

Supplementary

Table 1. Prevalence (%) of Type 2 Diabetes Mellitus (T2DM), Hypertension (HTN), Hyperlipidaemia (HLD), Obstructive Sleep Apnoea (OSA), and Arthralgia in the study population and national population across the major ethnic groups. N.D. – no data.

Ethnicity	T2DM		HTN		HLD		OSA*	Arthralgia*
	Study	National	Study	National	Study	National	Study	Study
Chinese	22.6	8.2	41.8	36.1	14.3	44.1	66.6	40.5
Indian	27.6	14.2	34.0	29.5	11.2	40.6	64.3	46.6
Malay	24.1	14.4	37.3	37.5	15.7	38.6	68.4	44.8
Others	26.6	N.D.	29.1	N.D.	14.6	N.D.	63.8	47.2
Overall	24.5	9.5	37.4	35.5	14.1	39.1	66.3	43.8

*No national data for OSA and arthralgia was available.

Table 2: Association of Age, Gender, Ethnicity and Comorbidities between BMI Classes using a multinomial logistic regression.

Variable	Class 2 (≥32.5 to 37.4) Vs Class 1 (≥27.5 to 32.4)		Class 3 (≥37.5 to 47.4) Vs Class 1 (≥27.5 to 32.4)		Class 4 (≥47.5) Vs Class 1 (≥27.5 to 32.4)	
	Adjusted Odds Ratio (95%CI)	p value	Adjusted Odds Ratio (95%CI)	p value	Adjusted Odds Ratio (95%CI)	p value
Age						
- ≥35	(ref)		(ref)		(ref)	
- <35	2.04 (1.36, 3.07)	0.001	2.74 (1.86, 4.03)	<0.001	3.75 (2.34, 6.00)	<0.001
Gender						
- Male	(ref)		(ref)		(ref)	
- Female	0.92 (0.46, 1.32)	0.643	0.95 (0.67, 1.34)	0.754	0.52 (0.34, 0.80)	0.003
Ethnicity						
- Chinese	(ref)		(ref)		(ref)	
- Indian	1.38 (0.95, 2.28)	0.080	2.04 (1.35, 3.08)	0.001	2.23 (1.25, 3.98)	0.006
- Malay	4.19 (2.36, 7.46)	<0.001	9.03 (5.22, 15.64)	<0.001	17.89 (9.53, 33.60)	<0.001
- Others	1.48 (0.89, 2.46)	0.128	1.80 (1.11, 2.92)	0.016	3.78 (2.06, 6.91)	<0.001
T2DM						
- No	(ref)		(ref)		(ref)	
- Yes	1.38 (0.90, 2.10)	0.141	1.18 (0.78, 1.77)	0.429	1.06 (0.63, 1.78)	0.838
HTN						
- No	(ref)		(ref)		(ref)	
- Yes	1.79 (1.20, 2.67)	0.004	1.90 (1.30, 2.79)	0.001	2.06 (1.28, 3.33)	0.003
HLD						
- No	(ref)		(ref)		(ref)	
- Yes	0.81 (0.49, 1.33)	0.399	0.82 (0.51, 1.33)	0.420	0.67 (0.36, 1.25)	0.205
OSA						
- No	(ref)		(ref)		(ref)	
- Yes	1.94 (1.37, 2.75)	<0.001	2.70 (1.93, 3.77)	<0.001	2.77 (1.78, 4.31)	<0.001
Arthralgia						
- No	(ref)		(ref)		(ref)	
- Yes	1.22 (0.86, 1.73)	0.270	1.11 (0.80, 1.56)	0.508	1.83 (1.20, 2.77)	0.005

Table 3: Patient demographics of Test vs Validation Set.

Variable	Overall N=1501			Test Set N=1201 (80.0)			Validation Set N=300 (20.0)			Test vs Validation P value
	PHQ < 10 N = 1143 (76.1)	PHQ ≥ 10 N = 358 (23.9)	p-value	PHQ < 10 N = 915 (76.2)	PHQ ≥ 10 N = 286 (23.8)	p-value	PHQ <10 N = 228 (76.0)	PHQ ≥10 N= 72 (24.0)	p-value	0.946
Gender										
- Male	469 (80.6)	113 (19.4)	0.001	373 (80.4)	91 (19.6)	0.007	96 (81.4)	22 (18.6)	0.080	0.724
- Female	674 (73.3)	245 (26.7)		542 (73.5)	195 (26.5)		132 (72.5)	50 (27.5)		
Age (Median, IQR)	43.0 (19)	36.5 (19)	0.001	43.0 (19)	37.0 (18.3)	<0.001	42.0 (19.7)	36.0 (21.5)	0.062	0.220
Age										
- <35	330 (67.1)	162 (32.9)	<0.001	264 (67.2)	129 (32.8)	<0.001	66 (66.7)	33 (33.3)	0.008	0.937
- ≥35	813 (80.6)	196 (19.4)		651 (80.6)	157 (19.4)		162 (80.6)	39 (19.4)		
Ethnicity										
- Chinese	476 (80.3)	117 (19.7)	0.008	387 (81.5)	88 (18.5)	0.001	89 (75.4)	29 (24.6)	0.589	0.418
- Indian	206 (70.1)	88 (29.5)		160 (68.7)	73 (31.3)		46 (75.4)	15 (24.6)		
- Malay	312 (75.2)	103 (24.8)		249 (73.9)	88 (26.1)		63 (80.8)	15 (19.2)		
- Others	149 (74.9)	50 (25.1)		119 (76.3)	37 (23.7)		30 (69.8)	13 (30.2)		
BMI (Median, IQR)	38.6 (9.1)	39.1 (9.5)	0.051	38.6 (9.1)	39.3 (9.3)	0.039	38.8 (9.4)	38.7 (10.6)	0.811	0.356
BMI Class										
- ≥27.5 to 32.4	192 (81.4)	44 (18.6)	0.228	155 (81.6)	35 (18.4)	0.280	37 (80.4)	9 (19.6)	0.898	0.756
- ≥32.5 to 37.4	297 (75.8)	95 (24.2)		237 (76.0)	75 (24.0)		60 (75.0)	20 (25.0)		
- ≥37.5 to 47.4	500 (75.1)	166 (24.9)		400 (75.0)	133 (25.0)		100 (75.2)	33 (24.8)		
- ≥47.5	154 (74.4)	53 (25.6)		123 (74.1)	43 (25.9)		31 (75.6)	10 (24.4)		
DM										
- No	849 (74.9)	284 (25.1)	0.053	677 (74.9)	227 (25.1)	0.066	172 (75.1)	57 (24.9)	0.516	0.808
- Yes	294 (79.9)	74 (20.1)		238 (80.1)	59 (19.9)		56 (78.9)	15 (21.1)		
HTN										
- No	692 (73.6)	248 (26.4)	0.003	559 (73.9)	197 (26.1)	0.017	133 (72.3)	51 (27.7)	0.058	0.524
- Yes	451 (80.4)	110 (19.6)		356 (80.0)	89 (20.0)		95 (81.9)	21 (18.1)		
HLD										
- No	968 (75.1)	321 (24.9)	0.018	772 (75.0)	258 (25.0)	0.014	196 (75.7)	63 (24.3)	0.741	0.383
- Yes	175 (82.5)	37 (17.5)		143 (83.6)	28 (16.4)		32 (78.0)	8 (22.0)		
OSA										
- No	412 (81.4)	94 (18.6)	0.001	337 (82.0)	74 (18.0)	0.001	75 (78.9)	20 (21.1)	0.416	0.419
- Yes	731 (73.5)	264 (26.5)		578 (73.2)	212 (26.8)		153 (74.6)	52 (25.4)		

Arthralgia											
-	No	649 (76.9)	195 (23.1)	0.442	524 (76.6)	160 (23.4)	0.693	125 (78.1)	35 (21.9)	0.357	0.520
-	Yes	494 (75.2)	163 (24.8)		391 (75.6)	126 (24.4)		103 (73.6)	37 (26.4)		
PCS, Median (IQR)		62.5 (30.6)	41.3 (25.8)	<0.001	62.5 (30.6)	40.3 (25.7)	<0.001	62.8 (29.8)	42.5 (26.1)	<0.001	0.963
PCS											
-	≥50	798 (87.1)	118 (12.9)	<0.001	639 (87.2)	94 (12.8)	<0.001	159 (86.9)	24 (13.1)	<0.001	0.936
-	<50	345 (59.0)	240 (41.0)		276 (59.0)	192 (41.0)		69 (59.0)	48 (41.0)		
MCS, Median (IQR)		74.4 (25.0)	39.5 (27.8)	<0.001	74.6 (25.4)	39.5 (28.4)	<0.001	74.0 (23.3)	39.0 (26.6)	<0.001	0.981
MCS											
-	≥50	944 (88.8)	119 (11.2)	<0.001	755 (88.7)	96 (11.3)	<0.001	189 (89.2)	23 (10.8)	<0.001	0.770
-	<50	199 (45.4)	239 (54.6)		160 (45.7)	190 (54.3)		39 (44.3)	49 (55.7)		

Values are n (%) otherwise stated

Table 4: Comparison of Physical and Mental Quality of Life in patients with and without OSA.

	No OSA Median (IQR)	OSA Median (IQR)	Mann-Whitney U Test p value
Physical Components			
Physical Component Score	60.0 (39.4 – 75.6)	56.2 (38.1 – 72.5)	0.026
Pain	67.5 (45.0 – 90.0)	65.0 (45.0 – 80.0)	0.002
Physical Function	65.0 (45.0 – 85.0)	60.0 (40.0 – 80.0)	0.001
Role Limitation due to Physical Health	75.0 (0.0 – 100)	75.0 (25.0 – 100)	0.407
General Health	50.0 (35.0 – 65.0)	45.0 (30.0 – 60.0)	<0.001
Mental Components			
Mental Component Score	69.3 (44.8 – 82.9)	68.5 (46.4 – 79.8)	0.225
Social Function	75.0 (50.0 – 87.5)	62.5 (50.0 – 87.5)	0.010
Role Limitation due to Mental Health	100 (0 – 100)	100 (33.3 – 100)	0.004
Energy/ Fatigue	55.0 (45.0 -75.0)	50.0 (40.0 – 65.0)	<0.001
Emotional Well-Being	72.0 (56.0 – 84.0)	68.0 (56.0 – 80.0)	0.050