29, 0.25)	0.897
Weak handgrip strength	11 (25.0)	OR = 2.87 (0.56, 14.70)	0.205	OR = 0.70 (0.13, 3.85)	0.684	OR = 0.75 (0.14, 4.16)	0.745
Handgrip strength, kg*	23.5 ± 6.4	B = -0.19 (-4.92, 4.53)	0.935	B = 2.92 (-1.87, 7.70)	0.225	B = -0.83 (-5.56, 3.89)	0.724
Skin autofluorescence, AU*	2.32 ± 0.47	B = 0.06 (-0.29, 0.40)	0.740	B = 0.12 (-0.22, 0.47)	0.478	B = -0.17 (-0.52, 0.17)	0.319

Values are presented as mean ± standard deviation or number (%). The asterisks in the variable column indicate that multiple regression analysis was employed as a multivariate analysis owing to the continuous nature of the dependent variable. Participants with missing values were excluded listwise. P-values marked in bold indicate significance.

B, partial regression coefficient; CI, confidence interval; NA, not applicable; OR, odds ratio.

Supplementary Table 7. Independent associations of three types of impaired blood pressure regulation with demographic, clinical, and geriatric outcomes in female participants

Variable	Value	Orthostatic hypotension		Supine hypertension		Seated hypertension	
		Coefficient (95%CI)	p-value	Coefficient (95%CI)	p-value	Coefficient (95%CI)	p-value
<i>Demographic outcomes</i>							
Age, years*	75.6 ± 6.9	B = -1.13 (-5.14, 2.88)	0.574	B = 5.43 (0.96, 9.90)	0.018	B = -2.63 (-6.86, 1.60)	0.218
Age of 65 to 74 years	35 (52.2)	OR = 1.21 (0.37, 3.96)	0.754	OR = 0.36 (0.09, 1.38)	0.136	OR = 1.33 (0.38, 4.73)	0.656
Height, m*	1.52 ± 0.07	B = 0.01 (-0.03, 0.05)	0.672	B = 0.01 (-0.04, 0.05)	0.832	B = 0.00 (-0.04, 0.05)	0.887
Weight, kg*	52.0 ± 8.5	B = 0.41 (-4.68, 5.50)	0.874	B = 1.93 (-3.74, 7.60)	0.499	B = 0.76 (-4.61, 6.13)	0.778
Body mass index, kg/m ² *	22.5 ± 3.6	B = -0.19 (-2.34, 1.96)	0.863	B = 0.91 (-1.49, 3.30)	0.451	B = 0.01 (-2.26, 2.27)	0.995
Body mass index of < 18.5 kg/m ²	7 (10.5)	OR = 0.27 (0.02, 3.05)	0.291	OR = 2.80 (0.29, 26.90)	0.372	OR = 0.13 (0.01, 1.81)	0.129
Body mass index of ≥ 25.0 kg/m ²	16 (23.9)	OR = 0.55 (0.13, 2.35)	0.421	OR = 4.24 (0.91, 19.70)	0.065	OR = 0.89 (0.21, 3.86)	0.878
<i>Clinical outcomes</i>							
Polypharmacy	16 (23.9)	OR = 0.89 (0.22, 3.58)	0.867	OR = 4.91 (1.04, 23.20)	0.045	OR = 1.03 (0.23, 4.64)	0.970
Falls	12 (17.9)	OR = 1.98 (0.49, 8.00)	0.340	OR = 2.47 (0.45, 13.70)	0.301	OR = 0.73 (0.13, 3.94)	0.711
At least one comorbidity	23 (34.3)	OR = 2.75 (0.83, 9.13)	0.099	OR = 2.32 (0.56, 9.62)	0.248	OR = 0.74 (0.18, 3.01)	0.675
Articular diseases	7 (10.5)	OR = 3.51 (0.61, 20.00)	0.158	OR = 2.20 (0.27, 17.90)	0.460	OR = 0.90 (0.12, 7.00)	0.920
Cancer	0 (0.0)	NA	NA	NA	NA	NA	NA
Cardiac diseases	8 (11.9)	OR = 0.90 (0.14, 5.75)	0.909	OR = 1.20 (0.18, 8.09)	0.852	OR = 2.93 (0.46, 18.90)	0.258

Diabetes mellitus	7 (10.5)	OR = 0.77 (0.12, 5.13)	0.785	OR = 2.81 (0.35, 22.30)	0.329	OR = 0.35 (0.04, 3.00)	0.341
Respiratory diseases	1 (1.5)	NA	NA	NA	NA	NA	NA
Stroke	2 (3.0)	NA	NA	NA	NA	NA	NA
<i>Geriatric outcomes</i>							
Non-robust	31 (46.3)	OR = 4.95 (1.35, 18.10)	0.016	OR = 0.88 (0.23, 3.42)	0.858	OR = 2.52 (0.69, 9.23)	0.162
Shrinking	8 (11.9)	OR = 6.10 (1.15, 32.40)	0.034	OR = 1.19 (0.14, 10.30)	0.873	OR = 0.45 (0.05, 4.26)	0.490
Exhaustion	14 (20.9)	OR = 0.97 (0.23, 4.01)	0.964	OR = 2.24 (0.46, 10.80)	0.315	OR = 1.19 (0.26, 5.44)	0.820
Low activity	9 (13.4)	OR = 2.00 (0.38, 10.40)	0.412	OR = 0.33 (0.04, 2.69)	0.302	OR = 1.48 (0.24, 9.01)	0.672
Slow gait speed	12 (17.9)	OR = 1.26 (0.30, 5.29)	0.756	OR = 2.26 (0.41, 12.60)	0.353	OR = 0.49 (0.09, 2.70)	0.410
Gait speed, m/s*	1.33 ± 0.34	B = -0.07 (-0.28, 0.13)	0.480	B = 0.03 (-0.21, 0.26)	0.828	B = 0.00 (-0.22, 0.22)	0.995
Weak handgrip strength	9 (13.4)	OR = 3.43 (0.67, 17.60)	0.138	OR = 0.41 (0.06, 3.02)	0.384	OR = 2.51 (0.42, 15.10)	0.315
Handgrip strength, kg*	21.8 ± 3.6	B = -2.29 (-4.36, -0.22)	0.031	B = 1.48 (-0.83, 3.80)	0.205	B = -1.37 (-3.54, 0.80)	0.213
Skin autofluorescence, AU*	2.26 ± 0.39	B = 0.04 (-0.19, 0.27)	0.749	B = 0.12 (-0.14, 0.37)	0.367	B = -0.11 (-0.35, 0.14)	0.386

Values are presented as mean ± standard deviation or number (%). The asterisks in the variable column indicate that multiple regression analysis was employed as a multivariate analysis owing to the continuous nature of the dependent variable. Participants with missing values were excluded listwise. P-values marked in bold indicate significance.

B, partial regression coefficient; CI, confidence interval; NA, not applicable; OR, odds ratio.

Supplementary Table 8. Independent associations of three types of impaired blood pressure regulation with demographic, clinical, and geriatric outcomes in male participants

Variable	Value	Orthostatic hypotension		Supine hypertension		Seated hypertension	
		Coefficient (95%CI)	p-value	Coefficient (95%CI)	p-value	Coefficient (95%CI)	p-value
<i>Demographic outcomes</i>							
Age, years*	73.7 ± 6.8	B = 2.15 (-2.83, 7.15)	0.386	B = 2.55 (-3.11, 8.22)	0.366	B = 0.72 (-5.63, 7.07)	0.819
Age of 65 to 74 years	23 (65.7)	OR = 0.54 (0.11, 2.60)	0.446	OR = 0.34 (0.06, 1.84)	0.210	OR = 0.64 (0.09, 4.30)	0.641
Height, m*	1.66 ± 0.05	B = 0.04 (0.00, 0.08)	0.072	B = -0.01 (-0.06, 0.03)	0.630	B = 0.01 (-0.04, 0.06)	0.609
Weight, kg*	64.3 ± 8.7	B = -1.72 (-8.35, 4.91)	0.601	B = 0.63 (-6.89, 8.16)	0.864	B = 0.94 (-7.49, 9.37)	0.822
Body mass index, kg/m ² *	23.2 ± 2.9	B = -1.53 (-3.68, 0.62)	0.156	B = 0.47 (-1.97, 2.91)	0.695	B = 0.08 (-2.65, 2.82)	0.950
Body mass index of < 18.5 kg/m ²	1 (2.9)	NA	NA	NA	NA	NA	NA
Body mass index of ≥ 25.0 kg/m ²	11 (31.4)	OR = 0.50 (0.10, 2.38)	0.381	OR = 1.44 (0.25, 8.14)	0.683	OR = 0.52 (0.07, 3.91)	0.522
<i>Clinical outcomes</i>							
Polypharmacy	8 (22.9)	OR = 2.62 (0.48, 14.50)	0.269	OR = 0.88 (0.10, 7.57)	0.909	OR = 1.65 (0.15, 18.40)	0.683
Falls	8 (22.9)	OR = 2.15 (0.39, 11.90)	0.381	OR = 1.69 (0.26, 11.00)	0.584	OR = 0.98 (0.11, 8.32)	0.986
At least one comorbidity	13 (37.1)	OR = 12.40 (2.05, 74.90)	0.006	OR = 0.41 (0.06, 2.82)	0.367	OR = 2.15 (0.26, 17.80)	0.477
Articular diseases	5 (14.3)	OR = 11.90 (0.86, 166.00)	0.065	OR = 0.11 (0.00, 2.54)	0.168	OR = 3.75 (0.16, 90.40)	0.168
Cancer	1 (2.9)	NA	NA	NA	NA	NA	NA
Cardiac diseases	5 (14.3)	OR = 1.83 (0.22, 14.90)	0.573	OR = 1.94 (0.20, 19.10)	0.569	OR = 2.11 (0.20, 22.00)	0.532
Diabetes mellitus	2 (5.7)	NA	NA	NA	NA	NA	NA

Respiratory diseases	4 (11.4)	OR = 4.00 (0.33, 48.10)	0.274	OR = 1.25 (0.11, 15.0)	0.859	OR = 1.19 (0.07, 20.30)	0.906
Stroke	1 (2.9)	NA	NA	NA	NA	NA	NA
<i>Geriatric outcomes</i>							
Non-robust	26 (74.3)	OR = 1.01 (0.20, 5.04)	0.995	OR = 1.28 (0.20, 8.24)	0.793	OR = 0.93 (0.12, 7.35)	0.945
Shrinking	4 (11.4)	NA	NA	NA	NA	NA	NA
Exhaustion	10 (28.6)	OR = 0.77 (0.16, 3.74)	0.750	OR = 1.21 (0.20, 7.39)	0.836	OR = 1.45 (0.21, 10.00)	0.708
Low activity	16 (45.7)	OR = 1.29 (0.31, 5.30)	0.728	OR = 1.15 (0.23, 5.81)	0.862	OR = 0.62 (0.10, 3.88)	0.607
Slow gait speed	4 (11.4)	NA	NA	NA	NA	NA	NA
Gait speed, m/s*	1.6 ± 0.32	B = -0.16 (-0.37, 0.05)	0.121	B = 0.22 (-0.01, 0.46)	0.065	B = 0.18 (-0.08, 0.45)	0.162
Weak handgrip strength	5 (14.2)	NA	NA	NA	NA	NA	NA
Handgrip strength, kg*	34.8 ± 6.4	B = -0.59 (-5.38, 4.20)	0.802	B = 0.31 (-5.13, 5.74)	0.908	B = 2.97 (-3.12, 9.06)	0.327
Skin autofluorescence, AU*	2.38 ± 0.42	B = 0.29 (0.00, 0.58)	0.054	B = 0.09 (-0.24, 0.42)	0.577	B = -0.11 (-0.49, 0.26)	0.535

Values are presented as mean ± standard deviation or number (%). The asterisks in the variable column indicate that multiple regression analysis was employed as a multivariate analysis owing to the continuous nature of the dependent variable. Participants with missing values were excluded listwise. P-values marked in bold indicate significance.

B, partial regression coefficient; CI, confidence interval; NA, not applicable; OR, odds ratio.