

Supplementary table 1. Determinants of hypertension according to guidelines among Saudi Biobank, 2017-2020 (n = 10799)

Characteristics	ACC/AHA			JNC-7		
	OR (95% CI)	AOR (95% CI)	P	OR (95% CI)	AOR (95% CI)	P
Gender						
Women	1.0	1.0		1.0	1.0	
Men	1.80 (1.67,1.95)	2.79 (2.51,3.11)	<0.01	1.95 (1.74,2.18)	3.10 (2.66,3.60)	<0.01
Age (years)						
18-29	1.0	1.0		1.0	1.0	
30-39	1.43 (1.31,1.57)	1.27 (1.13,1.44)	<0.01	1.42 (1.25,1.62)	1.39 (1.16,1.67)	<0.01
40-49	2.34 (2.06,2.66)	1.70 (1.44,2.02)	<0.01	3.14 (2.69,3.66)	2.55 (2.03,3.19)	<0.01
50-59	3.77 (2.98,3.78)	2.28 (1.72,3.03)	<0.01	4.82 (3.79,6.13)	3.23 (2.34,4.44)	<0.01
≥60	4.39 (2.68,7.17)	2.09 (1.20,3.63)	0.009	4.53 (2.81,7.28)	2.21 (1.26,3.87)	<0.01
Marital status						
Never married	1.0	1.0		1.0	1.0	
Married	1.53 (1.41,1.65)	0.91 (0.81,1.02)	0.12	1.60 (1.43,1.78)	0.73 (0.61,0.87)	<0.01
Divorced, separated	1.45 (1.14,1.85)	1.07 (0.81,1.41)	0.67	1.64 (1.19,2.26)	0.95 (0.66,1.38)	0.66
Education						
< Primary school	1.0	1.0		1.0	1.0	
Primary school	1.04 (0.66,1.63)	1.11 (0.69,1.79)	0.65	1.08 (0.66,1.75)	1.18 (0.70,1.98)	0.53
Intermediate school	0.71 (0.47,1.08)	0.82 (0.52,1.28)	0.37	0.73 (0.46,1.16)	0.84 (0.51,1.39)	0.47
High school	0.43 (0.30,0.62)	0.75 (0.49,1.12)	0.15	0.39 (0.26,0.59)	0.78 (0.49,1.23)	0.26
Some college	0.65 (0.44,0.97)	1.01 (0.65,1.56)	0.98	0.58 (0.37,0.89)	1.00 (0.61,1.65)	0.95
Bachelor's degree	0.47 (0.32,0.68)	0.86 (0.57,1.31)	0.47	0.37 (0.25,0.56)	0.78 (0.49,1.25)	0.27
Higher education	0.47 (0.31,0.72)	0.80 (0.49,1.29)	0.34	0.44 (0.27,0.73)	0.79 (0.45,1.41)	0.37
Employment status						
Employed	1.0	1.0		1.0	1.0	
Unemployed	0.87 (0.75,1.00)	1.27 (1.04,1.55)	0.01	0.89 (0.72,1.08)	1.35 (1.03,1.78)	0.02
Student	0.83 (0.76,0.91)	1.36 (1.14,1.63)	<0.01	0.75 (0.65,0.86)	1.60 (0.90, 1.50)	0.21
Retired/others	1.21 (1.07,1.37)	1.21 (1.00,1.45)	0.03	1.35 (1.15,1.58)	1.24 (0.96,1.59)	0.07
Income						
≤5000	1.0	1.0		1.0	1.0	
5001 - 10,000	0.98 (0.89,1.08)	0.86 (0.72,1.03)	0.12	0.95 (0.83,1.09)	0.76 (0.60,0.97)	0.04
1,0001 - 15,000	1.45 (1.27,1.65)	1.03 (0.83,1.27)	0.66	1.45 (1.22,1.72)	0.94 (0.71,1.25)	0.80
15,001 – 20,000	1.63 (1.34,1.99)	1.08 (0.82,1.43)	0.45	1.68 (1.31,2.15)	0.98 (0.69,1.39)	0.92
>20,000	1.59 (1.22,2.06)	0.85 (0.61,1.20)	0.45	1.90 (1.40,2.58)	0.89 (0.58,1.37)	0.83
Vigorous exercise						
Never	1.0	1.0		1.0	1.0	
1	0.85 (0.73,0.99)	0.79 (0.67,0.94)	<0.01	0.84 (0.68,1.05)	1.17 (0.93,1.48)	0.18

2-3	0.73 (0.63,0.84)	0.75 (0.65,0.88)	<0.01	0.67 (0.54,0.83)	0.87 (0.64,1.18)	0.36
4-5	0.68 (0.58,0.79)	0.68 (0.57,0.81)	<0.01	0.59 (0.46,0.76)	0.75 (0.54,1.04)	0.08
>5	0.69 (0.57,0.82)	0.72 (0.59,0.87)	<0.01	0.57 (0.43,0.76)	0.76 (0.53,1.10)	0.14
Time standing at work						
Never	1.0	1.0		1.0	1.0	
A few times	1.09 (0.81,1.46)	1.09 (0.80,1.50)	0.56	2.32 (1.34,4.02)	2.60 (1.47,4.62)	<0.01
Sometimes	1.16 (0.86,1.55)	1.18 (0.86,1.62)	0.28	2.27 (1.31,3.94)	2.60 (1.47,4.62)	<0.01
Most of the times	0.95 (0.70,1.28)	1.03 (0.74,1.42)	0.84	2.10 (1.20,3.67)	2.66 (1.48,4.76)	<0.01
All the times	0.87 (0.55,1.37)	0.95 (0.58,1.55)	0.86	1.56 (0.71,3.39)	1.92 (0.85,4.34)	0.11
Tobacco use						
No	1.0	1.0		1.0	1.0	
Yes	0.96 (0.87,1.07)	0.75 (0.66,0.85)	<0.01	1.01 (0.87,1.17)	0.79 (0.67,0.93)	<0.01
Diabetes						
No	1.0	1.0		1.0	1.0	
Yes	2.55 (2.17,3.00)	1.67 (1.40,1.99)	<0.01	2.48 (2.39,3.39)	1.64 (1.34,2.00)	<0.01
BMI (kg/m²)						
Underweight	1.0	1.0		1.0	1.0	
Normal weight	1.69 (1.39,2.05)	1.67 (1.37,2.04)	<0.01	1.70 (1.20,2.41)	1.67 (1.17,2.38)	<0.01
Overweight	3.03 (2.49,3.69)	2.43 (1.97,3.00)	<0.01	3.01 (2.13,4.24)	2.15 (1.50,3.08)	<0.01
Obese	4.86 (3.97,5.94)	3.17 (2.52,3.99)	<0.01	5.51 (3.90,7.77)	2.97 (2.04,4.34)	<0.01
Extremely Obese	7.90 (5.78,10.79)	4.64 (3.31,6.52)	<0.01	10.62(7.04,16.01)	5.24 (3.35,8.19)	<0.01
Waist Circum.						
Normal	1.0	1.0		1.0	1.0	
Not Normal	2.58 (2.38,2.79)	1.32 (1.17,1.50)	<0.01	3.07 (2.75,3.43)	1.53 (1.29,1.81)	<0.01
Waist to hip ratio						
Normal	1.0	1.0		1.0	1.0	
Not Normal	1.99 (1.81,2.20)	1.27 (1.13,1.43)	<0.01	2.18 (1.93,2.45)	1.19 (1.02,1.38)	0.02

Waist Circumference: (men<94, women <80), Waist to hip ratio: (men<0.95, women <0.80), AOR: Adjusted OR.

Supplementary table 2. The percentage and determinants of elevated BP according to 2017 ACC/AHA Guideline among Saudi Biobank, 2017-2020 (n = 10799)

Characteristics	Elevated BP according to 2017 ACC/AHA Guideline			
	Percentage (95% CI)	OR (95% CI)	AOR (95% CI)	P-value
Overall	15.82 (15.69,15.94)	-	-	-
Gender				
Women	14.07 (13.90,14.24)	1.0	1.0	
Men	17.50 (17.32,17.68)	1.29 (1.17,1.44)	1.35 (1.19,1.54)	<0.01
Age, years				
18-29	17.64 (17.47,17.82)	1.0	1.0	
30-39	13.95 (13.73,14.17)	0.76 (0.67,0.85)	0.76 (0.66,0.88)	<0.01
40-49	12.83 (12.47,13.18)	0.69 (0.57,0.83)	0.71 (0.58,0.87)	<0.01
50-59	11.35 (10.73,11.98)	0.60 (0.42,0.85)	0.62 (0.43,0.89)	<0.01
≥60	10.39 (9.15,11.63)	0.54 (0.26,1.13)	0.54 (0.26,1.15)	0.08
Employment				
Employed	15.51 (15.34,15.69)	1.0	1.0	
Unemployed	16.10 (15.68,16.52)	1.04 (0.87,1.26)	1.15 (0.94,1.41)	0.11
Student	17.62 (17.37,17.87)	1.16 (1.03,1.31)	1.11 (0.96,1.29)	0.10
Retired/others	12.81 (12.48,13.14)	0.80 (0.67,0.96)	1.01 (0.83,1.24)	0.52
Time sitting at work				
Never	8.02 (7.12,8.92)	1.0	1.0	
A few times	15.80 (15.53,16.07)	2.15 (1.08,4.30)	2.39 (1.19,4.77)	0.02
Sometimes	16.41 (16.17,16.65)	2.25 (1.13,4.48)	2.59 (1.30,5.17)	0.01
Most of the times	15.66(15.47,15.84)	2.13 (1.07,4.23)	2.34 (1.17,4.66)	0.03
All the times	15.44 (14.70,16.17)	2.10 (0.99,4.42)	2.10 (0.99,4.44)	0.08
Current smoker				
No	15.62 (15.48,15.75)	1.0	1.0	
Yes	16.80 (16.49,17.12)	1.09 (0.95,1.25)	0.97 (0.83,1.12)	0.72
Diabetes				
No	15.76 (15.60,15.92)	1.0	1.0	
Yes	15.91 (15.71,16.11)	0.99 (0.89,1.10)	1.03 (0.93,1.15)	0.61
BMI, kg/m²				
Underweight	12.14 (11.69,12.59)	1.0	1.0	
Normal weight	16.30 (16.10,16.50)	1.41 (1.10,1.80)	1.48 (1.16,1.89)	<0.01
Overweight	16.47 (16.23,16.70)	1.43 (1.11,1.83)	1.64 (1.27,2.12)	<0.01
Obese	15.30 (15.04,15.56)	1.31 (1.01,1.69)	1.68 (1.26,2.24)	<0.01
Extremely Obese	14.41 (13.65,15.16)	1.22 (0.81,1.83)	1.54 (1.00,2.37)	0.04
Waist Circum. (cm)				
Normal	16.36 (16.20,16.52)	1.0	1.0	
Not Normal	14.83 (14.62,15.03)	0.89 (0.80,0.99)	0.91 (0.77,1.07)	0.21
WtHR				
Normal	16.27 (16.12,16.41)	1.0	1.0	
Not Normal	13.89 (13.62,14.17)	0.83 (0.72,0.95)	0.99 (0.84,1.16)	0.93

Waist Circumference: (men<94, women <80), WtHR (Waist to hip ratio): (men<0.95, women <0.80), AOR: Adjusted OR, SR: Saudi Riyals.