

Supplement 1

Table S1 Prevalence of Headache in Patients with Stroke Aged 45 Years or Older by Gender

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Table S6 Multivariate Analyses of Headaches Associated with Risk Factors in the Entire Stroke Population by Residency

Table S7 Multivariate Analyses of Headaches Associated with Risk Factors in the Entire Stroke Population by Dyslipemia

Table S1 Prevalence of Headache in Patients with Stroke Aged 45 Years or Older by Gender

Variables	Stroke (n=876)						No stroke (n=17469)					
	Male (n=432)			Female (n=444)			Male (n=8166)			Female (n=9303)		
	Frequency (n)	Prevalence (95%CI)	P	Frequency (n)	Prevalence (95%CI)	P	Frequency (n)	Prevalence (95%CI)	P	Frequency (n)	Prevalence (95%CI)	P
Total	124	28.70%		204	45.95%		1290	15.80%		2959	31.81%	
Age			0.427			0.023			0.256			0.430
45-59	29	29.00 (20.11-37.89)		46	50.55 (40.28-60.82)		545	15.21 (14.03-16.39)		1419	31.55 (30.19-32.91)	
60-69	56	31.64 (24.79-38.49)		93	51.38 (44.10-58.66)		434	15.80 (14.44-17.16)		920	31.41 (29.73-33.09)	
≥70	39	25.16 (18.33-31.99)		65	37.79 (30.54-45.04)		311	16.94 (15.22-18.65)		620	33.05 (30.92-35.18)	
Residence location			0.993			0.281			< 0.001			< 0.001
Urban	39	28.68 (21.08-36.28)		51	41.80 (33.05-50.56)		289	13.08 (11.68-14.49)		651	25.29 (23.61-26.97)	
Rural	85	28.72 (23.56-33.87)		153	47.52 (42.06-52.97)		1001	16.80 (15.85-17.75)		2308	34.30 (33.17-35.43)	
Education level			0.111			0.445			< 0.001			< 0.001
Illiterate compulsory	25	39.68 (27.60-51.76)		89	48.11 (40.91-55.31)		172	19.11 (16.54-21.68)		1152	35.74 (34.09-37.40)	
education and above	91	27.00 (22.26-31.74)		111	45.12 (38.90-51.34)		1068	15.93 (15.05-16.80)		1742	30.33 (29.14-31.52)	
University and above	8	25.00 (10.00-40.00)		4	30.77 (5.68-55.86)		50	8.91 (6.55-11.27)		65	19.35 (15.12-23.57)	
Marry status			0.640			0.012			0.107			0.336
Married	98	27.76 (23.09-32.43)		151	50.00 (44.36-55.64)		1051	15.45 (14.59-16.31)		2199	31.40 (30.31-32.49)	
Divorced or living alone	8	34.78 (15.32-54.25)		13	52.00 (32.42-71.58)		120	16.64 (13.92-19.36)		250	32.81 (29.47-36.14)	
Others	18	32.14 (20.29-45.96)		40	34.19 (25.67-43.53)		119	18.48 (15.55-21.70)		510	33.16 (30.81-35.58)	
Nation			0.007			0.379			0.021			< 0.001
Han	107	26.95 (22.59-31.32)		182	45.27 (40.41-50.14)		1179	15.54 (14.72-16.35)		2662	31.20 (30.22-32.19)	
Minority	17	48.57 (32.01-65.13)		22	52.38 (37.28-67.49)		111	19.17 (15.96-22.38)		297	38.47 (35.04-41.90)	
National region			0.001			0.026			<			<

							0.001			0.001
North China	17	22.37 (13.00-31.74)	25	38.46 (26.63-50.29)	111	11.42 (9.42-13.42)		309	26.82 (24.26-29.38)	
Central China	30	41.10 (29.81-52.38)	35	51.47 (39.59-63.35)	296	23.64 (21.29-26.00)		607	42.12 (39.57-44.67)	
East China	34	34.34 (24.99-43.70)	50	43.48 (34.42-52.54)	367	15.33 (13.89-16.77)		831	31.18 (29.42-32.94)	
South China	2	7.14 (0.88-23.50)	7	25.00 (10.69-44.87)	77	8.88 (6.99-10.77)		231	22.83 (20.24-25.41)	
Northeast	6	16.67 (4.49-28.84)	23	46.00 (32.19-59.81)	91	13.60 (11.00-16.20)		196	26.06 (22.93-29.20)	
Northwest	10	47.62 (26.26-68.98)	7	35.00 (14.10-55.90)	122	17.97 (15.08-20.86)		264	34.24 (30.89-37.59)	
Southwest	25	25.25 (16.69-33.81)	57	58.16 (48.40-67.93)	226	16.95 (14.94-18.97)		521	34.50 (32.11-36.90)	
Health status		< 0.001		< 0.001		< 0.001			< 0.001	
Good	7	11.67 (4.82-22.57)	8	20.51 (9.30-36.46)	166	6.81 (5.85-7.89)		330	14.54 (13.12-16.06)	
Fair	39	23.93 (17.38-30.48)	56	35.90 (28.37-43.43)	625	15.58 (14.46-16.70)		1346	29.66 (28.33-30.99)	
Poor	52	33.99 (26.48-41.49)	93	51.67 (44.37-58.97)	361	27.20 (24.81-29.60)		977	49.14 (46.95-51.34)	
Very poor	26	46.43 (33.37-59.49)	47	68.12 (57.12-79.11)	138	35.29 (30.56-40.03)		306	60.24 (55.98-64.49)	
Self-employed agricultural		0.288		0.905		0.013				0.001
No	73	30.80 (24.92-36.68)	117	45.70 (39.60-51.81)	659	14.88 (13.83-15.93)		1542	30.40 (29.14-31.67)	
Yes	51	26.15 (19.99-32.32)	87	46.28 (39.15-53.40)	631	16.89 (15.68-18.09)		1417	33.49 (32.07-34.91)	
Annual income		0.500		0.615		0.008				< 0.001
<5000	94	27.09 (22.41-31.77)	163	45.92 (40.73-51.10)	1050	16.19 (15.29-17.09)		2433	32.99 (31.92-34.06)	
5000-10000	2	40.00 (5.27-85.34)	3	27.27 (6.02-60.97)	22	10.09 (6.09-14.09)		68	27.53 (21.96-33.10)	
10000-20000	11	36.67 (19.42-53.91)	10	47.62 (26.26-68.98)	74	18.36 (14.58-22.14)		130	26.92 (22.96-30.87)	
>20000	17	34.00 (20.87-47.13)	28	49.12 (36.14-62.10)	144	13.60 (11.53-15.66)		328	27.38 (24.85-29.90)	
Disability		0.157		0.665		< 0.001				< 0.001
No	99	27.35 (22.76-31.94)	173	45.53 (40.52-50.53)	1168	15.25 (14.44-16.06)		2800	31.37 (30.41-32.33)	
Yes	25	35.71 (24.49-46.94)	31	48.44 (36.19-60.68)	122	24.06 (20.34-27.78)		159	42.18 (37.19-47.16)	
Hypertension		0.122		0.967		< 0.001				< 0.001
No	60	32.61 (25.84-39.38)	99	46.05 (39.38-52.71)	842	14.68 (13.77-15.60)		2031	30.25 (29.16-31.35)	
Yes	64	25.81 (20.36-31.25)	105	45.85 (39.40-52.31)	448	18.43 (16.89-19.97)		928	35.83 (33.98-37.68)	
Dyslipemia		0.168		0.132		<				<

								0.001		0.001
No	88	26.99 (22.17-31.81)	150	43.99 (38.72-49.26)	1113	15.11 (14.29-15.93)	2520	30.56 (29.56-31.55)		
Yes	36	33.96 (24.95-42.98)	54	52.43 (42.78-62.07)	177	22.10 (19.22-24.97)	439	41.57 (38.60-44.54)		
Diabetes		0.151		0.172		0.253			<	0.001
No	105	27.56 (23.07-32.05)	175	44.76 (39.83-49.69)	1216	15.69 (14.88-16.50)	2729	31.13 (30.16-32.10)		
Yes	19	37.25 (23.99-50.52)	29	54.72 (41.32-68.12)	74	17.79 (14.11-21.46)	230	42.83 (38.65-47.02)		
Brain injury		0.401		0.325		<			<	0.001
No	101	27.90 (23.28-32.52)	170	44.97 (39.96-49.99)	1216	15.29 (14.50-16.08)	2822	31.18 (30.22-32.13)		
Yes	23	32.86 (21.85-43.86)	34	51.52 (39.46-63.57)	74	34.42 (28.07-40.77)	137	54.58 (48.42-60.74)		
Shoulder pain		<		<		<				0.000
		0.001		0.001		0.001				
No	52	16.20 (12.17-20.23)	74	29.02 (23.45-34.59)	633	9.52 (8.82-10.23)	1158	18.23 (17.28-19.18)		
Yes	72	64.86 (55.98-73.75)	130	68.78 (62.18-75.39)	657	43.25 (40.76-45.74)	1801	61.05 (59.29-62.81)		
Chest pain		<		<		<			<	0.001
		0.001		0.001		0.001				
No	85	22.85 (18.58-27.12)	130	36.83 (31.80-41.86)	941	12.48 (11.73-13.22)	2133	26.01 (25.06-26.96)		
Yes	39	65.00 (52.93-77.07)	74	81.32 (73.31-89.33)	349	56.02 (52.12-59.92)	826	74.95 (72.40-77.51)		
Backpain		<		<		<				0.000
		0.001		0.001		0.001				
No	73	20.28 (16.12-24.43)	102	34.34 (28.94-39.74)	790	11.15 (10.42-11.88)	1554	21.71 (20.75-22.67)		
Yes	51	70.83 (60.33-81.33)	102	69.39 (61.94-76.84)	500	46.21 (43.24-49.18)	1405	65.50 (63.49-67.51)		
Smoke		0.819		0.551		0.155				0.001
No	27	29.67 (20.28-39.06)	180	45.45 (40.55-50.36)	256	14.70 (13.03-16.36)	2714	31.37 (30.39-32.35)		
Yes	97	28.45 (23.66-33.23)	24	50.00 (35.85-64.15)	1034	16.10 (15.20-16.99)	245	37.58 (33.86-41.29)		
Drink		0.888		0.505		<				0.482
						0.001				
No	79	28.94 (23.56-34.32)	185	46.48 (41.58-51.38)	619	17.67 (16.41-18.93)	2542	31.95 (30.92-32.97)		
Yes	45	28.30 (21.30-35.30)	19	41.30 (27.08-55.53)	671	14.39 (13.38-15.40)	417	30.98 (28.51-33.45)		
Insurance		0.869		0.090		0.035				0.105
No	1	25.00 (0.63-80.59)	1	14.29 (0.36-57.87)	48	20.78 (15.55-26.01)	112	36.01 (30.68-41.35)		
Yes	123	28.74 (24.45-33.03)	203	46.45 (41.78-51.13)	1242	15.65 (14.85-16.45)	2847	31.66 (30.70-32.62)		

Nighttime sleep, hour		0.487		0.230		< 0.001		< 0.001	
≤7	88	30.14 (24.87-35.40)	166	48.12 (42.84-53.39)	958	16.98 (16.00-17.96)	2310	34.03 (32.90-35.16)	
7-9	21	23.60 (14.77-32.42)	24	38.10 (26.10-50.09)	232	12.69 (11.17-14.22)	433	25.26 (23.21-27.32)	
≥9	15	29.41 (16.91-41.92)	14	38.89 (22.96-54.81)	100	14.39 (11.78-17.00)	216	26.97 (23.89-30.04)	
Nap time, minute		0.348		0.735		0.052		0.001	
NO nap	44	32.84 (24.88-40.79)	75	44.64 (37.13-52.16)	457	16.29 (14.93-17.66)	1339	33.99 (32.51-35.47)	
≤30	21	30.88 (19.90-41.86)	40	51.28 (40.19-62.37)	245	17.74 (15.73-19.76)	532	31.02 (28.83-33.21)	
30-60	0	0.00 (0.00-70.76)	3	37.50 (8.52-75.51)	22	13.66 (8.36-18.97)	44	31.65 (23.92-39.39)	
≥60	59	25.99 (20.29-31.70)	86	45.26 (38.19-52.34)	566	14.82 (13.69-15.95)	1044	29.74 (28.23-31.26)	
Depression		0.298		0.371		0.003		< 0.001	
No	62	26.61 (20.94-32.28)	119	44.24 (38.30-50.17)	710	14.80 (13.80-15.81)	1716	30.48 (29.28-31.68)	
Yes	62	31.16 (24.72-37.59)	85	48.57 (41.17-55.98)	580	17.22 (15.94-18.49)	1243	33.84 (32.31-35.37)	
Hip pain		< 0.001		< 0.001		< 0.001		< 0.001	
No	92	24.15 (19.85-28.44)	137	39.37 (34.23-44.50)	1052	13.68 (12.91-14.45)	2251	27.22 (26.26-28.18)	
Yes	32	62.75 (49.48-76.01)	67	69.79 (60.61-78.98)	238	50.00 (45.51-54.49)	708	68.54 (65.71-71.37)	
Chronic disease		0.225		0.099		0.824		0.512	
No	54	25.96 (20.00-31.92)	118	49.58 (43.23-55.93)	724	15.88 (14.82-16.94)	1632	31.52 (30.26-32.79)	
Yes	70	31.25 (25.18-37.32)	86	41.75 (35.01-48.48)	566	15.70 (14.51-16.88)	1327	32.16 (30.74-33.59)	

Note: In the subgroup analysis by gender within stroke and non-stroke groups, variables are presented as frequencies, percentages, and 95% confidence intervals. Statistical significance within the groups was determined using the χ^2 test, with $p < 0.05$ indicating a statistically significant difference.

Table S2 Prevalence of Headache in Patients with Stroke Aged 45 Years or Older by Residency

Variables	Stroke (n=876)						No stroke (n=17469)					
	urban (n=258)			rural (n=618)			urban (n=4783)			rural (n=12686)		
	Frequency (n)	Prevalence (95%CI)	<i>P</i>	Frequency (n)	Prevalence (95%CI)	<i>P</i>	Frequency (n)	Prevalence (95%CI)	<i>P</i>	Frequency (n)	Prevalence (95%CI)	<i>P</i>
Total	90	34.88%		238	38.51%		940	19.65%		3309	26.08%	
Gender			0.027			< 0.001			< 0.001			< 0.001
male	39	28.68 (21.08-36.28)		85	28.72 (23.56-33.87)		289	13.08 (11.68-14.49)		1001	16.80 (15.85-17.75)	
female	51	41.80 (33.05-50.56)		153	47.52 (42.06-52.97)		651	25.29 (23.61-26.97)		2308	34.30 (33.17-35.43)	
Age			0.013			0.280			0.105			0.287
45-59	24	43.64 (30.53-56.74)		51	37.50 (29.36-45.64)		510	20.84 (19.23-22.45)		1454	25.81 (24.66-26.95)	
60-69	44	40.37 (31.16-49.58)		105	42.17 (36.03-48.30)		268	18.51 (16.51-20.51)		1086	25.69 (24.37-27.00)	
≥70	22	23.40 (14.84-31.96)		82	35.19 (29.06-41.33)		162	18.24 (15.70-20.78)		769	27.23 (25.59-28.87)	
Education level			0.476			0.006			< 0.001			< 0.001

Illiterate	17	42.50 (27.18-57.82)	97	46.63 (39.85-53.41)	139	24.69 (21.13-28.25)	1185	0.00 (0.00-0.00)	
compulsory education and above	62	34.25 (27.34-41.17)	140	34.83 (30.17-39.48)	704	20.13 (18.80-21.45)	2106	23.53 (22.65-24.41)	
University and above	11	29.73 (15.00-44.46)	1	12.50 (0.32-52.65)	97	13.43 (10.95-15.92)	18	10.29 (5.78-14.79)	
Marry status		0.120		0.913		0.042			< 0.001
Married	70	36.46 (29.65-43.27)	179	38.66 (34.23-43.10)	697	18.91 (17.65-20.17)	2553	25.23 (24.39-26.08)	
Divorced or living alone	9	47.37 (24.92-69.82)	12	41.38 (23.45-59.30)	120	21.16 (17.80-24.53)	250	27.29 (24.41-30.18)	
Others	11	23.40 (12.30-38.03)	47	37.30 (28.85-46.36)	123	23.21 (19.68-27.04)	506	30.63 (28.41-32.92)	
Nation		0.464		0.011		0.100			< 0.001
Han	80	34.19 (28.11-40.27)	209	36.99 (33.01-40.97)	855	19.38 (18.21-20.55)	2986	25.51 (24.72-26.30)	
Minority	10	41.67 (21.94-61.39)	29	54.72 (41.32-68.12)	85	22.91 (18.63-27.19)	323	32.96 (30.02-35.90)	

National region	0.229		0.009		<0.001		<0.001	
North China	11	27.50 (13.66-41.34)	31	30.69 (21.70-39.69)	110	20.15 (16.78-23.51)	310	19.65 (17.68-21.61)
Central China	17	41.46 (26.38-56.54)	48	48.00 (38.21-57.79)	141	23.27 (19.90-26.63)	762	36.51 (34.45-38.58)
East China	20	36.36 (23.65-49.08)	64	40.25 (32.63-47.87)	256	19.22 (17.10-21.34)	942	25.28 (23.88-26.67)
South China	1	10.00 (0.25-44.50)	8	17.39 (6.44-28.34)	46	13.26 (9.69-16.82)	262	17.10 (15.22-18.99)
Northeast	5	22.73 (5.22-40.24)	24	37.50 (25.64-49.36)	72	14.75 (11.61-17.90)	215	23.04 (20.34-25.75)
Northwest	10	50.00 (28.09-71.91)	7	33.33 (13.17-53.50)	75	18.25 (14.51-21.98)	311	29.93 (27.15-32.72)
Southwest	26	37.14 (25.82-48.46)	56	44.09 (35.46-52.73)	240	22.79 (20.26-25.33)	507	28.32 (26.24-30.41)
Health status	0.001		<0.001		<0.001		<0.001	
Good	5	15.63 (5.28-32.79)	10	14.93 (7.40-25.74)	147	9.35 (7.96-10.90)	349	11.14 (10.06-12.29)
Fair	33	29.46 (21.02-37.91)	62	29.95 (23.71-36.19)	488	20.38 (18.76-21.99)	1483	24.09 (23.03-25.16)
Poor	36	40.91 (30.64-51.18)	109	44.49 (38.27-50.71)	228	35.85 (32.12-39.58)	1110	41.43 (39.57-43.30)

Very poor	16	61.54 (42.84-80.24)	57	57.58 (47.84-67.31)	77	42.78 (35.55-50.01)	367	51.04 (47.39-54.70)
Self-employed agricultural		0.659		0.401		0.351		0.008
No	64	35.75 (28.73-42.78)	126	40.13 (34.71-45.55)	598	19.26 (17.87-20.65)	1603	25.06 (24.00-26.12)
Yes	26	32.91 (22.55-43.27)	112	36.84 (31.42-42.26)	342	20.38 (18.45-22.31)	1706	27.12 (26.02-28.22)
Annual income		0.697		0.215		0.137		< 0.001
<5000	69	34.50 (27.91-41.09)	188	37.45 (33.22-41.68)	756	20.37 (19.08-21.67)	2727	26.87 (26.00-27.73)
5000-10000	3	60.00 (14.66-94.73)	2	18.18 (2.28-51.78)	19	16.24 (9.56-22.92)	71	20.40 (16.17-24.64)
10000-20000	7	35.00 (14.10-55.90)	14	45.16 (27.64-62.68)	41	17.67 (12.76-22.58)	163	24.92 (21.61-28.24)
>20000	11	33.33 (17.25-49.42)	34	45.95 (34.59-57.30)	124	17.15 (14.40-19.90)	348	22.69 (20.59-24.78)
Disability		0.008		0.758		0.038		< 0.001
No	70	31.67 (25.54-37.81)	202	38.77 (34.59-42.96)	894	19.42 (18.28-20.56)	3074	25.66 (24.88-26.44)

Yes	20	54.05 (38.00-70.11)	36	37.11 (27.50-46.73)	46	25.70 (19.30-32.10)	235	33.33 (29.85-36.81)
Hypertension		0.108		0.555		0.009		<0.001
No	48	40.00 (31.23-48.77)	111	39.78 (34.04-45.53)	668	18.77 (17.49-20.05)	2205	24.81 (23.91-25.70)
Yes	42	30.43 (22.76-38.11)	127	37.46 (32.31-42.62)	272	22.22 (19.89-24.55)	1104	29.08 (27.63-30.52)
Dyslipemia		0.087		0.214		<0.001		<0.001
No	59	31.72 (25.03-38.41)	179	37.21 (32.89-41.53)	756	18.45 (17.26-19.64)	2877	24.98 (24.19-25.78)
Yes	31	43.06 (31.62-54.49)	59	43.07 (34.77-51.36)	184	26.82 (23.51-30.14)	432	36.89 (34.13-39.66)
Diabetes		0.003		0.75		0.381		<0.001
No	69	31.22 (25.11-37.33)	211	38.29 (34.24-42.35)	875	19.52 (18.36-20.68)	3070	25.51 (24.73-26.29)
Yes	21	56.76 (40.79-72.72)	27	40.30 (28.55-52.04)	65	21.59 (16.95-26.24)	239	36.66 (32.96-40.36)

Brain injury	0.684		0.272		<0.001		<0.001	
	No	7634.39 (28.13-40.65)	19537.57 (33.41-41.74)	89719.15 (18.03-20.28)	314125.50 (24.73-26.26)			
	Yes	1437.84 (22.21-53.47)	4343.43 (33.67-53.20)	4343.00 (33.30-52.70)	16845.90 (40.80-51.01)			
Shoulder pain	<0.001		<0.001		<0.001		0.000	
	No	2816.67 (11.03-22.30)	9824.02 (19.87-28.16)	37810.32 (9.33-11.30)	141315.13 (14.41-15.86)			
	Yes	6268.89 (59.32-78.45)	14066.67 (60.29-73.04)	56250.18 (47.25-53.11)	189656.61 (54.94-58.29)			
Chest pain	<0.001		<0.001		<0.001		0.000	
	No	5324.88 (19.08-30.69)	16231.64 (27.61-35.67)	70215.92 (14.84-17.00)	237220.93 (20.18-21.68)			
	Yes	3782.22 (71.05-93.39)	7671.70 (63.12-80.27)	23863.81 (58.93-68.68)	93769.30 (66.85-71.76)			
Backpain	<0.001		<0.001		<0.001		0.000	

No	40	21.16 (15.34-26.99)	135	28.85 (24.74-32.95)	538	13.32 (12.27-14.36)	1806	17.70 (16.96-18.44)
Yes	50	72.46 (61.92-83.00)	103	68.67 (61.24-76.09)	402	54.10 (50.52-57.69)	1503	60.51 (58.58-62.43)
Smoke		0.203		0.001		<0.001		<0.001
No	53	38.41 (30.29-46.52)	154	44.13 (38.92-49.34)	660	22.25 (20.76-23.75)	2310	31.10 (30.05-32.16)
Yes	37	30.83 (22.57-39.10)	84	31.23 (25.69-36.76)	280	15.41 (13.75-17.07)	999	19.00 (17.94-20.06)
Drink		0.659		0.031		<0.001		<0.001
No	64	35.75 (28.73-42.78)	200	40.65 (36.31-44.99)	666	22.17 (20.68-23.66)	2495	29.51 (28.53-30.48)
Yes	26	32.91 (22.55-43.27)	38	30.16 (22.15-38.17)	274	15.40 (13.72-17.08)	814	19.24 (18.06-20.43)
Insurance		0.299		0.312		0.769		0.009
No	0	0.00 (0.00-84.19)	2	22.22 (2.81-60.01)	20	20.83 (12.71-28.96)	140	31.39 (27.08-35.70)
Yes	90	35.16 (29.31-41.01)	236	38.75 (34.88-42.62)	920	19.63 (18.49-20.77)	3169	25.89 (25.11-26.67)

Nighttime sleep, hour		0.615		0.020		< 0.001		< 0.001	
≤7	70	35.18 (28.54-41.81)	184	42.01 (37.39-46.63)	759	20.87 (19.55-22.19)	2509	28.53 (27.59-29.47)	
7-9	13	30.23 (16.51-43.96)	32	29.36 (20.81-37.91)	148	16.34 (13.93-18.74)	517	19.61 (18.10-21.13)	
≥9	7	43.75 (19.44-68.06)	22	30.99 (20.23-41.74)	33	13.75 (9.39-18.11)	283	22.53 (20.22-24.84)	
Nap time, minute		0.943		0.290		0.286		< 0.001	
NO nap	26	34.67 (23.90-45.44)	93	40.97 (34.57-47.37)	336	20.73 (18.75-22.70)	1460	28.50 (27.26-29.74)	
≤30	23	37.70 (25.54-49.87)	38	44.71 (34.14-55.28)	211	19.87 (17.47-22.27)	566	27.83 (25.88-29.77)	
30-60	2	28.57 (3.67-70.96)	1	25.00 (0.63-80.59)	33	22.45 (15.70-29.19)	33	21.57 (15.05-28.09)	
≥60	39	33.91 (25.26-42.57)	106	35.10 (29.72-40.48)	360	18.43 (16.71-20.15)	1250	23.25 (22.12-24.38)	
Depression		0.858		0.207		0.693		< 0.001	

No	53	35.33 (27.68-42.98)	128	36.36 (31.34-41.39)	594	19.48 (18.08-20.89)	1832	24.83 (23.84-25.82)
Yes	37	34.26 (25.31-43.21)	110	41.35 (35.44-47.27)	346	19.95 (18.07-21.83)	1477	27.83 (26.62-29.03)
Hip pain		< 0.001		< 0.001		< 0.001		< 0.001
No	58	27.23 (21.25-33.21)	171	33.14 (29.08-37.20)	759	16.98 (15.88-18.08)	2544	22.14 (21.38-22.90)
Yes	32	71.11 (57.87-84.35)	67	65.69 (56.47-74.90)	181	57.64 (52.18-63.11)	765	64.02 (61.30-66.74)
Chronic disease		0.874		0.461		0.799		0.441
No	47	35.34 (27.21-43.46)	125	39.94 (34.51-45.36)	518	19.79 (18.26-21.31)	1838	25.82 (24.80-26.83)
Yes	43	34.40 (26.07-42.73)	113	37.05 (31.63-42.47)	422	19.49 (17.82-21.16)	1471	26.42 (25.27-27.58)

Note: In the subgroup analysis by urbanization within stroke and non-stroke groups, variables are presented as frequencies, percentages, and 95% confidence intervals. Statistical significance within the groups was determined using the χ^2 test, with $p < 0.05$ indicating a statistically significant difference.

Table S3 Prevalence of Headache in Patients with Stroke Aged 45 Years or Older by Hypertension

Variables	Stroke (n=876)						No stroke (n=17469)					
	No Hypertension (n=399)			Hypertension (n=477)			No Hypertension (n=12448)			Hypertension (n=5021)		
	Frequency (n)	Prevalence (95%CI)	P	Frequency (n)	Prevalence (95%CI)	P	Frequency (n)	Prevalence (95%CI)	P	Frequency (n)	Prevalence (95%CI)	P
Total	159	39.85%		169	35.43%		2873	23.08%		1376	27.40%	
Gender			0.006			< 0.001			< 0.001			< 0.001
male	60	32.61 (25.84-39.38)		64	25.81 (20.36-31.25)		842	14.68 (13.77-15.60)		448	18.43 (16.89-19.97)	
female	99	46.05 (39.38-52.71)		105	45.85 (39.40-52.31)		2031	30.25 (29.16-31.35)		928	35.83 (33.98-37.68)	
Age			0.474			0.043			0.754			0.117
45-59	36	40.91 (30.64-51.18)		39	37.86 (28.50-47.23)		1475	23.03 (22.00-24.06)		489	29.18 (27.00-31.35)	
60-69	72	42.60 (35.15-50.06)		77	40.74 (33.74-47.75)		893	22.84 (21.52-24.15)		461	26.10 (24.06-28.15)	
≥70	51	35.92 (28.02-43.81)		53	28.65 (22.13-35.16)		505	23.68 (21.87-25.48)		426	26.98 (24.79-29.17)	
Urbanization			0.968			0.146			< 0.001			< 0.001
urban	48	40.00 (31.23-48.77)		42	30.43 (22.76-38.11)		668	18.77 (17.49-20.05)		272	22.22 (19.89-24.55)	

rural	111	39.78 (34.04-45.53)	127	37.46 (32.31-42.62)	2205	24.81 (23.91-25.70)	1104	29.08 (27.63-30.52)
Education level		0.146		0.013		< 0.001		< 0.001
Illiterate	50	47.62 (38.07-57.17)	64	44.76 (36.61-52.91)	833	30.56 (28.83-32.29)	491	35.15 (32.64-37.65)
compulsory education and above	103	37.45 (31.73-43.18)	99	32.14 (26.93-37.36)	1957	21.66 (20.81-22.51)	853	24.99 (23.53-26.44)
University and above	6	31.58 (10.68-52.48)	6	23.08 (6.88-39.27)	83	12.08 (9.64-14.52)	32	15.24 (10.38-20.10)
Marry status		0.649		0.200		< 0.001		0.013
Married	125	41.12 (35.59-46.65)	124	35.33 (30.33-40.33)	2243	22.45 (21.63-23.26)	1007	26.42 (25.02-27.82)
Divorced or living alone	7	35.00 (14.10-55.90)	14	50.00 (31.48-68.52)	261	22.72 (20.29-25.14)	109	32.63 (27.61-37.66)
Others	27	36.00 (25.23-47.91)	31	31.63 (22.61-41.80)	369	28.25 (25.83-30.78)	260	29.68 (26.86-33.05)
Nation		0.685		0.003		< 0.001		0.002
Han	146	39.57 (34.58-44.56)	143	33.26 (28.80-37.71)	2604	22.63 (21.87-23.40)	1237	26.82 (25.54-28.10)
Minority	13	43.33 (25.60-61.07)	26	55.32 (41.11-69.53)	269	28.56 (25.67-31.44)	139	33.99 (29.39-38.58)
National region		0.175		0.004		< 0.001		< 0.001

North China	23	37.10 (25.07-49.12)	19	24.05 (14.63-33.48)	286	18.92 (16.94-20.89)	134	21.90 (18.62-25.17)
Central China	35	48.61 (37.07-60.16)	30	43.48 (31.78-55.18)	634	32.55 (30.47-34.63)	269	36.11 (32.66-39.56)
East China	41	39.81 (30.35-49.26)	43	38.74 (29.68-47.80)	796	21.62 (20.29-22.95)	402	29.17 (26.77-31.57)
South China	2	11.76 (1.46-36.44)	7	17.95 (5.90-29.99)	195	16.02 (13.96-18.08)	113	17.07 (14.20-19.94)
Northeast	17	43.59 (28.03-59.15)	12	25.53 (13.07-38.00)	197	19.14 (16.74-21.55)	90	22.96 (18.80-27.12)
Northwest	8	47.06 (23.33-70.79)	9	37.50 (18.13-56.87)	290	26.27 (23.67-28.86)	96	27.75 (23.03-32.46)
Southwest	33	37.08 (27.04-47.11)	49	45.37 (35.98-54.76)	475	24.27 (22.37-26.17)	272	30.70 (27.66-33.74)
Health status		< 0.001		< 0.001		< 0.001		< 0.001
Good	9	17.65 (8.40-30.87)	6	12.50 (4.73-25.25)	366	10.16 (9.20-11.20)	130	11.78 (9.93-13.82)
Fair	55	35.95 (28.34-43.55)	40	24.10 (17.59-30.60)	1367	22.32 (21.28-23.36)	604	24.91 (23.19-26.63)
Poor	66	44.59 (36.59-52.60)	79	42.70 (35.57-49.83)	861	39.86 (37.80-41.93)	477	41.30 (38.46-44.14)
Very poor	29	61.70 (47.80-75.60)	44	56.41 (45.41-67.42)	279	49.64 (45.51-53.78)	165	48.96 (43.62-54.30)
Self-employed agricultural		0.809		0.483		0.001		0.029

No	96	40.34 (34.10-46.57)	94	36.86 (30.94-42.78)	1484	21.96 (20.97-22.94)	717	26.15 (24.50-27.79)	
Yes	63	39.13 (31.59-46.67)	75	33.78 (27.56-40.01)	1389	24.42 (23.30-25.53)	659	28.92 (27.05-30.78)	
Annual income		0.693		0.802		0.011			< 0.001
<5000	125	38.46 (33.17-43.75)	132	35.01 (30.20-39.83)	2330	23.59 (22.76-24.43)	1153	28.93 (27.52-30.33)	
5000-10000	2	50.00 (6.76-93.24)	3	25.00 (5.49-57.19)	61	18.65 (14.43-22.88)	29	21.01 (14.22-27.81)	
10000-20000	8	47.06 (23.33-70.79)	13	38.24 (21.90-54.57)	150	23.81 (20.48-27.14)	54	21.09 (16.10-26.09)	
>20000	24	45.28 (31.88-58.68)	21	38.89 (25.89-51.89)	332	20.54 (18.57-22.51)	140	21.84 (18.64-25.04)	
Disability		0.367		0.379		< 0.001			0.010
No	137	39.03 (33.93-44.13)	135	34.53 (29.81-39.24)	2698	22.71 (21.96-23.47)	1270	26.99 (25.72-28.26)	
Yes	22	45.83 (31.74-59.93)	34	39.53 (29.20-49.87)	175	30.76 (26.96-34.55)	106	33.65 (28.43-38.87)	
Dyslipemia		0.404		0.040		< 0.001			< 0.001
No	128	38.91 (33.64-44.17)	110	32.54 (27.55-37.54)	2538	22.27 (21.50-23.03)	1095	25.98 (24.66-27.31)	
Yes	31	44.29 (32.65-55.92)	59	42.45 (34.23-50.66)	335	31.90 (29.09-34.72)	281	34.82 (31.53-38.11)	

Diabetes		0.270		0.075		< 0.001		0.062
No	142	39.01 (34.00-44.02)	138	33.82 (29.23-38.41)	2708	22.68 (21.93-23.43)	1237	27.04 (25.75-28.33)
Yes	17	48.57 (32.01-65.13)	31	44.93 (33.19-56.66)	165	32.54 (28.47-36.62)	139	31.17 (26.87-35.46)
Brain injury		0.620		0.233		< 0.001		< 0.001
No	135	39.36 (34.19-44.53)	136	34.26 (29.59-38.93)	2741	22.54 (21.80-23.29)	1297	26.78 (25.53-28.02)
Yes	24	42.86 (29.90-55.82)	33	41.25 (30.46-52.04)	132	45.67 (39.93-51.42)	79	44.63 (37.31-51.96)
Shoulder pain		< 0.001		< 0.001		0.000		< 0.001
No	61	24.40 (19.08-29.72)	65	19.94 (15.60-24.28)	1197	12.90 (12.21-13.58)	594	15.98 (14.80-17.15)
Yes	98	65.77 (58.15-73.39)	104	68.87 (61.49-76.26)	1676	52.94 (51.20-54.68)	782	60.02 (57.36-62.68)
Chest pain		< 0.001		< 0.001		< 0.001		< 0.001
No	107	32.52 (27.46-37.58)	108	27.27 (22.89-31.66)	2123	18.76 (18.04-19.48)	951	21.49 (20.28-22.70)
Yes	52	74.29 (64.05-84.52)	61	75.31 (65.92-84.70)	750	66.43 (63.68-69.19)	425	71.31 (67.68-74.94)
Backpain		< 0.001		< 0.001		0.000		< 0.001

No	85	29.41 (24.16-34.67)	90	24.46 (20.06-28.85)	1585	15.53 (14.83-16.23)	759	18.80 (17.60-20.01)
Yes	74	67.27 (58.50-76.04)	79	72.48 (64.09-80.86)	1288	57.42 (55.38-59.47)	617	62.70 (59.68-65.72)
Smoke		0.109		0.001		< 0.001		< 0.001
No	99	43.23 (36.82-49.65)	108	41.86 (35.84-47.88)	2030	27.06 (26.06-28.07)	940	32.50 (30.80-34.21)
Yes	60	35.29 (28.11-42.48)	61	27.85 (21.92-33.79)	843	17.04 (15.99-18.09)	436	20.48 (18.76-22.19)
Drink		0.105		0.130		< 0.001		< 0.001
No	123	42.27 (36.59-47.94)	141	37.11 (32.25-41.96)	2130	26.10 (25.14-27.05)	1031	31.26 (29.68-32.84)
Yes	36	33.33 (24.44-42.22)	28	28.87 (19.85-37.88)	743	17.34 (16.20-18.47)	345	20.02 (18.13-21.91)
Insurance		0.243		0.468		0.072		0.024
No	1	16.67 (0.42-64.12)	1	20.00 (0.51-71.64)	99	26.98 (22.43-31.52)	61	34.86 (27.80-41.92)
Yes	158	40.20 (35.36-45.05)	168	35.59 (31.27-39.91)	2774	22.96 (22.21-23.71)	1315	27.14 (25.88-28.39)
Nighttime sleep, hour		0.745		0.032		< 0.001		< 0.001
≤7	122	40.94 (35.36-46.52)	132	38.94 (33.75-44.13)	2221	25.13 (24.22-26.03)	1047	29.15 (27.66-30.63)

7-9	24	36.36 (24.76-47.97)	21	24.42 (15.34-33.50)	445	17.13 (15.68-18.58)	220	23.31 (20.61-26.00)
≥9	13	37.14 (21.13-53.15)	16	30.77 (18.22-43.31)	207	20.47 (17.99-22.96)	109	22.47 (18.76-26.19)
Nap time, minute		0.534		0.267		< 0.001		0.002
NO nap	61	43.88 (35.64-52.13)	58	35.58 (28.23-42.93)	1252	25.37 (24.16-26.59)	544	30.06 (27.94-32.17)
≤30	26	41.94 (29.65-54.22)	35	41.67 (31.12-52.21)	529	23.73 (21.97-25.50)	248	28.60 (25.60-31.61)
30-60	3	42.86 (6.20-79.52)	0	0.00 (0.00-0.00)	48	22.33 (16.76-27.89)	18	21.18 (12.49-29.86)
≥60	69	36.13 (29.31-42.94)	76	33.63 (27.47-39.79)	1044	20.59 (19.48-21.70)	566	25.06 (23.27-26.84)
Depression		0.152		0.008		0.003		0.008
No	97	42.92 (36.47-49.37)	84	30.43 (25.01-35.86)	1653	22.17 (21.23-23.11)	773	26.02 (24.44-27.60)
Yes	62	35.84 (28.69-42.98)	85	42.29 (35.46-49.12)	1220	24.44 (23.25-25.63)	603	29.41 (27.44-31.39)
Hip pain		< 0.001		< 0.001		< 0.001		< 0.001
No	109	33.54 (28.41-38.67)	120	29.70 (25.25-34.16)	2224	19.48 (18.75-20.20)	1079	23.76 (22.52-24.99)
Yes	50	67.57 (56.90-78.23)	49	67.12 (56.35-77.90)	649	63.01 (60.06-65.96)	297	62.00 (57.66-66.35)

Chronic disease		0.032		0.317		0.736		0.181	
No	89	45.18 (38.23-52.13)	83	33.33 (27.48-39.19)	1605	23.19 (22.20-24.19)	751	26.66 (25.03-28.29)	
Yes	70	34.65 (28.09-41.22)	86	37.72 (31.43-44.01)	1268	22.94 (21.83-24.05)	625	28.36 (26.48-30.24)	

Note: In the subgroup analysis by Hypertension within stroke and non-stroke groups, variables are presented as frequencies, percentages, and 95% confidence intervals. Statistical significance within the groups was determined using the χ^2 test, with $p < 0.05$ indicating a statistically significant difference.

Table S4 Prevalence of Headache in Patients with Stroke Aged 45 Years or Older by Dyslipemia

Variables	Stroke (n=876)						No stroke (n=17469)					
	No Dyslipemia (n=667)			Dyslipemia (n=209)			No Dyslipemia (n=15612)			Dyslipemia (n=1857)		
	Frequency	Prevalence (95%CI)	P	Frequency	Prevalence (95%CI)	P	Frequency	Prevalence (95%CI)	P	Frequency	Prevalence (95%CI)	P
	(n)			(n)			(n)			(n)		
Total	238	35.68%		90	43.06%		3633	23.27%		616	33.17%	
Gender			<0.001			0.007			<0.001			<0.001
male	88	26.99 (22.17-31.81)		36	33.96 (24.95-42.98)		1113	15.11 (14.29-15.93)		177	22.10 (19.22-24.97)	
female	150	43.99 (38.72-49.26)		54	52.43 (42.78-62.07)		2520	30.56 (29.56-31.55)		439	41.57 (38.60-44.54)	
Age			0.715			<0.001			0.243			0.958
45-59	49	36.30 (28.18-44.41)		26	46.43 (33.37-59.49)		1698	23.30 (22.33-24.27)		266	33.54 (30.26-36.83)	
60-69	100	37.17 (31.40-42.95)		49	55.06 (44.72-65.39)		1128	22.61 (21.45-23.77)		226	32.90 (29.38-36.41)	

≥70	89	33.84 (28.12-39.56)	15	23.44 (13.06-33.82)	807	24.20 (22.74-25.65)	124	32.89 (28.15-37.63)
Urbanization		0.184		0.999		<0.001		<0.001
urban	59	31.72 (25.03-38.41)	31	43.06 (31.62-54.49)	756	18.45 (17.26-19.64)	184	26.82 (23.51-30.14)
rural	179	37.21 (32.89-41.53)	59	43.07 (34.77-51.36)	2877	24.98 (24.19-25.78)	432	36.89 (34.13-39.66)
Education level		0.029		0.044		<0.001		<0.001
Illiterate	84	43.08 (36.13-50.03)	30	56.60 (43.26-69.95)	1156	30.83 (29.36-32.31)	168	44.92 (39.88-49.96)
compulsory education and above	146	33.03 (28.65-37.42)	56	39.72 (31.64-47.79)	2386	21.44 (20.68-22.20)	424	32.10 (29.58-34.61)
University and above	8	26.67 (10.84-42.49)	4	26.67 (4.29-49.05)	91	12.38 (10.00-14.76)	24	14.81 (9.34-20.29)

Marry status			0.148		0.791		<0.001		<0.001	
	Married	180	36.51 (32.26-40.76)	69	42.59 (34.98-50.21)	2788	22.64 (21.90-23.38)	462	31.01 (28.66-33.36)	
	Divorced or living alone	17	45.95 (29.89-62.00)	4	36.36 (7.94-64.79)	313	23.39 (21.12-25.66)	57	39.31 (31.36-47.26)	
	Others	41	29.93 (22.26-37.60)	17	47.22 (30.91-63.53)	532	27.14 (25.17-29.11)	97	43.69 (37.17-50.22)	
Nation			0.039		0.235		<0.001		<0.001	
	Han	213	34.58 (30.82-38.33)	76	41.53 (34.39-48.67)	3294	22.86 (22.17-23.54)	547	32.03 (29.81-34.24)	
	Minority	25	49.02 (35.30-62.74)	14	53.85 (34.68-73.01)	339	28.20 (25.66-30.75)	69	46.31 (38.30-54.32)	
National region			0.019		0.220		<0.001		0.009	
	North China	31	28.70 (20.17-37.24)	11	33.33 (17.25-49.42)	354	18.67 (16.92-20.42)	66	28.95 (23.06-34.83)	

Table 1. Mean and standard deviation of the serum ferritin concentration (µg/L) in the study population, by region and health status								
Region	Mean (SD)		n	Mean (SD)		n	Mean (SD)	
	Mean	SD		Mean	SD		Mean	SD
Central China	49	43.75 (34.56-52.94)	16	55.17 (37.07-73.27)	813	32.93 (31.07-34.78)	90	40.18 (33.76-46.60)
East China	62	36.69 (29.42-43.95)	22	48.89 (34.28-63.49)	1032	22.70 (21.48-23.91)	166	32.42 (28.37-36.48)
South China	6	15.38 (4.06-26.71)	3	17.65 (3.80-43.43)	249	15.05 (13.32-16.77)	59	26.34 (20.57-32.11)
Northeast	21	30.43 (19.58-41.29)	8	47.06 (23.33-70.79)	243	19.21 (17.04-21.38)	44	28.21 (21.14-35.27)
Northwest	13	40.63 (23.61-57.64)	4	44.44 (11.98-76.91)	336	25.53 (23.18-27.89)	50	37.31 (29.12-45.50)
Southwest	56	40.58 (32.39-48.77)	26	44.07 (31.40-56.74)	606	24.59 (22.89-26.29)	141	37.20 (32.34-42.07)
Health status	< 0.001		0.011		< 0.001		< 0.001	
Good	12	14.63 (6.98-22.28)	3	17.65 (3.80-43.43)	465	10.52 (9.61-11.42)	31	10.95 (7.32-14.59)
Fair	69	28.05 (22.43-33.66)	26	35.62 (24.63-46.60)	1715	22.38 (21.45-23.32)	256	28.83 (25.85-31.81)
Poor	110	42.64 (36.60-48.67)	35	46.67 (35.38-57.96)	1109	39.51 (37.70-41.32)	229	45.08 (40.75-49.41)
Very poor	47	58.02 (47.28-68.77)	26	59.09 (44.56-73.62)	344	47.71 (44.07-51.36)	100	56.18 (48.89-63.47)

[illegible]

Table 1: Baseline Characteristics of the Study Population									
Characteristic		Group A (n=150)		Group B (n=150)		Total (n=300)		P-value	
Hypertension	Yes	85	38.91 (33.64-44.17)	92	44.29 (32.65-55.92)	177	22.27 (21.50-23.03)	0.086	0.800
	No	65	32.54 (27.55-37.54)	58	42.45 (34.23-50.66)	123	25.98 (24.66-27.31)	< 0.001	0.186
		150		150		300			
Diabetes	Yes	45	35.30 (31.51-39.10)	65	39.88 (32.36-47.39)	110	23.02 (22.35-23.70)	0.509	0.080
	No	105	39.66 (27.07-52.24)	85	54.35 (39.95-68.74)	190	29.32 (25.72-32.92)	< 0.001	0.141
		150		150		300			
Brain injury	Yes	200	34.36 (30.51-38.22)	71	44.94 (37.18-52.69)	271	22.77 (22.10-23.43)	0.063	0.335
	No	38	44.71 (34.14-55.28)	19	37.25 (23.99-50.52)	57	43.62 (38.60-48.63)	< 0.001	< 0.001
		150		150		300			
Shoulder pain	Yes	120	38.91 (33.64-44.17)	92	44.29 (32.65-55.92)	212	22.27 (21.50-23.03)	< 0.001	< 0.001
	No	30	32.54 (27.55-37.54)	58	42.45 (34.23-50.66)	88	25.98 (24.66-27.31)	0.001	0.001
		150		150		300			

Table 1. Risk factors for the development of coronary artery disease									
Risk factor	Group 1 (n=100)		Group 2 (n=100)		Group 3 (n=100)		Group 4 (n=100)		P-value
	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)	
Chest pain	No	94	20.61 (16.90-24.33)	32	26.67 (18.75-34.58)	1571	13.31 (12.70-13.92)	220	18.39 (16.20-20.59)
	Yes	144	68.25 (61.97-74.53)	58	65.17 (55.27-75.07)	2062	54.15 (52.57-55.73)	396	59.91 (56.17-63.65)
			< 0.001		< 0.001			0.000	< 0.001
Backpain	No	165	29.20 (25.45-32.95)	50	31.25 (24.07-38.43)	2651	18.72 (18.08-19.36)	423	26.70 (24.53-28.88)
	Yes	73	71.57 (62.81-80.32)	40	81.63 (70.79-92.47)	982	67.63 (65.22-70.04)	193	70.70 (65.30-76.10)
			< 0.001		< 0.001			0.000	< 0.001
Smoke	No	131	25.54 (21.76-29.31)	44	30.56 (23.03-38.08)	2037	15.82 (15.19-16.45)	307	22.51 (20.29-24.72)
	Yes	107	69.48 (62.21-76.75)	46	70.77 (59.71-81.83)	1596	58.38 (56.53-60.22)	309	62.68 (58.41-66.95)
			0.006		0.026			< 0.001	< 0.001
	No	150	40.21 (35.24-45.19)	57	50.00 (40.82-59.18)	2524	27.37 (26.46-28.28)	446	38.12 (35.34-40.90)
	Yes	88	29.93 (24.70-35.17)	33	34.74 (25.16-44.31)	1109	17.36 (16.43-18.29)	170	24.75 (21.52-27.97)

Table 1. Characteristics of the study population									
Characteristic		N		Mean (SD)		N		Mean (SD)	
Gender		N		Mean (SD)		N		Mean (SD)	
Male		191	37.23 (33.05-41.42)	73	46.20 (38.43-53.98)	2684	26.37 (25.51-27.22)	477	37.27 (34.62-39.91)
Female		47	30.52 (23.25-37.79)	17	33.33 (20.40-46.27)	949	17.47 (16.46-18.48)	139	24.09 (20.60-27.58)
P-value		0.127		0.107		< 0.001		< 0.001	
Insurance		N		Mean (SD)		N		Mean (SD)	
No		2	18.18 (2.28-51.78)	0	0.00 (0.00-0.00)	145	28.83 (24.87-32.79)	15	38.46 (23.19-53.73)
Yes		236	35.98 (32.30-39.65)	90	43.06 (36.35-49.78)	3488	23.09 (22.41-23.76)	601	33.06 (30.90-35.22)
P-value		0.222		0.003		0.478			
Nighttime sleep, hour		N		Mean (SD)		N		Mean (SD)	
≤7		180	37.74 (33.39-42.09)	74	46.25 (38.52-53.98)	2786	25.23 (24.42-26.04)	482	34.68 (32.17-37.18)
7-9		36	30.00 (21.80-38.20)	9	28.13 (12.55-43.70)	580	18.04 (16.71-19.37)	85	25.99 (21.24-30.75)
≥9		22	31.43 (20.55-42.30)	7	41.18 (17.78-64.57)	267	19.69 (17.57-21.81)	49	35.00 (27.10-42.90)
P-value		0.210		0.165		< 0.001		0.010	
Nap time, minute		N		Mean (SD)		N		Mean (SD)	
≤15		180	37.74 (33.39-42.09)	74	46.25 (38.52-53.98)	2786	25.23 (24.42-26.04)	482	34.68 (32.17-37.18)
16-30		36	30.00 (21.80-38.20)	9	28.13 (12.55-43.70)	580	18.04 (16.71-19.37)	85	25.99 (21.24-30.75)
≥31		22	31.43 (20.55-42.30)	7	41.18 (17.78-64.57)	267	19.69 (17.57-21.81)	49	35.00 (27.10-42.90)
P-value		0.478		0.666		< 0.001		0.012	

	NO nap	88	37.29 (31.12-43.46)	31	46.97 (34.93-59.01)	1565	25.55 (24.45-26.64)	231	37.38 (33.56-41.19)
	≤30	43	40.57 (31.22-49.91)	18	45.00 (29.58-60.42)	655	24.01 (22.41-25.61)	122	33.15 (28.34-37.96)
	30-60	3	30.00 (1.60-58.40)	0	0.00 (0.00-97.50)	58	22.48 (17.39-27.57)	8	19.05 (7.17-30.92)
	≥60	104	33.02 (27.82-38.21)	41	40.20 (30.68-49.71)	1355	20.85 (19.86-21.83)	255	30.76 (27.62-33.90)
Depression			0.299		0.684		<0.001		0.321
	No	126	33.96 (29.14-38.78)	55	41.98 (33.53-50.44)	2073	22.21 (21.37-23.05)	353	32.27 (29.50-35.04)
	Yes	112	37.84 (32.31-43.36)	35	44.87 (33.83-55.91)	1560	24.84 (23.78-25.91)	263	34.47 (31.10-37.84)
Hip pain			<0.001		<0.001		<0.001		<0.001
	No	175	30.86 (27.06-34.67)	54	33.33 (26.07-40.59)	2837	19.79 (19.14-20.44)	466	28.68 (26.48-30.88)
	Yes	63	63.00 (53.54-72.46)	36	76.60 (64.49-88.70)	796	62.33 (59.68-64.99)	150	64.66 (58.50-70.81)
Chronic disease			0.181		0.592		0.808		0.175

No	136	37.99 (32.96-43.02)	36	40.91 (30.64-51.18)	2043	23.34 (22.46-24.23)	313	31.78 (28.87-34.68)
Yes	102	33.01 (27.77-38.25)	54	44.63 (35.77-53.49)	1590	23.18 (22.18-24.18)	303	34.75 (31.59-37.91)

Note: In the subgroup analysis by Dyslipemia within stroke and non-stroke groups, variables are presented as frequencies, percentages, and 95% confidence intervals. Statistical significance within the groups was determined using the χ^2 test, with $p < 0.05$ indicating a statistically significant difference.

Table S5 Multivariate Analyses of Headaches Associated with Risk Factors in the Entire Stroke Population by Gender

	Male		Female	
	OR (95%CI)	<i>P</i>	OR (95%CI)	<i>P</i>
Education level				
Illiterate	1 (Reference)		1 (Reference)	
compulsory education and above	0.87 (0.42-1.80)	0.705	0.81 (0.50-1.30)	0.374
University and above	0.67 (0.20-2.20)	0.508	0.67 (0.16-2.75)	0.579
Nation				
Han	1 (Reference)		1 (Reference)	
Minority	1.27 (0.49-3.31)	0.626	1.05 (0.48-2.27)	0.906
National region				
North China	1 (Reference)		1 (Reference)	
Central China	2.62 (1.08-6.36)	0.033	2.40 (1.05-5.51)	0.038
East China	2.10 (0.91-4.84)	0.08	1.75 (0.82-3.72)	0.149

South China	0.46 (0.09-2.47)	0.365	0.66 (0.21-2.11)	0.487
Northeast	0.82 (0.26-2.63)	0.738	1.71 (0.70-4.16)	0.236
Northwest	4.19 (1.22-14.42)	0.023	1.35 (0.39-4.61)	0.637
Southwest	0.81 (0.33-1.96)	0.64	2.23 (1.01-4.92)	0.046
Health status				
Good	1 (Reference)		1 (Reference)	
Fair	2.31 (0.83-6.46)	0.109	1.71 (0.65-4.47)	0.276
Poor	3.05 (1.11-8.43)	0.031	2.59 (0.99-6.76)	0.052
Very poor	4.83 (1.52-15.29)	0.007	4.19 (1.42-12.37)	0.009
Dyslipemia				
No	1 (Reference)		1 (Reference)	
Yes	0.71 (0.38-1.34)	0.292	1.13 (0.65-1.97)	0.662
Diabetes				
No	1 (Reference)		1 (Reference)	

Yes	1.41 (0.63-3.15)	0.402	2.23 (1.10-4.51)	0.026
Shoulder pain				
No	1 (Reference)		1 (Reference)	
Yes	6.31 (3.48-11.43)	<0.001	3.48 (2.10-5.78)	<0.001
Chest pain				
No	1 (Reference)		1 (Reference)	
Yes	1.19 (0.52-2.71)	0.677	3.99 (2.07-7.69)	<0.001
Backpain				
No	1 (Reference)		1 (Reference)	
Yes	4.60 (2.25-9.37)	<0.001	1.26 (0.72-2.19)	0.415
Nighttime sleep, hour				
≤7	1 (Reference)		1 (Reference)	
7-9	0.88 (0.45-1.75)	0.724	0.96 (0.50-1.86)	0.912
≥9	1.13 (0.50-2.55)	0.774	1.20 (0.52-2.78)	0.667

Hip pain

No	1 (Reference)		1 (Reference)	
Yes	1.45 (0.65-3.23)	0.361	1.61 (0.89-2.93)	0.119

Note: The results are presented as OR (Odds Ratios) with 95% CI. The multivariable-adjusted subgroup analysis by Gender was conducted among 876 stroke patients aged 45 years and older. Statistical significance in the multivariate analysis was determined with $p < 0.05$.

Table S6 Multivariate Analyses of Headaches Associated with Risk Factors in the Entire Stroke Population by Residency

	Urban		Rural	
	OR (95%CI)	<i>P</i>	OR (95%CI)	<i>P</i>
Gender				
male	1 (Reference)		1 (Reference)	
female	1.47 (0.67-3.22)	0.336	1.49 (0.99-2.26)	0.058
Education level				
Illiterate	1 (Reference)		1 (Reference)	
compulsory education and above	0.85 (0.30-2.44)	0.767	0.78 (0.51-1.21)	0.266
University and above	0.94 (0.24-3.74)	0.93	0.40 (0.04-4.14)	0.444
Nation				
Han	1 (Reference)		1 (Reference)	
Minority	2.02 (0.55-7.45)	0.292	1.03 (0.52-2.05)	0.928
National region				

North China	1 (Reference)		1 (Reference)	
Central China	1.95 (0.53-7.17)	0.312	2.77 (1.38-5.56)	0.004
East China	2.17 (0.60-7.92)	0.241	1.85 (0.97-3.53)	0.061
South China	1.66 (0.14-19.49)	0.685	0.55 (0.20-1.49)	0.238
Northeast	0.59 (0.12-2.91)	0.519	1.82 (0.84-3.95)	0.13
Northwest	7.07 (1.54-32.45)	0.012	1.28 (0.39-4.24)	0.683
Southwest	1.08 (0.31-3.78)	0.91	1.74 (0.89-3.40)	0.104
Health status				
Good	1 (Reference)		1 (Reference)	
Fair	1.17 (0.29-4.70)	0.824	2.26 (1.00-5.11)	0.05
Poor	1.60 (0.38-6.70)	0.518	3.12 (1.40-6.93)	0.005
Very poor	3.88 (0.68-22.19)	0.128	4.76 (1.96-11.60)	0.001
Dyslipemia				

No	1 (Reference)		1 (Reference)	
Yes	0.83 (0.37-1.88)	0.661	1.03 (0.64-1.65)	0.913
Diabetes				
No	1 (Reference)		1 (Reference)	
Yes	4.94 (1.84-13.27)	0.002	1.18 (0.63-2.22)	0.605
Shoulder pain				
No	1 (Reference)		1 (Reference)	
Yes	5.87 (2.59-13.31)	<0.001	3.85 (2.48-5.97)	<0.001
Chest pain				
No	1 (Reference)		1 (Reference)	
Yes	5.43 (1.86-15.85)	0.002	1.90 (1.09-3.31)	0.023
Backpain				
No	1 (Reference)		1 (Reference)	

Yes	3.06 (1.26-7.43)	0.014	1.82 (1.10-3.00)	0.019
Nighttime sleep, hour				
≤7	1 (Reference)		1 (Reference)	
7-9	1.66 (0.60-4.57)	0.329	0.73 (0.43-1.25)	0.256
≥9	2.65 (0.64-10.91)	0.178	0.94 (0.49-1.77)	0.836
Hip pain				
No	1 (Reference)		1 (Reference)	
Yes	2.78 (1.05-7.38)	0.04	1.35 (0.77-2.37)	0.291

Note: The results are presented as OR (Odds Ratios) with 95% CI. The multivariable-adjusted subgroup analysis by Residence location was conducted among 876 stroke patients aged 45 years and older. Statistical significance in the multivariate analysis was determined with p<0.05.

Table S7 Multivariate Analyses of Headaches Associated with Risk Factors in the Entire Stroke Population by Dyslipemia

	NO dyslipemia		Dyslipemia	
	OR (95%CI)	<i>P</i>	OR (95%CI)	<i>P</i>
Gender				
male	1 (Reference)		1 (Reference)	
female	1.31 (0.86-1.99)	0.204	2.39 (1.09-5.24)	0.029
Education level				
Illiterate	1 (Reference)		1 (Reference)	
compulsory education and above	0.87 (0.56-1.37)	0.553	0.67 (0.29-1.57)	0.359
University and above	0.94 (0.34-2.61)	0.912	0.45 (0.09-2.32)	0.34
Nation				
Han	1 (Reference)		1 (Reference)	
Minority	0.83 (0.40-1.69)	0.599	1.69 (0.55-5.24)	0.363
National region				

North China	1 (Reference)		1 (Reference)	
Central China	2.20 (1.12-4.34)	0.023	4.43 (1.16-16.96)	0.03
East China	1.56 (0.82-2.96)	0.171	3.59 (1.06-12.16)	0.04
South China	0.61 (0.20-1.84)	0.38	0.68 (0.11-4.12)	0.672
Northeast	0.98 (0.44-2.16)	0.958	3.74 (0.84-16.64)	0.083
Northwest	2.02 (0.75-5.45)	0.165	7.98 (1.38-46.06)	0.02
Southwest	1.24 (0.63-2.42)	0.534	1.99 (0.62-6.41)	0.248
Health status				
Good	1 (Reference)		1 (Reference)	
Fair	1.76 (0.82-3.78)	0.149	2.55 (0.52-12.52)	0.249
Poor	2.74 (1.29-5.82)	0.009	2.83 (0.56-14.32)	0.209
Very poor	4.50 (1.87-10.81)	0.001	4.32 (0.77-24.21)	0.096
Diabetes				
No	1 (Reference)		1 (Reference)	

Yes	1.43 (0.73-2.80)	0.298	2.85 (1.20-6.76)	0.018
Shoulder pain				
No	1 (Reference)		1 (Reference)	
Yes	5.02 (3.26-7.72)	<0.001	2.65 (1.15-6.11)	0.022
Chest pain				
No	1 (Reference)		1 (Reference)	
Yes	2.30 (1.31-4.05)	0.004	4.08 (1.47-11.36)	0.007
Backpain				
No	1 (Reference)		1 (Reference)	
Yes	2.36 (1.45-3.84)	0.001	1.47 (0.59-3.67)	0.41
Nighttime sleep, hour				
≤7	1 (Reference)		1 (Reference)	
7-9	1.14 (0.68-1.92)	0.623	0.52 (0.19-1.47)	0.218
≥9	1.12 (0.59-2.14)	0.73	1.50 (0.40-5.63)	0.549

Hip pain

No	1 (Reference)		1 (Reference)	
Yes	1.25 (0.71-2.20)	0.433	2.21 (0.83-5.87)	0.112

Note: The results are presented as OR (Odds Ratios) with 95% CI. The multivariable-adjusted subgroup analysis by Dyslipemia was conducted among 876 stroke patients aged 45 years and older. Statistical significance in the multivariate analysis was determined with $p < 0.05$.