

Table 2_The Prevalence of Sleep Paralysis Among Japanese Adolescents.

Population	N	Prevalence(%)	95%CI	P value ^a
Male				<0.01
Junior high school				
7th grade	6541	6.0	5.4 – 6.6	
8th grade	6134	7.6	6.9 – 8.3	
9th grade	6244	8.4	7.7 – 9.1	
Senior high school				
10th grade	8690	8.7	8.1 – 9.3	
11th grade	8183	8.4	7.8 – 9.0	
12th grade	7588	9.9	9.2 – 10.6	
Total	43380	8.2	7.9 – 8.5	
Female				<0.01
Junior high school				
7th grade	6005	5.5	4.9 – 6.1	
8th grade	5616	6.5	5.9 – 7.1	
9th grade	5556	7.8	7.1 – 8.5	
Senior high school				
10th grade	9515	8.8	8.2 – 9.4	
11th grade	9213	8.9	8.3 – 9.5	
12th grade	8864	10.6	10.0 – 11.2	
Total	44769	8.3	8.0 – 8.6	

^aP value was calculated by the chi-squared test. CI: confidence interval. Subject with missing data were excluded from the analysis.

Table 3_The Prevalence of Nightmare by Sleep Status.

Sleep status	N	Prevalence(%)	95%CI	P value ^a
Sleep duration, h				<0.01
<5	15620	36.4	35.6 - 37.2	
≥5, 6<	14570	37.3	36.5 - 38.1	
≥6, 7<	34987	34.6	34.1 - 35.1	
≥7, 8<	13423	33.4	32.6 - 34.2	
≥8, 9<	6309	33.2	32.0 - 34.4	
≥9	2531	40.2	38.3 - 42.1	
Bedtime				<0.01
before 10p.m.	5460	26.0	24.8 - 27.2	
10p.m.-11p.m.	11673	32.8	31.9 - 33.7	
11p.m.-midnight	31665	34.5	34.0 - 35.0	
Midnight-1a.m.	21588	36.7	36.1 - 37.3	
1a.m.-2a.m.	11174	37.9	37.0 - 38.8	
After 2a.m.	5963	42.1	40.8 - 43.4	
Nap time, m				<0.01
Nothing	32649	30.8	30.3 - 31.3	
<15	9101	37.7	36.7 - 38.7	
≥15, 30<	19850	36.5	35.8 - 37.2	
≥30, 60<	9802	37.4	36.4 - 38.4	
≥60, 120<	10729	38.3	37.4 - 39.2	
≥120	5225	43.2	41.9 - 44.5	
Subjective sleep assessment				<0.01
Very good	21918	20.3	19.8 - 20.8	
Good	39708	35.0	34.5 - 35.5	
Bad	21786	47.1	46.4 - 47.8	
Very bad	4239	53.3	51.8 - 54.8	
Difficulty initiating sleep				<0.01
Never	32903	18.4	18.0 - 18.8	
Seldom	15049	36.5	35.7 - 37.3	
Sometimes	27637	45.5	44.9 - 46.1	
Often	7549	53.0	51.9 - 54.1	
Always	4690	59.4	58.0 - 60.8	
Excessive Daytime Sleepiness				<0.01
Absence	57595	31.8	31.4 - 32.2	
Presence	28904	42.0	41.4 - 42.6	
Sleep paralysis				<0.01
Absence	80152	32.9	32.6 - 33.2	
Presence	7256	61.2	60.1 - 62.3	

^aP value was calculated by the chi-squared test. CI: confidence interval. Subject with missing data were excluded from the analysis.

Table 4_The Prevalence of Sleep Paralysis by Sleep Status.

Sleep status	N	Prevalence(%)	95%CI	P value ^a
Sleep duration, h				<0.01
<5	15543	12.3	11.8 - 12.8	
≥5, 6<	14506	9.2	8.7 - 9.7	
≥6, 7<	34820	7.1	6.8 - 7.4	
≥7, 8<	13349	5.6	5.2 - 6.0	
≥8, 9<	6273	5.9	5.3 - 6.5	
≥9	2514	15.8	14.4 - 17.2	
Bedtime				<0.01
before 10p.m.	5406	7.5	6.8 - 8.2	
10p.m.-11p.m.	11604	4.9	4.5 - 5.3	
11p.m.-midnight	31523	6.5	6.2 - 6.8	
Midnight-1a.m.	21480	8.5	8.1 - 8.9	
1a.m.-2a.m.	11120	11.2	10.6 - 11.8	
After 2a.m.	5931	19.1	18.1 - 20.1	
Nap time, m				<0.01
Nothing	32461	6.9	6.6 - 7.2	
<15	9064	7.5	7.0 - 8.0	
≥15, 30<	19765	8.2	7.8 - 8.6	
≥30, 60<	9754	8.7	8.1 - 9.3	
≥60, 120<	10681	9.8	9.2 - 10.4	
≥120	5198	15.5	14.5 - 16.5	
Subjective sleep assessment				<0.01
Very good	21787	6.3	6.0 - 6.6	
Good	39518	6.2	6.0 - 6.4	
Bad	21675	11.7	11.3 - 12.1	
Very bad	4207	20.7	19.5 - 21.9	
Difficulty initiating sleep				<0.01
Never	32712	5.4	5.2 - 5.6	
Seldom	14973	6.1	5.7 - 6.5	
Sometimes	27500	9.0	8.7 - 9.3	
Often	7512	13.7	12.9 - 14.5	
Always	4659	22.6	21.4 - 23.8	
Excessive Daytime Sleepiness				<0.01
Absence	58494	6.8	6.6 - 7.0	
Presence	29311	8.3	8.0 - 8.6	
Nightmare				<0.01
Never	56604	5.0	4.8 - 5.2	
Seldom	12746	8.4	7.9 - 8.9	
Sometimes	13145	15.2	14.6 - 15.8	
Often	3464	22.4	21.0 - 23.8	
Always	1449	41.8	39.3 - 44.3	

^aP value was calculated by the chi-squared test. CI: confidence interval. Subject with missing data were excluded from the analysis.

Table 5_Multivariate logistic Regression Results for Prediction of Nightmare Among Japanese Adolescents.

		AOR	95%CI	P value
Sex				
Male	37128	1.00		<0.01
Female	39457	1.39	1.34 - 1.43	
Grade				
7th grade	10672	1.00		<0.01
8th grade	10130	0.99	0.93 - 1.05	
9th grade	10149	1.08	1.02 - 1.15	
10th grade	16256	0.92	0.87 - 0.98	
11th grade	15323	0.97	0.91 - 1.03	
12th grade	14055	1.02	0.95 - 1.08	
Smoking				
No	74267	1.00		0.05
Yes	2318	1.10	1.00 - 1.20	
Drinking alcohol				
No	60803	1.00		<0.01
Yes	15782	1.20	1.16 - 1.25	
Eating breakfast				
Daily	64801	1.00		<0.01
Occasional	7425	1.17	1.11 - 1.23	
Never	4359	1.09	1.02 - 1.16	
Income				
less than ¥5000	55191	1.00		<0.01
¥5000 or more	21394	1.07	1.03 - 1.11	
Sleep duration, h				
<5	13419	0.93	0.88 - 0.99	<0.01
≥5, 6<	12910	0.93	0.88 - 0.99	
≥6, 7<	30944	0.95	0.91 - 1.00	
≥7, 8<	11786	1.00		
≥8, 9<	5505	1.03	0.96 - 1.11	
≥9	2021	1.18	1.06 - 1.32	
Nap time, m				
Nothing	28638	1.00		<0.01
<15	8097	1.13	1.07 - 1.20	
≥15, 30<	17564	1.10	1.05 - 1.15	
≥30, 60<	8589	1.07	1.01 - 1.13	
≥60, 120<	9411	1.09	1.03 - 1.15	
≥120	4286	1.18	1.10 - 1.27	
Bedtime				
before 10p.m.	4604	1.00		<0.01
10p.m.-11p.m.	10295	1.03	0.94 - 1.12	
11p.m.-midnight	28037	0.95	0.88 - 1.03	
Midnight-1a.m.	19111	0.85	0.78 - 0.93	
1a.m.-2a.m.	9652	0.75	0.69 - 0.82	
After 2a.m.	4886	0.77	0.69 - 0.85	
Difficulty initiating sleep				
Never	28906	1.00		<0.01
Seldom / sometimes / often / always	47679	2.96	2.86 - 3.08	
Subjective sleep assessment				
very good / good	54221	1.00		<0.01
bad / very bad	22364	1.51	1.45 - 1.56	
Excessive Daytime Sleepiness				
Absence	51173	1.00		<0.01
Presence	25412	1.23	1.19 - 1.28	
Mental health				
good	42020	1.00		<0.01
bad	34565	1.68	1.63 - 1.74	
Sleep Paralysis				
Absence	70536	1.00		<0.01
Presence	6049	2.51	2.37 - 2.66	

AOR: adjusted odds ratio, CI: confidence interval.

The presence of Excessive Daytime Sleepiness (EDS) was defined as an Epworth Sleepiness Scale (ESS) score of ≥ 11 .

Poor mental health was defined as 2-item of General Health Questionnaire-12 score of ≥ 1 .

Subject with missing data were excluded from the analysis.

Table 6. Multivariate logistic Regression Results for Prediction of Sleep Paralysis Among Japanese Adolescents.

		AOR	95%CI	P value
Sex				
Male	37128	1.00		<0.01
Female	39457	0.85	0.81 - 0.90	
Grade				
7th grade	10672	1.00		0.06
8th grade	10130	1.08	0.96 - 1.21	
9th grade	10149	1.06	0.94 - 1.19	
10th grade	16256	1.10	0.99 - 1.23	
11th grade	15323	1.06	0.95 - 1.18	
12th grade	14055	1.17	1.05 - 1.31	
Smoking				
No	74267	1.00		0.02
Yes	2318	1.16	1.02 - 1.32	
Drinking alcohol				
No	60803	1.00		<0.01
Yes	15782	1.23	1.16 - 1.32	
Eating breakfast				
Daily	64801	1.00		0.02
Occasional	7425	1.06	0.97 - 1.15	
Never	4359	1.14	1.04 - 1.27	
Income				
less than ¥5000	55191	1.00		0.02
¥5000 or more	21394	1.08	1.01 - 1.15	
Sleep duration, h				
<5	13419	1.47	1.32 - 1.63	<0.01
≥5, 6<	12910	1.27	1.14 - 1.42	
≥6, 7<	30944	1.14	1.03 - 1.25	
≥7, 8<	11788	1.00		
≥8, 9<	5505	1.00	0.87 - 1.16	
≥9	2021	1.71	1.44 - 2.01	
Nap time, m				
Nothing	28638	1.00		<0.01
<15	8097	0.98	0.89 - 1.09	
≥15, 30<	17564	1.05	0.97 - 1.13	
≥30, 60<	8589	1.03	0.94 - 1.14	
≥60, 120<	9411	1.11	1.01 - 1.21	
≥120	4286	1.26	1.13 - 1.40	
Bedtime				
before 10p.m.	4604	1.00		<0.01
10p.m.-11p.m.	10295	0.69	0.59 - 0.80	
11p.m.-midnight	28037	0.81	0.71 - 0.93	
Midnight-1a.m.	19111	0.89	0.78 - 1.02	
1a.m.-2a.m.	9652	1.03	0.89 - 1.19	
After 2a.m.	4886	1.36	1.17 - 1.58	
Difficulty initiating sleep				
Never	28906	1.00		<0.01
Seldom / sometimes / often / always	47679	1.22	1.14 - 1.30	
Subjective sleep assessment				
very good / good	54221	1.00		<0.01
bad / very bad	22364	1.22	1.15 - 1.29	
Excessive Daytime Sleepiness				
Absence	51173	1.00		<0.01
Presence	25412	1.23	1.16 - 1.30	
Mental health				
good	42020	1.00		<0.01
bad	34565	1.54	1.45 - 1.63	
Nightmare				
Never	49947	1.00		<0.01
Seldom	11290	1.52	1.40 - 1.65	
Sometimes	11327	2.76	2.57 - 2.96	
Often	2924	4.06	3.67 - 4.49	
Always	1097	7.64	6.68 - 8.75	

AOR: adjusted odds ratio, CI; confidence interval.

The presence of Excessive Daytime Sleepiness (EDS) was defined as an Epworth Sleepiness Scale (ESS) score of ≥ 11 .

Poor mental health was defined as 2-item of General Health Questionnaire-12 score of ≥ 1 .

Subject with missing data were excluded from the analysis.

