

Prevalence of sleep disorder diagnoses and sleep medication prescriptions in individuals with ADHD across the lifespan: a Swedish nationwide register-based study

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Table S1: Absolute and relative rates of sleep disorders and sleep medications in individuals 5-11 years.

CHILD COHORT (Born 1993-2008)							
ADHD prev=2.36%	ADHD group (N=40,474)		Non-ADHD group (N=1671013)		OR	95% Lower	95% Upper
Diagnosed sleep disorder	N	%	N	%			
Insomnia	416	1.03	1581	0.09	16.07	14.33	18.01
Hypersomnia	24	0.06	182	0.01	7.67	4.95	11.90
Sleepwalk	17	0.04	123	0.01	5.44	3.25	9.10
Sleep-wake schedule (circadian rhythm)	128	0.32	581	0.03	13.19	10.79	16.12
Sleep terror	35	0.09	251	0.02	4.92	3.44	7.03
Nightmares	9	0.02	111	0.01	3.98	2.00	7.95
Other	53	0.13	278	0.02	10.58	7.79	14.35
Unspecified	1076	2.66	5238	0.32	10.21	9.53	10.94
RLS	16	0.04	109	0.01	8.80	5.12	15.13
Sleep apnoea	174	0.43	2615	0.16	2.59	2.22	3.03
Narcolepsy and cataplexy	106	0.26	243	0.01	24.66	19.36	31.42
<i>Any sleep disorder</i>	<i>1829</i>	<i>4.52</i>	<i>10241</i>	<i>0.61</i>	<i>8.73</i>	<i>8.28</i>	<i>9.19</i>
Medication prescription							
Zopiclone	35	0.09	58	0.003	28.82	18.51	44.86
Zolpidem	34	0.08	52	0.003	33.27	21.03	52.64
Melatonin	10327	25.52	4202	0.25	135.03	129.83	140.44
Propiomazin	277	0.68	214	0.01	56.05	46.48	67.58
Zaleplon	1	0.002	1	0	68.89	3.41	1392.42
<i>Any sleep medication</i>	<i>10400</i>	<i>25.70</i>	<i>4407</i>	<i>0.26</i>	<i>129.35</i>	<i>124.45</i>	<i>134.45</i>

Note: OR=Odds ratio, 95% CI=95% Confidence interval, RLS=Restless Leg Syndrome.

Table S2: Absolute and relative rates of sleep disorders and sleep medications in individuals 12-17 years.

ADOLESCENT COHORT (Born 1988-2000)							
ADHD prev=3.12%	ADHD group (N=47017)		Non-ADHD group (N=1457622)		OR	95% Lower	95% Upper
Diagnosed sleep disorder	N	%	N	%			
Insomnia	558	1.19	700	0.05	25.89	23.01	29.12
Hypersomnia	38	0.08	57	0.004	20.82	13.50	32.11
Sleepwalk	7	0.01	37	0.003	4.53	1.99	10.33
Sleep-wake schedule (circadian rhythm)	234	0.50	302	0.02	26.76	22.30	32.11
Sleep terror	7	0.01	23	0.002	7.42	3.10	17.74
Nightmares	8	0.02	57	0.004	4.22	1.98	8.97
Other	45	0.10	109	0.007	11.06	7.72	15.84
Unspecified	1011	2.15	2106	0.14	14.08	13.01	15.23
RLS	9	0.02	46	0.003	6.31	3.03	13.15
Sleep apnoea	55	0.12	439	0.03	3.39	2.55	4.51
Narcolepsy and cataplexy	143	0.30	45	0.003	96.54	68.23	136.58
<i>Any sleep disorder</i>	<i>1900</i>	<i>4.04</i>	<i>3627</i>	<i>0.25</i>	<i>16.13</i>	<i>15.21</i>	<i>17.10</i>
Medication prescription							
Zopiclone	836	1.78	3221	0.22	10.16	9.38	11.00
Zolpidem	503	1.07	2060	0.14	10.59	9.55	11.73
Melatonin	11944	25.40	10029	0.69	42.61	41.35	43.90
Propiomazin	3031	6.44	9327	0.64	12.22	11.70	12.78
Zaleplon	14	0.03	107	0.007	7.19	4.03	12.83
<i>Any sleep medication</i>	<i>13600</i>	<i>28.93</i>	<i>20240</i>	<i>1.39</i>	<i>28.10</i>	<i>27.39</i>	<i>28.83</i>

Note: OR=Odds ratio, 95% CI=95% Confidence interval, RLS=Restless Leg Syndrome.

Table S3: Absolute and relative rates of sleep disorders and sleep medications in individuals 18-30 years.

YOUNG ADULT COHORT (1975-1995)							
ADHD prev=1.97%	ADHD group (N=49516)		Non-ADHD group (N=2462979)		OR	95% Lower	95% Upper
Diagnosed sleep disorder	N	%	N	%			
Insomnia	707	1.43	2042	0.08	17.45	15.95	19.08
Hypersomnia	186	0.38	518	0.02	18.63	15.64	22.20
Sleepwalk	19	0.04	154	0.006	6.11	3.75	9.94
Sleep-wake schedule (circadian rhythm)	266	0.54	649	0.03	17.42	15.03	20.20
Sleep terror	5	0.01	40	0.002	7.26	2.79	18.88
Nightmares	19	0.04	107	0.004	9.03	5.47	14.90
Other	108	0.22	332	0.01	13.53	10.83	16.92
Unspecified	1758	3.55	5662	0.23	14.55	13.76	15.39
RLS	61	0.12	379	0.02	8.91	6.74	11.77
Sleep apnoea	242	0.49	3673	0.15	3.49	3.06	3.98
Narcolepsy and cataplexy	215	0.43	204	0.008	48.23	39.44	58.99
<i>Any sleep disorder</i>	<i>3113</i>	<i>6.29</i>	<i>12517</i>	<i>0.51</i>	<i>12.59</i>	<i>12.08</i>	<i>13.12</i>
Medication prescription							
Zopiclone	12834	25.92	82132	3.33	10.87	10.63	11.11
Zolpidem	8515	17.19	58249	2.36	10.29	10.03	10.56
Melatonin	8933	18.04	13072	0.53	32.10	31.17	33.06
Propiomazin	13594	27.45	88088	3.58	10.44	10.22	10.67
Zaleplon	886	1.79	3897	0.16	16.58	15.34	17.92
<i>Any sleep medication</i>	<i>24199</i>	<i>48.87</i>	<i>172515</i>	<i>7.00</i>	<i>13.45</i>	<i>13.20</i>	<i>13.70</i>

Note: OR=Odds ratio, 95% CI=95% Confidence interval, RLS=Restless Leg Syndrome.

Table S4: Absolute and relative rates of sleep disorders and sleep medications in individuals 31-45 years.

MIDDLE-AGED ADULT COHORT (1960-1982)							
Prev adhd=0.98%	ADHD group (N=26865)		Non-ADHD group (N=2716319)		OR	95% Lower	95% Upper
Diagnosed sleep disorder	N	%	N	%			
Insomnia	390	1.45	2769	0.10	14.37	12.90	16.01
Hypersomnia	168	0.63	562	0.02	29.95	25.11	35.71
Sleepwalk	11	0.04	121	0.004	8.18	4.40	15.22
Sleep-wake schedule (circadian rhythm)	77	0.29	454	0.02	16.13	12.63	20.60
Sleep terror	8	0.03	21	0	32.57	14.27	74.33
Nightmares	11	0.04	71	0.002	15.29	8.04	29.09
Other	46	0.17	342	0.01	13.16	9.64	17.97
Unspecified	943	3.51	6806	0.25	13.57	12.65	14.55
RLS	95	0.35	1188	0.04	8.44	6.83	10.42
Sleep apnoea	675	2.51	19534	0.71	3.71	3.43	4.01
Narcolepsy and cataplexy	174	0.65	155	0.006	117.06	93.54	146.49
<i>Any sleep disorder</i>	<i>2203</i>	<i>8.20</i>	<i>29841</i>	<i>1.10</i>	<i>8.14</i>	<i>7.78</i>	<i>8.52</i>
Medication prescription							
Zopiclone	10837	40.34	171177	6.30	10.27	10.01	10.53
Zolpidem	7443	27.71	132840	4.89	8.01	7.79	8.24
Melatonin	4113	15.31	13772	0.51	32.12	30.93	33.36
Propiomazin	9185	34.19	147597	5.43	9.20	8.96	9.44
Zaleplon	815	3.03	7892	0.29	12.32	11.43	13.26
<i>Any sleep medication</i>	<i>16695</i>	<i>62.14</i>	<i>327856</i>	<i>12.07</i>	<i>12.57</i>	<i>12.26</i>	<i>12.89</i>

Note: OR=Odds ratio, 95% CI=95% Confidence interval, RLS=Restless Leg Syndrome.

Table S5: Absolute and relative rates of sleep disorders and sleep medications in individuals 46-60 years.

OLDER ADULT COHORT (1945-1973)							
Prev adhd=0.40%	ADHD group (N=13711)		Non-ADHD group (N=3383005)		OR	95% Lower	95% Upper
Diagnosed sleep disorder	N	%	N	%			
Insomnia	187	1.36	3247	0.10	16.28	14.03	18.91
Hypersomnia	95	0.69	431	0.01	63.34	50.47	79.50
Sleepwalk	5	0.04	52	0.002	24.93	9.91	62.69
Sleep-wake schedule (circadian rhythm)	25	0.18	374	0.01	18.42	12.26	27.69
Sleep terror	0	0	15	0	-		
Nightmares	3	0.02	70	0.002	11.84	3.71	37.81
Other	24	0.18	358	0.01	18.33	12.09	27.79
Unspecified	359	2.62	7385	0.22	13.19	11.85	14.69
RLS	65	0.47	2430	0.07	7.65	5.97	9.80
Sleep apnoea	527	3.84	47188	1.39	3.27	2.99	3.57
Narcolepsy and cataplexy	126	0.92	128	0.004	356.80	273.13	466.10
<i>Any sleep disorder</i>	<i>1212</i>	<i>8.84</i>	<i>58527</i>	<i>1.73</i>	<i>6.35</i>	<i>5.98</i>	<i>6.74</i>
Medication prescription							
Zopiclone	5560	40.55	259305	7.66	9.62	9.29	9.96
Zolpidem	3615	26.37	206663	6.11	6.81	6.55	7.08
Melatonin	1875	13.68	23496	0.69	24.82	23.58	26.11
Propiomazin	4277	31.19	195074	5.77	8.45	8.14	8.76
Zaleplon	336	2.45	10854	0.32	10.14	9.08	11.33
<i>Any sleep medication</i>	<i>8485</i>	<i>61.88</i>	<i>484446</i>	<i>14.32</i>	<i>12.03</i>	<i>11.62</i>	<i>12.47</i>

Note: OR=Odds ratio, 95% CI=95% Confidence interval, RLS=Restless Leg Syndrome.

Table S6: Absolute and relative rates of sleep disorders and sleep medications in males with and without ADHD (5-60 years).

Males (1945-2008)							
ADHD prev=2.77 %	ADHD group (N=91,518)		Non-ADHD group (N=320945)		OR	95% Lower	95% Upper
Diagnosed sleep disorder	N	%	N	%			
Insomnia	1381	1.51	3714	0.12	17.01	15.92	18.17
Hypersomnia	234	0.26	641	0.02	18.11	15.44	21.25
Sleepwalk	42	0.05	253	0.008	5.07	3.63	7.07
Sleep-wake schedule (circadian rhythm)	540	0.59	981	0.03	18.66	16.71	20.84
Sleep terror	41	0.05	217	0.007	4.28	3.06	5.98
Nightmares	29	0.03	166	0.005	6.12	4.08	9.18
Other	167	0.18	614	0.02	11.03	9.22	13.20
Unspecified	3166	3.46	11332	0.35	11.85	11.36	12.36
RLS	127	0.14	1407	0.04	6.78	5.61	8.17
Sleep apnoea	1332	1.46	45815	1.43	2.40	2.27	2.54
Narcolepsy and cataplexy	294	0.32	201	0.01	59.70	49.22	72.42
<i>Any sleep disorder</i>	6328	6.91	61120	1.90	7.28	7.08	7.49
Medication prescription							
Zopiclone	14721	16.09	158108	4.70	7.63	7.48	7.78
Zolpidem	9723	10.62	113881	3.55	6.66	6.51	6.82
Melatonin	21742	23.76	22870	0.71	40.54	39.70	41.40
Propiomazin	15715	17.17	145976	4.55	7.88	7.73	8.03
Zaleplon	1142	1.25	6817	0.21	11.31	10.58	12.09
<i>Any sleep medication</i>	38970	42.58	305857	9.53	14.17	13.96	14.39

Note: OR=Odds ratio, 95% CI=95% Confidence interval, RLS=Restless Leg Syndrome.

Table S7: Absolute and relative rates of sleep disorders and sleep medications in females with and without ADHD (5-60 years).

Females (1945-2008)							
ADHD prev=1.70 %	ADHD group (N=53,972)		Non-ADHD group (N=3115223)		OR	95% Lower	95% Upper
Diagnosed sleep disorder	N	%	N	%			
Insomnia	1111	2.06	4930	0.16	15.75	14.72	16.84
Hypersomnia	289	0.54	884	0.03	22.45	19.57	25.74
Sleepwalk	28	0.05	183	0.006	8.83	5.91	13.20
Sleep-wake schedule (circadian rhythm)	294	0.54	871	0.03	19.89	17.37	22.76
Sleep terror	16	0.03	112	0.004	6.61	3.91	11.16
Nightmares	31	0.06	181	0.006	9.18	6.26	13.49
Other	136	0.25	560	0.02	15.32	12.65	18.55
Unspecified	2418	4.48	11957	0.38	13.21	12.63	13.83
RLS	149	0.28	2128	0.07	6.92	5.84	8.19
Sleep apnoea	521	0.97	14957	0.48	3.68	3.37	4.02
Narcolepsy and cataplexy	353	0.65	260	0.01	85.30	72.25	100.69
<i>Any sleep disorder</i>	4528	8.39	33955	1.09	11.21	10.85	11.59
Medication prescription							
Zopiclone	15214	28.19	245580	7.89	8.25	8.09	8.43
Zolpidem	10573	19.59	184497	5.92	7.06	6.89	7.22
Melatonin	13691	25.37	33826	1.06	33.12	32.38	33.89
Propiomazin	15908	29.47	212023	6.80	8.87	8.69	9.05
Zaleplon	1136	2.10	10,809	0.35	9.97	9.36	10.62
<i>Any sleep medication</i>	30111	55.80	451925	14.51	14.03	13.77	14.29

Note: OR=Odds ratio, 95% CI=95% Confidence interval, RLS=Restless Leg Syndrome.

Table S8: Absolute and relative rates of sleep disorders and sleep medications in individuals with and without ADHD (5-60 years): excluding individuals in the ADHD group who have been prescribed ADHD medication

WHOLE COHORT (1945-2008)							
ADHD prev=0.29%	ADHD group (N=19,053)		Non-ADHD group (N=6,325,168)		OR	95% Lower	95% Upper
Diagnosed sleep disorder	N	%	N	%			
Insomnia	278	1.46	8644	0.14	13.81	12.24	15.59
Hypersomnia	39	0.20	1525	0.02	10.47	7.61	14.42
Sleepwalk	9	0.05	436	0.01	6.17	3.18	11.95
Sleep-wake schedule (circadian rhythm)	91	0.48	1852	0.03	16.07	13.00	19.87
Sleep terror	8	0.04	329	0.01	5.94	2.94	11.98
Nightmares	8	0.04	347	0.01	7.36	3.64	14.86
Other	36	0.19	1174	0.02	11.17	8.00	15.60
Unspecified	665	3.49	23289	0.37	11.00	10.16	11.90
RLS	30	0.16	3535	0.06	5.30	3.70	7.61
Sleep apnoea	243	1.28	60772	0.96	2.34	2.06	2.66
Narcolepsy and cataplexy			461	0.01	7.75	4.14	14.54
<i>Any sleep disorder</i>	<i>1242</i>	<i>6.52</i>	<i>95075</i>	<i>1.50</i>	<i>6.71</i>	<i>6.32</i>	<i>7.11</i>
Medication prescription							
Zopiclone	3452	18.12	403688	6.38	6.08	5.84	6.32
Zolpidem	2141	11.24	298378	4.72	4.85	4.62	5.08
Melatonin	1669	8.76	56969	0.90	12.25	11.64	12.89
Propiomazin	3741	19.63	357999	5.66	6.70	6.45	6.95
Zaleplon	207	1.09	17626	0.28	6.83	5.94	7.84
<i>Any sleep medication</i>	<i>6463</i>	<i>33.92</i>	<i>757782</i>	<i>11.98</i>	<i>7.11</i>	<i>6.89</i>	<i>7.34</i>

Note: OR=Odds ratio, 95% CI=95% Confidence interval, RLS=Restless Leg Syndrome.