

## Supplementary Materials

**Table S1.** List of features collected and used for modelling

No.	Categories	Features	Remarks
1	Demographics	Gender	<ul style="list-style-type: none"> <li>Features are collected during admission date</li> </ul>
2		Race	
3		Age at admission	
4		Marital Status	
5		Living Arrangement	
6		History of Depression	
7		Other Psy. History	
8		Family Psy. History	
9		Education Level	
10		Housing Type	
11		Occupation	
12		Alcohol Use	
13		Drug Use	
14		Smoking	
15	Stroke Information	Stroke Incidence	<ul style="list-style-type: none"> <li>Features are collected during admission date</li> </ul>
16		Stroke Laterality	
17		Nature of Stroke	
18		Structure of Stroke	
19		Stroke Circulation	
20		Type of Stroke	
21	Medication History	Anti-depressants	<ul style="list-style-type: none"> <li>Searched for patient's lab results from 365 days before admission date to 3 days after admission date.</li> </ul>
22		Anti-psychotics	
23		Benzodiazepines	
24		Dementia	
25		Mood Stabilizers	
26		Others	
27	Surgical History	AVM, aneurysm	<ul style="list-style-type: none"> <li>Searched for patient's lab results from 3 years before admission date to 3 days after admission date.</li> </ul>
28		Craniectomy	
29		Craniotomy	
30		Cranioplasty	
31		Others	
32	Test scores	Abbreviated Mental Test (AMT)	<ul style="list-style-type: none"> <li>Features are collected during admission date</li> </ul>
33		EuroQol 5-Dimensional – Visual Analog Scale (EQ5D-VAS)	
34		Functional Independence Measure (FIM) – Cognitive Score	
35		FIM – Motor Score	
36	Laboratory Results	Basophils	<ul style="list-style-type: none"> <li>Searched for patient's lab results from 365 days before admission date to 3 days after admission date.</li> <li>Selected the results closest to the admission date</li> </ul>
37		Creatinine	
38		Eosinophils	
39		Haemoglobin	
40		Lymphocytes	
41		Sodium	
42		Potassium	
43		Red blood cell count	

44		Red blood cell width	
45		White blood cell count	
46	Psy. Intervention History	Psy. Intervention Services done	<ul style="list-style-type: none"> <li>Searched for patient's medication records from 3 years before admission date to 3 days after admission date.</li> </ul>

**Table S2.** Descriptive Statistics of the study cohort

Features	Total (n = 1,780)		PSAMO (n = 285)		No PSAMO (n = 1,495)		p-value
	Results	Missing	Results	Missing	Results	Missing	
Demographics							
Age at admission	61 (53 – 70)	0	60 (52 – 68)	0	61 (54 – 70)	0	0.043*
Gender, male (n, %)	1,105, 62.08%	0	180, 63.16%	0	925, 61.87%	0	0.682
Race, Chinese (n, %)	1413, 79.94%	0	206, 72.28%	0	1217, 81.40%	0	0.002*
Race, Malay (n, %)	219, 12.3%		50, 17.54%		169, 11.3%		
Race, Indian (n, %)	137, 7.70%		29, 10.18%		109, 7.22%		
Marital Status, Single (n, %)	271, 15.22%	0	49, 17.19%	0	222, 14.85%	0	0.501
Marital Status, Married (n, %)	1186, 66.63%		189, 66.32%		997, 66.69%		
Marital Status, Others (n, %)	323, 18.15%		47, 16.49%		276, 18.46%		
Living Arrangement, Alone (n, %)	119, 6.69%	0	23, 8.07%	0	96, 6.42%	0	0.620
Living Arrangement, With Family (n, %)	1585, 89.04%		250, 87.72%		1335, 89.3%		
Living Arrangement, Others (n, %)	76, 4.27%		12, 4.21%		64, 4.27%		
History of Depression (n, %)	37, 2.08%	0	15, 5.26%	0	22, 1.47%	0	<0.001*
Other Psy. History (n, %)	25, 1.4%	0	8, 2.81%	0	17, 1.14%	0	0.028*
Family Psy. History (n, %)	23, 1.29%	0	5, 1.75%	0	18, 1.20%	0	0.451

Education, Primary/No Formal (n, %)	751, 42.19%	0	108, 37.89%	0	643, 43.01%	0	0.446
Education, Secondary (n, %)	685, 38.48%		119, 41.75%		566, 37.86%		
Education, Diploma (n, %)	218, 12.25%		36, 12.63%		182, 12.17%		
Education, Degree or Higher (n, %)	126, 7.08%		22, 7.72%		104, 6.96%		
Housing Type, Rental/Dorms (n, %)	260, 14.61%	80	41, 14.39%	22	219, 14.65%	58	0.038*
Housing Type, HDB (non-rental) (n, %)	1270, 71.35%		194, 68.07%		1076, 71.97%		
Housing Type, Private (n, %)	170, 9.55%		28, 9.82%		142, 9.5%		
Household income, No Income (n, %)	1228, 68.99%	0	243, 85.26%	0	985, 65.89%	0	<0.001*
Household income (monthly), <\$1000 (n, %)	64, 3.6%		8, 2.81%		56, 3.75%		
Household income (monthly), \$1000 - \$3000 (n, %)	297, 16.69%		22, 7.72%		275, 18.43%		
Household income (monthly), \$3001 - \$5000 (n, %)	95, 5.34%		6, 2.11%		89, 5.95%		
Household income (monthly), \$5001 and above (n, %)	96, 5.39%		6, 2.11%		90, 6.02%		
Occupation, Not Working (n, %)	803, 45.11%	34	127, 44.56%	1	676, 45.22%	33	0.181
Occupation, Unskilled (n, %)	371, 20.84%		59, 20.7%		312, 20.87%		
Occupation, Skilled (n, %)	572, 32.13%		98, 34.39%		474, 31.71%		
Alcohol Use, Non-drinker (n, %)	1497, 84.1%	93	231, 81.05%	22	1266, 84.68%	71	0.171
Alcohol Use, Ex-drinker	139, 7.81%		25, 8.77%		114, 7.63%		

(n, %)							
Alcohol Use, Drinker (n, %)	51, 2.87%		7, 2.46%		44, 2.94%		
Drug Abuse, Yes (n, %)	2, 0.14%	0	0, 0%	0	2, 0.16%	0	0.005*
Smoking Use, Non-smoker (n, %)	1179, 66.24%	174	178, 62.46%	32	1001, 66.96%	142	0.286
Alcohol Use, Ex-smoker (n, %)	329, 18.48%		62, 21.75%		267, 17.86%		
Alcohol Use, Smoker (n, %)	98, 5.51%		13, 4.56%		85, 5.69%		
Stroke Information							
Stroke Incidence, First (n, %)	894, 50.22%	0	140, 49.12%	0	754, 50.43%	0	0.011
Stroke Incidence, First Clinical (n, %)	572, 32.13%		72, 27.37%		494, 33.04%		
Stroke Incidence, Recurrent (n, %)	314, 17.64%		67, 23.51%		247, 16.52%		
Stroke Laterality, Left (n, %)	663, 37.25%	0	81, 28.42%	0	582, 38.93%	0	<0.001*
Stroke Laterality, Right (n, %)	1000, 56.18%		176, 61.75%		824, 55.12%		
Stroke Laterality, Bilateral (n, %)	117, 6.57%		28, 9.82%		89, 5.95%		
Stroke Nature, Ischemic or Both (n, %)	1290, 72.47%	0	192, 67.37%	0	1098, 73.44%	0	0.042*
Stroke Nature, Haemorrhagic (n, %)	490, 27.53%		93, 32.63%		397, 26.56%		
Stroke Structure, Basal Ganglia (n, %)	415, 23.31%	0	74, 25.96%	0	341, 22.81%	0	0.271
Stroke Structure, Thalamus (n, %)	162, 9.1%		30, 10.53%		132, 8.83%		
Stroke Structure, Others (n, %)	1203, 67.63%		181, 63.51%		1023, 68.43%		
Stroke Circulation, Anterior (n, %)	1095, 61.52%	0	184, 64.56%	0	911, 60.94%	0	0.504
Stroke Circulation, Posterior (n, %)	620, 34.83%		92, 32.28%		528, 35.32%		

Stroke Circulation, Both (n, %)	65, 3.65%		9, 3.16%		56, 3.75%		
Stroke Type, Small Vessel Disease (n, %)	1381, 77.58%	0	208, 72.98%	0	1173, 78.46%	0	0.099
Stroke Type, Large Vessel Disease (n, %)	241, 13.54%		49, 17.19%		192, 12.84%		
Stroke Type, Others (n, %)	158, 8.88%		28, 9.82%		130, 8.70%		
Medication History (Last 1 year)							
Anti-depressants (n, %)	261, 14.66%	0	57, 20%	0	204, 13.65%	0	0.005*
Anti-psychotics (n, %)	34, 1.91%	0	11, 3.86%	0	23, 1.54%	0	0.009*
Benzodiazepines (n, %)	51, 2.87%	0	14, 4.91%	0	37, 2.47%	0	0.024*
Dementia meds (n, %)	10, 0.56%	0	4, 1.4%	0	6, 0.4%	0	0.038*
Mood Stabilizers (n, %)	2, 0.11%	0	0, 0%	0	2, 0.13%	0	0.537
Others (n, %)	138, 7.75%	0	31, 10.88%	0	107, 7.16%	0	0.031*
Surgical History (Last 3 Years)							
AVM, aneurysm (n, %)	25, 1.40%	0	7, 2.46%	0	18, 1.2%	0	0.611
Craniectomy (n, %)	16, 0.9%	0	6, 2.11%	0	10, 0.67%	0	0.100
Craniotomy (n, %)	10, 0.65%	0	2, 0.7%	0	8, 0.54%	0	0.019*
Cranioplasty (n, %)	0, 0%	0	0, 0%	0	0, 0%	0	-
Others (n, %)	35, 1.97%	0	4, 1.4%	0	31, 2.07%	0	0.455
FIM/EQ5D and other Tests							
AMT	9 (8 – 10)	86	9 (8 – 10)	25	9 (8 – 10)	61	<0.001*
EQ5D-VAS	60 (50 – 80)	223	50 (40 – 70)	52	60 (50 – 80)	171	<0.001*
FIM – Cognitive Score	28 (21 – 33)	1	23 (16 – 30)	1	28 (21 – 33)	0	<0.001*
FIM – Motor Score	46 (32 – 57)	1	33 (23 – 49)	0	47 (35 – 58)	1	<0.001*
Laboratory Parameters							
Basophils	0.04 (0.02 – 0.05)	319	0.04 (0.03 – 0.06)	36	0.04 (0.02 – 0.05)	283	<0.001*
Haemoglobin	13.4 (12.3 – 14.5)	319	13.4 (12.2 – 14.5)	36	13.3 (12.3 – 14.4)	283	0.715
Creatinine	75 (61 – 93)	303	78 (62 – 97)	32	75 (60 – 93)	271	0.116
Eosinophils	0.16	319	0.17	36	0.16	283	0.168

	(0.08 – 0.27)		(0.09 – 0.28)		(0.08 – 0.27)		
<b>Potassium</b>	3.8 (3.6 – 4.1)	304	3.7 (3.5 – 4.1)	32	3.8 (3.6 – 4.1)	272	0.006*
<b>Lymphocytes</b>	1.67 (1.27 – 2.19)	319	1.73 (1.33 – 2.26)	36	1.66 (1.26 – 2.17)	283	0.287
<b>Red Blood Count Mean (SD)</b>	4.5 (0.65)	319	4.54 (0.66)	36	4.49 (0.65)	283	0.456
<b>Red Cell Distribution Width</b>	13.8 (13.2 - 14.6)	319	13.9 (13.4 – 14.7)	36	13.7 (13.2 - 14.6)	283	0.021*
<b>Sodium</b>	138 (136 – 140)	304	138 (136 – 140)	32	138 (136 – 140)	272	0.090
<b>White Blood Cells</b>	8.4 (6.8 – 10.2)	319	8.7 (7 – 11.3)	36	8.3 (6.8 – 10.13)	283	0.009*
<b>Psy. Intervention History (Last 3 years)</b>							
<b>Psy Intervention Services (n, %)</b>	107, 6.01%	0	19, 6.67%	0	88, 5.89%	0	0.611

*All figures are in median (IQR) unless specified*

*\*Statistically significant at  $\alpha = 0.05$*