

**Supplementary Appendix: The burden of common
neurological diseases in Asian countries from 1990 to 2019:
an analysis for the Global Burden of Disease Study 2019**

Content

eFigure 1. Geographical variations of both sexes and the age-standardised DALY rates per 100000 persons for neurological disorders in 2019 (A-M)

eFigure 2. Contribution of each disease to the overall burden of neurological disorders in Asia in 2019 (Percentages represent proportion of DALYs)

Case definition

eTable 1: List of International Classification of Diseases (ICD) codes mapped to the Global Burden of neurological disorders

eTable 2: List of other neurological disorders in ICD 10

eTable 3: Values for 5 SDI quintiles

eTable 4: The SDI levels of Asian countries in 2019, Data quality rating from 0 to 5 stars and percent well certified across time series for Asian countries, 1980-2019

eTable 5: The absolute number (thousands) and age-standardised rate (per 100 000) of DALYs, with the percentage change between 1990 and 2019 for combined neurological disorders in Asian countries and territories

eTable 6: Age-standardised rates of incidence, prevalence, mortality and DALY rates (per 100000 persons) of stroke in Asian countries and territories (1990-2019)

eTable 7: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of Alzheimer's disease and other dementia in Asian countries and territories (1990-2019)

eTable 8: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of Parkinson's disease in Asian countries and territories (1990-2019)

eTable 9: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of Motor neuron diseases in Asian countries and territories (1990-2019)

eTable 10: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of meningitis in Asian countries and territories (1990-2019)

eTable 11: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of encephalitis in Asian countries and territories (1990-2019)

eTable 12: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of tetanus in Asian countries and territories (1990-2019)

eTable 13: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of idiopathic epilepsy in Asian countries and territories (1990-2019)

eTable 14: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of migraine in Asian countries and territories (1990-2019)

eTable 15: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of Tension-type headache in Asian countries and territories (1990-2019)

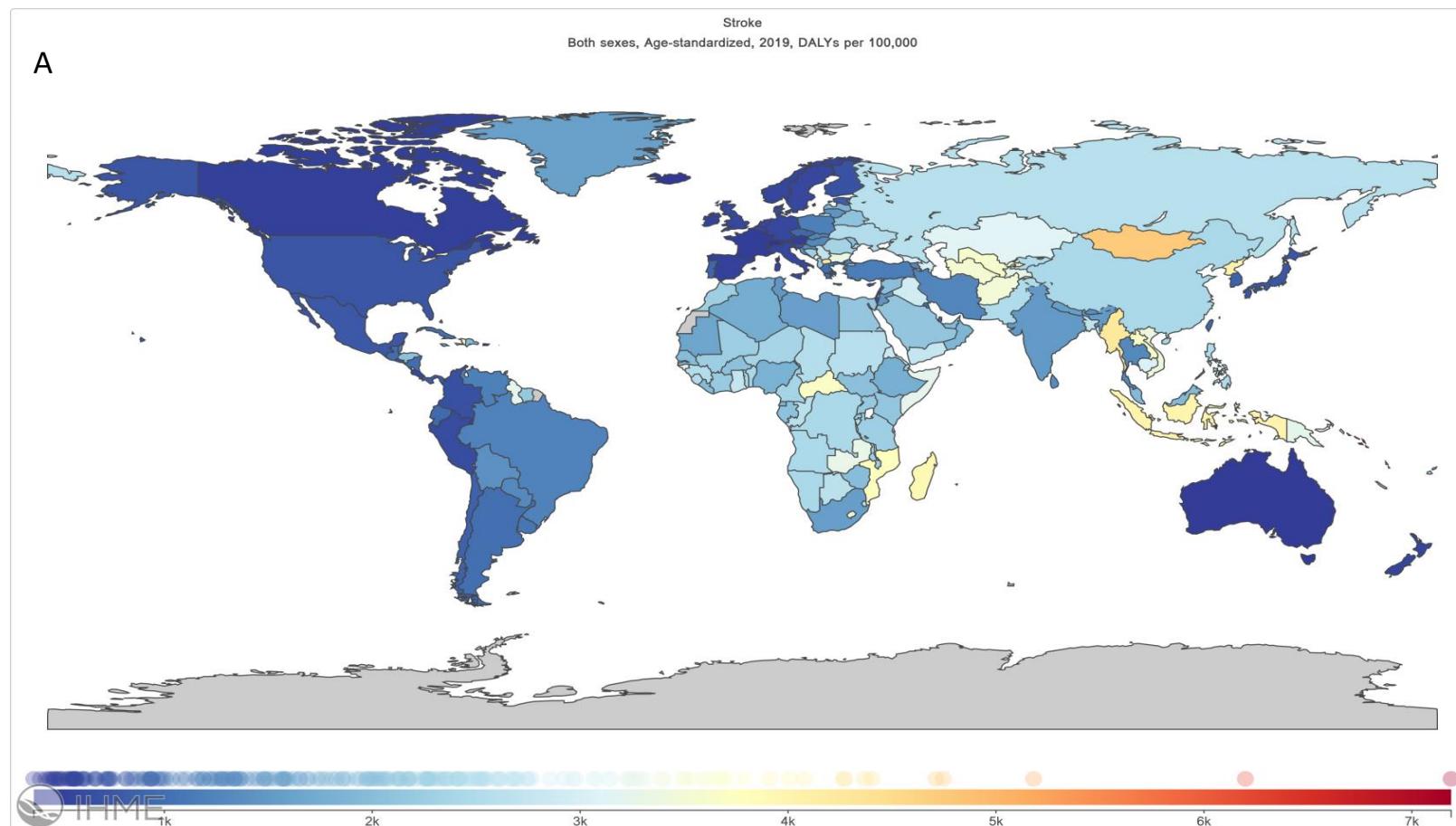
eTable 16: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of brain and other central nervous system cancer in Asian countries and territories (1990-2019)

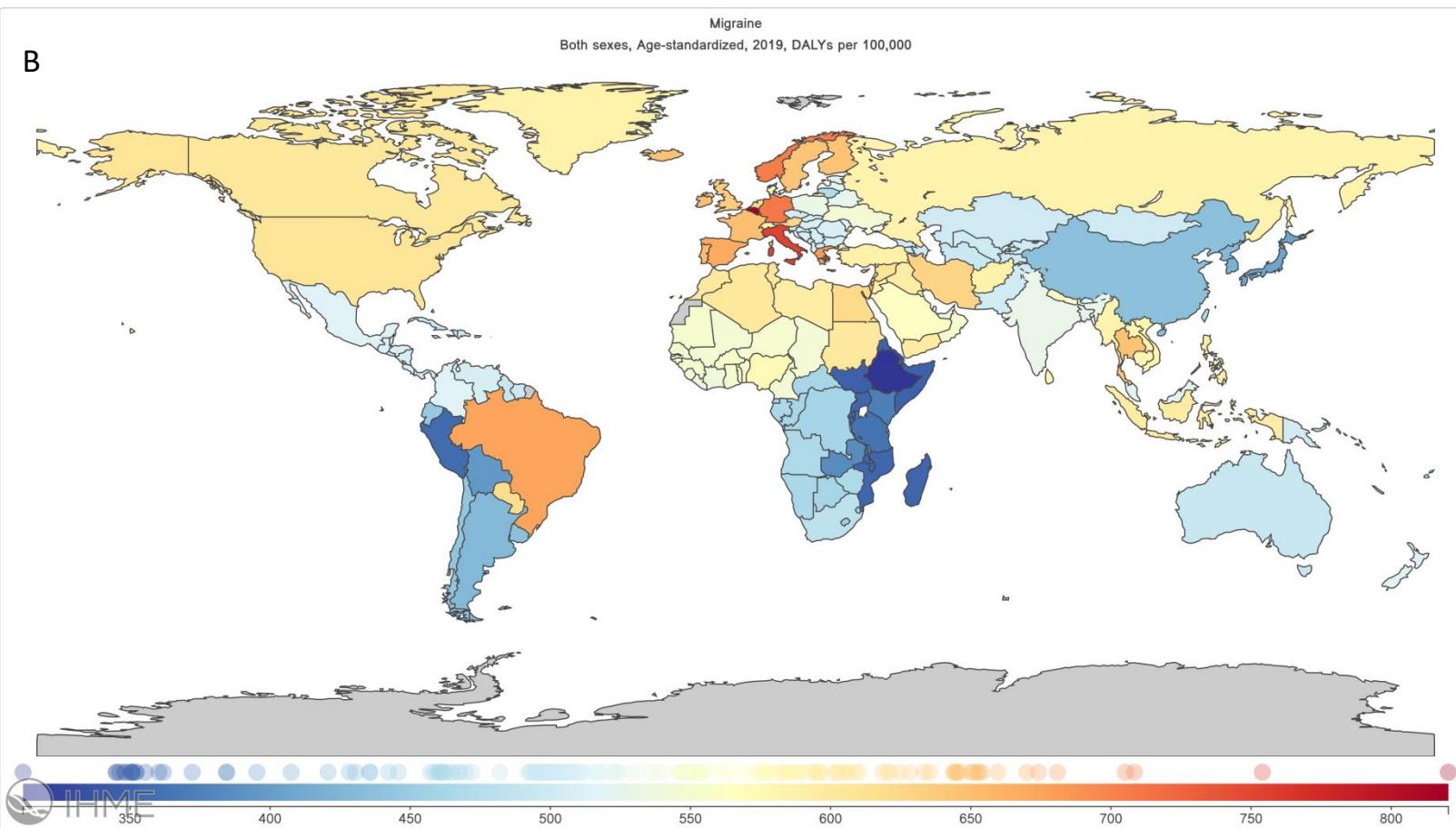
eTable 17: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of Multiple sclerosis in Asian countries and territories (1990-2019)

eTable 18: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of other neurological disorders in Asian countries and territories (1990-2019)

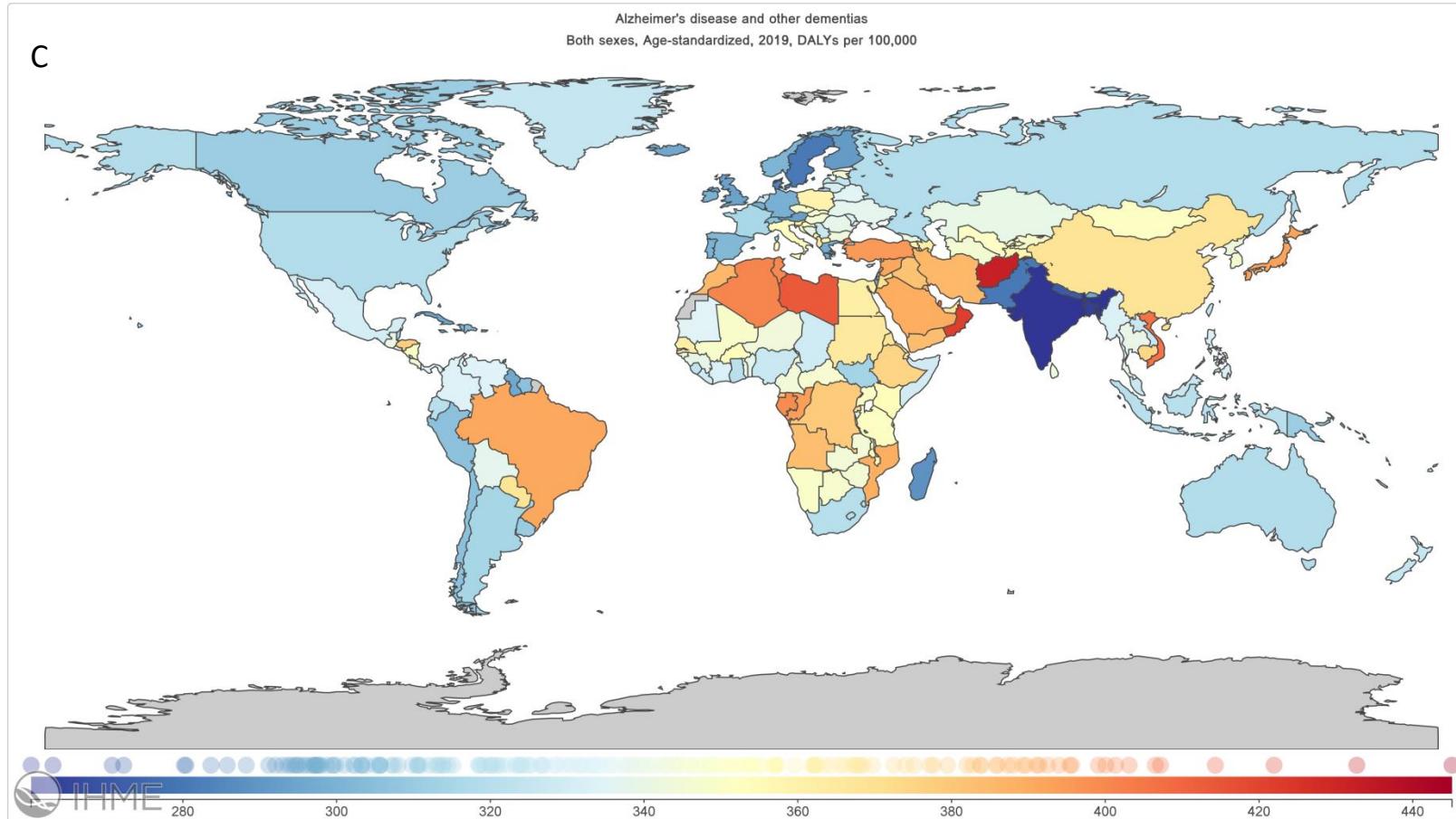
eTable 19: Correlations between the SDI of Asian countries and the crude and age-standardised rates of DALY, prevalence, incidence, and mortality for neurological disorders, 2019

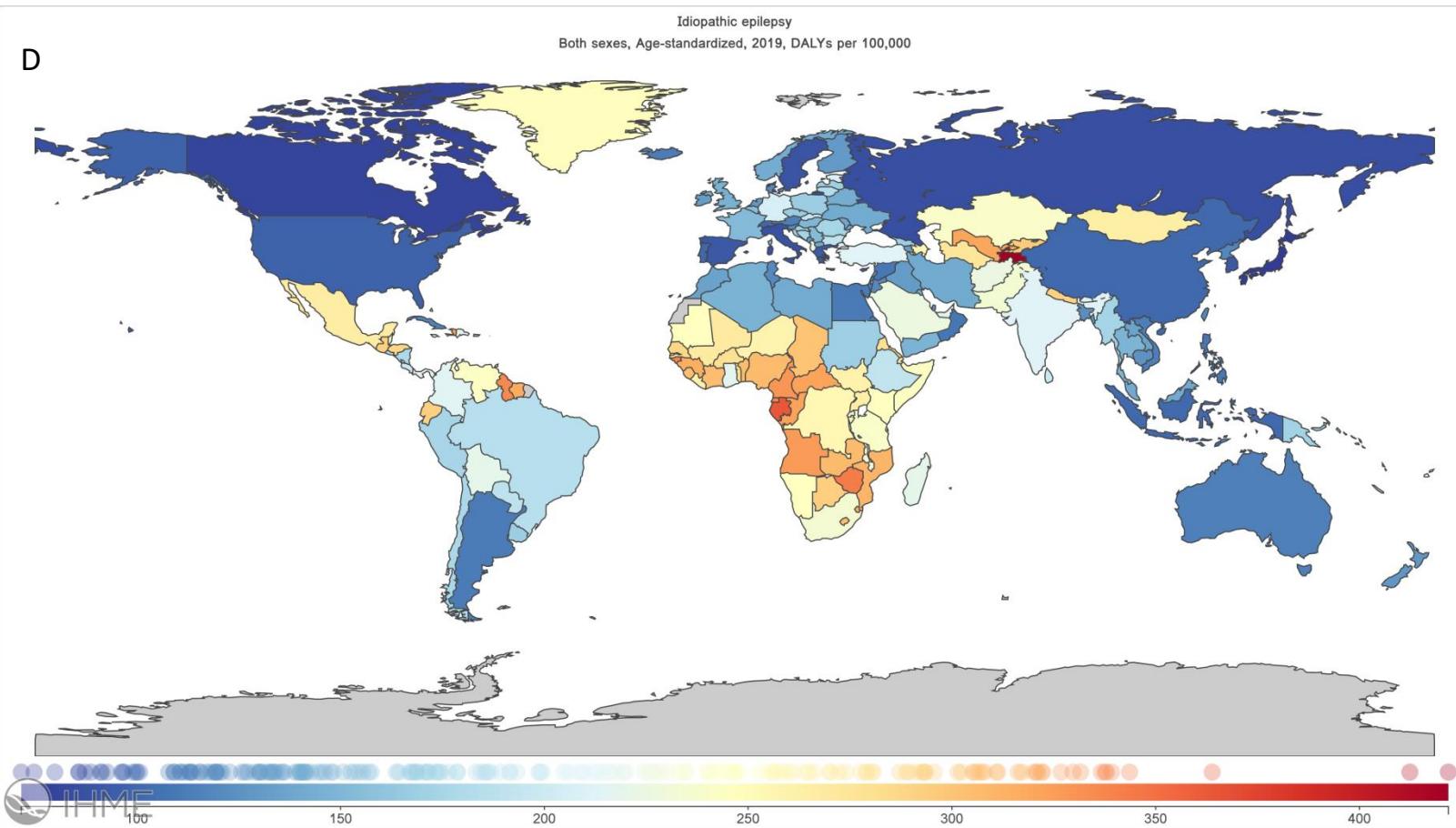
eFigure 1. Geographical variations of the age-standardised DALY rates per 100000 persons for neurological disorders in 2019

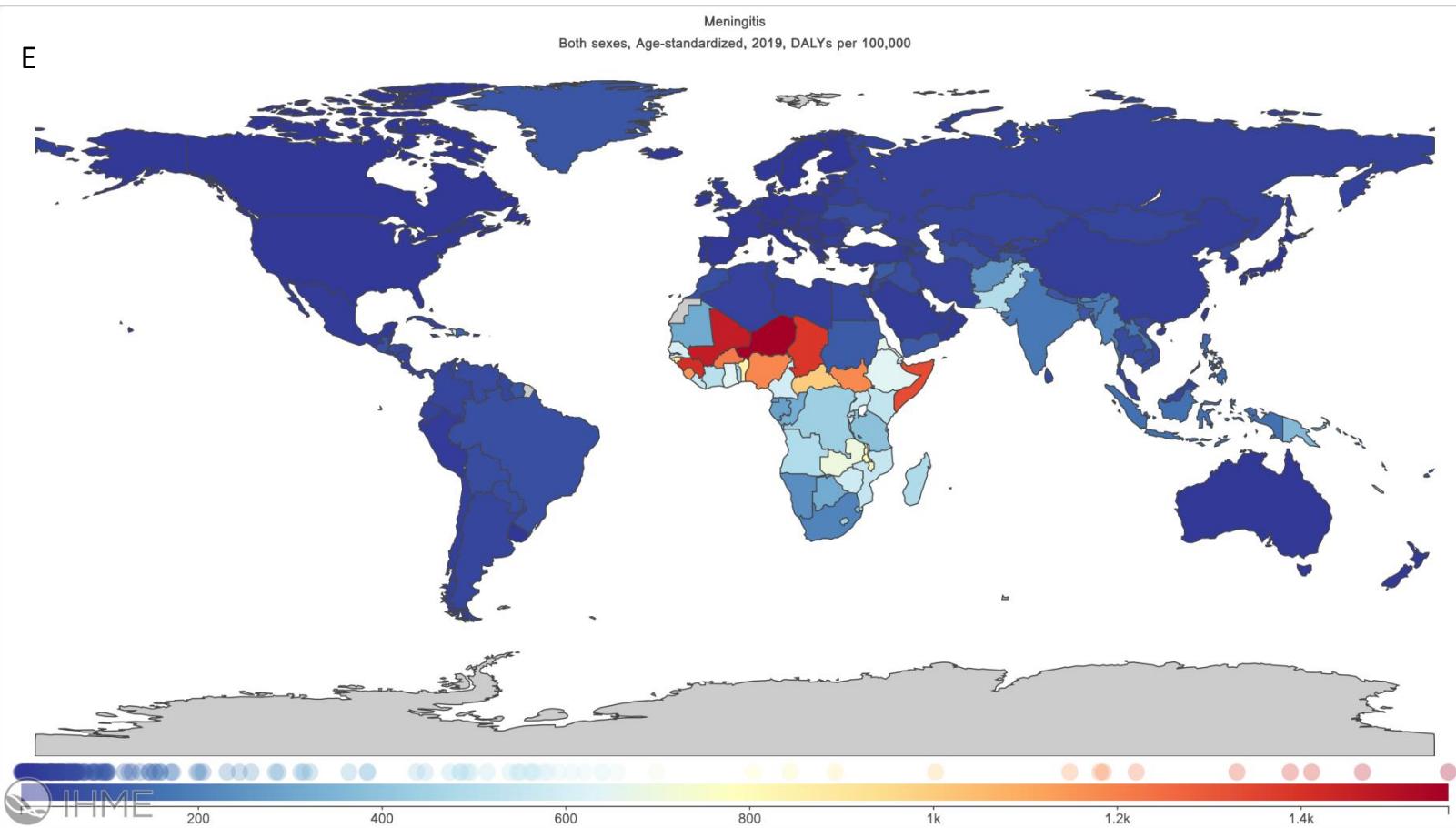


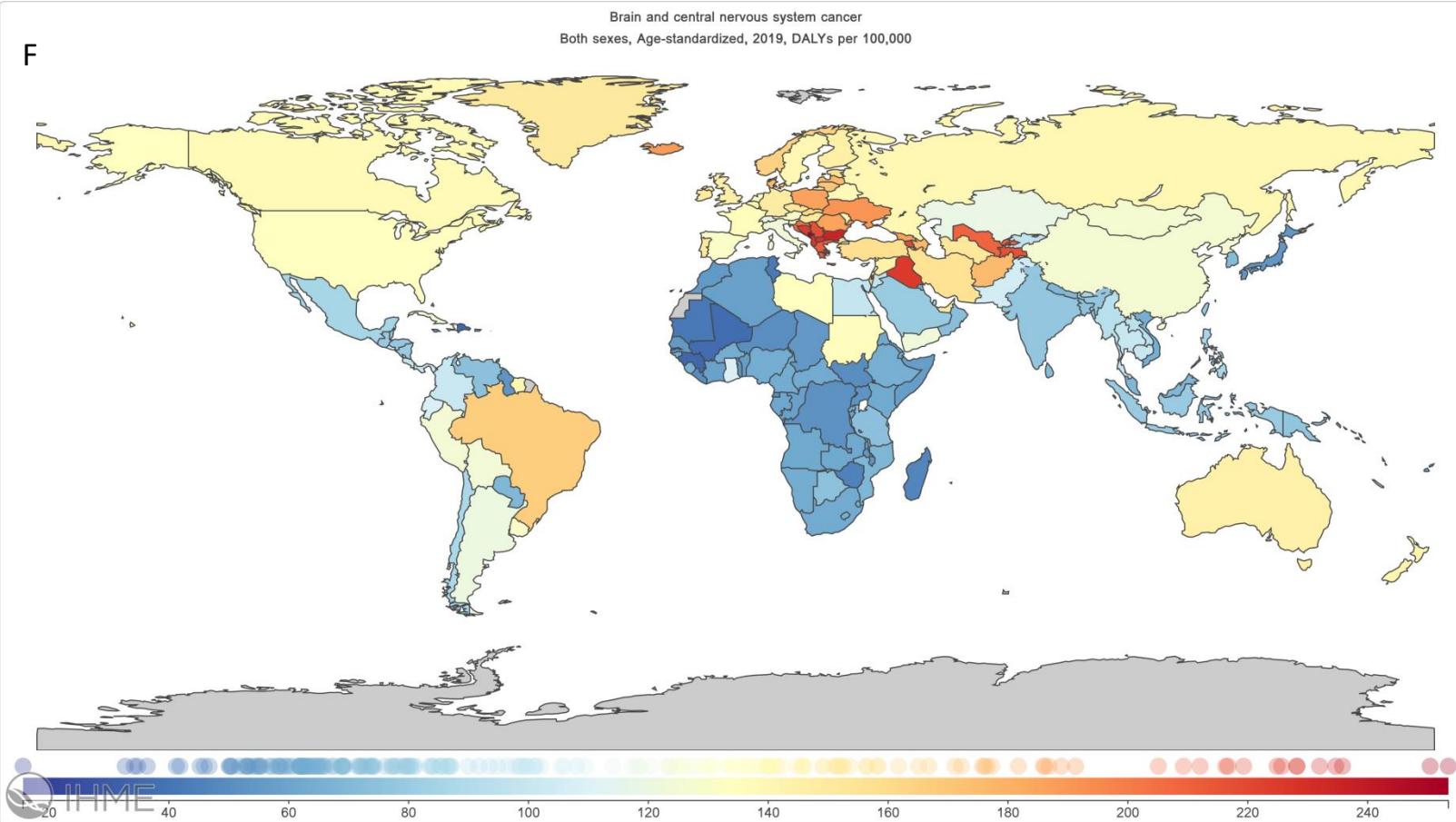


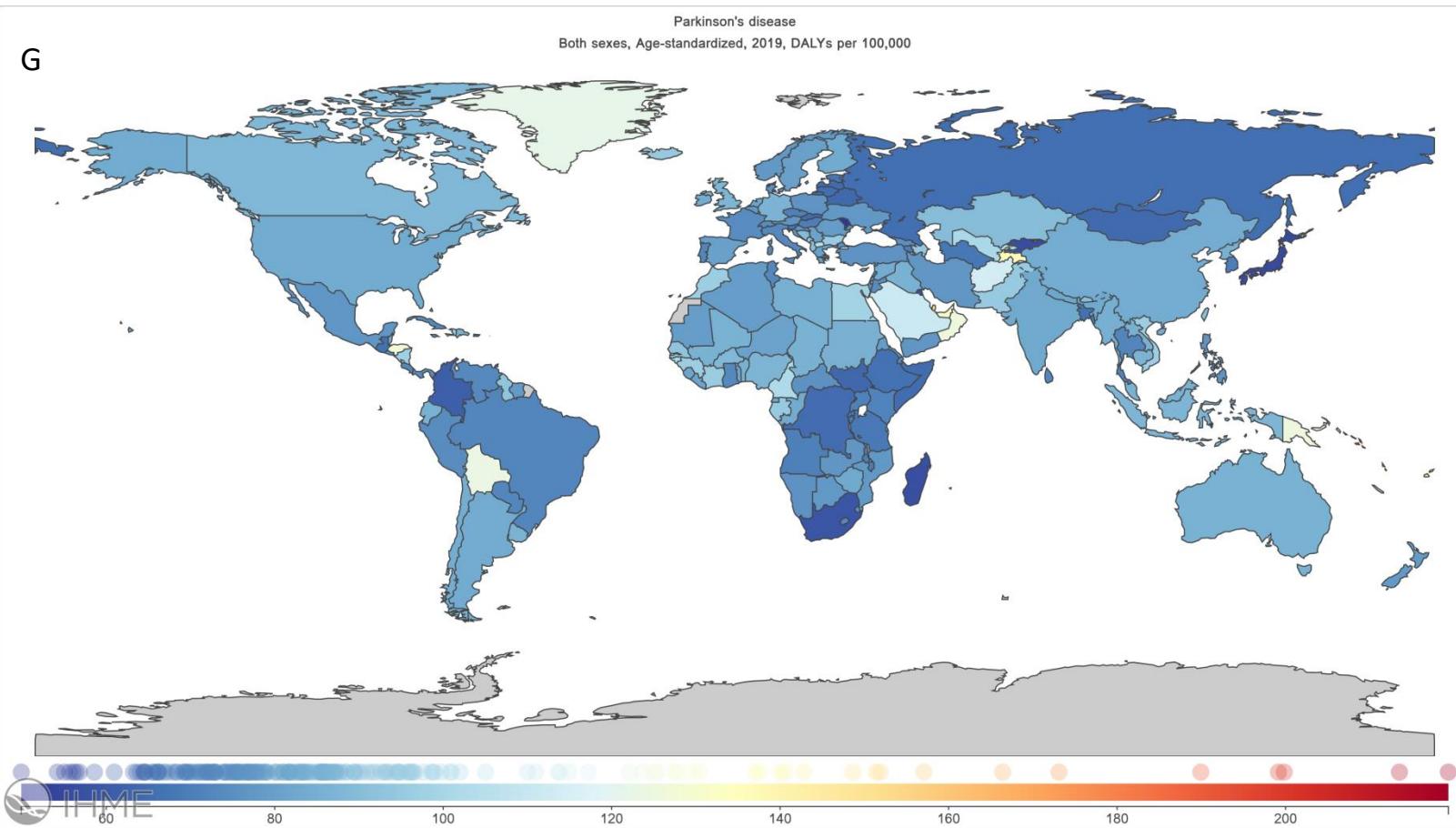
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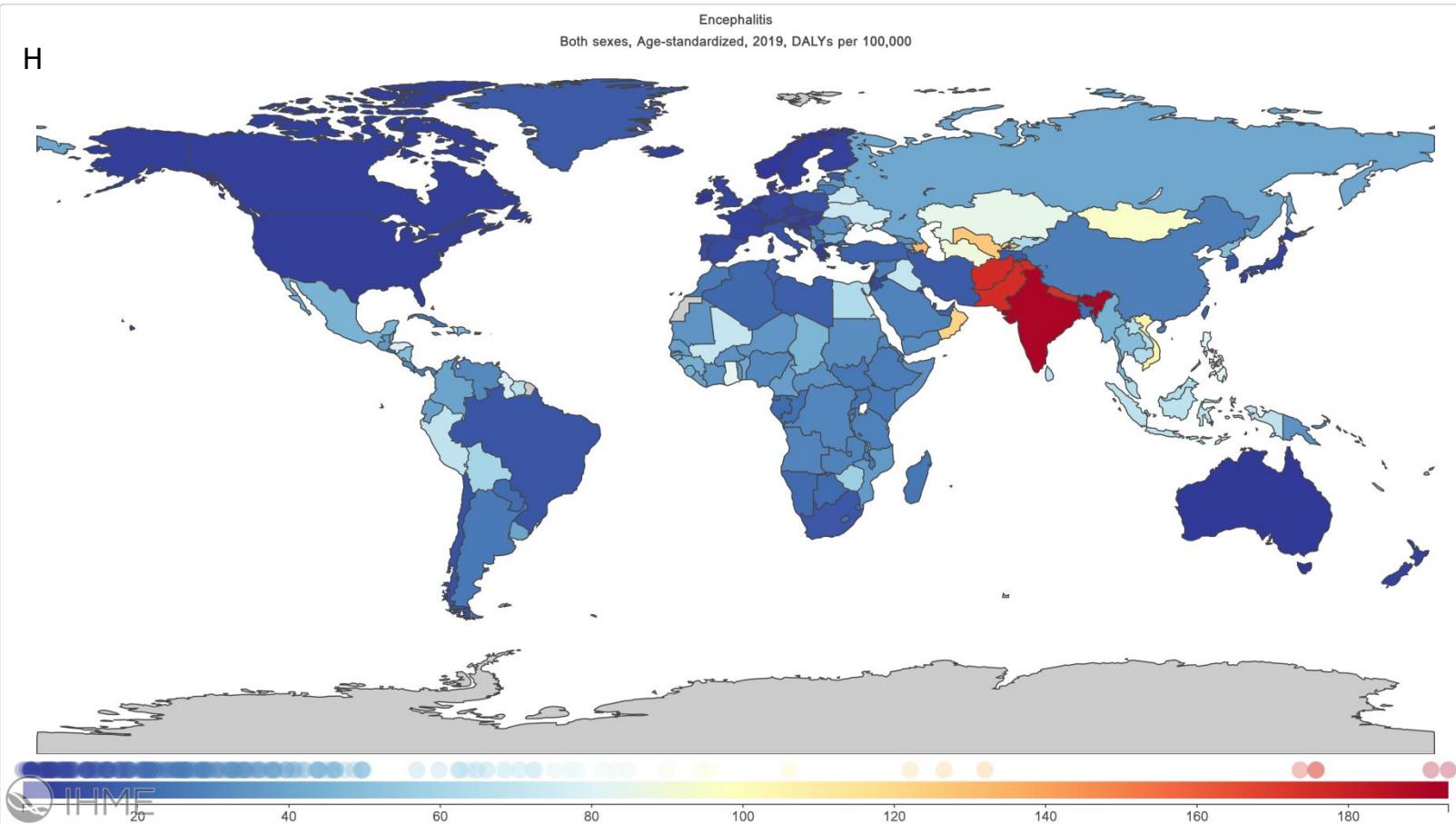


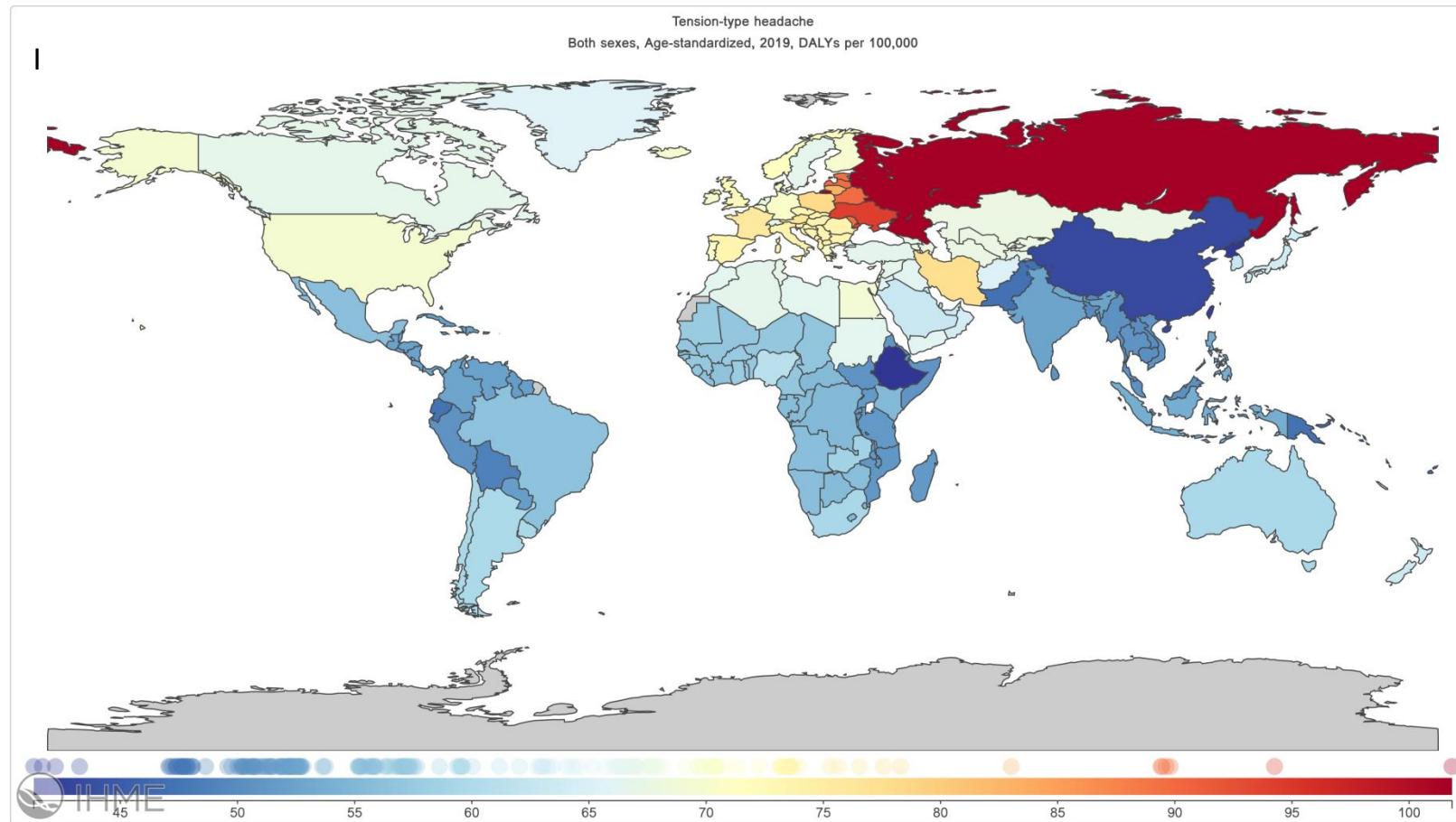


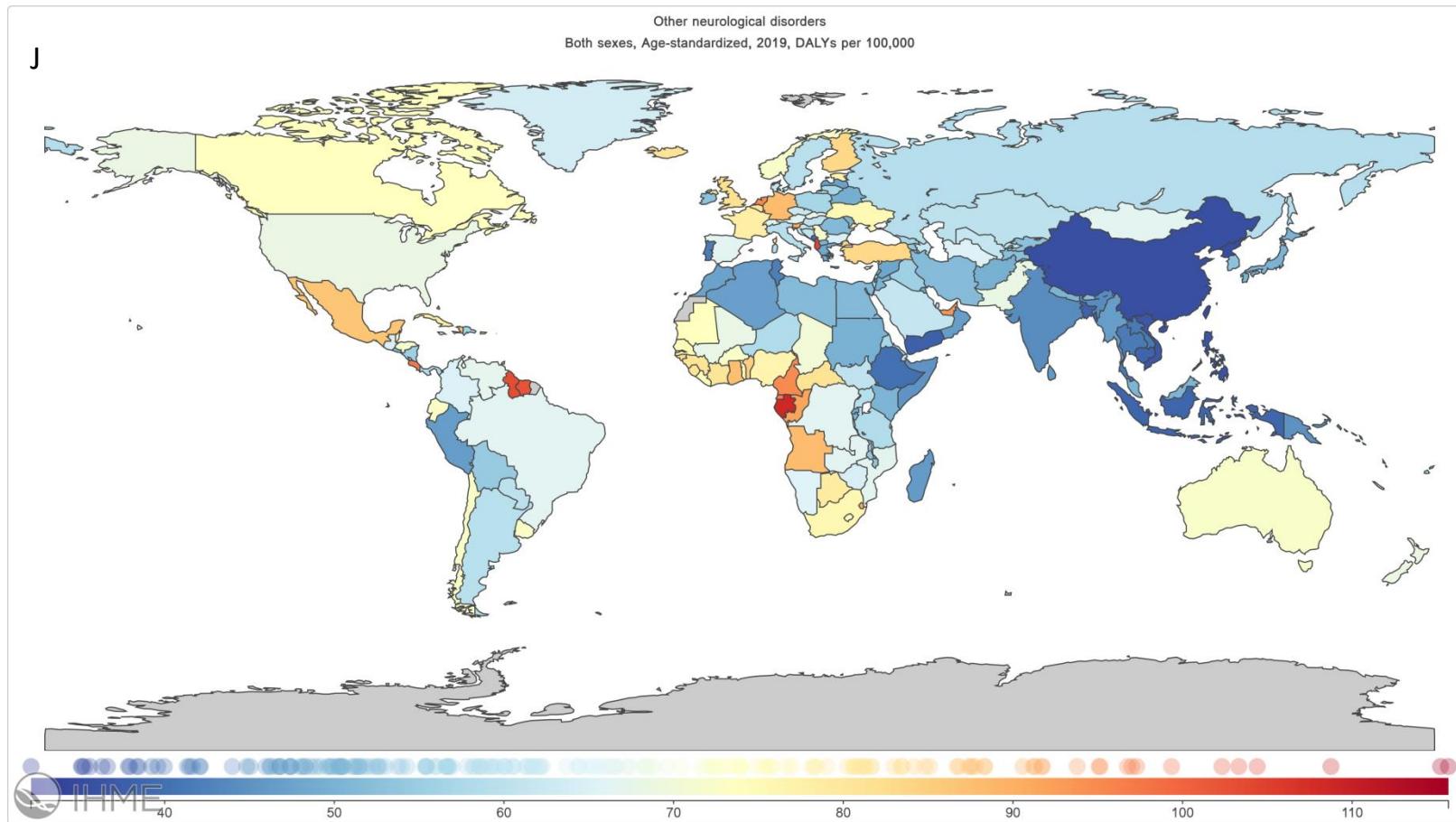


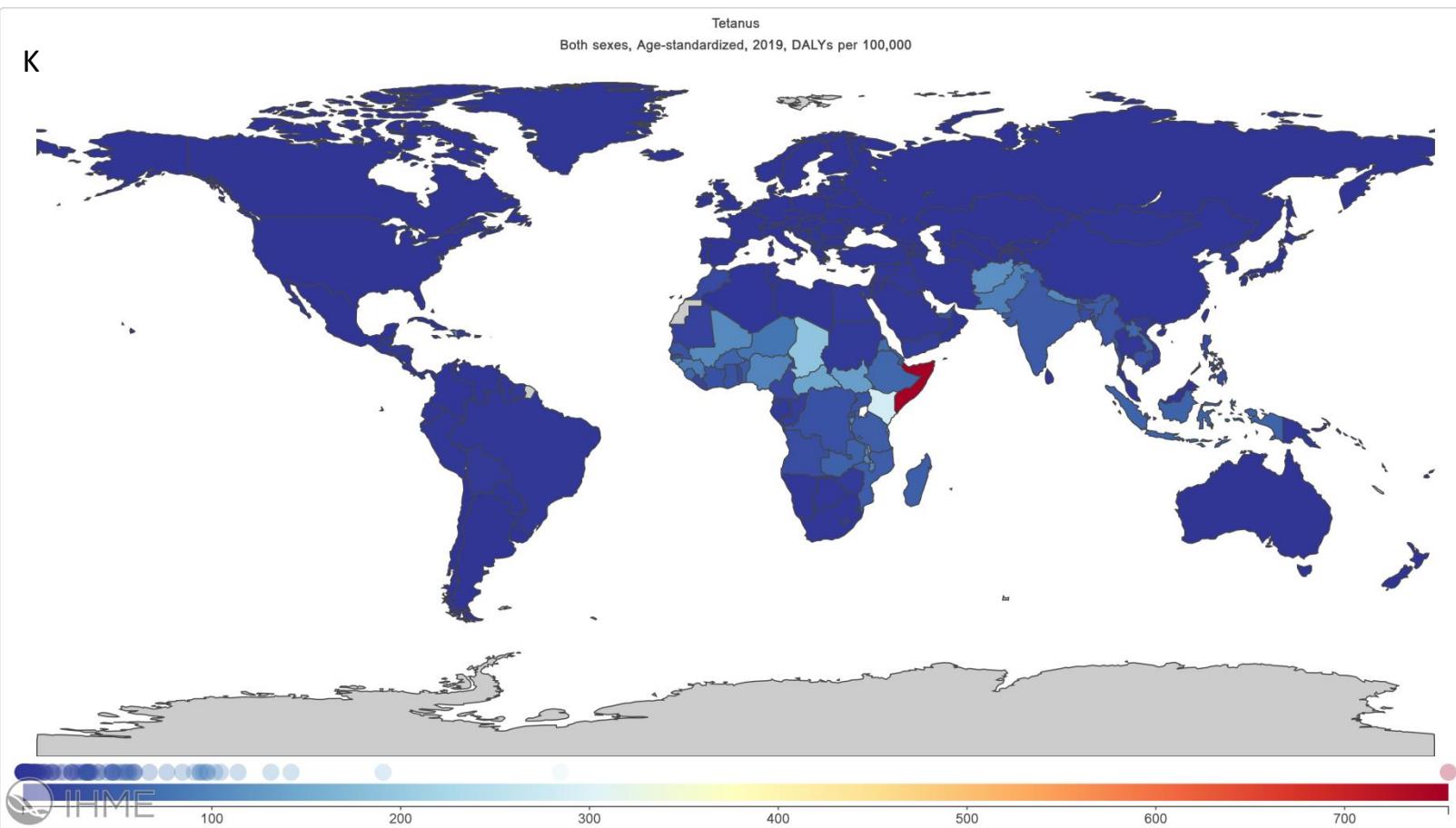


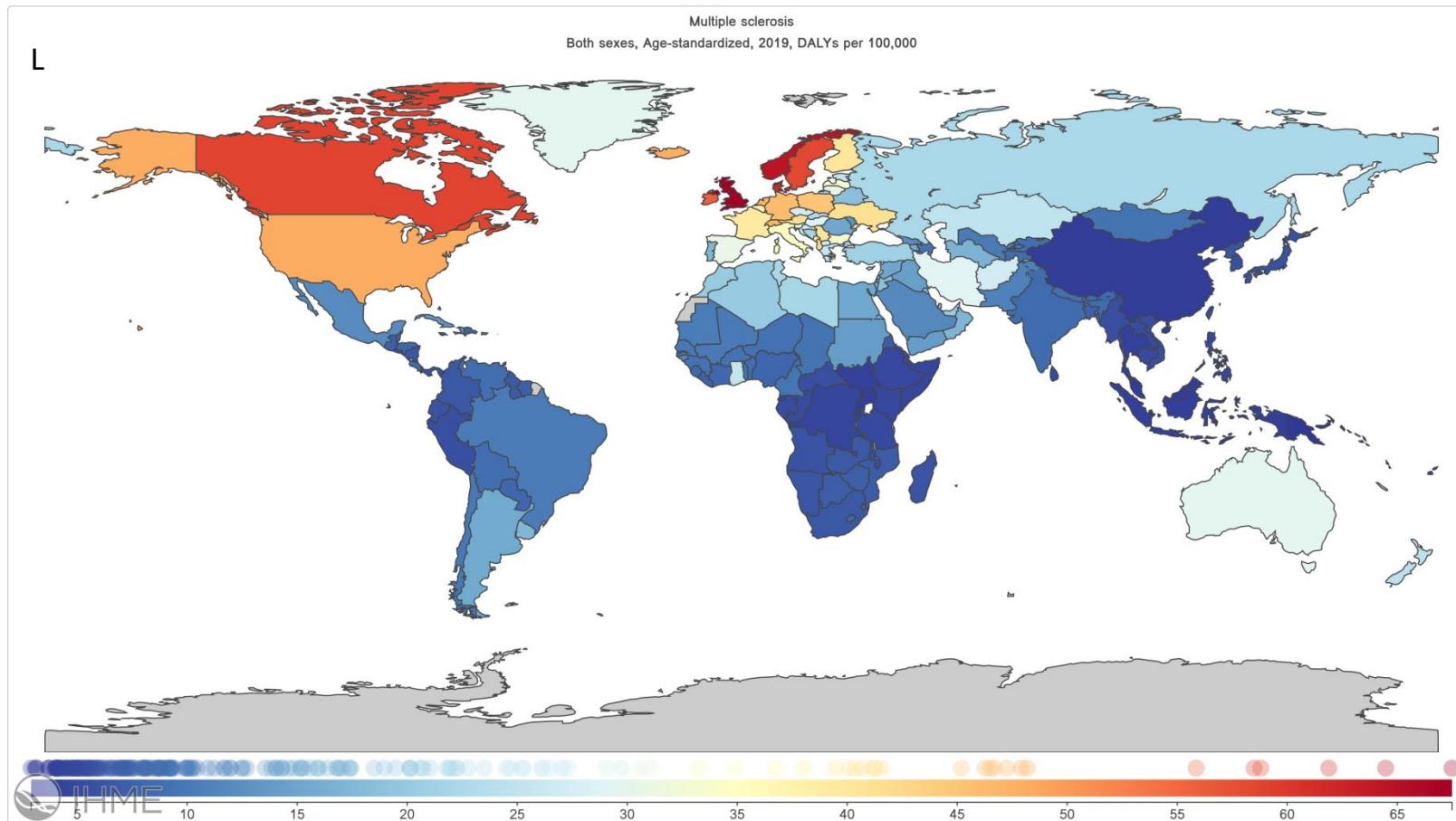


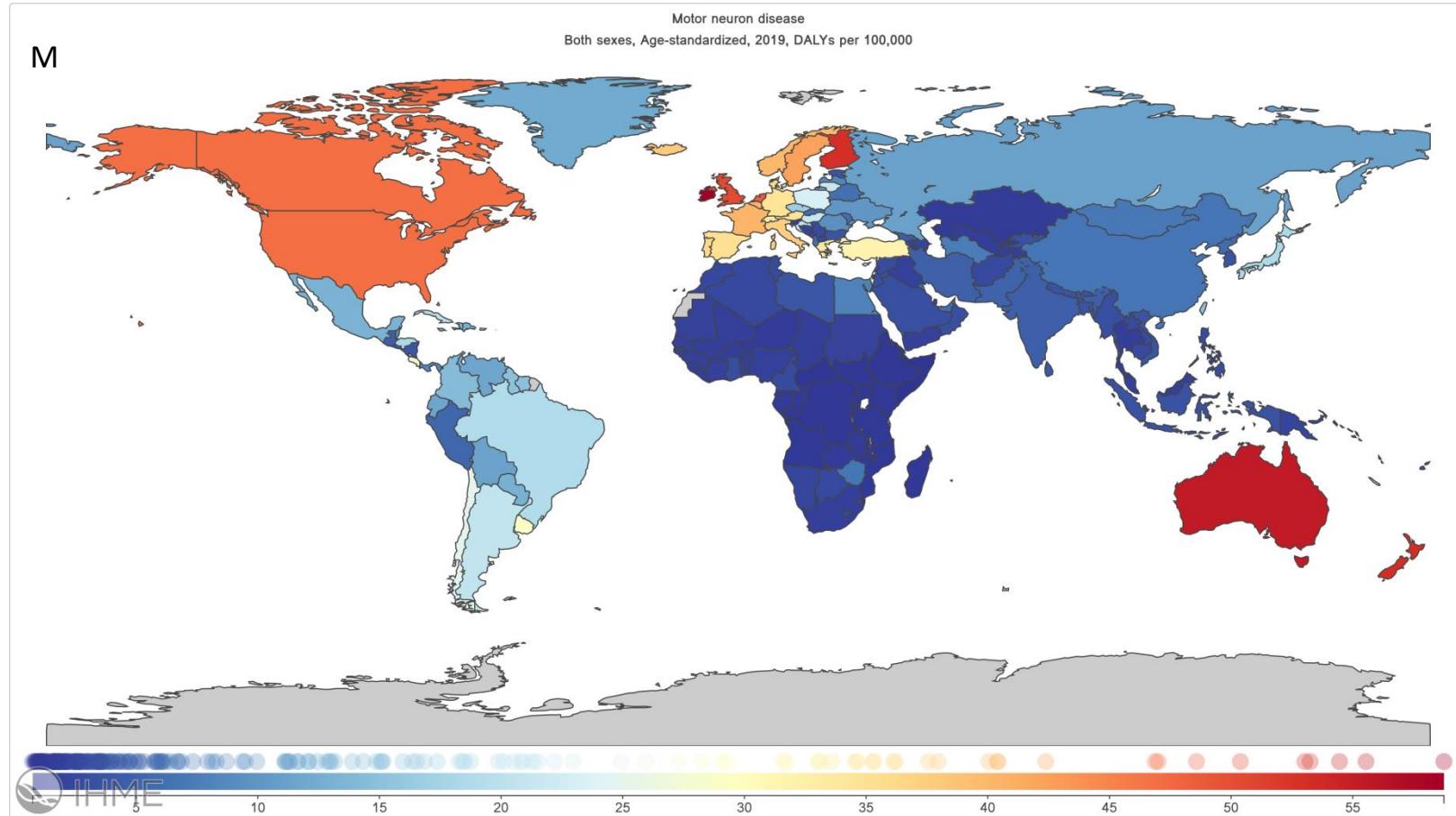








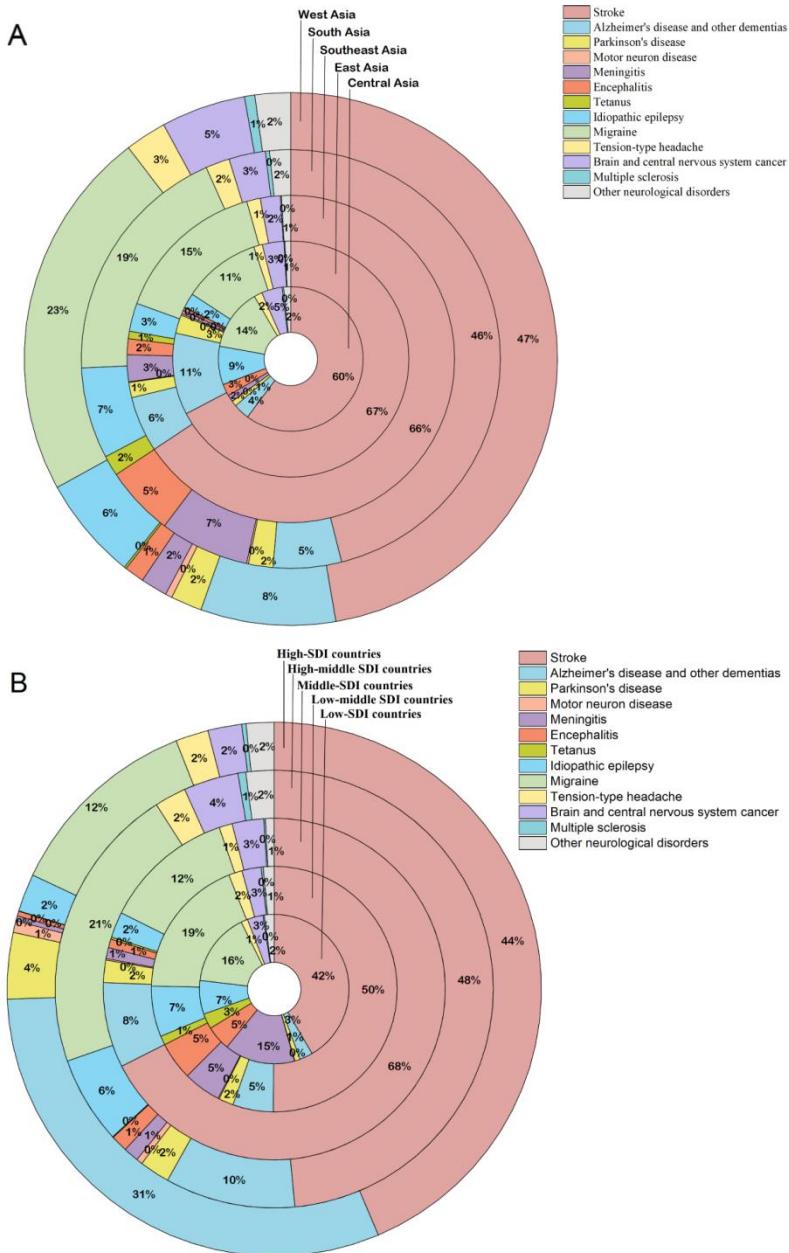




eFigure 1. Geographical variations of the age-standardised DALY rates per 100000 persons for neurological disorders in 2019

According to the geographical location, different depth colors are used to represent the distribution of different age-standardised DALY rates(the closer to red, the higher the value; the closer to blue, the lower the value), and the distribution of analysis indicators in each region is visually displayed.

(A) Stroke; (B) migraine; (C) Alzheimer disease and other dementias; (D) Idiopathic epilepsy; (E) meningitis; (F) brain and other central nervous system cancer; (G) Parkinson's Disease; (H) encephalitis; (I) tension-type headache; (J) other neurological disorders; (K) tetanus; (L) multiple sclerosis; (M) motor neuron disease



eFigure 2. Contribution of each disease to the overall burden of neurological disorders in Asia in 2019 (Percentages represent proportion of DALYs)

(A) Different sub-regions (B) Different SDI levels

DALYs=disability-adjusted life-years.

Case definition

stroke

Definition Stroke was defined according to WHO criteria of rapidly developing clinical signs of usually focal disturbance of cerebral function lasting more than 24 hours or leading to death. This Level 3 aggregate cause incorporates multiple Level 4 subtypes of stroke.

Alzheimer's disease (AD) and other dementia

Definition Dementia is a progressive, degenerative, and chronic neurological disorder typified by cognitive dysfunctions that interfere with daily functioning. We use the Diagnostic and Statistical Manual of Mental Disorders III, IV, or V, or ICD case definitions as the reference.

Parkinson's Disease (PD)

Definition PD is a chronic, degenerative, and progressive neurological condition typified by bradykinesia (slowness of movement), rigidity, tremor, and postural instability.

Motor neuron disease (MND)

Definition MND is set of chronic, degenerative, and progressive neurological conditions typified by the destruction of motor neurons and the subsequent deterioration of voluntary muscle activity. Amyotrophic lateral sclerosis (ALS) is the most common motor neuron disease.

Meningitis

Definition Meningitis is an inflammation of the meninges, the membrane surrounding the brain and spinal cord. Included in the GBD model were cases meeting ICD-10 diagnostic criteria for meningitis due to bacteria or viruses.

Encephalitis

Definition Encephalitis is a disease caused by an acute inflammation of the brain. Included in the GBD model were cases meeting ICD-10 diagnostic criteria for encephalitis.

Tetanus

Tetanus is a serious bacterial disease caused by the bacterium Clostridium tetani.

Idiopathic epilepsy

Definition Idiopathic epilepsy is characterised by recurrent, unprovoked seizures for which there is no identified underlying disease and is presumed to have a strong genetic basis. Our case definition includes cases of active epilepsy with at least one seizure in the previous five years, regardless of treatment.

Migraine

Definition Migraine is a disabling primary headache disorder, typically characterised by recurrent moderate or severe unilateral pulsatile headaches. The reference case definition is migraine in the last year satisfying the International Classification of Headache Disorders-3(ICHD-3).

Tension-type headache (TTH)

Definition TTH is characterised by a dull, non-pulsatile, diffuse, band-like (or vice-like) pain of mild to moderate intensity in the head or neck. The reference case definition is TTH in the last year satisfying the ICHD-3.

Brain and other central nervous system cancer

Definition the causes including death and disability resulting from malignant neoplasms of the brain and other central nervous system, including ICD-10 codes such as C70-C72.9.

Multiple sclerosis (MS)

Definition MS is a chronic, degenerative, and progressive neurological condition typified by the damaging of the myelin sheaths of nerves. As in previous rounds of GBD, diagnosis by clinical

exam or published clinical and imaging criteria was considered the reference.

Other neurological disorders

Definition Other neurological disorders is a residual category (eTable 2).

eTable 1: List of International Classification of Diseases (ICD) codes mapped to the Global Burden of neurological disorders

Cause	ICD10	ICD10 Used in Hospital/Claims Analyses
Stroke	G45-G46.8, I60-I62, I62.9-I64, I64.1, I65-I69.998, Z82.3	I60-I69.4
Alzheimer's disease and other dementia	F00-F02.0, F02.8-F03.91, F06.2, G30-G31.1, G31.8-G32.89	F00-F02.0, F02.8-F06.2, G30-G31.1, G31.8-G32.89
Parkinson's Disease	F02.3, G20-G20.9	F02.3, G20-G20.9
MND		G12-G12.9
Meningitis	A39-A39.9, A87-A87.9, D86.81, G00-G03.9, G06-G09.9, Z20.811, Z22.31	A39-A39.9, A87-A87.9, G00-G03.9
Encephalitis	A83-A85.2, A85.8-A86.0, B94.1, F07.1, G04-G05.8, Z24.1	A83-A86.0, B94.1, F07.1, G04-G05.8
Tetanus	A33-A35.0, Z23.5	A33-A35.0
Idiopathic epilepsy	G40-G41.9, Z82.0	
Migraine	G43-G43.919	G43-G43.919, G44.4-G44.41
Tension-type headache	G44.2-G44.229, G44.4-G44.41	G44.2-G44.229
Brain and other central nervous system cancer	C70-C70.1, C70.9-C72.9, Z85.841-Z85.848, Z86.011	
Multiple sclerosis	G35-G35.0	G35-G35.0
Other neurological disorders	F02.2, G10-G10.0, G11-G13.8, G21, G21.2-G24, G24.1-G25.0, G25.2-G25.3, G25.5, G25.8-G26.0, G36-G37.9, G50-G54.1, G54.5-G62, G62.2-G65.2, G70-G71.19, G71.3-G72, G72.1-G73.7, G80-G83.9, G89-G93.6, G93.8-G95.29, G95.8-G96, G96.1, G96.12-G96.9, G98-G99.8, M33-M33.99, M60-M60.19, M60.8-M60.9, M79.7	

eTable 2: List of other neurological disorders in ICD 10

Other neurological disorders (ICD 10)

Special symptoms or syndromes, not elsewhere classified
Cerebral degenerations usually manifest in childhood
Other cerebral degenerations
Parkinson's disease
Other extrapyramidal disease and abnormal movement disorders
Spinocerebellar disease
Anterior horn cell disease
Other diseases of spinal cord
Disorders of the autonomic nervous system
Pain, not elsewhere classified
Other demyelinating diseases of central nervous system
Hemiplegia and hemiparesis
Infantile cerebral palsy
Other paralytic syndromes
Other conditions of brain
Trigeminal nerve disorders
Facial nerve disorders
Disorders of other cranial nerves
Nerve root and plexus disorders
Mononeuritis of upper limb and mononeuritis multiplex
Mononeuritis of lower limb
Hereditary and idiopathic peripheral neuropathy
Inflammatory and toxic neuropathy
Myoneural disorders
Muscular dystrophies and other myopathies
Diffuse diseases of connective tissue

eTable 3: Values for 5 SDI quintiles

SDI quintile	Lower bound (\geq)	Upper bound (<)
Low SDI	0	0.454743
Low-middle SDI	0.454743	0.607679
Middle SDI	0.607679	0.689504
High-middle SDI	0.689504	0.805129
High SDI	0.805129	1

eTable 4: The SDI levels of Asian countries in 2019, Data quality rating from 0 to 5 stars and percent well certified across time series for Asian countries, 1980-2019

Country	SDI	Data Quality	Data Quality Rating
Central Asia			
Kazakhstan	0.723	80.9	4
Turkmenistan	0.67	84.1	4
Uzbekistan	0.631	74.6	4
Kyrgyzstan	0.596	84.2	4
Tajikistan	0.539	57	3
East Asia			
Japan	0.870	85.4	5
South Korea	0.878	64.3	3
China	0.686	50.8	3
Mongolia	0.606	25.6	2
North Korea	0.558	0	0
South-eastern Asia			
Singapore	0.861	92.2	3
Brunei	0.823	43.3	2
Malaysia	0.737	27.5	3
Thailand	0.687	45.4	3
Philippines	0.623	37.8	2
Indonesia	0.660	17.4	2
Viet Nam	0.617	10.3	1
Myanmar	0.521	7.4	1
Cambodia	0.469	0.7	1
Laos	0.490	0.5	0
Timor-Leste	0.514	0	5
Southern Asia			
Sri Lanka	0.69	54	3
Iran	0.67	29.1	2
Maldives	0.562	22.1	2
Bangladesh	0.483	16.9	2
India	0.566	16.7	2
Bhutan	0.455	0	0
Pakistan	0.449	13.2	2
Nepal	0.422	3.6	1
Afghanistan	0.343	4.6	1
Western Asia			
Kuwait	0.851	71.7	4
Qatar	0.830	30	2
Cyprus	0.841	34.4	2
United Arab Emirates	0.880	5.1	1
Israel	0.803	82.3	4

Georgia	0.702	67.1	4
Bahrain	0.751	44.8	3
Turkey	0.619	38.6	3
Jordan	0.748	38.4	3
Oman	0.731	31.3	2
Saudi Arabia	0.783	13.7	2
Lebanon	0.805	11.8	2
Armenia	0.708	0.6	1
Azerbaijan	0.689	85.6	5
Iraq	0.683	55.3	3
Syrian Arab Republic	0.671	12.2	2
Palestine	0.619	38.6	3
Yemen	0.588	23.8	2

eTable 5: The absolute number (thousands) and age-standardised rate (per 100 000) of DALYs, with the percentage change between 1990 and 2019 for combined neurological disorders in Asian countries and territories

Countries and territories	Absolute numbers of DALYs (thousands)			Age-standardised DALY rates (per 1000 000 people)		
	1990	2019	Percentage change, 1990–2019	1990	2019	Percentage change, 1990–2019
				1990–2019	1990–2019	1990–2019
Afghanistan	924	1185	28%	8630	5712	-34%
Armenia	106	102	-4%	3892	2742	-29.6%
Azerbaijan	254	396	56%	4435	4679	5.5%
Bahrain	10	25	155%	3677	2432	-33.9%
Bangladesh	5471	5373	-2%	6489	3989	-38.5%
Bhutan	29	19	-33%	5409	3074	-43.2%
Brunei	6	9	43%	4979	2934	-41.1%
Cambodia	578	571	-1%	7089	4596	-35.2%
China	51065	66015	29%	5850	3674	-37.2%
Cyprus	25	36	40%	3426	2135	-37.7%
Georgia	338	252	-25%	5845	4554	-22.1%
India	41890	38527	-8%	5643	3184	-43.6%
Indonesia	9162	11973	31%	6770	5568	-17.8%
Iran	1474	2160	47%	4181	2869	-31.4%
Iraq	656	1261	92%	5686	4622	-18.7%
Israel	128	208	62%	2680	1966	-26.6%
Japan	3988	5757	44%	2612	1873	-28.3%
Jordan	82	221	171%	4530	2902	-35.9%
Kazakhstan	681	779	14%	5177	4712	-9.0%
Kuwait	27	78	186%	2557	2330	-8.9%
Kyrgyzstan	194	204	5%	5689	4029	-29.2%
Laos	325	264	-19%	8795	5298	-39.8%
Lebanon	70	118	69%	2839	2281	-19.6%
Malaysia	554	91	64%	5006	3308	-33.9%
Maldives	7	10	45%	5137	2654	-48.3%
Mongolia	110	166	51%	7072	6348	-10.2%
Myanmar	3045	2772	-9%	9490	5929	-37.5%
Nepal	1681	818	-51%	7277	3328	-54.3%
North Korea	1044	1660	59%	6122	5382	-12.1%
Oman	48	82	71%	4787	3445	-28.0%
Pakistan	6870	7299	6%	6236	4596	-26.3%
Palestine	62	107	73%	5130	3794	-26.0%
Philippines	1689	3536	109%	3719	4044	8.7%
Qatar	7	388	414%	3232	2374	-26.6%
Saudi Arabia	384	873	127%	4689	3680	-21.5%
Seychelles	3	3	0%	4718	3206	-32.1%
Singapore	69	105	53%	2999	1525	-49.1%

South Korea	1697	1521	-10%	5592	2009	-64.1%
Sri Lanka	489	650	33%	4039	2837	-29.8%
Syrian Arab Republic	471	441	-6%	5282	3620	-31.5%
Taiwan (Province of China)	626	731	17%	3875	2141	-44.8%
Tajikistan	193	288	49%	4946	5143	4.0%
Turkmenistan	120	22	82%	4886	5194	6.3%
United Arab Emirates	44	22	397%	5649	3593	-36.4%
Uzbekistan	709	119	67%	4872	5403	10.9%
Viet Nam	2615	447	71%	5670	4935	-13.0%
Yemen	456	77	68%	5586	4353	-22.1%

eTable 6: Age-standardised rates of incidence, prevalence, mortality and DALY rates (per 100000 persons) of stroke in Asian countries and territories (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	236(219~254)	218(201~239)	-7.7	1598(1486~1724)	1658(1533~1780)	3.8	199(136~258)	162(110~208)	-18.7	4472(3212~5711)	3498(2509~4500)	-21.8
Armenia	194(178~211)	118(108~128)	-39.3	1245(1154~1344)	911(838~985)	-26.9	125(117~132)	67(57~78)	-46.4	2375(2260~2485)	1274(1099~1481)	-46.4
Azerbaijan	194(181~208)	214(200~230)	10.3	1184(1093~1276)	1185(1089~1294)	0.1	120(110~128)	172(145~201)	43.1	2607(2402~2775)	2965(2499~3451)	13.8
Bahrain	169(153~186)	113(102~127)	-32.8	1500(1387~1637)	1136(1049~1235)	-24.2	102(90~119)	53(43~67)	-48.5	1981(1769~2242)	941(797~1146)	-52.5
Bangladesh	143(133~154)	139(129~150)	-2.7	984(893~1085)	997(917~1094)	1.3	181(154~207)	140(107~169)	-22.8	3806(3254~4304)	2701(2096~3293)	-29.0
Bhutan	134(124~144)	99(91~108)	-25.8	881(819~952)	747(692~806)	-15.3	102(72~133)	69(54~85)	-32.2	2152(1535~2794)	1354(1069~1678)	-37.1
Brunei	287(262~315)	162(148~179)	-43.6	2392(2231~2592)	1614(1484~1790)	-32.5	169(150~185)	77(69~87)	-54.1	3451(3065~3774)	1532(1373~1729)	-55.6
Cambodia	244(228~264)	210(194~227)	-14.2	1466(1368~1573)	1341(1250~1443)	-8.5	186(159~219)	153(125~177)	-17.7	4141(3578~4801)	3066(2534~3583)	-26.0
China	222(197~250)	201(177~231)	-9.3	1297(1173~1439)	1469(1309~1640)	13.2	211(188~244)	127(110~145)	-39.8	4134(3697~4675)	2413(2103~2742)	-41.6
Cyprus	115(105~126)	70(64~76)	-39.5	884(798~981)	682(611~762)	-22.9	122(109~136)	46(39~57)	-62.5	1794(1625~1986)	671(589~791)	-62.6
North Korea	275(255~297)	285(261~313)	3.7	1746(1623~1878)	1728(1601~1871)	-1.0	205(167~248)	186(158~216)	-9.4	4438(3608~5354)	4077(3434~4788)	-8.1
Georgia	233(219~250)	184(173~196)	-21.2	1382(1272~1500)	1225(1120~1343)	-11.4	224(207~239)	159(134~184)	-29.1	4300(3991~4612)	3073(2614~3546)	-28.5
India	121(109~136)	111(99~124)	-8.8	759(683~842)	762(682~843)	0.3	108(95~125)	70(59~80)	-35.8	2261(2010~2552)	1505(1296~1717)	-33.4
Indonesia	272(244~307)	293(262~332)	7.8	1980(1784~2211)	2097(1878~2352)	5.9	178(156~198)	197(168~214)	10.8	4022(3627~4415)	4008(3455~4421)	-0.4
Iran	167(147~191)	139(122~160)	-16.7	1447(1280~1649)	1254(1114~1418)	-13.3	121(103~133)	66(59~71)	-45.1	2324(2052~2547)	1262(1154~1346)	-45.7
Iraq	274(249~300)	242(217~267)	-11.7	2178(2028~2349)	1969(1823~2122)	-9.6	166(141~194)	143(119~166)	-13.7	3626(3104~4213)	2923(2399~3459)	-19.4
Israel	115(104~128)	68(61~76)	-40.6	890(820~962)	670(616~727)	-24.7	63(58~66)	26(22~29)	-58.4	1146(1084~1201)	473(428~516)	-58.7
Japan	166(147~189)	146(131~162)	-12.0	1387(1268~1515)	1376(1251~1506)	-0.8	85(77~91)	30(25~33)	-65.3	1545(1436~1629)	730(652~807)	-52.8
Jordan	306(274~345)	226(201~253)	-26.2	2342(2151~2520)	1794(1621~1953)	-23.4	151(124~175)	76(61~89)	-49.8	2910(2467~3358)	1448(1220~1680)	-50.2
Kazakhstan	279(257~303)	206(190~224)	-26.1	1677(1553~1802)	1352(1248~1474)	-19.4	175(164~184)	169(147~191)	-3.8	3534(3334~3716)	3137(2743~3532)	-11.2
Kuwait	129(118~143)	126(114~140)	-2.7	1308(1215~1402)	1231(1135~1332)	-5.9	51(44~58)	47(38~55)	-9.6	1063(954~1169)	938(795~1093)	-11.7
Kyrgyzstan	249(232~270)	160(148~174)	-35.8	1489(1379~1610)	1026(942~1106)	-31.1	179(166~190)	114(101~129)	-36.1	3871(3654~4084)	2486(2202~2813)	-35.8
Laos	307(287~329)	245(228~267)	-20.0	1942(1818~2071)	1628(1513~1765)	-16.2	199(158~253)	172(142~207)	-13.7	4591(3734~5629)	3695(3013~4565)	-19.5

Global Economic Indicators - Q3 2023												
Country/Region	GDP (Billion USD)		Population (Millions)		Inflation (%)		Unemployment (%)		Trade Balance (Billion USD)		Investment Growth (%)	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Exports	Imports	Actual	Forecast
Lebanon	159(144~175)	151(136~168)	-5.3	1395(1290~1504)	1425(1320~1538)	2.2	58(48~69)	35(25~46)	-39.5	1136(980~1327)	753(593~936)	-33.7
Malaysia	252(232~276)	178(163~196)	-29.4	1895(1778~2037)	1566(1457~1683)	-17.3	154(142~165)	88(71~111)	-42.4	3527(3301~3750)	1940(1598~2378)	-45.0
Maldives	228(211~247)	125(114~137)	-45.3	1653(1544~1775)	1099(1017~1178)	-33.5	147(126~168)	62(51~73)	-58.0	3324(2917~3709)	1243(1061~1446)	-62.6
Mongolia	353(332~375)	247(234~262)	-30.0	1526(1403~1654)	1288(1186~1396)	-15.6	184(154~262)	220(180~278)	19.5	4526(3780~5989)	4747(3781~6035)	4.9
Myanmar	199(185~216)	162(149~177)	-18.6	1292(1206~1392)	1180(1093~1275)	-8.7	278(230~336)	210(185~240)	-24.5	6396(5231~7752)	4271(3660~4973)	-33.2
Nepal	102(94~110)	83(76~90)	-18.6	666(614~723)	584(538~633)	-12.4	108(80~144)	80(63~99)	-25.2	2302(1765~3067)	1579(1252~1944)	-31.4
Oman	219(200~241)	196(175~222)	-10.3	1667(1536~1838)	1526(1400~1687)	-8.5	146(113~183)	104(91~119)	-28.8	3072(2428~3824)	1884(1667~2127)	-38.7
Pakistan	179(161~199)	165(148~185)	-7.8	1124(1012~1249)	1115(1001~1236)	-0.9	124(96~152)	115(99~139)	-7.6	2665(2142~3214)	2486(2148~2955)	-6.7
Palestine	205(187~227)	190(170~212)	-7.6	1569(1439~1706)	1511(1381~1667)	-3.7	173(141~208)	122(106~138)	-29.1	3154(2576~3791)	2128(1878~2400)	-32.5
Philippines	201(180~225)	192(172~216)	-4.2	1511(1372~1672)	1479(1346~1630)	-2.1	84(74~95)	107(89~125)	27.2	1688(1504~1979)	2514(2051~2925)	48.9
Qatar	172(157~190)	127(115~142)	-26.1	1576(1458~1705)	1226(1127~1327)	-22.2	84(63~109)	53(42~69)	-36.7	1635(1337~2028)	905(748~1130)	-44.7
South Korea	306(281~338)	109(99~120)	-64.3	2374(2210~2547)	1176(1084~1299)	-50.5	216(186~229)	44(38~53)	-79.5	4192(3654~4415)	860(762~1011)	-79.5
Saudi Arabia	173(157~189)	194(176~214)	11.9	1823(1632~2106)	1968(1818~2143)	7.9	152(119~186)	103(80~120)	-32.5	2982(2363~3635)	2115(1685~2485)	-29.1
Singapore	225(203~249)	98(88~110)	-56.3	1949(1825~2084)	1056(979~1145)	-45.8	90(84~95)	22(19~25)	-75.5	1957(1840~2073)	535(468~595)	-72.7
Sri Lanka	175(160~192)	135(123~149)	-22.7	1346(1246~1455)	1196(1108~1299)	-11.2	120(107~134)	69(53~88)	-42.6	2215(2007~2472)	1336(1042~1672)	-39.7
Syrian	220(204~239)	179(164~196)	-18.6	1763(1639~1894)	1519(1404~1637)	-13.9	146(120~177)	99(78~125)	-32.2	3375(2824~3955)	2018(1590~2547)	-40.2
Taiwan	214(197~236)	119(107~131)	-44.7	1461(1370~1566)	1114(1032~1201)	-23.7	126(118~132)	37(30~47)	-70.3	2669(2548~2790)	925(760~1117)	-65.3
(Province of China)												
Tajikistan	146(136~157)	141(130~152)	-3.1	832(768~903)	780(718~843)	-6.3	127(115~138)	173(144~207)	36.4	2778(2535~2979)	3270(2699~3949)	17.7
Thailand	192(177~209)	126(116~137)	-34.5	1401(1304~1499)	1132(1058~1213)	-19.2	105(92~119)	52(40~67)	-50.4	2341(2094~2608)	1305(1016~1641)	-44.3
Timor-Leste	253(234~274)	257(237~279)	1.5	1681(1569~1803)	1753(1632~1891)	4.3	139(106~178)	167(131~214)	20.3	3016(2385~3837)	3493(2720~4467)	15.8
Turkey	150(138~163)	146(133~161)	-2.8	1329(1232~1434)	1214(1125~1309)	-8.7	73(58~96)	61(49~74)	-16.5	1520(1299~1911)	1163(965~1380)	-23.5
Turkmenistan	231(213~253)	232(213~253)	0.5	1340(1249~1449)	1463(1359~1574)	9.2	139(131~145)	151(124~183)	8.6	3187(3040~3325)	3537(2889~4268)	11.0
United Arab Emirates	308(278~341)	262(234~294)	-14.8	2406(2215~2644)	2226(2037~2436)	-7.5	182(145~246)	91(70~119)	-50.0	3566(2878~4746)	1926(1517~2458)	-46.0
Uzbekistan	220(204~239)	214(200~231)	-2.5	1266(1165~1365)	1246(1137~1365)	~1.6	135(127~141)	189(165~215)	39.7	2982(2835~3102)	3615(3131~4141)	21.3

Viet Nam	218(202~236)	222(205~242)	2.0	1432(1337~1536)	1541(1431~1679)	7.6	191(155~237)	170(139~199)	-10.6	3909(3196~4813)	3401(2795~4028)	-13.0
Yemen	230(212~250)	208(190~228)	-9.5	1596(1482~1717)	1609(1480~1746)	0.8	174(121~228)	136(102~177)	-22.1	3664(2667~4747)	2765(2162~3521)	-24.5

eTable 7: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of Alzheimer's disease and other dementia in Asian countries and territories (1990-2019)

Location	incidence rates(95%UI)			prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	111(94~127)	109(93~126)	-1.9	747(629~863)	735(616~852)	-1.6	32(8~85)	31(7~82)	-3.3	449(182~1051)	433(179~1002)	-3.7
Armenia	101(86~116)	105(89~120)	3.8	697(587~806)	736(623~851)	5.6	21(5~58)	24(6~65)	14.7	322(146~715)	357(160~779)	11
Azerbaijan	103(87~117)	103(88~118)	0.6	704(594~814)	715(602~830)	1.6	22(5~60)	25(6~69)	15.8	330(152~726)	362(157~826)	9.6
Bahrain	110(94~126)	112(96~128)	1.4	774(654~896)	801(684~926)	3.5	29(7~79)	27(7~72)	~4.4	419(175~969)	403(176~889)	-3.8
Bangladesh	71(61~82)	71(61~82)	0	485(413~560)	505(431~581)	4.1	17(4~49)	18(4~49)	7.2	253(108~598)	263(114~590)	3.9
Bhutan	69(59~80)	69(59~80)	-0.1	455(386~526)	477(406~547)	4.9	17(4~49)	22(5~57)	23.9	251(103~589)	295(120~672)	17.4
Brunei	97(82~112)	96(82~110)	-0.5	648(548~757)	657(556~765)	1.4	22(5~63)	24(6~66)	8.5	324(141~735)	344(149~780)	6.4
Cambodia	87(73~99)	87(74~99)	-0.1	571(485~660)	593(506~684)	3.9	22(5~61)	26(6~69)	20.3	329(134~779)	374(148~867)	13.8
China	90(76~104)	104(88~119)	14.8	610(516~708)	788(665~913)	29.2	23(5~64)	23(6~61)	-0.4	349(144~804)	368(165~795)	5.7
Cyprus	88(74~102)	89(76~102)	1.1	601(506~700)	634(536~734)	5.6	24(6~66)	23(6~62)	-6.4	340(141~804)	318(142~708)	-6.2
North Korea	95(80~110)	91(77~105)	-4.2	647(548~754)	633(534~739)	-2.2	23(5~61)	22(5~60)	-3.2	357(153~807)	343(146~770)	-4.1
Georgia	102(87~117)	103(87~117)	0.5	713(606~828)	717(607~830)	0.5	22(5~62)	23(5~61)	2.5	336(152~759)	340(154~746)	1.4
India	62(52~71)	62(53~71)	1.1	399(341~460)	416(355~480)	4.3	16(4~45)	19(5~52)	21.1	227(91~550)	260(104~617)	14.8
Indonesia	84(71~96)	83(70~95)	-1.2	553(474~637)	563(478~649)	1.7	19(4~53)	22(5~62)	17.3	290(123~672)	321(131~749)	10.5
Iran	111(94~127)	112(95~127)	0.4	777(657~896)	789(668~910)	1.6	25(6~70)	25(6~68)	-0.6	386(169~879)	386(170~844)	0
Iraq	107(90~123)	109(93~124)	2.2	736(617~856)	764(647~882)	3.8	25(6~71)	25(6~66)	-0.5	375(163~858)	382(168~827)	1.9
Israel	88(74~102)	88(75~102)	0	606(511~710)	624(528~722)	3	20(5~55)	20(5~53)	0	293(131~654)	295(136~626)	0.6
Japan	96(82~110)	111(96~127)	15.9	642(550~743)	785(669~909)	22.3	22(5~58)	27(8~66)	27.5	319(142~703)	392(183~804)	23.2
Jordan	106(90~122)	108(92~123)	1.8	736(621~852)	763(646~890)	3.8	26(6~71)	24(6~62)	-7.6	387(166~866)	370(165~823)	-4.5
Kazakhstan	100(84~115)	101(85~116)	1.1	692(579~811)	711(598~830)	2.7	21(5~59)	23(6~64)	10	319(146~707)	340(154~771)	6.6
Kuwait	110(94~126)	111(95~127)	0.7	788(669~911)	799(682~922)	1.3	26(6~66)	25(7~64)	-2.1	398(176~870)	387(174~838)	-2.6

Kyrgyzstan	101(85~116)	104(90~119)	3.4	693(583~805)	722(614~837)	4.2	21(5~56)	23(6~66)	10.9	320(147~696)	349(160~772)	9
Laos	86(73~98)	84(72~96)	-1.8	563(478~650)	569(484~655)	1.2	20(5~58)	22(6~63)	11.6	309(128~739)	327(136~782)	5.8
Lebanon	109(92~125)	111(95~126)	1.6	760(645~878)	792(678~916)	4.2	27(7~74)	27(7~71)	-2.6	405(173~897)	396(172~866)	-2.3
Malaysia	84(72~97)	85(73~97)	0.6	587(502~676)	612(521~702)	4.2	21(5~58)	22(5~57)	0.8	324(137~745)	327(138~751)	0.7
Maldives	82(70~94)	86(73~98)	4.4	551(468~638)	609(520~698)	10.4	21(5~60)	23(6~58)	8.1	317(129~763)	338(145~745)	6.7
Mongolia	102(87~117)	103(88~118)	1.4	688(584~797)	713(606~824)	3.6	24(6~70)	24(6~67)	-1.6	354(156~811)	352(155~793)	-0.8
Myanmar	86(73~99)	86(73~99)	-0.3	569(484~656)	588(499~678)	3.2	21(5~57)	23(6~62)	9.4	313(130~721)	333(138~766)	6.6
Nepal	69(59~80)	69(59~79)	-0.8	452(386~522)	466(399~536)	3.2	15(3~44)	20(5~53)	29.3	226(97~529)	271(112~636)	19.8
Oman	111(94~127)	110(94~125)	-0.6	781(662~907)	790(669~914)	1.1	30(7~79)	29(7~81)	-3.5	436(183~990)	422(180~968)	-3.3
Pakistan	68(57~78)	67(57~77)	-0.4	437(372~505)	446(380~514)	1.9	19(4~53)	21(5~58)	12.2	259(104~616)	280(110~683)	8.1
Palestine	109(93~124)	109(93~125)	0.6	756(643~878)	772(653~891)	2.1	28(7~75)	26(6~72)	-6.1	406(173~917)	388(170~896)	-4.4
Philippines	84(72~97)	84(72~96)	-0.4	561(480~645)	571(487~656)	1.9	27(6~73)	23(5~64)	-15.2	380(148~907)	332(135~779)	-12.6
Qatar	106(89~122)	109(93~125)	2.5	750(626~875)	779(655~905)	3.9	26(6~75)	28(6~76)	5.8	394(164~889)	407(172~949)	3.4
South Korea	106(92~120)	98(85~111)	-7.6	732(634~840)	704(615~806)	-3.9	26(6~68)	24(6~60)	-6.9	369(162~806)	346(157~724)	-6.2
Saudi Arabia	110(93~126)	108(92~124)	-1.3	764(645~885)	770(648~892)	0.8	27(6~72)	26(6~68)	-2.1	398(168~906)	390(169~863)	-2
Singapore	89(76~102)	93(81~106)	4.4	585(500~675)	640(554~733)	9.4	22(6~59)	22(6~54)	-2.3	317(136~707)	322(147~675)	1.8
Sri Lanka	84(72~96)	86(74~99)	3.1	571(486~657)	613(525~703)	7.2	24(6~66)	24(6~61)	-1.1	347(139~809)	343(140~772)	-1.1
Syrian	109(93~125)	110(94~126)	0.8	753(635~873)	770(653~892)	2.3	25(6~69)	26(6~70)	3.1	380(168~872)	391(167~908)	2.9
Taiwan (Province of China)	81(68~93)	88(76~98)	9.4	531(451~612)	626(543~695)	18	20(5~52)	21(5~54)	6.3	294(123~666)	323(142~716)	9.8
Tajikistan	102(87~118)	103(87~118)	0.6	693(587~803)	703(593~815)	1.4	22(5~57)	24(6~68)	13.4	328(150~713)	357(157~800)	8.9
Thailand	83(71~94)	87(75~98)	4.8	562(487~642)	625(541~715)	11.1	24(6~67)	22(6~57)	-8.1	354(142~827)	339(146~732)	-4.1
Timor-Leste	86(73~99)	83(71~96)	-3	568(485~659)	565(479~649)	-0.4	20(5~57)	22(5~63)	11.9	309(131~731)	330(134~794)	6.9
Turkey	111(95~128)	113(97~129)	1.5	769(654~889)	805(687~926)	4.7	27(7~70)	26(7~70)	-3.8	403(175~890)	395(180~893)	-2
Turkmenistan	104(89~119)	105(90~120)	0.6	711(603~827)	726(619~842)	2.1	23(6~64)	23(6~61)	-1.3	348(156~778)	346(158~758)	-0.5
United Arab Emirates	104(87~120)	103(87~119)	-0.9	722(607~846)	721(602~842)	-0.1	26(6~72)	24(6~64)	-6.1	387(162~916)	366(158~831)	-5.4
Uzbekistan	102(87~118)	103(87~118)	0.6	702(594~815)	715(604~831)	1.7	22(5~59)	24(6~67)	9.3	328(151~711)	351(155~803)	6.8

Viet Nam	87(74~100)	87(74~99)	-0.1	588(499~678)	611(521~702)	3.9	26(6~69)	29(7~75)	10.6	377(152~861)	407(161~939)	7.9
Yemen	112(96~129)	109(93~124)	-2.7	773(654~895)	752(639~870)	-2.7	25(6~69)	25(6~71)	0.7	385(172~867)	384(166~893)	-0.4

eTable 8: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of Parkinson's disease (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	11(10~12)	10(9~12)	-2.8	72(58~87)	69(58~82)	-3.3	7(5~10)	7(5~8)	-2.3	121(93~166)	114(89~143)	-6
Armenia	9(9~10)	10(9~11)	7.1	75(63~87)	80(65~95)	6.8	4(3~4)	4(4~5)	13.2	63(56~71)	69(59~79)	9
Azerbaijan	10(9~11)	13(12~14)	33.8	75(62~88)	89(74~105)	18.9	4(3~5)	7(5~9)	84.3	61(53~81)	94(79~122)	54.4
Bahrain	12(11~14)	14(12~16)	12.8	84(68~100)	94(76~113)	12.5	7(6~7)	6(4~7)	-7.7	102(89~115)	88(64~107)	-13.5
Bangladesh	10(9~11)	9(8~10)	-11.2	66(54~80)	67(55~81)	1.7	5(4~7)	4(3~6)	-19.2	85(66~110)	66(53~86)	-22.5
Bhutan	9(8~10)	10(9~11)	13.5	61(50~74)	74(61~87)	19.9	4(3~6)	6(5~7)	38.9	72(54~90)	90(72~110)	26.1
Brunei	12(10~13)	14(12~16)	19.6	77(62~95)	92(74~110)	19	7(4~8)	8(5~10)	18.5	113(72~135)	128(77~148)	12.6
Cambodia	10(9~12)	11(10~12)	3.6	83(68~100)	90(75~105)	7.4	4(3~6)	5(4~6)	16.7	80(62~102)	86(69~102)	8.1
China	13(11~15)	15(13~18)	15.3	107(88~128)	146(121~174)	35.8	6(5~6)	5(4~5)	-17.7	97(86~108)	84(72~96)	-13.3
Cyprus	16(14~19)	15(13~17)	-7.6	124(99~150)	126(104~151)	2	9(6~10)	5(4~6)	-40.7	127(98~151)	82(63~93)	-35.5
Georgia	10(9~11)	10(9~11)	-3.1	81(66~99)	75(62~87)	-8.1	5(4~6)	5(4~5)	-8.4	81(70~96)	75(65~86)	-7.7
India	9(8~11)	10(9~12)	11.3	62(51~74)	74(61~88)	19.3	5(4~7)	5(4~6)	-4.2	86(71~108)	83(71~96)	-3.5
Indonesia	10(9~12)	11(9~13)	7.1	84(69~100)	90(74~107)	6.9	4(3~5)	5(4~7)	37.9	70(57~81)	87(70~103)	25.4
Iran	10(8~12)	11(9~13)	13.7	75(63~90)	85(70~101)	13.1	4(4~5)	5(4~5)	6.7	74(65~84)	77(67~85)	3.1
Iraq	10(9~11)	10(9~11)	1.6	71(59~85)	74(61~88)	5.1	5(4~7)	6(5~7)	22.8	73(58~107)	86(71~115)	17.5
Israel	14(12~15)	14(12~15)	-0.6	116(98~137)	116(97~137)	-0.3	5(4~5)	5(4~5)	-3.4	81(75~88)	77(70~85)	-4.5
Japan	8(6~9)	9(8~11)	21.3	62(51~73)	77(64~92)	24.9	3(3~3)	3(3~4)	5.2	52(48~55)	56(48~61)	7.7
Jordan	11(9~12)	10(9~12)	-3	75(62~87)	77(63~92)	3	6(5~7)	5(4~6)	-13.2	86(71~107)	74(63~87)	-14
Kazakhstan	10(9~11)	12(11~13)	16.5	76(63~90)	84(70~103)	11	4(3~4)	6(5~7)	56.7	64(58~71)	90(79~101)	41
Kuwait	9(8~11)	8(7~10)	-11.5	78(64~94)	71(59~86)	-8.5	5(4~5)	4(3~4)	-25.1	77(68~85)	56(47~66)	-26.8
Kyrgyzstan	8(7~9)	8(7~9)	-6.1	68(55~81)	64(54~76)	-4.9	3(3~4)	3(3~4)	5.4	57(50~65)	56(49~64)	-1.6
Laos	11(9~12)	11(10~12)	5.1	82(67~98)	90(75~106)	9.9	5(4~6)	5(4~6)	6.6	87(70~112)	86(72~99)	-1.8

	9(8~11)	10(9~11)	8.8	71(59~83)	78(66~91)	9.3	5(4~6)	4(3~6)	-14.1	81(69~97)	70(57~92)	-14.2
Lebanon	12(10~13)	12(10~14)	4.1	97(78~119)	108(86~132)	11.2	4(3~4)	5(4~6)	30.3	72(64~82)	86(71~102)	18.3
Maldives	14(12~15)	13(11~15)	-4.3	106(86~126)	113(94~131)	6.5	6(5~7)	5(4~6)	-18	99(77~118)	78(67~90)	-20.7
Mongolia	10(9~11)	8(7~10)	-18	73(59~87)	66(53~80)	-9.4	5(4~5)	4(3~5)	-16	79(67~91)	64(53~77)	-19.4
Myanmar	11(10~13)	13(11~14)	11.1	88(71~105)	102(84~120)	15.3	4(3~5)	5(4~6)	23.6	74(62~90)	85(73~98)	15.4
Nepal	8(7~8)	9(8~10)	15.8	53(43~64)	64(53~76)	21.4	4(3~5)	5(4~7)	39.1	64(49~86)	82(64~100)	27.9
North Korea	12(11~14)	11(10~13)	-5.9	112(91~134)	102(83~121)	-9.4	5(4~6)	4(4~5)	-10.4	95(80~115)	85(72~100)	-10.2
Oman	13(12~15)	18(16~20)	33.3	88(72~105)	112(93~135)	28	6(4~8)	9(5~11)	44.7	96(65~121)	125(79~144)	30.3
Pakistan	9(7~10)	10(8~11)	11	61(50~73)	69(57~83)	13.4	5(4~6)	6(5~7)	21.1	79(64~94)	95(81~112)	19.4
Palestine	11(10~12)	11(10~13)	3.8	77(63~91)	78(65~92)	2.1	6(4~8)	6(4~7)	-2.5	98(69~125)	93(65~107)	-4.9
Philippines	10(9~12)	11(9~13)	8.4	85(70~101)	94(77~112)	10.7	5(4~5)	4(4~5)	-9.6	77(67~87)	76(66~89)	-1.6
Qatar	15(13~16)	18(16~21)	26.5	99(82~118)	119(98~143)	20.2	8(5~11)	11(6~15)	35.3	130(89~165)	149(96~195)	14.8
Saudi Arabia	13(11~14)	16(14~18)	26.7	84(69~101)	108(90~128)	27.7	7(5~9)	7(5~9)	0.2	109(79~133)	111(84~130)	1.6
Singapore	9(8~9)	9(8~10)	8	67(56~77)	75(63~89)	12.7	4(4~4)	3(3~4)	-15.9	66(61~70)	55(48~61)	-16.4
South Korea	8(7~9)	10(9~12)	30	59(50~72)	81(69~98)	36.6	4(3~6)	4(4~5)	20.7	59(52~94)	69(57~77)	17.7
Sri Lanka	12(11~14)	13(12~15)	10.8	103(84~124)	117(96~141)	14.5	5(3~6)	4(2~6)	-9.9	77(50~92)	72(48~91)	-6.8
Syrian	11(10~12)	12(10~13)	9.1	73(61~86)	82(68~97)	11.6	5(3~6)	6(4~7)	21.1	74(53~88)	84(58~105)	13.7
Taiwan (Province of China)	15(13~17)	17(15~19)	14	133(114~157)	151(127~171)	13.6	5(5~5)	5(4~6)	5.3	88(81~95)	91(76~109)	3.6
Tajikistan	11(9~13)	17(15~19)	53.2	79(64~97)	102(83~124)	28.6	4(2~9)	10(5~12)	115.8	72(46~128)	137(84~166)	90.6
Thailand	13(11~15)	12(10~14)	-8.8	105(87~126)	103(86~123)	-1.9	5(3~6)	4(3~6)	-13.9	83(62~94)	72(52~90)	-13.7
Timor-Leste	10(9~12)	11(10~12)	8.5	79(64~96)	90(73~106)	13	4(3~5)	5(4~6)	32.7	70(58~83)	86(68~103)	23.1
Turkey	10(9~12)	12(11~14)	19.9	71(58~86)	87(71~104)	22.3	5(4~9)	5(4~9)	-6.8	83(69~133)	76(59~130)	-8.2
Turkmenistan	8(7~9)	9(8~10)	8.7	66(54~78)	73(60~87)	11.5	3(3~3)	4(3~5)	21.9	55(51~60)	68(56~81)	23
United Arab Emirates	17(15~19)	19(17~21)	14.3	104(85~124)	116(98~139)	11.8	9(4~12)	8(5~10)	-12.8	146(78~186)	130(87~167)	-10.6
Uzbekistan	10(9~11)	13(12~15)	33	78(64~94)	92(77~109)	18.5	3(2~4)	7(6~7)	113.6	53(42~71)	101(89~112)	89.5
Viet Nam	11(10~12)	13(11~15)	17.9	90(75~107)	109(90~132)	20.3	5(4~6)	6(5~7)	19.3	83(72~95)	96(81~110)	15.4

Yemen 8(7~9) 9(8~10) 11.5 58(47~70) 64(52~76) 9.7 4(3~5) 5(4~6) 21.9 66(52~89) 77(61~99) 15.5

eTable 9: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons of Motor neuron diseases (1990-2019)

Location	incidence rates(95%UI)			prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	1(1~1)	1(1~1)	2.1	2(2~2)	2(2~2)	0.2	0(0~0)	0(0~0)	-8.7	3(2~4)	3(2~4)	-6.9
Armenia	1(0~1)	0(0~1)	-3	3(2~3)	3(2~3)	3.4	0(0~0)	0(0~0)	-27.9	3(2~3)	2(2~2)	-25.4
Azerbaijan	0(0~1)	0(0~1)	-2.2	3(2~3)	3(2~3)	3.4	0(0~0)	0(0~0)	32.2	2(2~2)	2(2~3)	17.9
Bahrain	0(0~1)	0(0~1)	4.4	3(2~3)	3(2~3)	3.7	0(0~0)	0(0~0)	-63.6	5(4~5)	2(2~3)	-54.1
Bangladesh	0(0~1)	0(0~1)	-1.8	2(1~2)	2(1~2)	8.4	0(0~0)	0(0~0)	21.1	3(2~4)	4(2~6)	16
Bhutan	0(0~1)	0(0~1)	-3	2(1~2)	2(2~2)	10.5	0(0~0)	0(0~0)	51.6	2(1~4)	3(2~6)	39.3
Brunei	0(0~1)	0(0~1)	0.4	2(2~3)	2(2~3)	6.8	0(0~0)	0(0~0)	106.1	3(2~5)	6(5~9)	105.4
Cambodia	0(0~1)	0(0~1)	-1.8	1(1~2)	2(1~2)	9.2	0(0~0)	0(0~0)	1.2	3(2~4)	3(2~4)	-2.4
China	1(0~1)	1(0~1)	-9.6	2(2~3)	3(2~3)	14.3	0(0~0)	0(0~0)	-37.5	13(12~15)	7(6~8)	-49
Cyprus	1(1~1)	1(1~1)	12.8	5(4~5)	6(5~6)	19.2	1(0~1)	1(1~1)	31.9	17(14~21)	21(18~26)	28.3
Georgia	0(0~1)	0(0~1)	2.1	3(2~3)	3(2~3)	1.2	0(0~0)	0(0~0)	36.9	3(3~5)	4(4~5)	36.3
India	0(0~1)	0(0~0)	-2.2	2(1~2)	2(1~2)	11.1	0(0~0)	0(0~0)	55.7	3(2~4)	5(4~6)	46.3
Indonesia	0(0~0)	0(0~0)	-1.7	1(1~2)	2(1~2)	7	0(0~0)	0(0~0)	22.8	3(2~4)	3(2~5)	10
Iran	1(0~1)	1(1~1)	4.1	3(2~3)	3(2~4)	6.6	0(0~0)	0(0~0)	61.9	3(3~4)	5(4~5)	43.7
Iraq	1(0~1)	1(0~1)	4.1	2(2~3)	3(2~3)	2.6	0(0~0)	0(0~0)	19.7	2(1~2)	2(1~2)	10.6
Israel	1(1~1)	1(1~1)	-3.2	5(4~6)	6(5~6)	9.2	1(1~1)	1(1~1)	12.2	29(27~33)	27(25~30)	-7.3
Japan	1(1~1)	1(1~1)	10.3	5(4~5)	5(5~6)	13.8	1(1~1)	1(1~1)	25.7	17(17~18)	19(17~20)	7.7
Jordan	1(0~1)	1(0~1)	2.4	3(2~3)	3(2~3)	3	0(0~0)	0(0~0)	21.1	2(2~3)	3(3~4)	35.8
Kazakhstan	1(0~1)	1(0~1)	-1.8	3(2~3)	3(2~4)	4	0(0~0)	0(0~0)	71.1	1(1~1)	1(1~2)	30.2
Kuwait	1(0~1)	0(0~1)	-12	3(3~4)	3(3~4)	-4.2	0(0~0)	0(0~0)	-54.4	15(13~20)	6(4~8)	-61.7
Kyrgyzstan	0(0~1)	0(0~1)	3.3	3(2~3)	3(2~3)	0	0(0~0)	0(0~0)	25.1	3(2~4)	3(3~4)	30.9
Laos	0(0~1)	0(0~1)	-2.6	1(1~2)	2(1~2)	11	0(0~0)	0(0~0)	-8.9	3(2~4)	3(2~4)	-11
Lebanon	1(0~1)	1(0~1)	-0.6	3(2~3)	3(2~3)	2.8	0(0~0)	0(0~0)	7.3	3(2~5)	3(2~5)	4.5

Malaysia	0(0~0)	0(0~0)	0.1	2(1~2)	2(1~2)	8	0(0~0)	0(0~0)	-13.6	2(2~2)	2(1~2)	-9.7
Maldives	0(0~0)	0(0~0)	-1.4	2(1~2)	2(1~2)	9.6	0(0~0)	0(0~0)	21.9	5(3~8)	6(4~9)	25.5
Mongolia	1(0~1)	1(0~1)	-3.2	3(2~3)	3(2~3)	6.3	0(0~0)	0(0~0)	12.3	7(5~10)	7(5~10)	-2.1
Myanmar	1(0~1)	0(0~1)	-4.7	2(1~2)	2(1~2)	13.4	0(0~0)	0(0~0)	-4.8	3(2~4)	3(2~4)	-6.7
Nepal	0(0~1)	0(0~1)	-1.7	2(1~2)	2(1~2)	6.3	0(0~0)	0(0~0)	55.7	2(2~4)	3(2~5)	37.8
North Korea	1(1~1)	1(1~1)	8.7	3(2~3)	3(2~3)	2.2	0(0~0)	0(0~0)	-25.2	9(6~15)	6(4~9)	-37.8
Oman	0(0~1)	0(0~1)	0.6	2(2~3)	2(2~3)	2.7	0(0~0)	0(0~0)	25.2	3(2~5)	3(2~4)	17.5
Pakistan	0(0~1)	0(0~1)	-1.6	2(1~2)	2(1~2)	5.1	0(0~0)	0(0~0)	69.1	3(2~4)	5(4~6)	63.7
Palestine	1(0~1)	1(0~1)	0.5	2(2~3)	3(2~3)	4	0(0~0)	0(0~0)	50.6	2(1~2)	2(2~2)	31.7
Philippines	0(0~0)	0(0~0)	-0.5	2(1~2)	2(1~2)	5.9	0(0~0)	0(0~0)	17.2	2(2~3)	3(2~3)	11.9
Qatar	0(0~1)	0(0~1)	1.3	3(2~3)	3(2~3)	4.2	0(0~0)	0(0~0)	-4.2	2(2~3)	2(2~3)	-4.8
Saudi Arabia	0(0~1)	0(0~1)	3.1	2(2~3)	2(2~3)	2.9	0(0~0)	0(0~0)	24	3(2~4)	3(2~4)	18.7
Singapore	1(0~1)	1(0~1)	-7.8	3(2~3)	3(3~4)	16.3	0(0~0)	0(0~0)	2.4	14(13~16)	12(10~15)	-13.6
South Korea	1(1~1)	1(1~1)	14.2	3(3~4)	4(3~5)	25.9	0(0~0)	0(0~0)	-78.5	24(19~30)	4(3~4)	~85.2
Sri Lanka	0(0~0)	0(0~0)	-2.2	2(1~2)	2(1~2)	10.2	0(0~0)	0(0~0)	-55.5	9(8~12)	4(3~6)	-57.9
Syrian	1(0~1)	1(0~1)	0	3(2~3)	3(2~3)	0.4	0(0~0)	0(0~0)	34.7	2(2~3)	3(2~4)	23.9
Taiwan (Province of China)	1(0~1)	1(0~1)	6.1	3(2~4)	3(3~4)	10.5	0(0~0)	0(0~1)	69.4	10(10~11)	15(12~19)	46.7
Tajikistan	0(0~1)	1(0~1)	2.6	2(2~3)	2(2~3)	-1.7	0(0~0)	0(0~0)	37.2	1(1~2)	2(1~2)	18.3
Thailand	0(0~1)	0(0~1)	1.5	2(1~2)	2(2~2)	9.9	0(0~0)	0(0~0)	-34.5	2(2~2)	2(1~2)	-23.2
Timor-Leste	0(0~1)	0(0~1)	-1.8	1(1~2)	2(1~2)	7.1	0(0~0)	0(0~0)	23.8	2(1~3)	2(1~3)	14.8
Turkey	1(1~1)	1(1~1)	7.9	3(3~4)	4(3~4)	10.2	1(1~1)	1(1~1)	-4.7	42(27~72)	32(25~40)	-25
Turkmenistan	0(0~1)	0(0~1)	-1.9	2(2~3)	3(2~3)	5.4	0(0~0)	0(0~0)	83.9	4(4~5)	7(5~10)	63.9
United Arab Emirates	0(0~1)	0(0~1)	8.5	3(2~3)	3(2~3)	-0.5	0(0~0)	0(0~0)	24.9	5(3~11)	6(3~11)	21.9
Uzbekistan	1(0~1)	1(0~1)	-1.9	2(2~3)	3(2~3)	4.2	0(0~0)	0(0~0)	72	1(1~1)	2(1~2)	36
Viet Nam	0(0~1)	0(0~1)	-3.3	2(1~2)	2(2~2)	10.3	0(0~0)	0(0~0)	28	3(2~4)	4(3~5)	21.3
Yemen	1(0~1)	1(0~1)	1	2(1~2)	2(1~2)	-0.8	0(0~0)	0(0~0)	24	1(1~2)	2(1~2)	19.9

eTable 10: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of meningitis (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	134(119~151)	86(76~96)	-35.7	368(296~457)	217(178~261)	-41	13(10~18)	4(3~6)	-67.3	928(651~1301)	245(185~326)	-73.6
Armenia	35(28~44)	28(22~35)	-19.7	146(120~183)	101(82~125)	-30.7	1(1~1)	0(0~0)	-78.7	53(47~60)	17(13~20)	-68.3
Azerbaijan	43(35~51)	30(24~37)	-30.1	137(111~170)	83(68~103)	-39.4	2(2~2)	1(1~1)	-64.3	158(134~188)	51(40~65)	-67.5
Bahrain	36(31~42)	19(16~24)	-46	75(62~91)	40(33~49)	-46.2	2(1~2)	0(0~1)	-73.1	73(61~88)	19(16~22)	-74.5
Bangladesh	32(27~38)	24(19~29)	-25.6	137(106~177)	93(75~114)	-32.1	3(2~3)	2(1~2)	-42.2	155(109~195)	88(71~108)	-43
Bhutan	79(69~92)	35(28~41)	-56.5	299(240~379)	107(87~134)	-64.3	13(7~18)	3(2~5)	-73.7	833(326~1251)	201(129~293)	-75.9
Brunei	38(31~46)	25(20~32)	-32.5	67(55~83)	47(38~57)	-30.7	2(2~2)	1(0~1)	-72.9	85(74~98)	25(21~30)	-70.4
Cambodia	28(23~34)	16(13~20)	-42	138(105~180)	64(51~80)	-54	5(4~7)	1(1~1)	-85	437(314~608)	65(46~96)	-85
China	20(15~26)	5(4~6)	-76.3	97(80~120)	15(12~17)	-84.9	3(3~4)	1(0~1)	-85.2	255(220~291)	30(26~34)	-88.2
Cyprus	17(14~21)	7(5~8)	-61.2	53(44~65)	18(15~23)	-65.5	1(1~1)	0(0~0)	-83.5	64(48~94)	9(8~11)	-85.6
Georgia	38(31~46)	27(21~33)	-30.4	133(111~165)	92(76~112)	-31.3	2(1~2)	1(0~1)	-64.2	114(100~131)	39(32~46)	-65.9
India	91(76~108)	44(36~52)	-52	400(334~480)	152(129~179)	-62.1	11(10~13)	3(2~3)	-74.7	705(606~813)	172(146~204)	-75.6
Indonesia	46(35~59)	18(14~23)	-60.7	177(143~224)	58(48~70)	-67.5	9(7~11)	2(2~3)	-74.9	723(585~922)	154(123~192)	-78.8
Iran	34(28~40)	26(21~31)	-23.5	108(90~129)	69(59~82)	-35.7	3(2~4)	1(1~1)	-72.3	186(152~229)	39(33~44)	-79.2
Iraq	38(33~44)	23(19~27)	-40.2	103(83~130)	60(49~72)	-42	5(4~6)	1(1~2)	-74.8	338(266~426)	67(53~85)	-80
Israel	22(18~26)	11(8~13)	-51.2	65(54~80)	27(23~33)	-58.1	1(1~1)	0(0~0)	-70.3	54(49~61)	14(12~16)	-74.8
Japan	27(20~34)	19(15~23)	-30	75(62~90)	43(37~50)	-42.9	0(0~0)	0(0~0)	-69.3	29(27~32)	10(8~11)	-66.6
Jordan	31(26~36)	27(23~33)	-10.8	105(86~128)	86(71~105)	-17.7	2(2~3)	1(1~1)	-58.7	121(95~153)	53(42~66)	-56.5
Kazakhstan	44(37~53)	27(21~33)	-40	133(109~164)	69(55~84)	-48.5	3(2~3)	1(1~1)	-71.9	198(177~224)	48(40~56)	-76
Kuwait	24(20~29)	19(16~23)	-20.5	51(41~62)	38(31~46)	-25.8	1(1~1)	0(0~0)	-59.4	55(46~64)	20(16~25)	-63.1
Kyrgyzstan	56(47~66)	30(24~37)	-46.4	209(172~258)	139(112~173)	-33.5	4(4~5)	1(1~1)	-85.8	319(282~360)	49(42~56)	-84.7
Laos	47(40~54)	20(17~24)	-57	182(141~234)	63(50~79)	-65.5	11(8~15)	2(1~3)	-80	853(599~1215)	159(105~233)	-81.4
Lebanon	28(23~33)	20(17~24)	-27.8	92(75~115)	56(46~69)	-39.8	2(1~2)	1(0~1)	-64	94(75~119)	30(22~38)	-68.6

Malaysia	25(21~30)	20(16~24)	-22.5	82(67~101)	52(43~64)	-36.2	3(2~3)	1(1~1)	-61.4	146(121~175)	49(39~61)	-66.6
Maldives	21(18~26)	17(14~22)	-18.4	74(59~93)	53(43~65)	-28.8	2(2~3)	0(0~1)	-80.8	133(97~191)	26(20~33)	-80.7
Mongolia	88(75~104)	31(25~38)	-65.2	301(241~375)	89(73~110)	-70.4	14(10~17)	1(1~1)	-94.6	1009(667~1272)	47(37~59)	-95.4
Myanmar	49(41~59)	22(18~26)	-55.4	239(182~311)	72(58~89)	-70	14(8~21)	2(2~4)	-82.1	1129(666~1772)	198(127~300)	-82.4
Nepal	42(35~51)	21(17~26)	-50.1	192(148~252)	90(72~114)	-53.1	9(7~12)	2(2~3)	-74.3	610(413~837)	88(67~117)	-85.6
North Korea	15(12~18)	9(8~11)	-36.3	52(42~65)	49(39~60)	-7.6	3(2~5)	1(1~1)	-73.8	259(178~354)	58(43~77)	-77.6
Oman	14(12~18)	9(7~10)	-40.6	28(22~35)	17(14~22)	-38.1	3(2~3)	1(1~1)	-64.2	94(69~124)	25(21~29)	-73.9
Pakistan	108(88~132)	56(46~67)	-48	410(333~503)	188(154~233)	-54.1	18(14~22)	8(7~10)	-55.7	1206(922~1553)	496(387~631)	-58.8
Palestine	33(28~39)	19(16~22)	-44.1	135(110~168)	72(59~89)	-47.2	4(3~5)	1(1~1)	-77.8	233(173~309)	40(34~48)	-82.6
Philippines	36(30~44)	23(19~27)	-36.8	144(121~172)	77(66~91)	-46.5	5(4~6)	2(1~2)	-65.5	395(326~468)	128(108~149)	-67.6
Qatar	68(57~80)	56(46~68)	-17.5	121(97~151)	89(73~109)	-26.2	2(2~4)	1(0~1)	-73.4	95(72~132)	25(21~31)	-73.1
Saudi Arabia	26(22~30)	17(14~21)	-33.5	44(35~55)	31(25~38)	-29.1	3(2~4)	1(1~1)	-69.7	100(75~130)	27(21~33)	-73.3
Singapore	38(30~47)	21(16~27)	~44.4	99(80~120)	40(33~50)	-59	1(1~1)	0(0~0)	-90.9	56(50~64)	7(6~9)	-86.6
South Korea	44(36~54)	27(21~34)	-39	135(110~167)	61(49~75)	-55.2	2(2~2)	0(0~0)	-93.8	96(85~109)	10(8~12)	-89.9
Sri Lanka	55(46~66)	48(39~59)	-13	220(178~275)	152(126~185)	-30.7	5(4~5)	1(1~2)	-69.5	210(177~239)	59(46~74)	-71.9
Syrian	38(32~44)	24(20~28)	-37.1	149(122~185)	82(69~101)	-45	5(4~6)	2(1~2)	-64.9	341(265~446)	100(77~129)	-70.7
Taiwan (Province of China)	13(10~15)	7(5~9)	-44.4	36(29~44)	17(14~21)	-53.4	1(1~1)	0(0~0)	-77.2	64(59~69)	14(11~17)	-78.5
Tajikistan	65(55~76)	35(28~43)	-45.4	233(192~287)	162(130~202)	-30.7	7(7~8)	1(1~2)	-82.2	541(482~610)	96(75~140)	-82.2
Thailand	30(24~36)	27(21~32)	-10.8	107(86~134)	77(62~94)	-28.1	3(2~3)	1(1~2)	-52.6	181(145~232)	60(49~75)	-66.6
Timor-Leste	37(31~43)	20(16~24)	-46.5	170(133~219)	85(69~107)	-49.8	7(5~10)	2(1~3)	-72.1	577(388~807)	147(87~198)	-74.6
Turkey	18(15~21)	7(6~8)	-63.2	48(39~59)	15(12~18)	-69	4(3~5)	0(0~1)	-86.7	257(175~374)	26(21~32)	-89.9
Turkmenistan	49(41~59)	34(27~41)	-31.6	158(127~196)	89(72~111)	-43.5	4(3~4)	1(1~1)	-72.8	289(252~334)	74(61~90)	-74.4
United Arab Emirates	44(38~51)	28(24~33)	-36	49(40~60)	38(31~47)	-21	3(2~3)	1(1~1)	-67.5	123(91~172)	32(22~44)	-73.9
Uzbekistan	52(44~61)	27(21~34)	-47.8	206(168~253)	96(78~121)	-53.4	4(3~4)	1(0~1)	-86.1	285(255~320)	40(33~47)	-86.1
Viet Nam	18(15~22)	11(9~14)	-41.1	96(77~119)	42(34~53)	-56.1	3(2~4)	1(1~1)	-66.1	197(149~267)	60(43~83)	-69.5
Yemen	36(31~42)	24(20~28)	-34.6	120(94~150)	84(68~106)	-29.7	5(4~7)	2(1~3)	-60.2	310(214~454)	97(68~137)	-68.5

eTable 11: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of encephalitis (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	19(17~21)	19(18~22)	0.1	66(46~86)	69(49~89)	4.4	5(4~7)	5(4~6)	-11.1	205(150~297)	176(132~248)	-14.2
Armenia	11(10~13)	11(10~13)	-0.7	41(31~52)	36(28~44)	-13.7	0(0~1)	1(0~1)	7.6	33(27~44)	34(28~42)	3
Azerbaijan	14(12~16)	14(12~16)	-4	41(30~51)	34(25~42)	-17.2	2(1~3)	2(1~3)	-19.3	167(93~259)	132(76~207)	-20.8
Bahrain	8(7~9)	8(7~10)	0.5	18(13~23)	17(13~21)	-4.4	0(0~0)	0(0~0)	-24.2	15(13~18)	11(9~14)	-25.8
Bangladesh	36(32~41)	37(32~41)	1.2	131(90~171)	116(86~144)	-11.7	0(0~1)	0(0~0)	-5.3	24(17~39)	22(17~27)	-9.9
Bhutan	59(53~65)	46(41~51)	-22	173(122~224)	107(80~133)	-37.8	8(1~13)	5(2~7)	-39.3	323(66~601)	193(65~309)	-40.1
Brunei	8(6~9)	8(7~9)	5.9	13(10~17)	15(11~19)	12.7	1(0~1)	1(1~1)	22.8	26(21~37)	31(25~38)	18.7
Cambodia	13(11~15)	12(10~13)	-11.8	56(39~75)	40(30~51)	-28.7	2(1~3)	1(1~2)	-44.3	132(77~212)	64(48~87)	-51.5
China	21(18~25)	21(18~25)	-2.1	111(81~141)	70(54~87)	-37.2	1(1~1)	0(0~0)	-65	75(52~91)	27(23~37)	-64.1
Cyprus	5(4~6)	5(4~6)	-5.2	12(9~14)	10(8~13)	-9.5	0(0~0)	0(0~0)	-46.2	9(8~11)	6(5~7)	-37.1
Georgia	12(10~14)	10(9~11)	-15.2	35(26~44)	28(21~35)	-19	0(0~1)	1(0~1)	8.3	34(26~49)	33(26~45)	-2.5
India	73(66~79)	50(45~55)	-30.9	239(167~305)	123(91~153)	-48.4	11(9~13)	5(4~7)	-57.9	558(441~692)	191(148~316)	-65.8
Indonesia	9(8~11)	6(5~7)	-39.2	34(24~44)	16(12~20)	-53.1	2(1~2)	1(1~1)	-30.8	118(38~171)	68(28~94)	-42.2
Iran	9(7~10)	9(7~10)	1.1	27(20~34)	24(19~30)	-10.8	0(0~0)	0(0~0)	-15.6	21(17~26)	16(13~19)	-22.1
Iraq	13(11~14)	11(10~13)	-12.1	33(24~42)	28(21~35)	-13.3	2(1~2)	1(1~2)	-30.8	107(73~149)	71(50~92)	-33.8
Israel	7(6~8)	7(6~8)	-1.1	16(13~20)	14(11~18)	-12.1	0(0~0)	0(0~0)	10.7	9(7~11)	8(7~9)	-5.6
Japan	9(8~11)	8(6~9)	-19.9	26(20~32)	19(14~23)	-28.4	0(0~0)	0(0~0)	-25.4	14(12~16)	9(8~12)	-30.9
Jordan	9(7~10)	8(7~10)	-5.4	30(23~38)	26(20~32)	-14.3	0(0~1)	0(0~0)	-65	27(14~37)	11(9~15)	-60.2
Kazakhstan	15(13~17)	13(11~14)	-15.3	39(29~49)	28(21~35)	-28.7	2(1~2)	1(1~2)	-19.3	116(101~137)	85(67~125)	~27.2
Kuwait	8(7~10)	8(7~10)	0.6	17(12~21)	16(13~20)	-3.3	0(0~0)	0(0~0)	-22.3	14(12~17)	10(9~13)	-26.5
Kyrgyzstan	13(11~15)	12(10~13)	-11.4	42(31~54)	45(34~56)	6.8	1(1~2)	1(1~1)	-35.4	101(63~124)	62(51~73)	-38.3
Laos	13(12~15)	12(10~14)	-9.4	49(33~64)	35(26~45)	-27.4	2(1~3)	1(1~2)	-38	113(70~219)	65(45~96)	-42.8
Lebanon	14(12~16)	12(11~14)	-12.5	42(31~53)	32(25~40)	-23.2	0(0~1)	0(0~1)	-19	22(15~38)	17(12~31)	-19.2

Malaysia	16(14~18)	16(14~18)	-3.1	43(32~53)	32(24~39)	-25.5	2(1~2)	2(1~2)	-9.3	79(64~95)	65(49~83)	-18.1	
Maldives	14(12~16)	12(10~14)	-11.4	41(30~53)	31(24~38)	-25.3	2(1~3)	1(1~1)	-45.7	107(63~178)	44(34~57)	-59.1	
Mongolia	14(12~16)	13(11~15)	-7	43(30~54)	33(25~42)	-21.8	2(1~3)	1(1~2)	-28.1	140(102~203)	96(64~135)	-31.9	
Myanmar	12(10~14)	11(10~13)	-5.2	51(35~68)	33(24~41)	-36.2	1(1~2)	1(0~1)	-36.3	73(37~136)	44(28~66)	-40	
Nepal	53(48~59)	36(32~39)	-32.6	182(125~234)	115(85~142)	-37.1	9(1~13)	4(1~6)	-48	393(76~631)	174(61~250)	-55.8	
North Korea	12(10~15)	12(10~14)	-4.3	48(35~63)	66(50~83)	35.9	1(1~2)	1(0~1)	~44	84(41~146)	50(33~73)	-41.2	
Oman	20(18~22)	16(14~18)	-21.3	35(26~44)	29(22~36)	-18.2	6(4~8)	3(3~4)	-43.4	218(158~295)	122(94~180)	-44.1	
Pakistan	33(30~37)	32(29~36)	-3.5	109(78~137)	93(67~117)	-14.4	4(2~6)	4(2~5)	-3.8	163(87~224)	176(86~246)	7.9	
Palestine	8(7~10)	8(7~10)	-0.8	36(26~45)	34(26~42)	-4.8	0(0~1)	0(0~0)	-22	21(16~29)	16(13~22)	-21.8	
Philippines	20(17~23)	18(15~20)	-11	73(53~92)	56(42~70)	-23.4	2(1~2)	1(1~1)	-26.3	110(51~145)	81(37~104)	-26	
Qatar	8(7~10)	8(7~10)	-1.8	15(11~18)	13(10~16)	-10.8	0(0~1)	0(0~0)	-24.6	19(14~25)	13(10~18)	-29.3	
Saudi Arabia	10(9~12)	9(8~11)	-11	19(14~24)	17(13~22)	-7.3	2(1~2)	1(1~1)	-51.8	60(43~79)	28(22~38)	-53	
Singapore	7(6~9)	7(6~8)	-4.7	19(14~23)	14(11~17)	-25.1	0(0~0)	0(0~0)	-32.7	22(18~24)	13(10~16)	-38.4	
South Korea	7(6~8)	7(6~8)	4.2	21(16~27)	17(14~22)	-18.3	0(0~0)	0(0~0)	44.9	12(10~19)	15(11~17)	19.9	
Sri Lanka	25(22~28)	16(14~18)	-34.8	73(53~92)	40(31~50)	-44.6	6(3~7)	2(1~3)	-68.7	197(135~229)	66(44~129)	-66.4	
Syrian	9(8~11)	9(7~10)	-6.9	36(27~46)	32(24~40)	-12.7	1(1~1)	0(0~1)	-40.9	46(32~62)	27(21~37)	-41	
Taiwan (Province of China)	8(6~9)	6(5~7)	-23.7	23(17~30)	14(11~17)	-40.8	0(0~0)	0(0~0)	2.8	20(17~23)	18(14~22)	-10.7	
Tajikistan	12(10~14)	12(10~14)	0.4	39(28~50)	47(35~59)	20.1	0(0~0)	0(0~0)	12.9	15(10~25)	16(12~26)	8.7	
Thailand	17(15~19)	13(11~15)	-22.2	53(39~66)	33(25~41)	-37.4	2(1~2)	1(1~1)	-44.9	109(67~149)	50(38~67)	-54.4	
Timor-Leste	15(13~17)	13(11~15)	-13	63(45~83)	52(38~65)	-18.8	2(1~4)	1(1~2)	-47.2	164(84~281)	75(40~111)	-54.1	
Turkey	12(10~13)	11(10~13)	-2.8	31(23~39)	27(21~34)	-12.3	1(0~1)	0(0~0)	-50.3	35(24~55)	19(15~23)	-47.4	
Turkmenistan	12(10~14)	13(11~15)	10.4	33(24~41)	30(22~37)	-9.7	1(1~1)	1(1~2)	76.5	57(44~85)	90(62~116)	58.8	
United Arab Emirates	8(7~10)	8(7~10)	-0.6	12(9~16)	15(12~19)	23.9	0(0~1)	0(0~1)	-18.7	23(14~40)	18(12~34)	-19.5	
Uzbekistan	17(15~18)	15(13~17)	-9.1	59(43~73)	45(34~56)	-23	2(2~3)	2(2~2)	-17.8	165(136~196)	127(103~157)	-23.3	
Viet Nam	23(20~26)	19(16~21)	-18.6	99(72~125)	58(44~72)	-41.2	3(2~4)	2(2~3)	-24.6	153(108~208)	106(76~145)	-30.8	
Yemen	9(7~10)	8(7~10)	-2	30(21~39)	33(24~42)	9.1	1(0~1)	1(0~1)	-2	34(20~65)	31(19~58)	-7.1	

eTable 12: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of tetanus (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	26(16~37)	3(2~5)	-86.8	2(1~3)	1(0~1)	-67.3	20(13~29)	2(1~4)	-87.7	1167(561~1850)	114(70~179)	-90.2
Armenia	0(0~0)	0(0~0)	-82.8	0(0~0)	0(0~0)	-79.2	0(0~0)	0(0~0)	-80.7	1(1~1)	0(0~0)	-88.7
Azerbaijan	0(0~1)	0(0~0)	-65.7	0(0~0)	0(0~0)	-58.9	0(0~0)	0(0~0)	-67.2	2(1~12)	1(1~1)	-65.8
Bahrain	0(0~0)	0(0~0)	-39.3	0(0~0)	0(0~0)	-5.9	0(0~0)	0(0~0)	-44.1	1(1~5)	1(1~1)	-39.3
Bangladesh	23(16~32)	1(0~1)	-96.7	5(4~7)	3(2~4)	-48.1	15(11~20)	0(0~1)	-97.2	1250(903~1684)	28(10~55)	-97.7
Bhutan	22(8~45)	1(0~1)	-97.3	5(4~7)	3(2~4)	-41.5	10(4~19)	0(0~1)	-97.5	802(285~1547)	15(5~37)	-98.1
Brunei	1(0~1)	0(0~0)	-85.6	0(0~0)	0(0~0)	-66.7	0(0~0)	0(0~0)	-87	11(6~18)	2(1~3)	-86.5
Cambodia	47(29~78)	3(1~5)	-94.6	4(3~6)	1(1~2)	-69.7	17(11~27)	1(0~2)	-95	1041(588~1888)	35(16~68)	-96.6
China	6(4~8)	0(0~0)	-98	3(2~4)	0(0~0)	-89.5	2(1~2)	0(0~0)	-98	127(103~154)	2(1~2)	-98.6
Cyprus	0(0~0)	0(0~0)	-20	0(0~0)	0(0~0)	-19.6	0(0~0)	0(0~0)	-24	1(1~2)	1(1~1)	-15.1
Georgia	0(0~0)	0(0~0)	-74.7	0(0~0)	0(0~0)	-70.5	0(0~0)	0(0~0)	-74.5	1(0~1)	0(0~0)	-76.5
India	23(17~29)	1(1~2)	-93.8	8(6~11)	1(1~2)	-85.7	11(8~13)	1(0~1)	-94	789(641~949)	44(28~69)	-94.4
Indonesia	34(23~47)	4(2~5)	-88.3	10(8~12)	2(2~3)	-75.9	13(9~17)	1(1~2)	-88.9	678(502~928)	56(33~72)	-91.8
Iran	0(0~1)	0(0~0)	-91.7	0(0~0)	0(0~0)	-69.4	0(0~1)	0(0~0)	-92.3	20(8~40)	1(1~2)	-94.1
Iraq	1(0~3)	0(0~0)	-92.2	0(0~0)	0(0~0)	-63.5	1(0~2)	0(0~0)	-92.7	64(17~147)	4(2~7)	-93.8
Israel	0(0~0)	0(0~0)	-18.7	0(0~0)	0(0~0)	-13.6	0(0~0)	0(0~0)	-21.2	0(0~0)	0(0~0)	-14
Japan	0(0~0)	0(0~0)	-83.7	0(0~0)	0(0~0)	-65.1	0(0~0)	0(0~0)	-84.5	0(0~1)	0(0~0)	-83.8
Jordan	0(0~0)	0(0~0)	-80.1	0(0~0)	0(0~0)	-40.8	0(0~0)	0(0~0)	-82.4	7(3~15)	1(1~1)	-85.7
Kazakhstan	0(0~0)	0(0~0)	-97.8	0(0~0)	0(0~0)	-88.9	0(0~0)	0(0~0)	-97.9	1(1~2)	0(0~0)	-98
Kuwait	0(0~0)	0(0~0)	-60.9	0(0~0)	0(0~0)	-6.2	0(0~0)	0(0~0)	-62.6	0(0~1)	0(0~0)	-46.1
Kyrgyzstan	0(0~0)	0(0~0)	-46.3	0(0~0)	0(0~0)	-42.4	0(0~0)	0(0~0)	-40	0(0~1)	0(0~0)	-57.2
Laos	79(48~118)	4(2~6)	-95.1	6(4~8)	2(1~2)	-74.7	30(19~44)	1(1~2)	-95.6	1854(950~3010)	59(31~98)	-96.8
Lebanon	3(2~6)	1(0~3)	-78.6	0(0~0)	0(0~0)	-72.6	2(1~4)	0(0~2)	-79.9	62(31~135)	15(3~51)	-75.8

Malaysia	2(1~3)	0(0~0)	-85.3	0(0~0)	0(0~0)	-53.7	1(0~1)	0(0~0)	-86.6	20(13~34)	3(1~4)	-86.3	
Maldives	2(1~4)	0(0~0)	-92.4	0(0~1)	0(0~0)	-74.2	1(0~1)	0(0~0)	-93.1	28(8~52)	2(1~4)	-94.3	
Mongolia	0(0~0)	0(0~0)	-43.4	0(0~0)	0(0~0)	-42.2	0(0~0)	0(0~0)	-50.1	1(1~8)	1(1~2)	-43.5	
Myanmar	24(12~45)	3(1~4)	-89	3(2~4)	1(1~2)	-51.2	8(5~16)	1(0~1)	-89.9	520(254~1038)	40(21~71)	-92.4	
Nepal	66(38~104)	3(2~7)	-95.1	9(7~12)	5(3~6)	-47.4	30(19~45)	1(1~3)	-95.6	2511(1499~3819)	102(50~203)	-96	
North Korea	1(1~3)	0(0~1)	-71.6	1(0~1)	0(0~1)	-29.1	0(0~1)	0(0~0)	-71.4	28(11~70)	7(3~15)	-76	
Oman	0(0~2)	0(0~0)	-92.1	0(0~0)	0(0~0)	-50.9	0(0~1)	0(0~0)	-92.9	10(3~26)	1(1~1)	-90.3	
Pakistan	38(25~55)	5(3~7)	-87.5	12(9~15)	5(3~6)	-60.9	14(10~20)	2(1~2)	-88.1	916(657~1303)	91(63~129)	-90.1	
Palestine	0(0~1)	0(0~0)	-89.7	0(0~0)	0(0~0)	-52.6	0(0~1)	0(0~0)	-90.6	17(4~56)	1(1~2)	-92.7	
Philippines	8(6~13)	2(1~2)	-80.2	5(4~7)	1(1~1)	-84.5	3(2~4)	1(0~1)	-79.7	169(135~221)	26(13~35)	-84.6	
Qatar	0(0~0)	0(0~0)	-47.2	0(0~0)	0(0~0)	-11.4	0(0~0)	0(0~0)	-50.7	1(1~5)	1(1~1)	-50.2	
Saudi Arabia	1(0~4)	0(0~0)	-95	0(0~0)	0(0~0)	-71.4	1(0~3)	0(0~0)	-95.5	60(15~196)	2(1~4)	-96.5	
Singapore	0(0~0)	0(0~0)	-76.8	0(0~0)	0(0~0)	-17	0(0~0)	0(0~0)	-78.6	0(0~0)	0(0~0)	-78.8	
South Korea	0(0~1)	0(0~0)	-87.6	0(0~0)	0(0~0)	-65.3	0(0~0)	0(0~0)	-90	6(4~8)	1(1~1)	-87.4	
Sri Lanka	2(1~3)	0(0~0)	-90.3	0(0~1)	0(0~0)	-67.6	1(0~1)	0(0~0)	-91	26(15~38)	2(1~5)	-91	
Syrian Arab Republic	1(0~2)	0(0~0)	-93	0(0~0)	0(0~0)	-72.3	1(0~1)	0(0~0)	-93.7	55(20~117)	2(1~5)	-95.6	
Taiwan (Province of China)	0(0~0)	0(0~0)	-98.2	0(0~0)	0(0~0)	-32.1	0(0~0)	0(0~0)	-98.3	3(2~4)	0(0~0)	-98.3	
Tajikistan	0(0~0)	0(0~0)	-34.6	0(0~0)	0(0~0)	-32.3	0(0~0)	0(0~0)	-36.5	1(1~3)	1(1~2)	-36.6	
Thailand	4(2~5)	0(0~1)	-91	1(0~1)	0(0~0)	-68.3	1(1~2)	0(0~0)	-91.7	48(25~68)	4(2~6)	-92.4	
Timor-Leste	50(31~70)	4(2~7)	-92	4(3~6)	1(1~2)	-67.7	18(12~25)	1(1~2)	-92.5	1092(631~1637)	51(24~86)	-95.3	
Turkey	2(1~4)	0(0~0)	-98.5	0(0~0)	0(0~0)	-74.2	2(1~3)	0(0~0)	-98.7	59(25~93)	1(1~1)	-98.3	
Turkmenistan	0(0~0)	0(0~0)	-57.1	0(0~0)	0(0~0)	-47.9	0(0~0)	0(0~0)	-56.2	1(1~2)	0(0~1)	-70.1	
United Arab Emirates	20(4~45)	3(0~5)	-85.1	1(0~3)	0(0~0)	-82.6	14(3~30)	2(0~4)	-85.5	238(71~460)	33(8~55)	-86	
Uzbekistan	0(0~0)	0(0~0)	-55.5	0(0~0)	0(0~0)	-53.7	0(0~0)	0(0~0)	-53.4	1(0~1)	0(0~1)	-66	
Viet Nam	8(5~13)	1(0~1)	-92.3	1(1~2)	1(0~1)	-64.5	3(2~5)	0(0~0)	-92.9	132(75~220)	8(5~12)	-94.3	
Yemen	2(1~8)	0(0~1)	-87	0(0~1)	0(0~0)	-58.7	2(0~6)	0(0~0)	-87.7	111(25~375)	11(5~23)	-89.9	

eTable 13: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of idiopathic epilepsy (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	36(6~78)	35(7~70)	-2.6	260(40~546)	234(41~453)	-9.9	4(2~6)	3(1~3)	-41.3	367(156~585)	225(120~348)	-38.8
Armenia	37(9~65)	40(10~70)	9.3	327(80~555)	362(92~600)	10.7	1(1~1)	1(0~1)	-52.2	171(84~282)	130(51~252)	-23.7
Azerbaijan	45(12~79)	47(13~79)	4.8	463(130~756)	465(133~770)	0.5	2(2~2)	2(2~3)	-5.3	295(171~451)	257(143~423)	-13
Bahrain	65(17~112)	61(18~101)	-5.2	504(127~839)	451(140~726)	-10.6	3(2~3)	2(1~2)	-34.3	273(140~451)	187(87~326)	-31.7
Bangladesh	27(5~54)	27(7~51)	1.4	238(45~476)	231(60~409)	-2.8	2(2~3)	1(1~1)	-51.9	207(115~332)	123(61~214)	-40.7
Bhutan	34(8~64)	36(10~63)	6.9	348(80~646)	361(98~602)	3.7	3(2~4)	2(1~3)	-20.1	274(146~444)	210(113~341)	-23.3
Brunei	57(16~92)	50(16~81)	-10.8	477(140~751)	384(124~602)	-19.5	3(2~3)	2(2~2)	-27.9	271(155~431)	186(108~301)	-31.4
Cambodia	24(5~48)	31(8~56)	27.7	192(40~377)	246(62~437)	28.4	1(1~2)	1(1~1)	-43.7	154(75~262)	126(56~228)	-18.6
China	17(11~24)	25(17~34)	45	162(113~217)	220(155~288)	35.7	2(1~2)	1(1~1)	-53.3	153(123~187)	100(71~134)	-35
Cyprus	38(12~63)	38(11~62)	1.4	308(96~492)	306(92~477)	-0.7	1(1~1)	1(1~1)	-42.6	131(66~233)	96(42~190)	-26.4
Georgia	43(12~74)	42(14~71)	-2	428(115~695)	392(131~636)	-8.2	2(2~2)	1(1~1)	-46.1	236(139~366)	169(83~292)	-28.4
India	29(18~43)	35(24~47)	19	252(163~355)	295(208~379)	17.1	4(3~5)	3(2~3)	-40.2	311(219~388)	212(166~268)	-31.7
Indonesia	27(17~39)	34(21~48)	26.6	192(125~270)	243(163~332)	26.3	0(0~1)	0(0~0)	-31.8	102(67~143)	101(64~152)	-1.1
Iran	51(34~71)	56(37~77)	8.3	347(248~462)	353(240~465)	1.5	2(1~2)	1(1~1)	-51.1	215(158~276)	140(96~192)	-34.8
Iraq	45(11~80)	45(11~79)	1.3	309(79~547)	299(78~510)	-3.3	1(1~2)	1(1~1)	-42.7	186(95~310)	131(58~229)	-29.4
Israel	36(12~58)	39(9~64)	7.3	298(93~476)	327(76~517)	9.7	1(1~1)	1(1~1)	30.6	113(52~207)	116(53~224)	2.7
Japan	37(24~51)	41(26~58)	11.8	228(152~303)	250(166~339)	9.5	0(0~0)	0(0~0)	-7.1	80(52~115)	75(46~118)	-6.3
Jordan	44(11~80)	46(12~79)	4.7	292(77~507)	303(84~498)	3.5	1(1~1)	1(1~1)	-38.7	153(76~263)	119(52~225)	-22.1
Kazakhstan	45(12~77)	49(15~80)	8.4	466(132~793)	494(151~785)	6	2(2~2)	2(2~2)	13.8	252(133~422)	241(137~395)	-4.3
Kuwait	57(15~98)	56(15~90)	-0.9	407(114~677)	389(107~618)	-4.5	1(1~1)	1(1~1)	-30.6	178(81~321)	139(59~269)	-22.2
Kyrgyzstan	44(12~78)	42(12~71)	-5.1	465(130~797)	412(118~681)	-11.4	3(3~3)	3(3~4)	6.7	334(213~503)	296(203~430)	-11.4
Laos	27(5~52)	32(8~57)	20.1	221(46~417)	260(68~454)	18	2(1~2)	1(1~1)	-53.3	187(88~302)	136(56~238)	-27.3
Lebanon	48(11~84)	51(14~85)	7.2	333(82~565)	344(99~558)	3.3	1(1~2)	1(1~1)	-36.7	179(94~299)	133(63~243)	-25.6

Malaysia	35(10~63)	42(13~69)	18.4	304(84~520)	362(119~584)	19.2	1(1~1)	1(1~1)	-23.5	154(74~269)	140(60~250)	-8.9	
Maldives	39(9~73)	41(11~70)	6.4	393(92~716)	378(100~614)	-3.6	4(2~5)	2(1~2)	-56.3	330(174~500)	179(93~295)	-45.9	
Mongolia	37(9~68)	44(13~76)	19.5	348(88~613)	444(137~721)	27.7	2(2~3)	2(1~3)	2.6	257(149~398)	265(150~408)	3.1	
Myanmar	29(6~56)	37(10~63)	28.1	248(51~478)	323(92~562)	30.1	2(2~3)	1(1~2)	-39.3	202(110~330)	174(81~307)	-13.8	
Nepal	34(7~70)	35(8~66)	3.4	387(79~777)	377(88~682)	-2.7	6(3~7)	4(3~5)	-29.5	438(233~679)	291(175~447)	-33.5	
North Korea	20(5~36)	18(4~32)	-10	219(51~382)	178(46~307)	-18.8	2(1~3)	1(1~2)	-36.2	178(105~270)	118(68~189)	-33.5	
Oman	42(11~75)	50(15~85)	19.4	282(75~500)	339(106~549)	20.3	1(0~1)	0(0~0)	-37.8	120(48~226)	108(37~215)	-9.8	
Pakistan	41(16~69)	41(19~63)	0.4	383(160~636)	378(179~579)	-1.4	2(1~3)	3(1~4)	16.1	235(132~366)	234(152~344)	-0.6	
Palestine	43(9~82)	46(12~80)	5.7	295(64~548)	301(78~511)	2.2	2(2~3)	2(1~2)	-29.9	216(126~338)	164(91~263)	-24.2	
Philippines	31(21~43)	35(24~46)	10.4	219(155~291)	244(177~317)	11.4	1(1~1)	1(0~1)	-27.7	119(85~165)	109(75~151)	-8.1	
Qatar	55(15~96)	56(17~94)	2	404(109~688)	397(130~631)	-1.7	1(1~1)	1(0~1)	-40.4	176(72~325)	127(48~251)	-28.2	
Saudi Arabia	53(14~98)	71(20~117)	33	397(103~707)	563(163~883)	41.8	2(2~3)	2(1~2)	-14.4	227(114~382)	227(108~394)	-0.3	
Singapore	35(10~59)	39(13~62)	10.4	223(62~360)	250(87~391)	12	1(0~1)	0(0~0)	-38	87(40~157)	72(30~146)	-17.6	
South Korea	41(10~69)	41(13~66)	1.2	279(69~460)	270(90~423)	-3.1	1(1~2)	1(1~1)	-47.9	158(89~254)	91(45~168)	-42.1	
Sri Lanka	40(9~74)	48(12~82)	21.1	392(89~689)	477(124~797)	21.7	2(2~2)	1(1~2)	-25.9	223(115~376)	199(92~348)	-10.8	
Syrian	37(8~71)	42(12~72)	12.6	237(55~447)	270(80~454)	13.8	1(1~1)	1(0~1)	-33.3	132(64~240)	109(47~198)	-17.2	
Taiwan (Province of China)	23(6~38)	28(8~46)	24.5	237(66~386)	320(92~487)	34.7	1(1~1)	1(1~1)	17.4	111(55~188)	120(57~208)	8.7	
Tajikistan	46(11~83)	46(12~80)	-0.1	492(110~847)	475(136~797)	-3.4	4(3~5)	5(4~7)	33.6	389(232~589)	422(277~597)	8.5	
Thailand	31(9~56)	41(12~69)	31.4	257(66~447)	368(110~597)	43.1	1(0~1)	1(1~1)	72.6	115(42~213)	148(68~266)	28.8	
Timor-Leste	25(5~50)	30(8~56)	20.8	204(39~395)	242(62~431)	18.6	1(1~2)	1(0~1)	-35.8	143(62~254)	119(47~209)	-16.9	
Turkey	50(12~88)	63(19~103)	28.1	385(95~650)	476(143~741)	23.8	3(1~4)	2(1~2)	-34.1	307(175~453)	214(114~355)	-30.4	
Turkmenistan	41(10~73)	48(11~82)	17.2	396(102~655)	493(116~799)	24.7	2(2~2)	2(2~3)	11.6	253(146~390)	274(144~441)	8.3	
United Arab Emirates	69(19~121)	65(18~106)	-6	566(158~934)	492(143~776)	-13.1	2(1~3)	1(1~2)	-31.9	301(147~509)	216(99~364)	-28.2	
Uzbekistan	40(9~74)	46(13~79)	15.5	400(98~707)	470(128~762)	17.4	3(2~3)	3(3~4)	28.6	282(173~424)	321(205~479)	13.9	
Viet Nam	27(7~51)	36(9~61)	34	190(49~356)	277(70~458)	45.7	1(1~1)	1(0~1)	-8.5	102(46~195)	113(46~207)	10.7	
Yemen	34(6~70)	35(9~66)	4.1	228(41~458)	220(53~404)	-3.3	2(1~3)	1(1~2)	-29.8	203(99~333)	148(79~243)	-27.4	

eTable 14: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of migraine (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	1257(1068~1446)	1229(1043~1418)	-2.2	15675(13380~18289)	15316(13077~17871)	-2.3	NA	NA	NA	595(104~1371)	587(103~1343)	-1.3
Armenia	1084(925~1250)	1079(921~1244)	-0.5	13483(11518~15815)	13466(11498~15804)	-0.1	NA	NA	NA	501(92~1115)	502(91~1120)	0.2
Azerbaijan	1086(927~1252)	1074(917~1239)	-1.1	13521(11555~15857)	13381(11424~15699)	-1	NA	NA	NA	504(91~1124)	499(90~1117)	-1
Bahrain	1185(1002~1370)	1190(1005~1376)	0.4	14516(12417~16976)	14420(12319~16876)	-0.7	NA	NA	NA	568(100~1295)	564(101~1278)	-0.7
Bangladesh	1196(1017~1378)	1207(1028~1391)	1	14320(12099~16762)	14513(12297~16965)	1.3	NA	NA	NA	514(61~1206)	524(63~1223)	2
Bhutan	1189(1011~1369)	1194(1016~1375)	0.4	14278(12079~16710)	14307(12090~16749)	0.2	NA	NA	NA	513(61~1196)	516(61~1214)	0.7
Brunei	844(709~977)	845(710~978)	0.1	10155(8664~11973)	10223(8728~12041)	0.7	NA	NA	NA	381(78~844)	384(78~856)	0.9
Cambodia	1277(1087~1464)	1260(1072~1446)	-1.3	15839(13509~18622)	15605(13316~18335)	-1.5	NA	NA	NA	585(66~1411)	581(65~1399)	~0.6
China	898(783~1004)	962(846~1079)	7	10780(9423~12407)	11655(10125~13465)	8.1	NA	NA	NA	405(66~907)	435(64~992)	7.6
Cyprus	1347(1150~1554)	1352(1156~1559)	0.4	17483(14904~20506)	17581(14996~20620)	0.6	NA	NA	NA	649(91~1497)	653(93~1512)	0.6
Georgia	1087(928~1253)	1075(917~1239)	-1.1	13539(11567~15883)	13397(11435~15721)	-1.1	NA	NA	NA	504(92~1129)	498(90~1109)	-1.3
India	1219(1071~1369)	1217(1066~1361)	-0.2	14731(12795~16880)	14734(12834~16910)	0	NA	NA	NA	524(67~1188)	529(68~1201)	0.9
Indonesia	1306(1146~1456)	1301(1142~1451)	-0.4	15966(13901~18303)	15896(13838~18222)	-0.4	NA	NA	NA	594(71~1418)	595(71~1419)	0
Iran	1284(1127~1437)	1275(1120~1427)	-0.7	16127(14111~18686)	16049(14063~18372)	-0.5	NA	NA	NA	630(115~1433)	628(115~1411)	-0.3
Iraq	1231(1044~1420)	1229(1043~1418)	-0.1	15316(13079~17874)	15300(13067~17858)	-0.1	NA	NA	NA	594(102~1360)	595(103~1356)	0.3
Israel	1355(1158~1563)	1352(1155~1560)	-0.2	17643(15048~20683)	17539(14952~20566)	-0.6	NA	NA	NA	656(92~1523)	653(92~1515)	-0.5
Japan	843(733~942)	867(754~978)	2.9	10425(9029~11950)	10754(9343~12428)	3.2	NA	NA	NA	396(84~890)	408(84~913)	3
Jordan	1221(1034~1411)	1213(1028~1402)	-0.6	15179(12975~17729)	15033(12863~17565)	-1	NA	NA	NA	595(104~1362)	590(104~1339)	-0.8
Kazakhstan	1084(924~1249)	1083(925~1249)	0	13502(11526~15841)	13487(11517~15820)	-0.1	NA	NA	NA	500(91~1116)	500(91~1119)	-0.1
Kuwait	1190(1012~1376)	1224(1040~1415)	2.8	14360(12169~16817)	14885(12736~17379)	3.7	NA	NA	NA	560(94~1283)	578(100~1315)	3.2
Kyrgyzstan	1084(925~1249)	1082(923~1247)	-0.2	13475(11506~15801)	13443(11476~15769)	-0.2	NA	NA	NA	500(91~1118)	501(92~1118)	0.2
Laos	1267(1078~1454)	1258(1069~1444)	-0.7	15631(13321~18379)	15494(13196~18209)	-0.9	NA	NA	NA	580(65~1402)	578(64~1392)	-0.4
Lebanon	1240(1052~1428)	1235(1047~1424)	-0.4	15487(13217~18056)	15517(13251~18080)	0.2	NA	NA	NA	603(105~1379)	606(104~1385)	0.5

Malaysia	1158(987~1327)	1176(998~1346)	1.6	13589(11632~15926)	13910(11867~16438)	2.4	NA	NA	NA	512(64~1220)	524(64~1255)	2.4
Maldives	1254(1066~1442)	1212(1031~1395)	-3.3	15349(13061~18059)	14751(12578~17378)	-3.9	NA	NA	NA	571(65~1369)	553(63~1316)	-3.2
Mongolia	1081(923~1246)	1082(923~1248)	0.1	13380(11427~15681)	13447(11480~15772)	0.5	NA	NA	NA	497(89~1116)	500(92~1118)	0.6
Myanmar	1262(1073~1448)	1267(1077~1453)	0.4	15565(13265~18294)	15670(13373~18414)	0.7	NA	NA	NA	578(65~1388)	584(65~1412)	1.2
Nepal	1239(1043~1429)	1254(1067~1437)	1.2	15197(12902~17771)	15438(13205~18135)	1.6	NA	NA	NA	545(67~1266)	558(68~1291)	2.4
North Korea	988(844~1134)	968(827~1112)	-2	11841(10086~13856)	11564(9849~13538)	-2.3	NA	NA	NA	440(61~1018)	430(59~992)	-2.1
Oman	1166(984~1352)	1154(973~1340)	-1	14295(12227~16734)	14081(12028~16516)	-1.5	NA	NA	NA	562(100~1272)	554(99~1257)	-1.4
Pakistan	1198(1054~1347)	1192(1048~1337)	-0.5	14346(12427~16463)	14190(12321~16372)	-1.1	NA	NA	NA	514(62~1172)	502(52~1152)	-2.4
Palestine	1236(1048~1425)	1232(1045~1421)	-0.3	15518(13259~18081)	15339(13097~17900)	-1.2	NA	NA	NA	603(106~1379)	596(103~1357)	-1.1
Philippines	1303(1144~1454)	1299(1141~1449)	-0.3	15927(13865~18258)	15884(13834~18208)	-0.3	NA	NA	NA	592(71~1407)	593(71~1412)	0.2
Qatar	1132(953~1319)	1106(931~1292)	-2.3	13668(11645~16065)	13295(11309~15701)	-2.7	NA	NA	NA	538(99~1217)	523(94~1175)	-2.7
Saudi Arabia	1187(995~1369)	1179(1005~1362)	-0.6	14516(12402~17063)	14325(12266~16710)	-1.3	NA	NA	NA	569(101~1304)	562(99~1277)	-1.2
Singapore	686(582~790)	797(671~921)	16	7869(6827~9150)	9347(8007~10970)	18.8	NA	NA	NA	312(79~677)	360(80~803)	15.6
South Korea	966(814~1120)	912(781~1050)	-5.6	12389(10548~14597)	11300(9782~13138)	-8.8	NA	NA	NA	455(77~1031)	421(80~942)	-7.5
Sri Lanka	1259(1070~1445)	1264(1075~1451)	0.4	15486(13185~18204)	15617(13317~18352)	0.8	NA	NA	NA	577(64~1389)	582(65~1403)	1
Syrian	1233(1045~1421)	1262(1074~1451)	2.4	15314(13083~17880)	15691(13390~18304)	2.5	NA	NA	NA	600(104~1366)	610(105~1395)	1.7
Taiwan (Province of China)	1005(876~1146)	1030(869~1179)	2.5	12064(10642~13867)	12698(10784~14923)	5.3	NA	NA	NA	448(61~1025)	472(62~1097)	5.3
Tajikistan	1082(923~1247)	1078(919~1243)	-0.4	13402(11448~15706)	13357(11401~15663)	-0.3	NA	NA	NA	499(92~1118)	497(90~1115)	-0.4
Thailand	1394(1203~1588)	1336(1138~1542)	-4.1	19293(16828~22049)	17349(14694~20173)	-10.1	NA	NA	NA	713(64~1750)	645(64~1554)	-9.6
Timor-Leste	1249(1062~1434)	1257(1069~1443)	0.6	15390(13105~18090)	15475(13177~18192)	0.6	NA	NA	NA	570(64~1368)	577(63~1394)	1.2
Turkey	1197(1020~1376)	1200(1024~1384)	0.3	14886(12826~17401)	14888(12818~17241)	0	NA	NA	NA	588(109~1329)	590(110~1341)	0.2
Turkmenistan	1084(925~1250)	1068(911~1232)	-1.5	13467(11503~15790)	13260(11312~15555)	-1.5	NA	NA	NA	501(90~1124)	495(92~1107)	-1.2
United Arab Emirates	1145(964~1330)	1149(969~1334)	0.3	13787(11757~16194)	13693(11674~16104)	-0.7	NA	NA	NA	540(96~1216)	536(98~1204)	-0.7
Uzbekistan	1083(924~1248)	1080(922~1245)	-0.3	13440(11477~15757)	13422(11457~15743)	-0.1	NA	NA	NA	499(91~1121)	499(92~1115)	0
Viet Nam	1268(1078~1455)	1256(1068~1441)	-0.9	15708(13406~18462)	15525(13233~18238)	-1.2	NA	NA	NA	588(64~1416)	583(66~1403)	-0.8
Yemen	1238(1052~1425)	1236(1049~1424)	-0.1	15398(13144~17950)	15398(13147~17961)	0	NA	NA	NA	596(104~1362)	597(104~1357)	0.1

eTable 15: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of Tension-type headache (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	8480(7411~9549)	8515(7458~9594)	0.4	23599(20275~27231)	23694(20387~27307)	-5.6	NA	NA	NA	65(22~182)	65(22~183)	-0.1
Armenia	10785(9496~12107)	10782(9494~12102)	0.0	31062(27056~35589)	31055(27052~35574)	-2.5	NA	NA	NA	68(19~222)	68(19~229)	0.7
Azerbaijan	10787(9498~12109)	10780(9490~12100)	-0.1	31069(27064~35592)	31047(27044~35568)	0.2	NA	NA	NA	68(19~226)	68(19~229)	-0.3
Bahrain	8539(7487~9617)	8524(7476~9593)	-0.2	23735(20456~27270)	23716(20422~27274)	-3.4	NA	NA	NA	65(22~186)	65(21~189)	-0.3
Bangladesh	9247(8115~10364)	9234(8105~10359)	-0.2	25936(22260~29910)	25892(22238~29891)	-4.1	NA	NA	NA	49(13~194)	50(13~196)	1.5
Bhutan	9250(8118~10379)	9248(8116~10372)	0.0	25934(22260~29926)	25931(22259~29913)	-4.8	NA	NA	NA	49(13~196)	50(13~195)	0.7
Brunei	10176(8974~11488)	10183(8982~11494)	0.1	29195(25151~33252)	29220(25175~33288)	-5.1	NA	NA	NA	60(16~222)	60(16~214)	0.8
Cambodia	8851(7761~9947)	8835(7749~9929)	-0.2	25406(21685~29109)	25355(21614~29064)	-5.0	NA	NA	NA	50(14~197)	50(14~193)	0.5
China	6585(5855~7428)	6822(6040~7655)	3.6	17515(15462~19823)	18424(16134~20802)	0.3	NA	NA	NA	43(14~153)	43(14~148)	0.5
Cyprus	10678(9448~12005)	10682(9451~12014)	0.0	32427(27988~37010)	32444(28007~37047)	-2.2	NA	NA	NA	70(20~234)	71(19~243)	0.9
Georgia	10789(9501~12110)	10783(9494~12101)	-0.1	31073(27067~35591)	31055(27050~35577)	-2.8	NA	NA	NA	68(19~228)	68(19~228)	-0.8
India	9578(8517~10686)	9575(8518~10685)	0.0	26163(23094~29244)	26161(23090~29248)	-4.9	NA	NA	NA	52(15~195)	52(15~193)	1.4
Indonesia	9430(8381~10569)	9424(8375~10561)	-0.1	26335(23386~29424)	26317(23370~29417)	-2.0	NA	NA	NA	53(15~202)	54(15~197)	0.7
Iran	9344(8303~10437)	9837(8688~11031)	5.3	27017(23937~30258)	29640(26202~32949)	2.3	NA	NA	NA	74(25~211)	78(25~236)	5.2
Iraq	8509(7450~9586)	8507(7448~9584)	0.0	23674(20366~27287)	23668(20363~27282)	-2.3	NA	NA	NA	66(22~184)	66(22~190)	0.7
Israel	10686(9452~12019)	10681(9449~12010)	0.0	32456(28011~37044)	32438(28000~37020)	-1.7	NA	NA	NA	71(20~238)	70(20~242)	-0.2
Japan	10742(9530~12062)	10654(9481~11868)	-0.8	30120(26783~33644)	29743(26515~32999)	-1.3	NA	NA	NA	64(18~213)	64(18~202)	-0.3
Jordan	8501(7445~9580)	8508(7455~9588)	0.1	23643(20344~27254)	23661(20365~27259)	-4.2	NA	NA	NA	66(22~186)	66(23~191)	0.1
Kazakhstan	10790(9503~12110)	10787(9498~12108)	0.0	31077(27068~35595)	31068(27062~35584)	-1.4	NA	NA	NA	68(19~224)	68(19~230)	0.3
Kuwait	8534(7468~9559)	8487(7489~9540)	-0.6	23750(20378~27300)	23533(20135~26965)	0.0	NA	NA	NA	62(20~182)	63(21~186)	1.5
Kyrgyzstan	10788(9500~12108)	10785(9496~12104)	0.0	31071(27062~35593)	31060(27054~35583)	-3.7	NA	NA	NA	68(19~223)	68(19~226)	0.3
Laos	8831(7746~9927)	8819(7737~9915)	-0.1	25340(21621~29045)	25303(21566~29014)	-6.8	NA	NA	NA	50(14~199)	50(14~196)	0.5

Lebanon	8490(7429~9567)	8504(7445~9581)	0.2	23625(20316~27264)	23655(20353~27281)	-0.8	NA	NA	NA	66(23~187)	67(23~192)	0.8
Malaysia	8815(7725~9917)	8808(7730~9903)	-0.1	25195(21519~28845)	25267(21519~28986)	-3.0	NA	NA	NA	50(14~192)	50(14~189)	0.7
Maldives	8799(7722~9894)	8757(7684~9853)	-0.5	25232(21501~28938)	25104(21377~28879)	-6.8	NA	NA	NA	50(14~197)	50(13~191)	0.1
Mongolia	10782(9489~12101)	10785(9496~12105)	0.0	31052(27045~35585)	31060(27054~35581)	-1.7	NA	NA	NA	67(19~221)	68(19~227)	0.7
Myanmar	8827(7743~9922)	8838(7750~9932)	0.1	25327(21595~29035)	25363(21637~29073)	-5.9	NA	NA	NA	50(14~197)	50(14~194)	1.1
Nepal	9299(8164~10432)	9282(8158~10404)	-0.2	26560(22628~30429)	26182(22459~30030)	-7.3	NA	NA	NA	52(15~204)	53(15~200)	1.2
North Korea	6742(5875~7596)	6698(5838~7547)	-0.6	18198(15579~21085)	18072(15456~20954)	-2.8	NA	NA	NA	42(13~149)	42(13~146)	-0.3
Oman	8535(7488~9613)	8531(7483~9611)	0.0	23721(20441~27238)	23693(20424~27194)	-3.1	NA	NA	NA	64(22~181)	64(22~190)	0
Pakistan	9849(8767~10947)	9823(8729~10975)	-0.3	27397(24237~30542)	27221(24082~30370)	-3.8	NA	NA	NA	51(13~206)	47(11~195)	-7.4
Palestine	8511(7451~9586)	8504(7444~9580)	-0.1	23669(20371~27289)	23662(20360~27278)	-3.0	NA	NA	NA	66(23~185)	66(22~187)	-0.3
Philippines	9427(8379~10566)	9424(8376~10561)	0.0	26325(23377~29422)	26320(23377~29430)	0.3	NA	NA	NA	53(15~201)	54(15~197)	0.5
Qatar	8516(7473~9602)	8485(7444~9569)	-0.4	23658(20370~27170)	23538(20220~27034)	-3.3	NA	NA	NA	63(21~183)	62(21~185)	-1.4
Saudi Arabia	8292(7287~9333)	8206(7169~9216)	-1.0	22359(19210~25678)	21758(18684~24972)	-2.9	NA	NA	NA	63(22~177)	63(22~180)	-0.3
Singapore	9889(8923~10916)	10136(8921~11398)	2.5	26096(24487~28045)	28775(24862~32650)	3.9	NA	NA	NA	57(17~214)	60(17~224)	5.2
South Korea	10231(9000~11498)	10347(9073~11647)	1.1	29345(25405~33500)	31834(28384~35300)	-6.0	NA	NA	NA	60(17~214)	63(17~228)	4.4
Sri Lanka	8817(7735~9912)	8832(7746~9927)	0.2	25295(21558~29003)	25343(21619~29048)	-2.1	NA	NA	NA	50(14~193)	51(14~191)	0.8
Syrian Arab Republic	8500(7440~9577)	8488(7423~9561)	-0.1	23643(20336~27268)	23641(20307~27264)	-2.8	NA	NA	NA	66(22~187)	67(23~190)	1.1
Taiwan (Province of China)	6674(5815~7517)	6696(5836~7542)	0.3	17994(15383~20856)	18064(15453~20936)	-3.0	NA	NA	NA	41(13~143)	42(13~142)	2.4
Tajikistan	10784(9493~12101)	10779(9489~12096)	0.0	31057(27045~35594)	31043(27039~35569)	0.1	NA	NA	NA	67(19~221)	67(19~222)	0
Thailand	8826(7741~9921)	8825(7741~9921)	0.0	25324(21592~29033)	25324(21592~29032)	-5.8	NA	NA	NA	50(14~197)	51(14~192)	0.9
Timor-Leste	8808(7729~9903)	8816(7735~9910)	0.1	25269(21528~28975)	25290(21568~28996)	-1.6	NA	NA	NA	50(14~198)	50(14~191)	1
Turkey	8137(7158~9167)	8197(7200~9252)	0.7	21514(18480~24801)	21726(18746~24839)	-1.1	NA	NA	NA	66(24~177)	67(24~180)	0.8
Turkmenistan	10787(9498~12106)	10780(9491~12093)	-0.1	31066(27056~35597)	31045(27041~35559)	0.4	NA	NA	NA	68(19~224)	68(19~229)	-0.1
United Arab Emirates	8533(7489~9619)	8528(7490~9613)	-0.1	23724(20417~27246)	23676(20387~27205)	-4.6	NA	NA	NA	63(21~184)	63(21~188)	0

eTable 16: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of brain and other central nervous system cancer (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	5(3~11)	5(3~9)	2.3	7(3~17)	8(4~14)	2.9	5(2~9)	5(3~8)	3.2	187(89~432)	176(100~324)	-5.8
Armenia	7(6~9)	7(5~8)	-1.9	11(9~14)	13(11~16)	18	6(5~8)	6(4~7)	-6.3	249(204~310)	219(174~264)	-11.9
Azerbaijan	5(4~6)	5(4~6)	6	7(6~9)	9(6~11)	17	4(3~5)	4(3~6)	3.7	180(150~222)	177(127~225)	-1.7
Bahrain	3(2~4)	4(2~5)	9.6	6(4~8)	15(9~19)	147.5	3(2~4)	2(1~3)	-25.6	97(69~128)	73(47~93)	-25
Bangladesh	2(1~3)	2(1~3)	-12	4(2~6)	4(2~5)	-1.6	2(1~3)	2(1~2)	-14.5	93(56~149)	74(49~100)	-20.3
Bhutan	2(1~3)	2(1~3)	12.4	3(2~6)	4(3~7)	33.2	2(1~3)	2(1~3)	7.4	84(42~153)	85(51~130)	1.9
Brunei	6(4~8)	7(5~8)	19.3	14(11~23)	24(19~30)	67.5	4(3~6)	4(3~5)	0	147(110~233)	140(109~173)	-4.8
Cambodia	3(2~4)	3(2~4)	14.8	4(2~7)	5(3~6)	20.9	2(1~4)	3(2~4)	14.6	99(54~176)	101(64~137)	2.4
China	4(3~6)	6(4~7)	27.9	8(6~11)	23(17~27)	177	4(3~5)	3(3~4)	-9.6	161(118~220)	126(96~155)	-21.7
Cyprus	5(4~7)	8(5~9)	51.1	15(12~21)	41(28~50)	172.4	4(3~5)	4(2~4)	-1.6	126(106~180)	119(80~143)	-5.9
Georgia	3(3~5)	6(3~7)	66.2	6(5~9)	9(6~12)	63.5	3(2~4)	5(3~6)	68.5	120(96~174)	187(113~234)	55.5
India	2(2~3)	2(2~3)	10.9	3(2~5)	4(3~5)	17.9	2(1~3)	2(1~2)	7	80(57~126)	77(61~94)	-3.8
Indonesia	2(2~3)	2(2~3)	10.1	3(2~5)	4(3~5)	12.9	2(1~3)	2(1~3)	11.1	81(56~123)	80(55~103)	-1.8
Iran	6(3~7)	7(4~9)	29.6	12(7~16)	28(14~35)	129.4	5(3~6)	5(2~5)	-1.1	175(102~224)	156(82~187)	-10.7
Iraq	6(4~10)	9(6~11)	45.7	11(7~19)	24(17~31)	123.7	5(4~9)	6(5~8)	26	196(139~342)	226(163~289)	15.2
Israel	6(5~8)	9(6~12)	51.3	20(16~28)	43(27~57)	116.8	4(4~6)	5(3~5)	16.6	146(129~210)	158(102~179)	8.2
Japan	3(3~4)	5(3~7)	66.5	20(18~28)	36(19~45)	79.6	1(1~1)	1(1~2)	37.9	44(40~61)	54(30~64)	24.6
Jordan	3(3~5)	4(3~5)	26	6(5~9)	16(11~20)	146.1	3(2~4)	3(2~4)	-5.6	109(85~151)	98(69~121)	-10.2
Kazakhstan	1(1~2)	3(2~5)	160.7	2(2~4)	7(3~9)	189	1(1~2)	3(1~4)	155.3	52(40~90)	118(59~153)	126.6
Kuwait	3(2~4)	4(3~5)	44.3	9(8~12)	21(15~26)	120.7	2(2~3)	2(1~2)	1.6	72(63~95)	66(47~83)	-8.6
Kyrgyzstan	2(1~3)	3(2~4)	72	3(2~5)	5(3~6)	82.2	1(1~2)	2(1~3)	71.3	61(48~107)	96(58~120)	56.9
Laos	3(2~6)	3(2~4)	-10.9	4(2~9)	4(3~6)	-10.3	3(2~5)	2(2~3)	-9.7	119(57~238)	95(61~132)	-20

Lebanon	4(3~6)	7(5~9)	56.4	9(7~12)	34(24~45)	284.7	4(3~5)	3(2~4)	-9	129(98~174)	117(83~151)	-9	
Malaysia	2(1~3)	2(1~3)	3.2	4(2~5)	5(3~7)	40.7	2(1~2)	2(1~2)	-6	77(48~98)	69(44~93)	-10.1	
Maldives	3(2~6)	3(2~4)	-9.9	5(3~9)	7(6~10)	54.3	3(2~5)	2(2~3)	-24	110(67~206)	77(60~103)	-29.4	
Mongolia	2(1~4)	4(2~5)	88.8	3(2~5)	5(4~7)	92	2(1~3)	4(2~5)	89.5	73(49~142)	127(87~168)	73.7	
Myanmar	3(2~5)	3(2~3)	-1.9	4(2~8)	4(3~6)	4.2	2(1~4)	2(2~3)	-2.7	106(55~201)	94(63~128)	-11.6	
Nepal	2(1~3)	2(1~2)	-0.2	3(2~5)	3(2~4)	0.7	2(1~2)	2(1~2)	1.1	79(53~127)	69(47~91)	-12.7	
North Korea	4(3~6)	4(3~5)	-8.2	8(5~13)	7(5~9)	-16.6	4(2~5)	3(2~4)	-4.2	146(92~215)	125(85~164)	-14.1	
Oman	2(2~3)	4(2~5)	69.9	4(3~6)	16(9~20)	255.2	2(1~3)	2(1~3)	16.6	65(49~97)	73(44~91)	11	
Pakistan	2(2~3)	3(2~4)	26.9	4(3~5)	5(3~6)	36.3	2(1~3)	2(2~3)	21.3	86(63~125)	105(73~137)	22.6	
Palestine	9(6~12)	9(7~11)	9.9	16(11~23)	25(19~31)	60.2	8(6~11)	7(5~9)	-3.7	255(190~372)	232(176~279)	-9.1	
Philippines	3(2~3)	3(2~3)	-6.2	4(4~6)	4(3~5)	-2.7	2(2~3)	2(2~3)	-7.3	97(80~123)	87(66~105)	-10.5	
Qatar	4(3~6)	5(4~8)	36.2	7(5~12)	24(17~36)	230.5	3(3~5)	3(2~4)	-16.8	107(79~176)	86(61~128)	-20.3	
Saudi Arabia	2(1~4)	4(3~6)	136	3(2~7)	18(13~27)	444.1	2(1~4)	2(2~4)	32.8	60(32~138)	79(59~121)	32.3	
Singapore	3(3~4)	5(3~6)	54	14(12~20)	31(17~41)	119.9	1(1~2)	1(1~2)	-8.7	64(57~91)	53(29~64)	~16.9	
South Korea	4(3~5)	7(4~8)	62.8	12(9~17)	45(28~56)	259	3(2~3)	2(1~2)	-30.2	108(79~151)	71(48~87)	-33.9	
Sri Lanka	2(1~2)	3(1~4)	66.2	3(2~4)	6(4~8)	135.4	1(1~2)	2(1~3)	49.8	53(43~78)	72(41~101)	36.7	
Syrian	5(4~7)	6(4~8)	19.5	8(6~12)	18(13~24)	109.7	5(3~6)	4(3~6)	-2.6	155(113~221)	145(105~194)	-6.8	
Taiwan (Province of China)	3(3~4)	4(2~5)	16.7	10(9~13)	16(10~22)	55.7	2(2~3)	2(1~3)	-4.2	88(76~108)	80(49~104)	-9.4	
Tajikistan	6(4~7)	6(4~8)	10.5	8(6~11)	9(6~12)	12.9	5(4~6)	6(4~7)	10.7	204(158~269)	217(144~279)	6.4	
Thailand	3(2~3)	3(2~5)	25	5(3~6)	9(4~12)	79	2(2~3)	3(1~4)	12.1	98(59~121)	100(48~142)	1.3	
Timor-Leste	2(1~3)	3(1~4)	19.1	3(2~6)	4(2~5)	23.7	2(1~3)	2(1~3)	19.1	80(49~140)	87(46~123)	9.2	
Turkey	6(3~9)	8(4~10)	25.9	11(5~17)	29(14~40)	173.1	5(3~8)	5(2~7)	-10.8	199(93~303)	158(77~215)	~20.4	
Turkmenistan	2(1~4)	4(3~6)	182.5	2(1~7)	7(5~10)	207	1(1~4)	4(2~5)	176	58(31~164)	152(104~196)	161.7	
United Arab Emirates	5(4~8)	6(4~8)	8.7	10(7~14)	16(9~23)	60.9	4(3~7)	4(3~6)	-6.6	170(119~250)	151(91~207)	-10.7	
Uzbekistan	4(3~5)	6(4~7)	57.4	6(5~8)	10(7~13)	69.1	3(3~4)	5(4~6)	55.7	145(127~177)	209(139~259)	44.6	
Viet Nam	1(1~2)	2(1~3)	67.8	2(1~3)	4(3~6)	124.3	1(1~2)	2(1~2)	54.5	44(33~60)	65(40~84)	47.1	

Yemen	3(2~6)	4(2~6)	26.2	5(2~9)	7(4~10)	47.8	3(2~5)	3(2~5)	21.7	107(59~207)	123(75~182)	15.2
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eTable 17: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of Multiple sclerosis (1990-2019)

Location	incidence rates(95%UI)			prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	1(1~2)	2(1~2)	12.3	36(30~43)	43(36~51)	19.9	0(0~1)	0(0~1)	8.8	24(14~49)	27(17~49)	10.9
Armenia	1(1~1)	1(1~2)	26.2	25(21~29)	33(28~38)	31.4	0(0~0)	0(0~0)	36.7	12(10~15)	16(12~20)	29.5
Azerbaijan	1(1~1)	1(1~1)	8.4	18(15~22)	21(17~25)	12.6	0(0~0)	0(0~0)	7.1	9(7~11)	9(7~11)	5.1
Bahrain	1(1~1)	1(1~1)	27.9	25(20~31)	33(26~40)	29.1	0(0~0)	0(0~0)	~6.6	11(9~14)	13(9~16)	12.3
Bangladesh	0(0~0)	0(0~0)	1.7	7(5~8)	8(6~9)	9.2	0(0~0)	0(0~0)	~10.9	8(5~11)	7(5~10)	-6.7
Bhutan	0(0~0)	0(0~0)	3.6	8(6~10)	8(7~10)	10.2	0(0~0)	0(0~0)	9.5	8(5~12)	8(5~11)	5.4
Brunei	0(0~0)	0(0~0)	2.8	3(2~4)	3(2~4)	6.9	0(0~0)	0(0~0)	-4.6	5(4~7)	5(3~7)	-5.9
Cambodia	0(0~0)	0(0~0)	-3.7	2(2~3)	2(2~3)	6.3	0(0~0)	0(0~0)	-2.6	5(4~9)	5(4~7)	-6.5
China	0(0~0)	0(0~0)	~5	2(1~2)	2(2~3)	23.3	0(0~0)	0(0~0)	-28.1	5(4~6)	4(3~5)	-25.2
Cyprus	1(1~1)	2(1~2)	27.6	32(28~36)	42(35~51)	33.4	0(0~0)	0(0~0)	16.1	18(14~23)	22(17~27)	22.6
Georgia	1(1~1)	1(1~1)	24.7	20(16~24)	26(21~30)	26.9	0(0~0)	0(0~0)	67.9	9(7~11)	12(8~15)	36.1
India	0(0~0)	0(0~0)	10	7(5~8)	8(6~10)	15.5	0(0~0)	0(0~0)	8.2	8(5~11)	8(7~10)	10.4
Indonesia	0(0~0)	0(0~0)	-0.6	2(2~3)	2(2~3)	4.6	0(0~0)	0(0~0)	9.4	4(3~6)	4(3~6)	1
Iran	2(2~2)	2(2~2)	-5.2	54(45~63)	51(44~59)	-4.9	0(0~1)	0(0~1)	4.8	29(22~40)	29(24~37)	0.5
Iraq	1(1~1)	1(1~2)	13.8	32(25~39)	38(30~47)	19.5	0(0~0)	0(0~0)	4.8	13(10~17)	14(11~19)	12.4
Israel	1(1~1)	1(1~1)	9	30(24~36)	34(28~41)	12.8	0(0~0)	0(0~0)	19.1	14(11~18)	16(12~20)	14.2
Japan	0(0~0)	0(0~0)	9.6	8(6~9)	9(7~11)	15.7	0(0~0)	0(0~0)	-14.9	6(5~8)	6(5~8)	-5.1
Jordan	2(1~2)	2(1~2)	-2.4	48(41~54)	47(38~57)	-1.2	0(0~0)	0(0~0)	-14.5	20(16~26)	19(14~24)	-6.9
Kazakhstan	3(2~3)	3(2~3)	0.9	59(52~65)	62(54~69)	4.9	0(0~0)	0(0~1)	-3.4	24(19~31)	25(18~34)	3.2
Kuwait	1(1~1)	2(1~2)	49.9	33(27~40)	53(44~63)	59.7	0(0~0)	0(0~0)	0.8	13(10~16)	17(13~23)	38.2
Kyrgyzstan	1(1~1)	1(1~1)	2.1	19(15~22)	20(16~24)	5.8	0(0~0)	0(0~0)	-23	10(7~13)	9(7~11)	-12.1
Laos	0(0~0)	0(0~0)	-3.3	3(2~3)	3(2~4)	5.2	0(0~0)	0(0~0)	-19	6(4~11)	5(4~7)	-19.6

	1(1~2)	2(2~2)	26.5	40(33~48)	54(44~64)	34.7	0(0~0)	0(0~0)	7.5	19(14~25)	24(16~30)	20.9
Lebanon	0(0~0)	0(0~0)	-1.9	2(1~2)	2(1~2)	6.1	0(0~0)	0(0~0)	2.9	4(3~4)	4(3~5)	0.9
Maldives	0(0~0)	0(0~0)	-8.9	2(1~2)	2(1~2)	2.5	0(0~0)	0(0~0)	-26	4(3~5)	3(2~5)	-26.9
Mongolia	1(1~1)	1(1~1)	1.3	21(17~26)	23(19~27)	7.9	0(0~0)	0(0~0)	68.2	8(5~11)	9(7~12)	22.3
Myanmar	0(0~0)	0(0~0)	-3.4	3(2~4)	3(3~4)	5.4	0(0~0)	0(0~0)	-15.4	7(5~12)	6(4~8)	-17.3
Nepal	0(0~0)	0(0~1)	6.2	8(6~9)	9(7~11)	13.5	0(0~0)	0(0~0)	13.3	8(5~13)	9(6~12)	8.9
North Korea	0(0~0)	0(0~0)	-3.7	4(3~5)	4(3~5)	3.4	0(0~0)	0(0~0)	-13	7(5~10)	6(4~9)	-12.7
Oman	1(1~1)	1(1~1)	28	26(21~31)	34(28~41)	33.8	0(0~0)	0(0~0)	16.2	14(10~18)	17(12~23)	20.3
Pakistan	0(0~1)	0(0~1)	5.9	9(7~11)	10(8~12)	9.6	0(0~0)	0(0~0)	24.6	9(6~13)	11(8~15)	22
Palestine	1(1~1)	1(1~2)	16.3	35(28~43)	42(34~50)	18.5	0(0~0)	0(0~0)	1.6	18(13~23)	19(15~24)	8.5
Philippines	0(0~0)	0(0~0)	1.5	3(2~3)	3(2~3)	5.7	0(0~0)	0(0~0)	-13	5(5~8)	5(4~7)	-11.8
Qatar	1(1~2)	2(2~2)	44.3	36(29~45)	56(49~63)	54.1	0(0~0)	0(0~0)	-14.3	13(9~16)	17(12~22)	33.7
Saudi Arabia	1(1~1)	1(1~1)	22.9	22(17~27)	28(22~35)	29.7	0(0~0)	0(0~0)	17.7	9(7~12)	12(9~15)	23
Singapore	0(0~0)	0(0~0)	-0.7	3(2~3)	3(2~4)	2	0(0~0)	0(0~0)	-29	4(3~5)	3(2~4)	-26.2
South Korea	0(0~0)	0(0~0)	-2.3	8(7~10)	9(7~11)	3.7	0(0~0)	0(0~0)	-25	6(5~9)	5(4~7)	-15.7
Sri Lanka	0(0~0)	0(0~0)	-2.9	2(2~3)	2(2~3)	6	0(0~0)	0(0~0)	-41.6	11(7~20)	5(3~10)	-55.1
Syrian	1(1~2)	2(1~2)	20.4	34(27~42)	42(33~52)	23.8	0(0~0)	0(0~0)	4.4	13(10~17)	15(11~20)	15.4
Taiwan (Province of China)	0(0~0)	0(0~0)	58.9	2(2~3)	6(5~7)	169.4	0(0~0)	0(0~0)	-7.5	4(4~5)	5(4~7)	17.6
Tajikistan	1(1~1)	1(1~1)	6.1	17(14~20)	18(15~22)	9	0(0~0)	0(0~0)	15	8(7~10)	9(7~11)	6.4
Thailand	0(0~0)	0(0~0)	-3.8	3(2~3)	3(2~3)	4.8	0(0~0)	0(0~0)	-22.1	6(4~9)	4(3~6)	-27.3
Timor-Leste	0(0~0)	0(0~0)	0.1	2(1~2)	2(2~3)	7.7	0(0~0)	0(0~0)	13.3	4(2~6)	4(3~6)	7.5
Turkey	2(2~2)	2(2~2)	-2	48(46~50)	49(47~51)	2.5	0(0~0)	0(0~0)	-23.2	24(18~32)	21(16~28)	-11.8
Turkmenistan	2(1~2)	2(1~2)	2.3	33(29~37)	35(31~40)	6.4	0(0~0)	0(0~0)	5.2	15(12~19)	17(13~21)	9.3
United Arab Emirates	1(1~1)	1(1~1)	5	24(20~29)	24(20~28)	-0.9	0(0~0)	0(0~1)	24.9	17(12~23)	21(12~33)	19
Uzbekistan	1(1~1)	1(1~1)	-19.9	27(23~32)	23(19~27)	-16.2	0(0~0)	0(0~0)	-38.4	13(9~16)	10(8~14)	-20.4
Viet Nam	0(0~0)	0(0~0)	-1.2	3(2~4)	3(2~4)	6.3	0(0~0)	0(0~0)	4.9	5(4~8)	5(4~7)	2.6

Yemen

1(1~1) 1(1~1) 17.1 19(15~23) 23(19~28) 22.9 0(0~0) 0(0~0) 28.9 11(7~16) 14(9~20) 26.4

eTable 18: Age-standardised rates of incidence, prevalence, mortality, DALY rates (per 100000 persons) of other neurological disorders (1990-2019)

Location	Incidence rates(95%UI)			Prevalence rates(95%UI)			Mortality rates(95%UI)			DALY rates(95%UI)		
	1990	2019	change	1990	2019	change	1990	2019	change	1990	2019	change
Afghanistan	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.3	0(0~1)	1(0~1)	5.5	47(26~73)	50(29~80)	5.6
Armenia	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.3	0(0~0)	0(0~1)	20.3	42(27~61)	54(34~85)	27.7
Azerbaijan	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.4	0(0~0)	1(0~1)	37.6	53(30~82)	62(34~103)	16.7
Bahrain	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.4	1(1~1)	1(1~1)	-0.8	65(43~94)	66(42~99)	0.3
Bangladesh	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.1	0(0~1)	0(0~1)	-14.8	42(23~64)	38(22~60)	-8.9
Bhutan	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-1.2	0(0~1)	1(0~1)	22.8	48(26~77)	52(30~82)	9.4
Brunei	0(0~0)	0(0~0)	0	2(2~3)	2(2~3)	-0.4	2(1~2)	2(1~2)	-1.4	101(76~133)	91(68~123)	-9.8
Cambodia	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0.1	0(0~0)	0(0~0)	-4.7	34(21~53)	38(21~64)	14.3
China	0(0~0)	0(0~0)	0	0(0~0)	0(0~0)	11.3	0(0~0)	0(0~0)	-5.6	33(28~39)	36(28~44)	7.1
Cyprus	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.2	2(1~2)	1(1~1)	-18.8	81(65~101)	66(51~88)	-18.5
Georgia	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-7.3	0(0~0)	1(1~1)	97.7	39(23~60)	57(36~86)	45.8
India	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	2	0(0~1)	0(0~1)	6.1	40(27~51)	44(32~58)	9
Indonesia	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0	0(0~0)	0(0~1)	15.3	32(23~41)	38(27~53)	21.9
Iran	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.2	0(0~0)	1(1~1)	39.2	43(33~55)	51(39~66)	20.2
Iraq	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0	0(0~1)	1(0~1)	12.1	48(32~71)	55(36~82)	14.4
Israel	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.3	1(1~1)	1(1~1)	-18.2	68(56~85)	59(44~84)	-13.6
Japan	0(0~0)	0(0~0)	0	2(1~3)	2(2~3)	12.8	1(1~1)	1(1~1)	24.8	47(42~53)	50(42~62)	7.3
Jordan	0(0~0)	0(0~0)	0	1(1~1)	1(1~1)	11.4	0(0~1)	0(0~1)	-0.3	45(31~65)	50(31~78)	10.7
Kazakhstan	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.1	0(0~0)	1(0~1)	30.2	49(29~77)	60(36~95)	22.9
Kuwait	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	2	0(0~1)	0(0~0)	-24.6	50(33~74)	48(28~81)	~3.2
Kyrgyzstan	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.3	0(0~0)	0(0~0)	39.7	44(24~72)	53(31~83)	19.2
Laos	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0.2	0(0~1)	0(0~0)	-24.3	42(26~62)	41(21~67)	-1.4
Lebanon	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.2	0(0~1)	1(0~1)	46	40(24~62)	52(32~81)	28.4

	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0.1	0(0~1)	1(0~1)	28.6	39(26~59)	50(32~77)	28	
Malaysia	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0	1(1~1)	1(1~1)	1.6	60(37~88)	55(35~83)	-7.4	
Maldives	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0.3	1(1~1)	1(1~1)	16.6	53(34~77)	67(40~100)	25.9	
Mongolia	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.1	0(0~1)	0(0~1)	-11.5	41(24~64)	47(24~77)	13.8	
Myanmar	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	-15.8	0(0~1)	0(0~1)	28.6	46(23~81)	50(26~86)	8.6	
Nepal	0(0~0)	0(0~0)	0	1(0~1)	0(0~1)	0	0(0~1)	0(0~1)	-14.9	39(27~55)	35(23~52)	-10.6	
North Korea	0(0~0)	0(0~0)	0	0(0~0)	0(0~0)	0.3	0(0~1)	0(0~1)	62.6	33(19~52)	47(28~75)	43.2	
Oman	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.2	0(0~0)	0(0~1)	1(1~1)	50.5	50(33~72)	68(48~94)	35.9
Pakistan	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.5	0(0~1)	0(0~1)	15.9	42(25~63)	47(30~72)	13.9	
Palestine	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.2	0(0~0)	0(0~0)	-3.7	31(25~39)	36(27~48)	16.9	
Philippines	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0	1(1~1)	1(1~1)	-10.8	60(40~87)	58(37~87)	-3.3	
Qatar	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.3	1(0~1)	1(1~1)	19.2	48(27~73)	61(34~101)	27.1	
Saudi Arabia	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.3	1(0~1)	1(1~1)	~47.5	44(35~57)	32(21~51)	-27.1	
Singapore	0(0~0)	0(0~0)	0	2(2~3)	2(2~3)	0.3	1(1~1)	0(0~0)	66.8	43(26~68)	46(23~80)	6	
South Korea	0(0~0)	0(0~0)	0	2(2~3)	2(2~3)	0.4	1(1~1)	1(1~1)	50.5	46(33~64)	53(41~71)	14.4	
Sri Lanka	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	-0.4	1(0~1)	0(0~0)	~35.6	42(28~62)	48(30~71)	14.1	
Syrian	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.1	0(0~1)	1(0~1)	12.7	35(26~47)	35(21~54)	0.2	
Taiwan (Province of China)	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	24.1	1(1~1)	0(0~1)	-25.8	43(19~76)	53(25~90)	21.1	
Tajikistan	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.4	0(0~0)	1(1~1)	66.8	41(23~69)	49(17~46)	43	
Thailand	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0.1	0(0~0)	0(0~0)	34.9	31(17~49)	35(18~57)	14.8	
Timor-Leste	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0	0(0~0)	0(0~0)	4	49(30~73)	65(35~106)	33.6	
Turkey	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.8	1(1~2)	1(1~1)	-14.7	105(76~136)	83(57~117)	-20.8	
Turkmenistan	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.2	0(0~0)	1(0~1)	26.9	51(33~75)	61(36~98)	20.9	
United Arab Emirates	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	-0.1	1(1~1)	1(1~2)	67.4	72(46~107)	94(60~136)	31	
Uzbekistan	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.3	1(0~1)	1(1~1)	24	32(16~54)	38(22~61)	40	
Viet Nam	0(0~0)	0(0~0)	0	0(0~1)	0(0~1)	0.2	0(0~0)	0(0~1)	34.3	32(16~42)	37(20~61)	20.1	
Yemen	0(0~0)	0(0~0)	0	1(0~1)	1(0~1)	0.3	0(0~0)	0(0~0)	32(16~54)	38(22~61)	32(16~54)	20.1	

eTable 19: Correlations between the SDI of Asian countries and the crude and age-standardised rates of DALY, prevalence, incidence, and mortality for neurological disorders, 2019

Neurological disorders	Crude rate								Age-standardised rate							
	DALY		prevalence		incidence		mortality		DALY		prevalence		incidence		mortality	
	r value	p value	r value	p value	r value	p value	r value	p value	r value	p value	r value	p value	r value	p value	r value	p value
Stroke	-0.249	0.087	0.449	0.001	0.159	0.28	-0.165	0.264	-0.554	< 0.0001	0.111	0.454	-0.215	0.142	-0.535	< 0.0001
Alzheimer's disease	0.363	0.011	0.394	0.006	0.397	0.005	0.346	0.016	0.258	0.077	0.493	< 0.0001	0.437	0.002	0.182	0.215
Parkinson's disease	0.338	0.019	0.405	0.004	0.434	0.002	0.341	0.018	0.00029	0.998	0.369	0.01	0.383	0.007	0.059	0.692
Motor neuron diseases	0.433	0.002	0.654	< 0.0001	0.415	0.003	0.411	0.004	0.38	0.008	0.653	< 0.0001	0.298	0.039	0.396	0.005
Idiopathic epilepsy	-0.347	0.016	0.23	0.116	0.328	0.023	-0.345	0.016	-0.313	0.03	0.297	0.04	0.562	< 0.0001	-0.422	0.003
Migraine	0.162	0.27	0.042	0.777	-0.56	< 0.0001	NA	NA	-0.212	0.148	-0.318	0.028	-0.36	0.012	NA	NA
Tension-type headache	0.771	< 0.0001	0.448	0.001	0.365	0.011	NA	NA	0.39	0.006	0.170	0.248	0.155	0.292	NA	NA
Meningitis	-0.626	< 0.0001	-0.546	< 0.0001	-0.455	0.001	-0.627	< 0.0001	-0.649	< 0.0001	-0.602	< 0.0001	-0.324	0.025	-0.646	< 0.0001
Encephalitis	-0.591	< 0.0001	-0.64	< 0.0001	-0.585	< 0.0001	-0.521	< 0.0001	-0.566	< 0.0001	-0.691	< 0.0001	-0.529	< 0.0001	-0.534	< 0.0001
Tetanus	-0.643	< 0.0001	-0.587	< 0.0001	-0.596	< 0.0001	-0.624	< 0.0001	-0.627	< 0.0001	-0.586	< 0.0001	-0.518	< 0.0001	-0.481	0.001

Brain and other	0.013	0.932	0.678	< 0.0001	0.554	< 0.0001	0.188	0.199	-0.103	0.487	0.692	< 0.0001	0.429	0.002	-0.028	0.851
central nervous																
system cancer																
Multiple	0.4	0.005	0.438	0.002	0.355	0.013	0.277	0.057	0.152	0.301	0.295	0.042	0.254	0.082	-0.06	0.686
sclerosis																
Other	0.291	0.044	0.541	< 0.0001	NA	NA	0.542	< 0.0001	0.384	0.007	0.503	< 0.0001	NA	NA	0.513	0
neurological																
disorders																

The following categories were used for the correlation strengths: 0.00~0.19 as very weak- 0.20~0.39 as weak- 0.40~0.59 as moderate- 0.60~0.79 as strong- and 0.80~1 as very strong.