Supplement S2: Psychiatric

1 Psychiatric comorbidity

1.1 Anxiety Disorders

Table 1: Prevalence of anxiety in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Anxiety disorder: 29.13% (ASD), 9.10% (non-ASD)	Chi-square p value: <0.0001
Lever and Geurts (2016) [68]	n=138 (ASD), n=170 (non-ASD); Age: 19-79; Mental Health Institutions and online recruitment; Netherlands	Any anxiety disorder: 53.6% (ASD), 14.7% (non-ASD); Panic Disorder: 15.2% (ASD), 3.5% (non-ASD); Agoraphobia: 21% (ASD), 3.5% (non-ASD); Social Phobia: 15.2% (ASD), 4.7% (non-ASD); Specific Phobia: 11.6% (ASD), 4.7% (non-ASD); Generalized Anxiety Disorder: 15.9% (ASD), 2.9% (non-ASD)	P-value:≤0.001, ≤0.001, ≤0.001, ≤0.01, ≤0.05, ≤0.001
Vohra et al. (2017) [123]	n=1772 (ASD), n=5316 (non-ASD); Age: 22-64; three state Medicaid Analytic eXtract; 2000-08	Anxiety: 12.2% (ASD), 5.6% (TD)	aOR (95% CI): 2.34 (1.95, 2.81), p:<0.001
Houghton et al. (2017) [44]	n=46943 (ASD, commercial), Truven Health MarketScan Commercial Database, 2014; n=46696 (ASD, Medicaid), Truven Health MarketScan Multi-State Medicaid Database; Age: >3	Anxiety: 24.74% (commercial), 13.98% (medicaid)	
Brookman-Frazee et al. (2018) [16]	n=201 (ASD); Age: 4-14; data from community effectiveness trial; Southern California; 2012-15; MINI-KID-P	Any anxiety disorder: 56% (ASD); Specific phobia: 33%, Social phobia: 24%, Seperation anxiety disorder: 15%, Generalized anxiety disorder: 15%, Agoraphobia: 10%, OCD: 10%, Lifetime panic disorder: 10%	

Table 2: Prevalence of anxiety in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Hollocks et al. (2019) [41]	Review, N=12	Social anxiety: 29% (current), 20% (lifetime)	
Hollocks et al. (2019) [41]	Review, N=7	Generalized anxiety disorder: 18% (current), 26% (lifetime)	
Hollocks et al. (2019) [41]	Review, N=8	Panic/agoraphobia: 15% (current), 18% (lifetime)	
Hollocks et al. (2019) [41]	Review, N=4	Specific phobia: 6% (current), 31% (lifetime)	
Hollocks et al. (2019) [41]	Review, N=1	Seperation anxiety: 3% (current), 21% (lifetime)	
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	aOR (95% CI): 4.01 (3.57-4.50)	
Soke et al. (2018) [108]	n=783 (ASD, age: 4), n=1091 (ASD, age; 8), ADDMN - 5 sites (Arizona, Missouri, New Jersey, Utah, and Wisconsin), 2010	Anxiety: 4.73% (ASD, age: 4), 11.18% (ASD, age: 8)	Adjusted prevalence, 95% CI: 2.28 (1.57, 3.39) [8 vs 4 years] - adjusted for sex, ethnicity, maternal education, location
Hollocks et al. (2019) [41]	Review, N=30, n=26070	Pooled anxiety disorder: 27% (current), 42% (lifetime)	
Lai, et al. (2019) [65]	Meta-analysis, N=96	20%	
Margari et al. (2019) [77]	n=100 (ASD, male), n=59 (ASD, female)	Anxiety disorders: 18% (ASD, male), 25.4% (ASD, female)	p: 0.265
Mosner et al. (2019) [84]	n=67 (ASD); Age: 8-25; UNC Autism Research Registry; MINI-KID-P assessment and caregiver report	Anxiety: 34.3%, 25.7% (caregiver); Panic disorder: 2.9%, Agoraphobia: 2.9%, Separation anxiety: 2.9%, Social phobia: 3 17.1% , Specific phobia: 2.9%, GAD: 17.1%	

Table 3: Prevalence of anxiety in those with ASD, table 3.

Source	Sample	Prevalence	Other Notes
Hossain et al. (2020) [43]	Umbrella Review, N=8	Anxiety disorders: 1.47% - 54%	
Hand et al. (2020) [34]	n=4685 (ASD), n=46850 (non-ASD); Age: ≥65; Medicare; 2016-17	Anxiety disorders: 37.2% (ASD), 8.8% (non-ASD)	aOR: 6.2 (5.8-6.7)
Kirsch et al. (2020) [60]	n=1014 (ASD), n=2028 (non-ASD); Age: ≤30; USA; cohort study	Anxiety: 50.0% (ASD), 22.2% (non-ASD)	(HR, 3.45; 95% CI, 2.96-4.01), p-value:<0.001
Bowden et al. (2020) [15]	n=8955 (ASD), n=1551342 (non-ASD); Age: 0-24; IDI database, New Zealand	Anxiety: 17.1% (ASD), 1.8% (non-ASD)	aOR: 10.2 (95% CI: 9.8-10.6) - standardized for age, sex, ethnicity, deprivation, and urban/rural
Uljarević et al. (2020) [117]	n=255 (ASD), [n=77 (adolescence, age 15-19), n=97 (early adulthood, 20-39), n=70 (middle adulthood, 40-64), n=11 (older adulthood, 65+)]; Australia	Anxiety: 38.4% (ASD, all); 37.7% (ASD, age:15-19), 40.2% (age: 20-39), 38.6% (age: 40-64), 18.2% (age: 65+)	
Huang et al. (2021) [46]	n=6599 (ASD), n=26396 (non-ASD); controls age, sex, date matched 1:4; Taiwan National Health Insurance Research Database; ICD-9; 2000-15	Anxiety disorder: 30.3% (ASD), 5.1% (non-ASD)	p: <0.01
Bougeard et al. (2021) [14]	Review, N=13	Anxiety, Range: 0% - 82.20%	
Ivanović (2021) [51]	n=152 (ASD); Mean age: 8.02 (4.26); Autism Center, Montenegro	Anxiety: 7.89%	
Rødgaard et al. (2021) [100]	n=11,914 (ASD, men), n=4212 (ASD, women); Age ≤16; Danish National Patient Registry	Anxiety disorders: 10% (men with ASD), 19% (women with ASD)	
Brooks et al. (2021) [17]	n=1062 (ASD), n=79175 Age: 1-24; Canada; Electronic Medical Record Primary Care database	Anxiety, adjustment disorders: 2.9% (ASD), 1.3% (non-ASD)	Prevalence ratio: 2.30 (95% CI: 1.62, 3.26) - adjusted for age, sex, neighborhood income, geographic location

Table 4: Prevalence of anxiety in those with ASD, table 4.

Source	Sample	Prevalence	Other Notes
Angell et al. (2021) [5]	n=18355 (ASD, girls), n=65145 (ASD, boys); Age: 1-21; healthcare claims data; integrates ICD-9 and ICD-10 codes	Anxiety disorders: 31.95% (ASD, girls), 28.16% (ASD, boys)	aOR: 1.18 (95% CI: 1.14-1.23), p:<0.001 - adjusted for age, race, ethnicity, urbanicity, and insurance
Yule (2021) [4]	n=206 (ASD), n=156 (ADHD), n=156 (controls, age matched); age: $\geq$ 12; 2007-16; high functioning ASD - academic center	2+ anxiety disorders: 70% (ASD), 42% (ADHD), 12% (control)	p: <0.001 (ASD vs ADHD), p: <0.05 (ASD vs controls), p: <0.001 (ADHD vs controls)
Shoaib et al. (2022) [107]	n=29694 (ASD, medicaid), IBM Marketscan Multi-State Medicaid Database; n=6719 (ASD, Optum), Optum De-Identified Clinformatics Data Mart Database, Date of Death; US; 2015-16	Anxiety: 24.84% (Optum), 16.12% (Medicaid)	
Shoaib et al. (2022) [107]	n=29694 (ASD, medicaid), IBM Marketscan Multi-State Medicaid Database; n=6719 (ASD, Optum), Optum De-Identified Clinformatics Data Mart Database, Date of Death; US; 2015-16	Anxiety: 24.84% (Optum), 16.12% (Medicaid)	
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	Anxiety disorders: 20.6% (ASD, total), 3.9% (non-ASD, total); 14.7% (ASD, male), 31.9% (ASD, female), 2.5% (non-ASD, male), 5.4% (non-ASD, female)	HR: 0.95 (95% CI: 0.81-1.10), p:0.47 [Male vs Female] - adjusted for birth year ADHD, ID
Jadav and Bal (2022) [52]	n=4657 (ASD); Adults; online survey, SPARK; 2022	65.8% (any form), 55.5% (any non-social or separation anxiety), 36.5% (social), 11.3% (separation)	

Table 5: Prevalence of anxiety in those with ASD, table 5.

Source	Sample	Prevalence	Other Notes
Mutluer et al. (2022) [85]	Review, N=12, population and EHR studies (age 6-18)	Pooled anxiety prevalence: 11.1%	
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	24.85% (ASD), 14.66% (non-ASD)	aOR: 1.71 (1.68 1.74)
Underwood et al. (2022) [118]	n=7943 (core ASD), n=25941 (control); Age: ≥18; UK; SAIL Databank, 2001-16	22.40% (ASD), 13.6% (non-ASD)	
Hughes et al. (2023) [48]	n=1846 (ASD); ≤16; ADDM Network (5 sites, USA); 2018	Anxiety: 16%	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=60 [N=48 (clinical studies from community samples), N=12 (population/registry based)], n=45,978	Pooled prevalence: 35%, Range: 30% - 39%	
Rim et al. (2023) [95]	n=381 (ASD), n=6179 (non-ASD); Age: 0-19; National Health Insurance System National Sample Cohort; South Korea; 2002–13	Anxiety and stress: 7.81% (ASD), 1.08% (non-ASD)	aOR: 6.22 (4.76,8.12)
Semovski et al. (2023) [106]	n=2020 (ASD); Age: 12-18; records + interviews; Canada	Anxiety disorders: 42.9% (ASD)	
Khachadourian et al. (2023) [58]	n=42569 (ASD), n=11389 (non-ASD siblings); SPARK; Age: <18 at time of registration; 1999-2019	Anxiety disorder, estimated: 17% (ASD), 7% (non-ASD); Separation anxiety, estimated: 6% (ASD), 2% (non-ASD); Social anxiety/phobia, estimated: 8% (ASD), 3% (non-ASD)	p: <0.05 for all
Longo et al. (2024) [71]	n=30258 (ASD), n=60516 (non-ASD); Age: 18-64; IBM Market Scan Commercial Claims and Encounters Database; 2019-20	6 Anxiety Disorders: 55.0% (ASD), 17.5% (non-ASD)	aOR: 5.9 (95% CI: 5.7, 6.1)

Table 6: Prevalence of anxiety in those with ASD, table 6.

Source	Sample	Prevalence	Other Notes
O'Nions et al. (2024) [88]	n=15675 (ASD, no ID), n=156750 (comparison), n=6437 (ASD+ID), n=64370 (comparison); Age: ≥18; UK; IQVIA Medical research data (electronic health records from multiple hospitals); comparison matched by age, sex, location	Anxiety: 20.86% (ASD, no ID), 6.11% (comparison), 13.34% (ASD+ID), 6.96% (comparison) [baseline]; crude incidence based on observation period: 195.89(182.05-210.50) (ASD, no ID), 102.08 (99.28-104.93) (comparison), 107.36(94.51-121.46) (ASD+ID), 92.53(88.83-96.35) (comparison)	p:<0.001 (ASD no ID vs comparison), p:<0.001 (ASD+ID vs comparison) [baseline]; ASD+ID vs comparison, incidence rate ratio: 1.14(1.00-1.30) (ASD+ID), 1.91(1.76-2.06) (ASD no ID)
Al-Ayadhi et al. (2025) [3]	n=363 [n=189 (ASD), n=174 (non-ASD)]; Online questionnaire (self or caregiver); Saudi Arabia; August 2022 - January 2023	32.3% (ASD), 5.7% (non-ASD)	p: 0.000
Salehi et al. (2025) [102]	n=6870 (ASD), n=2686160 (non-ASD); Age: 15-44; Administrative health data, Canada, 2017-18	45.7%	OR: 0.35, p:<0.001 [Female vs Male]
Diemer et al. (2025) [27]	n=1424 (ASD); Adult; SPARK	Anxiety: 69.87% (total), 68.16% (diagnosed <18), 70.74% (diagnosed >18)	p-value 0.314 (between age groups)
Lacroix et al. (2025) [64]	Narrative and Quantitative Review; N =12 , n= 52937 (ASD, female), n= 149478 (ASD, male); excluded papers with less than 12.5% females	Anxiety disorders, Pooled prevalence [95% CI]: 40.4% [31.4-50.2] (ASD, female), 29.7% [22.1-38.6] (ASD, male)	p:<0.001, OR: 1.63

1.1.1 OCD

Table 7: Prevalence of OCD in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	7.63% (ASD), 0.49% (non-ASD)	Chi-square p value: <0.0001
Lever and Geurts (2016) [68]	n=138 (ASD), n=170 (non-ASD); Age: 19-79; Mental Health Institutions and online recruitment; Netherlands	OCD: 21.7% (ASD), 0.6% (non-ASD); Generalized Anxiety Disorder: 15.9% (ASD), 2.9% (non-ASD)	P-value:≤0.001
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	2.3% (ASD), 0.2% (non-ASD)	aOR (95% CI): 10.48 (7.21 - 15.24)
Hollocks et al. (2019) [41]	Review, N=15	24% (current), 22% (lifetime)	
Lai, et al. (2019) [65]	Meta-analysis, N=96	9%	
Margari et al. (2019) [77]	n=100 (ASD, male), n=59 (ASD, female)	OCD: 5% (ASD, male), 0% (ASD, female)	p: 0.081
Mosner et al. (2019) [84]	n=67 (ASD); Age: 8-25; UNC Autism Research Registry; MINI-KID-P assessment and caregiver report	OCD: 11.4% (MINI-KID-P), 17.1% (caregiver report)	
Hossain et al. (2020) [43]	Umbrella Review, N=3	OCD and related disorders: 9%-22%	
Martin et al. (2020) [78]	n=7922 (total), [n=335 (OCD+ASD), n=1010 (OCD), n=6577 (ASD)]; Age: 4-18; South London and Maudsley NHS Foundation Trust; 2007-16	OCD: 5% (ASD)	
Huang et al. (2021) [46]	n=6599 (ASD), n=26396 (non-ASD); controls age, sex, date matched 1:4; Taiwan National Health Insurance Research Database; ICD-9; 2000-15	OCD: 3.1% (ASD), 0.2% (non-ASD)	p: <0.01

Table 8: Prevalence of OCD in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Chien et al. (2021) [22]	n=3837 (ASD), n=38370 (non-ASD); Children; Taiwan's claims database; 2000, 2005, 2010	3.9% (ASD), 0.2% (non-ASD)	
Rødgaard et al. (2021) [100]	n=11,914 (ASD, men), n=4212 (ASD, women); Age ≤16; Danish National Patient Registry	OCD: 5% (men with ASD), 8% (women with ASD)	
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	OCD: 6.5% (ASD, total), 0.5% (non-ASD, total); 5.9% (ASD, male), 7.8% (ASD, female), 0.3% (non-ASD, male), 0.6% (non-ASD, female)	Male vs female: HR: 0.51 (95% CI: 0..38-0.67), p:<0.001 - adjusted for birth year ADHD, ID
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	7.94% (ASD), 1.92% (non-ASD)	aOR: 4.17 (4.02 4.33)
Jadav and Bal (2022) [52]	n=4657 (ASD); Adults; online survey, SPARK; 2022	24.2%	
Mutluer et al. (2022) [85]	Review, N=5, population and EHR studies (age 6-18)		
Underwood et al. (2022) [118]	n=7943 (core ASD), n=25941 (control); Age: ≥18; UK; SAIL Databank, 2001-16	3.02% (ASD), 0.33% (non-ASD)	
Hughes et al. (2023) [48]	n=1846 (ASD); ≤16; ADDM Network (5 sites, USA); 2018	OCD: 1%	

Table 9: Prevalence of OCD in those with ASD, table 3.

Source	Sample	Prevalence	Other Notes
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=44 [N=38 (clinical studies from community samples), N=6 (population/registry based)], n=36467	Pooled prevalence: 9%, Range: 7% - 10%	
Khachadourian et al. (2023) [58]	n=42569 (ASD), n=11389 (non-ASD siblings); SPARK; Age: <18 at time of registration; 1999-2019	OCD, estimated: 8% (ASD), 2% (non-ASD)	p: <0.05
Diemer et al. (2025) [27]	n=1424 (ASD); Adult; SPARK	OCD: 25.49% (total), 26.12% (diagnosed <18), 25.19% (diagnosed >18)	p-value 0.701 (between age groups)
Beford et al. (2020) [9]	Narrative review	Lists OCD prevalence: 4% - 71%	
Lacroix et al. (2025) [64]	Narrative and Quantitative Review; N = 5, n= 15090 (ASD, female), n= 30958 (ASD, male); excluded papers with less than 12.5% females	OCD, Pooled prevalence [95% CI]: 12.7% [7.1-21.8] (ASD, female), 10.5% [5.6-18.6] (ASD, male)	p: 0.049, OR: 1.30

1.2 Mood Disorders

Table 10: Prevalence of mood/affective disorders in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Lever and Geurts (2016) [68]	n=138 (ASD), n=170 (non-ASD); Age: 19-79; Mental Health Institutions and online recruitment; Netherlands	Any mood disorder: 57.2% (ASD), 18.2% (non-ASD)	p-value: $\leq$0.001
Schendel et al. (2016) [104]	n=20492 (ASD), 1892412 (non-ASD); Age: >1.5; Danish Civil Registration Service and the Danish Medical Birth Register; born 1980-2010	Any mood/affective disorder: 8.8% (ASD), 1.8% (non-ASD)	
Vohra et al. (2017) [123]	n=1772 (ASD), n=5316 (non-ASD); Age: 22-64; three state Medicaid Analytic eXtract; 2000-08	Mood Disorder: 14.4% (ASD), 15.8% (non-ASD)	aOR (95% CI): 0.90 (0.77, 1.05), p: NS
Brookman-Frazee et al. (2018) [16]	n=201 (ASD); Age: 4-14; data from community effectiveness trial; Southern California; 2012-15; MINI-KID-P	Any mood disorder: 30% (ASD)	
Soke et al. (2018) [108]	n=783 (ASD, age: 4), n=1091 (ASD, age; 8), ADDMN - 5 sites (Arizona, Missouri, New Jersey, Utah, and Wisconsin), 2010	Mood disorder: 56.0% (ASD, age: 4), 74.80% (ASD, age: 8)	Adjusted prevalence, 95% CI: 1.25 (1.16, 1.35) [8 vs 4 years] - adjusted for sex, ethnicity, maternal education, location
Bowden et al. (2020) [15]	n=8955 (ASD), n=1551342 (non-ASD); Age: 0-24; IDI database, New Zealand	Any emotional disorder: 27.5% (ASD), 5.1% (non-ASD)	aOR: 5.9 (95% CI: 5.8-6.1) - standardized for age, sex, ethnicity, deprivation, and urban/rural
Hand et al. (2020) [34]	n=4685 (ASD), n=46850 (non-ASD); Age: $\geq$65; Medicare; 2016-17	Mood disorders: 35.9% (ASD), 9.1% (non-ASD)	aOR: 5.6 (5.3-6.0)

Table 11: Prevalence of mood/affective disorders in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Huang et al. (2021) [46]	n=6599 (ASD), n=26396 (non-ASD); controls age, sex, date matched 1:4; Taiwan National Health Insurance Research Database; ICD-9; 2000-15	Mood disorders: 24.1% (ASD), 1.4% (non-ASD)	p: <0.01
Tint et al. (2021) [113]	n=6870 (ASD), n=2686160 (non-ASD); Age: 15-44; Administrative health data, Canada, 2017-18	Mood and anxiety disorders: 31.8% (ASD), 13.4% (non-ASD)	Standard difference: 0.45
Brooks et al. (2021) [17]	n=1062 (ASD), n=79175 Age: 1-24; Canada; Electronic Medical Record Primary Care database	Mood/affective disorders: 1.8% (ASD), 0.9% (non-ASD)	Prevalence ratio: 2.15 (95% CI: 1.37, 3.37) - adjusted for age, sex, neighborhood income, geographic location
Rødgaard et al. (2021) [100]	n=11,914 (ASD, men), n=4212 (ASD, women); Age ≤16; Danish National Patient Registry	Affective disorders: 8% (men with ASD), 19% (women with ASD)	.
Angell et al. (2021) [5]	n=18355 (ASD, girls), n=65145 (ASD, boys); Age: 1-21; healthcare claims data; integrates ICD-9 and ICD-10 codes	Mood disorders: 21.45% (ASD, girls), 19.13% (ASD, boys)	aOR: 1.13 (95% CI: 1.08-1.18), p:<0.001 - adjusted for age, race, ethnicity, urbanicity, and insurance
Shoaib et al. (2022) [107]	n=29694 (ASD, medicaid), IBM Marketscan Multi-State Medicaid Database; n=6719 (ASD, Optum), Optum De-Identified Clinformatics Data Mart Database, Date of Death; US; 2015-16	Mood disorder: 17.47% (Optum), 16.56% (Medicaid)	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=22 [N=15 (clinical studies from community samples), N=7 (population/registry based)], n=16195	Pooled prevalence: 19%, Range: 11% - 28%	
Rim et al. (2023) [95]	n=381 (ASD), n=6179 (non-ASD); Age: 0-19; National Health Insurance System National Sample Cohort; South Korea; 2002–13	9.04% (ASD), 0.59% (non-ASD)	aOR: 13.62 (10.49,17.68)

Table 12: Prevalence of mood/affective disorders in those with ASD, table 3.

Source	Sample	Prevalence	Other Notes
Semovski et al. (2023) [106]	n=2020 (ASD); Age: 12-18; records + interviews; Canada	Mood disorder: 15.1% (ASD)	
Longo et al. (2024) [71]	n=30258 (ASD), n=60516 (non-ASD); Age: 18-64; IBM Market Scan Commercial Claims and Encounters Database; 2019-20	Mood disorders: 42.6% (ASD), 13.2% (non-ASD)	aOR: 4.9 (95% CI: 4.8, 5.1)
Lacroix et al. (2025) [64]	Narrative and Quantitative Review; N =5, n= 40867 (ASD, female), n= 125583 (ASD, male); excluded papers with less than 12.5% females	Mood disorders, Pooled prevalence [95% CI]: 31.1% [22.8-40.8] (ASD, female), 22.1% [13.3-34.4] (ASD, male)	p:0.007 , OR: 1.58

1.2.1 Bipolar

Table 13: Prevalence of bipolar disorder in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	10.55% (ASD), 1.67% (non-ASD)	Chi-square p value: <0.0001
Houghton et al. (2017) [44]	n=46943 (ASD, commercial), Truven Health MarketScan Commercial Database, 2014; n=46696 (ASD, Medicaid), Truven Health MarketScan Multi-State Medicaid Database; Age: >3	Bipolar: 4.9% (commercial), 7.96% (medicaid)	
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	Bipolar disorder: 6.4% (ASD), 0.6% (non-ASD)	aOR (95% CI): 9.58 (7.72 - 11.88)
Lai, et al. (2019) [65]	Meta-analysis, N=96	5%	
Margari et al. (2019) [77]	n=100 (ASD, male), n=59 (ASD, female)	Bipolar: 4% (ASD, male), 3.4% (ASD, female)	p: 0.845
Hossain et al. (2020) [43]	Umbrella Review, N=2	Bipolar: 5% - 21.4%	
Kirsch et al. (2020) [60]	n=1014 (ASD), n=2028 (non-ASD); Age: ≤30; USA; cohort study	Bipolar disorder: 7.3% (ASD), 0.9% (non-ASD)	(HR, 9.34; 95% CI, 4.57-19.06), p-value:<0.001
Bowden et al. (2020) [15]	n=8955 (ASD), n=1551342 (non-ASD); Age: 15-24; IDI database, New Zealand	Bipolar: 1.3% (ASD), 0.2% (non-ASD)	aOR: 8.9 (95% CI: 5.9-11.8) - standardized for age, sex, ethnicity, deprivation, and urban/rural

Table 14: Prevalence of bipolar disorder in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Yule (2021) [4]	n=230 (ASD), n=219 (ADHD), n=230 (controls, age matched); age: $\geq$ 12; 2007-16; high functioning ASD - academic center	Bipolar: 22% (ASD), 14% (ADHD), <1% (control)	p: <0.05 (ASD vs ADHD), p: <0.001 (ASD vs controls), p: <0.001 (ADHD vs controls)
Chien et al. (2021) [22]	n=3837 (ASD), n=38370 (non-ASD); Children; Taiwan's claims database; 2000, 2005, 2010	7.0/1,000 person year (ASD), 0.4/1,000 person year (non-ASD)	Crude hazard ratio: 16.8 (13.9–20.2).
Oakley et al. (2021) [87]	Narrative review, N=1	Bipolar: 5% (ASD), <1% (non-ASD)	
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	Bipolar disorders: 4.2% (ASD, total), 0.5% (non-ASD, total); 2.8% (ASD, male), 6.9% (ASD, female), 0.3% (non-ASD, male), 0.8% (non-ASD, female)	Male vs female: HR: 0.77 (95% CI: 0.58-1.03), p:0.08 - adjusted for birth year ADHD, ID
Jadav and Bal (2022) [52]	n=4657 (ASD); Adults; online survey, SPARK; 2022	Bipolar: 16.2%	
Mutluer et al. (2022) [85]	Review, N=6, population and EHR studies (age 6-18) (n=91052)	Bipolar: 2%	
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	25.02% (ASD), 14.83% (non-ASD)	aOR: 1.69 (1.66 1.72)
Varcin et al. (2022) [120]	Meta-analysis of 27 studies, n=31,739	Pooled prevalence: 7.5% (95% CI = 5.79, 9.53)	

Table 15: Prevalence of bipolar disorder in those with ASD, table 4.

Source	Sample	Prevalence	Other Notes
Underwood et al. (2022) [118]	n=7943 (core ASD), n=25941 (control); Age: ≥18; UK; SAIL Databank, 2001-16	2.50% (ASD), 2.00% (non-ASD)	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=25 [N=19 (clinical studies from community samples), N=6 (population/registry based)], n=108,224	Pooled prevalence: 7%, Range: 4% - 9%	
Khachadourian et al. (2023) [58]	n=42569 (ASD), n=11389 (non-ASD siblings); SPARK; Age: <18 at registration; 1999-2019	Bipolar disorder, estimated: 2% (ASD), 1% (non-ASD)	p: <0.05
Hsu et al. (2024) [45]	n=22698 (ASD), [n=19191 (male), n=3507 (female)]; Age: 2-19; Taiwan's National Health Insurance Research Database; 2001-11; ICD-9	Bipolar disorder: 1.5% (ASD, total); 1.3% (ASD, male), 2.5% (ASD, female)	RR: 0.58 (95% CI: 0.45-0.75) [Male vs female (ref)] - adjusted for age, income, residence, and parental psychiatric disorders. RR: 0.85 (95% CI: 0.60-1.21) [Parental psychiatric disorders - Male vs female (ref)] - adjusted for age, income, residence
Diemer et al. (2025) [27]	n=1424 (ASD); Adult; SPARK	Bipolar: 18.26% (total), 19.59% (diagnosed <18), 17.47% (diagnosed >18)	p-value 0.324 (between age groups)
Lacroix et al. (2025) [64]	Narrative and Quantitative Review; N =7, n= 31423 (ASD, female), n= 86154 (ASD, male); excluded papers with less than 12.5% females	Bipolar disorders, Pooled prevalence [95% CI]: 9.3% [5.9-14.3] (ASD, female), 5.9% [3.4-10.2] (ASD, male)	p: <0.001, OR: 1.62

1.2.2 Depression

Table 16: Prevalence of depression in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	25.75% (ASD), 9.89% (non-ASD)	Chi-square p value: <0.0001
Greenlee et al. (2016) [32]	n=1272 (ASD); Age: 6-17; Autism Speaks Autism Treatment Network consortium	Depression: 7% (ASD, total); 4.8% (age: 6-12), 20.2% (age: 13-17)	
Lever and Geurts (2016) [68]	n=138 (ASD), n=170 (non-ASD); Age: 19-79; Mental Health Institutions and online recruitment; Netherlands	Depression: 53.6% (ASD), 16.5% (non-ASD); Dysthymia: 18.1% (ASD), 2.9% (non-ASD)	p:≤0.001, p:≤0.001
Houghton et al. (2017) [44]	n=46943 (ASD, commercial), Truven Health MarketScan Commercial Database, 2014; n=46696 (ASD, Medicaid), Truven Health MarketScan Multi-State Medicaid Database; Age: >3	Depression: 10.15% (commercial), 9.19% (medicaid)	
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	9.9% (ASD), 4.0% (non-ASD)	aOR (95% CI): 2.51 (2.21 - 2.85)
Brookman-Frazee et al. (2018) [16]	n=201 (ASD); Age: 4-14; data from community effectiveness trial; Southern California; 2012-15; MINI-KID-P	Major depressive disorder (lifetime): 22% (ASD); Dysthymia: 8%	

Table 17: Prevalence of depression in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Hudson et al. (2019) [47]	Meta-Analysis, N=66 (lifetime: 44, current: 31)	Depression: 14.1% (95% CI: 10.3-19.8) [lifetime], 12.3% (95% CI: 9.7-15.5%) [current]	
Hollocks et al. (2019) [41]	Review, N=29, n=26117	Pooled estimation: 23% (current), 37% (lifetime)	
Lai, et al. (2019) [65]	Meta-analysis, N=96	Depressive disorders: 11%	
Margari et al. (2019) [77]	n=100 (ASD, male), n=59 (ASD, female)	Depressive disorders: 6% (ASD, male), 13.5% (ASD, female)	p: 0.104
Mosner et al. (2019) [84]	n=67 (ASD); Age: 8-25; UNC Autism Research Registry; MINI-KID-P assessment and caregiver report	Depression: 28.6% (MINI-KID-P), 8.6% (caregiver)	
Hossain et al. (2020) [43]	Umbrella Review, N=6	Depressive disorders: 2.5%-47.1%	
Kirsch et al. (2020) [60]	n=1014 (ASD), n=2028 (non-ASD); Age: $\leq$30; USA; cohort study	Depression: 54.1% (ASD), 28.9% (non-ASD)	(HR, 2.81; 95% CI, 2.45-3.22), p-value:<0.001
Bowden et al. (2020) [15]	n=8955 (ASD), n=1551342 (non-ASD); Age: 0-24; IDI database, New Zealand	Depression: 4.8% (ASD), 1.6% (non-ASD)	aOR: 4.0 (95% CI: 3.7-4.4) - standardized for age, sex, ethnicity, deprivation, and urban/rural
Uljarević et al. (2020) [117]	n=255 (ASD), [n=77 (adolescence, age 15-19), n=97 (early adulthood, 20-39), n=70 (middle adulthood, 40-64), n=11 (older adulthood, 65+)]; Australia	Depression: 38.0% (ASD, all); 33.8% (ASD, age:15-19), 36.1% (age: 20-39), 48.6% (age: 40-64), 27.3% (age: 65+)	
Bougeard et al. (2021) [14]	Review: N=12	Range: 0% - 74.80%	

Table 18: Prevalence of depression in those with ASD, table 3.

Source	Sample	Prevalence	Other Notes
Hosozawa et al. (2021) [42]	n=396 (ASD) [n=61 (age 5), n=65 (age 7), n=138 (age 11), n=132 (age 14)], n=11307 (non-ASD); UK Millennium Cohort Study; questionnaire and self-report; born 2000-02	Depression: 16.6% (ASD, diagnosed age 5), 18.2% (ASD, diagnosed age 7), 22.0% (ASD, diagnosed age 11), 32.8% (ASD, diagnosed age 14), 16% (non-ASD)	p: 0.03 (linear trend, unadjusted occurrence); SexaOR, 95% CI: 1 (ref) [no ASD], 1.05 (0.4-2.76) [ASD, diagnosed age 5], 1.17 (0.49-2.78) [ASD, diagnosed age 7], 1.49 (0.91-2.44) [ASD, diagnosed age 11], 2.57 (1.62-4.09) [ASD, diagnosed age 14]
Chien et al. (2021) [22]	n=3837 (ASD), n=38370 (non-ASD); Children; Taiwan's claims database; 2000, 2005, 2010	Major depressive disorder: 3.2/1,000 person year (ASD), 0.4/1,000 person year (non-ASD)	Crude hazard ratio: 7.4 (5.9–9.2)
Ivanović (2021) [51]	n=152 (ASD); Mean age: 8.02 (4.26); Autism Center, Montenegro	1.97%	
Oakley et al. (2021) [87]	Narrative review, N=4	depression: 10%-50% (ASD), 7% (non-ASD)	s
Yule (2021) [4]	n=230 (ASD), n=219 (ADHD), n=230 (controls, age matched); age: $\geq$ 12; 2007-16; high functioning ASD - academic center	Major depressive disorder: 61% (ASD), 63% (ADHD), 22% (control)	p: ns (ASD vs ADHD), p: <0.001 (ASD vs controls), p: <0.001 (ADHD vs controls)
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	depressive disorders: 22.7% (ASD, total), 3.9% (non-ASD, total); 18.4% (ASD, male), 31.0% (ASD, female), 2.6% (non-ASD, male), 5.2% (non-ASD, female)	Male vs female: HR: 0.82 (95% CI: 0.71-0.95), p:0.008 - adjusted for birth year ADHD, ID

Table 19: Prevalence of depression in those with ASD, table 4.

Source	Sample	Prevalence	Other Notes
Jadav and Bal (2022) [52]	n=4657 (ASD); Adults; online survey, SPARK; 2022	52.9%	
Mutluer et al. (2022) [85]	Review, N=6, population and EHR studies (age 6-18)	Pooled prevalence: 2.7%	
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	27.45% (ASD), 23.33% (non-ASD)	aOR: 1.09 (1.08 1.11)
Underwood et al. (2022) [118]	n=7943 (core ASD), n=25941 (control); Age: ≥18; UK; SAIL Databank, 2001-16	25.90% (ASD), 17.90% (non-ASD)	
Hughes et al. (2023) [48]	n=1846 (ASD); ≤16; ADDM Network (5 sites, USA); 2018	2%	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=55 [N=46 (clinical studies from community samples), N=9 (population/registry based)], n=41,923	Depressive disorder: Pooled prevalence: 18%, Range: 15% - 21%	
Rim et al. (2023) [95]	n=381 (ASD), n=6179 (non-ASD); Age: 0-19; National Health Insurance System National Sample Cohort; South Korea; 2002–13	5.49% (ASD), 0.45% (non-ASD)	aOR: 10.56 (7.65,14.57)
Khachadourian et al. (2023) [58]	n=42569 (ASD), n=11389 (non-ASD siblings); SPARK; Age: <18 at time of registration; 1999-2019	Depression or dysthymia, estimated: 6% (ASD), 4% (non-ASD)	p: <0.05

Table 20: Prevalence of depression in those with ASD, table 5.

Source	Sample	Prevalence	Other Notes
O'Nions et al. (2024) [88]	n=15675 (ASD, no ID), n=156750 (comparison), n=6437 (ASD+ID), n=64370 (comparison); Age: ≥18; UK; IQVIA Medical research data (electronic health records from multiple hospitals); comparison matched by age, sex, location	Depression: 23.35% (ASD, no ID), 7.64% (comparison), 12.85% (ASD+ID), 9.80% (comparison) [baseline]; crude incidence based on observation period: 263.27(246.78-280.58) (ASD, no ID), 144.42(141.05-147.86) (comparison), 106.15(93.29-120.27) (ASD+ID), 143.67(138.92-148.54) (comparison)	p: <0.001 (ASD no ID vs comparison), p:<0.001 (ASD+ID vs comparison) [baseline]; ASD+ID vs comparison, incidence rate ratio: 0.73 (0.64-0.83) (ASD+ID), 1.79(1.67-1.92) (ASD no ID)
Al-Ayadhi et al. (2025) [3]	n=363 [n=189 (ASD), n=174 (non-ASD)]; Online questionnaire (self or caregiver); Saudi Arabia; August 2022 - January 2023	22.8% (ASD), 3.4% (non-ASD)	p: 0.000
Salehi et al. (2025) [102]	n=6870 (ASD), n=2686160 (non-ASD); Age: 15-44; Administrative health data, Canada, 2017-18	16.7%	OR: 1.6, p <0.001 [Female vs Male]
Diemer et al. (2025) [27]	n=1424 (ASD); Adult; SPARK	Depression: 61.79% (total), 56.94% (diagnosed <18), 64.42% (diagnosed >18)	p-value 0.006 (between age groups)
Lacroix et al. (2025) [64]	Narrative and Quantitative Review; N =12, n= 38492 (ASD, female), n= 117343 (ASD, male); excluded papers with less than 12.5% females	Depressive disorders, Pooled prevalence [95% CI]: 19.2% [11.3-30.6] (ASD, female), 12.9% [7.7-21.1] (ASD, male)	p:<0.001, OR: 1.63

1.2.3 Other Conditions

Table 21: Prevalence of depression in those with ASD, table 5.

Source	Sample	Prevalence	Other Notes
Lever and Geurts (2016) [68]	n=138 (ASD), n=170 (non-ASD); Age: 19-79; Mental Health Institutions and online recruitment; Netherlands	Premenstrual Dysphoric Disorder: 20.9% (ASD), 2.7% (non-ASD)	p-value:$\leq$0.001
Brookman-Frazee et al. (2018) [16]	n=201 (ASD); Age: 4-14; data from community effectiveness trial; Southern California; 2012-15; MINI-KID-P	Manic episode (lifetime): 5% (ASD); Hypomaniac episode (lifetime): 3%	

1.3 Schizophrenia Spectrum Disorders

Psychosis/Psychotic Disorders

Table 22: Prevalence of psychosis and psychotic disorders in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Psychosis: 6.30% (ASD), 0.55% (non-ASD)	Chi-square p value: <0.0001
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	1.7% (ASD), 0.4% (non-ASD)	aOR (95% CI): 4.83 (3.46 - 6.73)
Hand et al. (2020) [34]	n=4685 (ASD), n=46850 (non-ASD); Age: ≥65; Medicare; 2016-17	Schizophrenia and psychotic disorders: 17.8% (ASD), 0.8% (non-ASD)	aOR: 25.3(22.4-28.7)
Bowden et al. (2020) [15]	n=8955 (ASD), n=1551342 (non-ASD); Age: 10-24; IDI database, New Zealand	Psychosis: 5.1% (ASD), 0.4% (non-ASD)	aOR: 15.9 (95% CI: 14.1-17.8) - standardized for age, sex, ethnicity, deprivation, and urban/rural
Tint et al. (2021) [113]	n=6870 (ASD), n=2686160 (non-ASD); Age: 15-44; Administrative health data, Canada, 2017-18	Psychotic mental illness: 9.1% (ASD), 1.1% (non-ASD)	Standard difference: 0.37
Rødgaard et al. (2021) [100]	n=11,914 (ASD, men), n=4212 (ASD, women); Age ≤16; Danish National Patient Registry	Psychotic disorder: 4% (men with ASD), 8% (women with ASD)	
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	Psychotic disorders: 4.3% (ASD, total), 0.3% (non-ASD, total); 4.0% (ASD, male), 4.8% (ASD, female), 0.3% (non-ASD, male), 0.3% (non-ASD, female)	Male vs female: HR: 1.18 (95% CI: 0.80-1.75), p:0.40 - adjusted for birth year ADHD, ID

Table 23: Prevalence of psychosis and psychotic disorders in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Mutluer et al. (2022) [85]	Review - 4 population and EHR studies (age 6-18)	Psychotic Disorders: 0.6% (overall), 1.1% (adolescents)	
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Other psychoses: 12.33% (ASD), 7.29% (non-ASD)	aOR: 1.75 (1.70 1.79)
Varcin et al. (2022) [120]	Meta-analysis, N=45, n=63,657	Pooled prevalence: 9.4% (95% CI = 7.52, 11.72)	
Underwood et al. (2022) [118]	n=7943 (core ASD), n=25941 (control); Age: ≥18; UK; SAIL Databank, 2001-16	18.30% (ASD), 2.30% (non-ASD)	
Tint et al. (2023) [114]	n=3220 (ASD, women), n=12920 (no DD, women), n=3217 (other DD, women), n=7426 (ASD, men), n=29687 (no DD, men), n=7398 (other DD, men); Canada; administrative and social services data - ICES	Psychotic psychiatric diagnosis: 12.7% (ASD, women), 0.7% (other DD, women), 9.1% (no DD, women), 13.7% (ASD, men), 1.0% (no DD, men), 10.5% (other DD, men)	aRR: 18.28 (95% 14.60-22.90) [ASD vs no DD, women], aRR: 1.46 (95% 1.27-1.69) [ASD vs other DD, women], aRR: 13.07 (95% 11.54-14.80) [ASD vs no DD, men], aRR: 1.35 (95% 1.24-1.48) [ASD vs other DD, men]
Lopez-Arvizu et al. (2025) [72]	n=41230 (ASD, ID, or both), n=29001 (ASD), n=27054 (ID); Age: 5-24; Medicaid (6+ months, Midwestern states); 2010-20	Psychosis or other thought disorders: 17.2% (ASD), 17.2% (ID), 14.6% (combined)	
Vaquerizo-Serrano et al. (2022) [119]	N=4, Meta-analysis	ASD: 11.6% (clinical high-risk for psychosis)	

Schizophrenia

Table 24: Prevalence of schizophrenia in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	7.83% (ASD), 0.37% (non-ASD)	Chi-square p value: <0.0001
Schendel et al. (2016) [104]	n=20492 (ASD), 1892412 (non-ASD); Age: >1.5; Danish Civil Registration Service and the Danish Medical Birth Register; born 1980-2010	Schizophrenia/schizotypal/or other delusional disorder: 5.6% (ASD), 0.7% (non-ASD)	
Vohra et al. (2017) [123]	n=1772 (ASD), n=5316 (non-ASD); Age: 22-64; three state Medicaid Analytic eXtract; 2000-08	Schizophrenia: 16.6% (ASD), 11.1% (non-ASD)	aOR (95% CI): 1.61 (1.38, 1.88), p:<0.001
Houghton et al. (2017) [44]	n=46943 (ASD, commercial), Truven Health MarketScan Commercial Database, 2014; n=46696 (ASD, Medicaid), Truven Health MarketScan Multi-State Medicaid Database; Age: >3	Schizophrenia: 1.09% (commercial), 2.29% (medicaid)	
Zheng et al. (2018) [130]	Meta-analysis; N=10 (Schizophrenia in ASD), N=6 (ASD in schizophrenia); n=14,945 (ASD), n=1,950,113 (non-ASD)	Schizophrenia: [odds ratio = 3.55, 95% CI: 2.08–6.05, P <.001]	
Lai, et al. (2019) [65]	Meta-analysis, N=96	4%	

Table 25: Prevalence of schizophrenia in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Hossain et al. (2020) [43]	Umbrella Review - N=8	Schizophrenia spectrum and other psychotic disorders: 4% - 67%	
Chien et al. (2021) [22]	n=3837 (ASD), n=38370 (non-ASD); Children; Taiwan's claims database; 2000, 2005, 2010	9.7/1,000 person year (ASD), 0.3/1,000 person year (non-ASD)	Crude hazard ratio: 30.7 (25.2–37.3)
Jadav and Bal (2022) [52]	n=4657 (ASD); Adults; online survey, SPARK; 2022	Schizophrenia, other psychosis or schizoaffective disorder: 4.5%	
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	11.23% (ASD), 9.3% (non-ASD)	aOR: 1.21 (1.18 1.24)
Underwood et al. (2022) [118]	n=7943 (core ASD), n=25941 (control); Age: ≥18; UK; SAIL Databank, 2001-16	5.20% (ASD), 0.70% (non-ASD)	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=29 [N=20 (clinical studies from community samples), N=9 (population/registry based)], n=65841	Pooled prevalence: 10%, Range: 7% - 13%	
Rim et al. (2023) [95]	n=381 (ASD), n=6179 (non-ASD); Age: 0-19; National Health Insurance System National Sample Cohort; South Korea; 2002–13	2.69% (ASD), 0.06% (non-ASD)	aOR: 32.05 (19.51,52.66)
Semovski et al. (2023) [106]	n=2020 (ASD); Age: 12-18; records + interviews; Canada	Schizophrenia or other psychotic disorders: 1.3% (ASD)	

Table 26: Prevalence of schizophrenia in those with ASD, table 4.

Source	Sample	Prevalence	Other Notes
Longo et al. (2024) [71]	n=30258 (ASD), n=60516 (non-ASD); Age: 18-64; IBM Market Scan Commercial Claims and Encounters Database; 2019-20	Schizophrenia and psychotic disorders: 6.8% (ASD), 0.9% (non-ASD)	aOR: 7.4 (95% CI: 6.7, 8.2)
Hsu et al. (2024) [45]	n=22698 (ASD), [n=19191 (male), n=3507 (female)]; Age: 2-19; Taiwan's National Health Insurance Research Database; 2001-11; ICD-9	Schizophrenia: 1.8% (ASD, total); 1.4% (ASD, male), 3.5% (ASD, female)	RR: 0.45 (95% CI: 0.36-0.57) [Male vs female (ref)] - adjusted for age, income, residence, and parental psychiatric disorders. RR: 0.66 (95% CI: 0.49-0.89) [Parental psychiatric disorders - Male vs female (ref)] - adjusted for age, income, residence
Diemer et al. (2025) [27]	n=1424 (ASD); Adult; SPARK	Schizophrenia: 3.79% (total), 3.67% (diagnosed <18), 3.85% (diagnosed >18)	p-value 0.862 (between age groups)
Lacroix et al. (2025) [64]	Narrative and Quantitative Review; N = 9, n= 56329 (ASD, female), n= 155068 (ASD, male);excluded papers with less than 12.5% females	Schizophrenia spectrum and other psychotic disorders, Pooled prevalence [95% CI]: 8.5% [5.6-12.7] (ASD, female), 6.3% [3.8-10.3] (ASD, male)	p: 0.004, OR: 1.37

Table 27: Prevalence of ASD in those with schizophrenia.

Source	Sample	Prevalence	Other Notes
Zheng et al. (2018) [130]	Meta-analysis; N=6 (ASD in schizophrenia); n=930	ASD: ASD: 3.4 to 52%	

1.4 Personality Disorders

Table 28: Prevalence of personality disorders in those with ASD

Source	Sample	Prevalence	Other Notes
Schendel et al. (2016) [104]	n=20492 (ASD), 1892412 (non-ASD); Age: >1.5; Danish Civil Registration Service and Medical Birth Register; born 1980-2010	Disorders of adult personality and behavior: 3.4% (ASD), 1.2% (non-ASD)	
Vohra et al. (2017) [123]	n=1772 (ASD), n=5316 (non-ASD); Age: 22-64; three state Medicaid Analytic eXtract; 2000-08	Personality disorders: 2.5% (ASD), 2.0% (TD)	aOR (95% CI): 1.26 (0.89, 1.81), p: ns
Hand et al. (2020) [34]	n=4685 (ASD), n=46850 (non-ASD); Age: ≥65; Medicare; 2016-17	Personality disorders: 3.1% (ASD), 0.1% (non-ASD)	aOR: 24.1(17.8-32.5)
Bowden et al. (2020) [15]	n=8955 (ASD), n=1551342 (non-ASD); Age: 18-24; IDI database, New Zealand	Personality: 2.4% (ASD), 0.3% (non-ASD)	aOR: 9.0 (95% CI: 6.3-11.8) - age, sex, ethnicity, deprivation, and urban/rural standardized
May et al. (2021) [81]	N=12	BPD: 4%	[95% CI 0%–9%]. ASD in BPD, 3% [95% CI 1%–8%]
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=14 [N=10 (clinical studies from community samples), N=4 (population/registry based)], n=8306	Personality disorders: Pooled prevalence: 7%, Range: 4% - 10%	
Longo et al. (2024) [71]	n=30258 (ASD), n=60516 (non-ASD); Age: 18-64; IBM Market Scan Commercial Claims and Encounters Database; 2019-20	Personality disorders: 3.2% (ASD), 0.5% (non-ASD)	aOR: 6.3 (95% CI: 5.5, 7.2)
Diemer et al. (2025) [27]	n=1424 (ASD); Adult; SPARK	Personality disorder: 12.35% (total), 11.63% (diagnosed <18), 12.65% (diagnosed >18)	p-value 0.58 (between age groups)
Lacroix et al. (2025) [64]	N =5, n= 40828 (ASD, female), n= 106579 (ASD, male); Narrative and Quantitative Review; excluded papers with less than 12.5% females	Personality disorders, Pooled prevalence [95% CI]: 6.8% [3.4-13.1] (ASD, female), 4.5% [2.0-9.9] (ASD, male)	p:0.003, OR: 1.55

1.5 Substance and Addiction Related Disorders

Table 29: Prevalence of behavioral addictions in those with ASD.

Source	Sample	Prevalence	Other Notes
Kervin et al. (2021) [57]	N=30; Systematic Review	N=27 (more common), N=1 (significantly less common), N=3 (no significant difference)	

Table 30: Prevalence of substance abuse issues in those with ASD, table 1

Source	Sample	Prevalence	Other Notes
Arnevik and Helverschou (2016) [6]	Systematic Review; N=1; Helverschou et al, 2015 (n=48)	Substance abuse: 15%	
Lever and Geurts (2016) [68]	n=138 (ASD), n=170 (non-ASD); Age: 19-79; Mental Health Institutions and online recruitment; Netherlands	Substance-related disorder: 15.9% (ASD), 25.3% (non-ASD)	p-value:≤0.5
Butwicka et al. (2017) [18]	n=26986 (ASD), n=1349300 (non-ASD); Sweden; Population Register; Born: January 1, 1973 - December 31, 2009	Substance problem: 4.0% (ASD), 1.3% (non-ASD); Substance use disorder: 3.6% (ASD), 0.8% (non-ASD)	Univariate crude OR: 3.3 (3.1-3.6); 5.2 (4.9-5.6)
Weiss, et al. (2017) [125]	n=5085 (ASD), n=393,263 (no developmental disorder); Age: 18-24; Administrative health data, Canada	Substance related and addictive disorder diagnosis: 5.16% (ASD), 3.17% (non-ASD)	aOR: 1.58 (1.39-1.79)
Vohra et al. (2017) [123]	n=1772 (ASD), n=5316 (non-ASD); Age: 22-64; three state Medicaid Analytic eXtract; 2000-08	Alcohol or substance abuse: 2.0% (ASD), 17.8% (non-ASD)	0.09 (0.07, 0.13), p:<0.001
Hossain et al. (2020) [43]	Umbrella Review - N=2	Substance use disorder: 0.7% - 36%	
Hand et al. (2020) [34]	n=4685 (ASD), n=46850 (non-ASD); Age: ≥65; Medicare; 2016-17	Substance use disorder: 9.2% (ASD), 9.4% (non-ASD)	aOR: 0.9(0.9-1.0)
Ressel et al. (2020) [93]	N=26, systematic review and qualitative synthesis	Substance abuse: 1.3% - 36%	
Tint et al. (2021) [113]	n=6870 (ASD), n=2686160 (non-ASD); Age: 15-44; Administrative health data, Canada, 2017-18	Substance use disorder: 2.4% (ASD), 1.1% (non-ASD)	Standard difference: 0.10 t
Brooks et al. (2021) [17]	n=1062 (ASD), n=79175 Age: 1-24; Canada; Electronic Medical Record Primary Care database	Substance-related disorders: 0.8% (ASD), 0.8% (non-ASD)	Prevalence ratio: 1.08 (95% CI: 0.55, 2.16) - adjusted for age, sex, neighborhood income, geographic location

Table 31: Prevalence of substance abuse issues in those with ASD, table 2

Source	Sample	Prevalence	Other Notes
Yule (2021) [4]	n=230 (ASD), n=219 (ADHD), n=230 (controls, age matched); age: $\geq$ 12; 2007-16; high functioning ASD - academic center	Substance abuse, any (lifetime): 13% (ASD), 36% (ADHD), 19% (control)	p: <0.001 (ASD vs ADHD), p: $\geq$0.05 (ASD vs controls)
Huang et al. (2021) [46]	n=6599 (ASD), n=26396 (non-ASD); controls age, sex, date matched 1:4; Taiwan National Health Insurance Research Database; ICD-9; 2000-15	SUD: 1.94% (ASD), 1.55% (non-ASD); 723 per 100-000 person-years (ASD), 350 per 100000 person-years (non-ASD)	aHR: 2.33 (95% CI: 1.89-2.87). Adjusted based on psychotherapy, age, sex, education, martial status, psychiatric comorbidities, CCI score, season of diagnosis, levels of care, hospitalizations, length of admission, residence, income, and follow up period
Roux et al. (2022) [96]	n=209795 (ASD), n=790719 (ID), n=123705 (ASD+ID), n=1768499 (control); Age: 11-64; Medicaid, all states + Washington DC; ICD-9; 2008-12	SUD, any: 3.08% (ASD), 3.01% (ASD+ID), 5.70% (ID), 7.52% (control)	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=18 [N=13 (clinical studies from community samples), N=5 (population/registry based)], n=20311	Substance use disorder: Pooled prevalence: 5%, Range: 2% - 11%	
Longo et al. (2024) [71]	n=30258 (ASD), n=60516 (non-ASD); Age: 18-64; IBM Market Scan Commercial Claims and Encounters Database; 2019-20	Substance Abuse Disorders: 6.7% (ASD), 6.7% (non-ASD)	aOR: 1.0 (95% CI: 1.0, 1.1)
Lushin et al. (2025) [73]	n=388426 (ASD), n=745699 (non-ASD); Age 11-64; Medicare Claims data; USA; 2008-16	Any substance abuse disorder: 6.52% (ASD), 16.31% (non-ASD)	aOR: 0.28, (95% CI: 0.27, 0.28), p-value:<0.0001 - includes alcohol, cannibis, opiods, hallucinogens, and drugs

Table 32: Prevalence of substance abuse issues in those with ASD, table 3

Source	Sample	Prevalence	Other Notes
Diemer et al. (2025) [27]	n=1424 (ASD); Adult; SPARK	Substance abuse: 8.85% (total), 6.94% (diagnosed <18), 9.86% (diagnosed >18)	p-value 0.065 (between age groups)
Garcia et al. (2025) [31]	n=22911 (ASD), n=647029 (non-ASD); Child and Caregiver Linked Utilization and Outcomes Database (CCOULD) [children in both Medicaid and child welfare system in Florida (January 2017–June 2021) and Kentucky (January 2017–January 2020)]	Any SUD: 1.7% (ASD), 3.8% (non-ASD);	OR (vs autism): 0.45, 95% CI [.41-0.50], p: <0.001
Lopez-Arvizu et al. (2025) [72]	n=41230 (ASD, ID, or both), n=29001 (ASD), n=27054 (ID); Age: 5-24; Medicaid (6+ months, Midwestern states); 2010-20	Substance abuse: 5.6% (ASD), 7.3% (ID), 6.2% (combined)	

1.5.1 Alcohol

Table 33: Prevalence of alcohol use issues in those with ASD, table 1

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Alcohol abuse: 2.19% (ASD), 3.92% (non-ASD)	Chi-square p value: 0.0008
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Alcohol dependence: 1.06% (ASD), 1.96% (non-ASD)	Chi-square p value: 0.014
Butwicka et al. (2017) [18]	n=26986 (ASD), n=1349300 (non-ASD); Sweden; Population Register; Born: January 1, 1973 - December 31, 2009	Alcohol problem: 2.1% (ASD), 0.6% (non-ASD)	Univariate crude OR: 4.0 (3.7-4.4)
Yule (2021) [4]	n=230 (ASD), n=219 (ADHD), n=230 (controls, age matched); age: $\geq$ 12; 2007-16; high functioning ASD - academic center	Substance abuse, alcohol (lifetime): 11% (ASD), 29% (ADHD), 16% (control)	p: $<$0.001 (ASD vs ADHD), p: $\geq$0.05 (ASD vs controls)
Huang et al. (2021) [46]	n=6599 (ASD), n=26396 (non-ASD); controls age, sex, date matched 1:4; Taiwan National Health Insurance Research Database; ICD-9; 2000-15	Alcohol use disorder: 1.27% (ASD), 1.13% (non-ASD); 474 per 100-000 person-years (ASD), 256 per 100000 person-years (non-ASD)	aHR: 2.07 (95% CI: 1.60-2.63). Adjusted based on psychotherapy, age, sex, education, martial status, psychiatric comorbidities, CCI score, season of diagnosis, levels of care, hospitalizations, length of admission, residence, income, and follow up period

Table 34: Prevalence of alcohol use issues in those with ASD, table 2

Source	Sample	Prevalence	Other Notes
Weir et al. (2021) [124]	n=1182 (ASD), n=1202 (non-ASD); Age: 16-90; survey - Autism and Physical Health Survey; Feb 2018- Aug 2019	Consumes alcohol ≥3 days per week: 15.99% (ASD), 22.21% (non-ASD); Consumes ≥5 alcoholic beverages per session: 3.81% (ASD), 8.15% (non-ASD)	OR (95% CI) - adjusted for age, sex, ethnicity, education, country of residence: 0.69 (0.55-0.86), p: 0.0022 [days per week]; 0.38 (0.26-0.56), p:<0.0001 [beverages per session]
Kaltenegger et al. (2021) [55]	Age 15: n=250 (ASD), n=9800 (non-ASD); Age: 18 n=163 (ASD), n=7768 (non-ASD); Age: 24 n=83 (ASD), n=2799 (non-ASD); Study is longitudinal and the age groups are not exclusive nor a continuous group 82-85% of population retained through sampling points; Child and Adolescent Twin Study in Sweden; phone interview;	Hazardous/harmful alcohol use: 3.60% (ASD, age 15, all), 5.38% (non-ASD, age 15, all), 9.20% (ASD, age 18, all), 27.19% (non-ASD, age 18, all), 13.25% (ASD, age 24, all), 27.26% (non-ASD, age 24, all); By sex: 1.76% (ASD, age 15, male), 7.50% (ASD, age 15, female), 4.42% (non-ASD, age 15, male), 6.17% (non-ASD, age 15, male), 9.35% (ASD, age 18, male), 8.93% (ASD, age 18, female), 20.23% (non-ASD, age 18, male), 32.17% (non-ASD, age 18, male), 14.58% (ASD, age 24, male), 11.43% (ASD, age 24, female), 24.65% (non-ASD, age 24, male), 29.23% (non-ASD, age 24, male)	p: 0.275 (Age 15, ASD vs non, all sex), p: <0.001 (Age 18, ASD vs non, all sex), p: 0.007 (Age 24, ASD vs non, all sex)
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	Alcohol use disorders: 2.6% (ASD, total), 0.8% (non-ASD, total); 2.3% (ASD, male), 3.2% (ASD, female), 0.8% (non-ASD, male), 0.8% (non-ASD, female)	Male vs female: HR: 0.72 (95% CI: 0.42-1.21), p:0.21 - adjusted for birth year ADHD, ID

Table 35: Prevalence of alcohol use issues in those with ASD, table 3

Source	Sample	Prevalence	Other Notes
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Alcohol abuse/dependence: 2.41% (ASD), 5.21% (non-ASD)	aOR: 0.42 (0.41 0.44)
Underwood et al. (2022) [118]	n=7943 (core ASD), n=25941 (control); Age: ≥18; UK; SAIL Databank, 2001-16	Alcohol Misuse: 3.9% (ASD), 3.2% (non-ASD)	
Barber et al. (2025) [8]	Review	Alcohol use disorder: Clinical: 16.1% (pooled), 6.7%-39% (range); Population: 1.6% (pooled), 0.7%-9.5% (range)	
Lushin et al. (2025) [73]	n=388426 (ASD), n=745699 (non-ASD); Age 11-64; Medicare Claims data; USA; 2008-16	Alcohol use disorder: 1.82% (ASD), 3.50% (non-ASD)	aOR: 0.40, (95% CI: 0.39, 0.42), p-value:<0.0001
Garcia et al. (2025) [31]	n=22911 (ASD), n=647029 (non-ASD); Child and Caregiver Linked Utilization and Outcomes Database [children in both Medicaid and child welfare system in Florida (Jan 2017–June 2021) and Kentucky (Jan 2017–Jan 2020)]	Alcohol SUB: 0.4% (ASD), 0.9% (non-ASD)	OR: 0.43 [CI: 0.35-0.53], p: <0.001

1.5.2 Drugs

Table 36: Prevalence of drug use issues in those with ASD, table 1

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Drug abuse: 2.59% (ASD), 2.77% (non-ASD)	Chi-square p value: 0.67
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Drug dependence: 1.79% (ASD), 2.16% (non-ASD)	Chi-square p value: 0.35
Butwicka et al. (2017) [18]	n=26986 (ASD), n=1349300 (non-ASD); Sweden; Population Register; Born: January 1, 1973 - December 31, 2009	Drug problems: 2.1% (ASD), 0.3% (non-ASD)	Univariate crude OR: 8.5 (7.7-9.3)
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	Drug abuse/dependence: 1.5% (ASD), 2.2% (non-ASD)	aOR (95% CI): 0.65 (0.50 - 0.85)
Yule (2021) [4]	n=230 (ASD), n=219 (ADHD), n=230 (controls, age matched); age: $\geq$ 12; 2007-16; high functioning ASD - academic center	Substance abuse, drugs (lifetime): 6% (ASD), 24% (ADHD), 8% (control)	p: $<$0.05 (ASD vs ADHD), p: $\geq$(ASD vs controls), p: 0.32 (ADHD vs controls)
Huang et al. (2021) [46]	n=6599 (ASD), n=26396 (non-ASD); controls age, sex, date matched 1:4; Taiwan National Health Insurance Research Database; ICD-9; 2000-15	Drug use disorder: 0.67% (ASD), 0.42% (non-ASD); 248 per 100-000 person-years (ASD), 95 per 100000 person-years (non-ASD)	aHR: 2.33 (95% CI: 1.89-2.87). Adjusted based on psychotherapy, age, sex, education, martial status, psychiatric comorbidities, CCI score, season of diagnosis, levels of care, hospitalizations, length of admission, residence, income, and follow up period

Table 37: Prevalence of drug use issues in those with ASD, table 2

Source	Sample	Prevalence	Other Notes
Weir et al. (2021) [124]	n=1182 (ASD) [n=746 (female), n=437 (male)], n=1202 (non-ASD) [n=824 (female), n=378 (male)]; Age: 16-90; survey - Autism and Physical Health Survey; Feb 2018- Aug 2019	Ever used drugs: 37.58% (ASD, female), 35.77% (non-ASD, female), 35.40% (ASD, male), 52.65% (non-ASD, male)	OR (95% CI) - adjusted for age, sex, ethnicity, education, country of residence: 1.11 (0.82-1.50), p: 1.00 [Ever, female], 0.53 (0.35-0.80), p: 0.0022 [Ever, male]
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Drug abuse/dependence: 3.89% (ASD), 7.55% (non-ASD)	aOR: 0.42 (0.40 0.43)
Underwood et al. (2022) [118]	n=7943 (core ASD), n=25941 (control); Age: ≥18; UK; SAIL Databank, 2001-16	Drug Misuse; 4.10% (ASD), 2.80% (non-ASD)	
Lushin et al. (2025) [73]	n=388426 (ASD), n=745699 (non-ASD); Age 11-64; Medicare Claims data; USA; 2008-16	Opioids Use Disorder: 0.61% (ASD), 2.77% (non-ASD)	aOR: 0.19, (95% CI: 0.19, 0.2), p-value:<0.0001
Lushin et al. (2025) [73]	n=388426 (ASD), n=745699 (non-ASD); Age 11-64; Medicare Claims data; USA; 2008-16	Hallucinogens abuse: 0.07% (ASD), 0.08% (non-ASD)	aOR: 0.50, (95% CI: 0.42, 0.59), p-value:<0.0001
Lushin et al. (2025) [73]	n=388426 (ASD), n=745699 (non-ASD); Age 11-64; Medicare Claims data; USA; 2008-16	Drug use disorder: 2.98% (ASD), 6.59% (non-ASD)	aOR: 0.29, (95% CI: 0.28, 0.29), p-value:<0.0001
Garcia et al. (2025) [31]	n=22911 (ASD), n=647029 (non-ASD); Child and Caregiver Linked Utilization and Outcomes Database (CCOULD) [children in both Medicaid and child welfare system in Florida (January 2017–June 2021) and Kentucky (January 2017–January 2020)]	Opioid SUB: 0.1% (ASD), 1.1% (non-ASD); Sedative SUB: 0.2% (ASD), 0.3% (non-ASD); Cocaine SUB: 0.1% (ASD), 0.6% (non-ASD); Other stimulants SUB: 0.3% (ASD), 0.6% (non-ASD); Hallucinogen SUB: 0.1% (ASD), 0.1% (non-ASD); Other psychoactive SUB: 0.1% (ASD), 0.1% (non-ASD)	OR: 0.12 [CI: .08-.17], p: <0.001; OR: 0.58 [CI: .43-.80], p: <0.001; OR: 0.22 [CI: .16-.31], p: <0.001; OR: 0.40 [CI: .31-.52], p: <0.001; OR: 1.40 [CI: .89-2.19], p: ns; OR: 0.38 [CI: .31-.47], p: <0.001

1.5.3 Smoking

Table 38: Prevalence of smoking among those with ASD.

Source	Sample	Prevalence	Other Notes
Butwicka et al. (2017) [18]	n=26986 (ASD), n=1349300 (non-ASD); Sweden; Population Register; Born: January 1, 1973 - December 31, 2009	Tobacco problem: 0.1% (ASD), 0.0% (non-ASD)	Univariate crude OR: 6.4 (3.8-10.5)
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	Smoking: 5.7% (ASD), 12.0% (non-ASD)	aOR (95% CI): 0.40 (0.35-0.47)
Weir et al. (2021) [124]	n=1182 (ASD) [n=746 (female), n=437 (male)], n=1202 (non-ASD) [n=824 (female), n=378 (male)]; Age: 16-90; survey - Autism and Physical Health Survey; Feb 2018- Aug 2019	Ever smoked: 49.20% (ASD, female), 54.25% (non-ASD, female), 50.80% (ASD, male), 64.55% (non-ASD, male); Smokes weekly: 31.64% (ASD, female), 32.89% (non-ASD, female), 32.72% (ASD, male), 38.62% (non-ASD, male)	OR (95% CI) - adjusted for age, sex, ethnicity, education, country of residence: 0.81 (0.60-1.09), p: 0.47 [Ever, female], 0.50 (0.32-0.76), p: 0.0022 [Ever, male], 0.93 (0.68-1.29), p: 1.00 [Weekly, female], 0.64 (0.41-1.00), p: 0.077 [Weekly, male]
Yule (2021) [4]	n=230 (ASD), n=154 (ADHD), n=163 (controls, age matched); age: $\geq$ 12; 2007-16; high functioning ASD - academic center	Substance abuse, cigarette smoking (lifetime): 6% (ASD), 31% (ADHD), 9% (control)	p: $<$0.001 (ASD vs ADHD), p: $\geq$0.05 (ASD vs controls)
Lushin et al. (2025) [73]	n=388426 (ASD), n=745699 (non-ASD); Age 11-64; Medicare Claims data; USA; 2008-16	Cannabis Abuse: 2.02% (ASD), 2.78% (non-ASD)	aOR: 0.34, (95% CI: 0.33,0.35), p-value:$<$0.0001
Garcia et al. (2025) [31]	n=22911 (ASD), n=647029 (non-ASD); Child and Caregiver Linked Utilization and Outcomes Database [children in both Medicaid and Florida welfare system (Jan 2017–June 2021) and Kentucky (Jan 2017–Jan 2020)]	Cannabis SUB: 1.3% (ASD), 2.2% (non-ASD)	OR: 0.57 [CI: 0.51-0.64], p: $<$0.001

1.6 Trauma and Stressor Related Conditions

Table 39: Prevalence of trauma and trauma related conditions in those with ASD.

Source	Sample	Prevalence	Other Notes
Lever and Geurts (2016) [68]	n=138 (ASD), n=170 (non-ASD); Age: 19-79; Mental Health Institutions and online recruitment; Netherlands	PTSS: 2.9% (ASD), 0.6% (non-ASD)	P-value: $\leq$0.05
Hollocks et al. (2019) [41]	Review - N=5	PTSD: 1% (current), 5% (lifetime)	
Rumball (2019) [97]	Review, N=12 (group studies), n=703	PTSD: 0-17.4%	
Haruvi-Lamdan (2020) [36]	n=25 (ASD), n=25 (non-ASD); Age: 18-35; Online survey and in person interview	PTSD: 32% (ASD), 4% (non-ASD)	
Hoch and Youssef (2020) [39]	n=7695; Children and adolescents; community mental health provider; Minneapolis, Minnesota; 2013-18	PTSD: 4.25% (ASD), 14.83% (DD), 29.81% (mental health comparison group); Reactive Attachment Disorders or Acute Stress Disorders: 0.34% (ASD), 2.54% (DD), 1.73% (comparison group)	Trauma diagnoses - OR: 0.15 CI(0.12, 0.17), p: <0.001 [ASD vs mental health comparison group]
Rumball et al. (2020) [98]	n=59 (ASD), Age: 19-67; Online survey	PTSD: 45% (after DSM-5 trauma), 43% (after non-DSM-5 trauma)	
Rumball et al. (2021) [99]	n=38 (ASD), n=44 (TD); Age: 18-68; Online Survey	Traumatic evnts: 1+: 94.7% (ASD), 90.9% (non-ASD), 4+s: 63.2% (ASD), 34.1% (non-ASD); PTSD symptomatology after: 47% (ASD), 5% (non-ASD); PTSD: 45% (ASD), 4.5% (non-ASD)	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=12 [N=9 (clinical studies from community samples), N=3 (population/registry based)], n=21162	40 Trauma Stress Related Disorders: Pooled prevalence: 4%, Range: 0% - 10%	

Table 40: Prevalence of trauma and trauma related conditions in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Junewicz et al. (2024) [54]	n=289 (ASD), n=2439 (non-ASD); Age: 5-17; Psychiatric emergency department, NYC; 2019-21		Prevalence ratio: 0.58, 95% CI 0.41-0.80
Lopez-Arvizu et al. (2025) [72]	n=41230 (ASD, ID, or both), n=29001 (ASD), n=27054 (ID); Age: 5-24; Medicaid (6+ months, Midwestern states); 2010-20	Abuse/neglect: 6.6% (ASD), 8.1% (ID), 7.1% (combined)	
Mansour et al. (2025) [76]	Review, N=17 (children and young people (CYP)), N=13 (adults)	PTSD: 1.11% (95% CI: 0.32-2.38) (ASD, CYP), 2.06% (2.54-2.90) (ASD, adults)	

Attachment Disorder

Table 41: Prevalence of attachment disorder in those with ASD.

Source	Sample	Prevalence	Other Notes
Minnis et al. (2020) [83]	n=3349 (general population) Age: 5-6; growing up in Scotland database	Overlap: n=61 (1.8%); high RAD score: 43.9% (high ASD score), high ASD: 39.6% (high RAD score)	
Semovski et al. (2023) [106]	n=2020 (ASD); Age: 12-18; records + interviews; Canada	Reactive Attachment Disorder: 1.67% (ASD)	

1.7 Feeding and Eating Disorder

Nutrition

Table 42: Prevalence of nutrition issues in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Nutrition conditions, any: 37.23% (ASD), 18.72% (non-ASD)	Chi-square p value: <0.001
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Symptom concerning nutrition metabolism and development: 34.77% (ASD), 17.31% (non-ASD)	Chi-square p value: <0.001
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Vitamin deficiency: 4.98% (ASD), 2.28% (non-ASD)	Chi-square p value: <0.001
Vohra et al. (2017) [123]	n=1772 (ASD), n=5316 (non-ASD); Age: 22-64; three state Medicaid Analytic eXtract; 2000-08	Nutritional deficiency: 0.8% (ASD), 0.8% (non-ASD)	aOR (95% CI): 1.07 (0.59, 1.94), p: NS
Vohra et al. (2017) [123]	n=1772 (ASD), n=5316 (non-ASD); Age: 22-64; three state Medicaid Analytic eXtract; 2000-08	fluid or electrolyte dysfunction: 4.7% (ASD), 3.2% (non-ASD)	aOR (95% CI): 1.53 (1.17, 2.01), 0.001 $\leq$ p <0.01
Bishop-Fitzpatrick et al. (2018) [11]	n=91 (ASD), n=6186 (sex, birth year matched controls); Age: 0-89; EHR from Marshfield clinic - decedents - Wisconsin	Fluid or electrolyte disorder: 61.5% (ASD), 37.3% (non-ASD)	aOR: 2.79 (adjusted for age and sex), p: <0.001
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	Nutrition: 5.2% (ASD), 1.9% (non-ASD)	aOR (95% CI): 2.84 (2.38-3.38)

Table 43: Prevalence of nutrition issues in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Smith DaWalt et al. (2021) [26]	n=2187 (ASD) [n=1716 (male), n=471 (female)], n=21870 (non-ASD, age and sex matched) [n=17160 (male), n=4710 (female)]; Age:>18; EHRs - Marshfield Clinic - Wisconsin; ICD-9 codes	Nutrition conditions: 0.66 (female, ASD), 0.57 (male,ASD), 0.21 (female, control), 0.16 (male, control) [predicted probability]	OR: 7.02 (95% CI: 6.32-7.79), p:<0.001 [ASD status], OR: 1.03 (95% CI: 0.82-1.29) [ASD X Sex]
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Nutrition condition: 35.23% (ASD), 26.49% (non-ASD)	aOR: 1.38 (1.35 1.40)
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Symptom concerning nutrition metabolism: 32.03% (ASD), 23.46% (non-ASD)	aOR: 1.38 (1.36 1.41)
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Vitamin deficiency: 8.80% (ASD), 7.60% (non-ASD)	aOR: 1.13 (1.10 1.16)
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=3 [N=2 (clinical studies from community samples), N=1 (population/registry based)], n=6038	Organic Nutrition Disorder: Pooled prevalence: 22%, Range: 0% - 76%	
Agebjörn et al. (2025) [1]	n=63 (ASD or subthreshold ASD), n=27 (non-ASD); Age: 18-66; Psychiatric outpatients; MINI to evaluate PTSD; 2019-20	PTSD: 21% (ASD), 4% (non-ASD)	p: 0.056

Table 44: Prevalence of ASD in those nutrition issues.

Source	Sample	Prevalence	Other Notes
Reikersdorfer et al. (2024) [92]	n=265; Age: <18; National Inpatient Sample database; 2016-20	ASD: 62.2% (Scurvy)	

Eating

Table 45: Prevalence of eating disorders, general and specific, in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Koch et al. (2015) [62]	n= 12606 (ASD), n=5006 (non-ASD), n=1724189 (total); Denmark population study; study end: 2012	0.8% (Anorexia in ASD), 1.8% (ASD in Anorexia)	Primary anorexia nervosa, risk of secondary ASD HR (95% CI): 15.08 (12.23-18.58) (all), 22.04 (15.39-31.58) (males), 12.82 (9.94-16.53) (females); Primary ASD, risk of secondary anorexia nervosa: 5.39 (4.37-6.64) (all). Other probands examined and details available
Lever and Geurts (2016) [68]	n=138 (ASD), n=170 (non-ASD); Age: 19-79; Mental Health Institutions and online recruitment; Netherlands	Eating disorders: 5.8% (ASD), 0.6% (non-ASD)	p-value:$\leq$0.5
Margari et al. (2019) [77]	n=100 (ASD, male), n=59 (ASD, female)	Anorexia nervosa: 1% (ASD, male), 6.8% (ASD, female)	p: 0.004
Hossain et al. (2020) [43]	Umbrella Review - N=2	Eating disorders: 1.4% - 7.9%	
Bowden et al. (2020) [15]	n=8955 (ASD), n=1551342 (non-ASD); Age: 0-24; IDI database, New Zealand	Eating: 0.8% (ASD), 0.2% (non-ASD)	aOR: 6.5 (95% CI: 5.0-7.9) - standardized for age, sex, ethnicity, deprivation, and urban/rural
Rødgaard et al. (2021) [100]	n=11,914 (ASD, men), n=4212 (ASD, women); Age $\leq$16; Danish National Patient Registry	Eating disorders 1% (men with ASD), 7% (women with ASD)	
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	Anorexia nervosa: 1.1% (ASD, total), 0.4% (non-ASD, total); 0.2% (ASD, male), 2.8% (ASD, female), 0.0% (non-ASD, male), 0.8% (non-ASD, female)	Male vs female: HR: 0.48 (95% CI: 0.19-1.22), p:.12 - adjusted for birth year ADHD, ID

Table 46: Prevalence of eating disorders, general and specific, in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	Bulimia nervosa: 0.4% (ASD, total), 0.2% (non-ASD, total); 0.1% (ASD, male), 1.0% (ASD, female), 0.0% (non-ASD, male), 0.3% (non-ASD, female)	Male vs female: HR: 0.34 (95% CI: 0.04-2.92), p:0.33 - adjusted for birth year ADHD, ID
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	Other eating disorders: 2.3% (ASD, total), 0.7% (non-ASD, total); 0.6% (ASD, male), 5.6% (ASD, female), 0.1% (non-ASD, male), 1.3% (non-ASD, female)	Male vs female: HR: 0.47 (95% CI: 0.26-0.83), p:0.01 - adjusted for birth year ADHD, ID
Jadav and Bal (2022) [52]	n=4657 (ASD); Adults; Online survey, SPARK; 2022	Eating disorder: 10.3%	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=32 [N=26 (clinical studies from community samples), N=6 (population/registry based)], n=19,233	Feeding and Eating Disorders: Pooled prevalence: 32%, Range: 20% - 36%	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=14 [N=13 (clinical studies from community samples), N=1 (population/registry based)], n=12,721	Anorexia nervosa, bulimia nervosa, binge eating disorder: Pooled prevalence: 5%, Range: 2% - 10%	
Semovski et al. (2023) [106]	n=2020 (ASD); Age: 12-18; records + interviews; Canada	Eating disorders: 1.1% (ASD)	
Casati et al. (2024) [20]	Narrative Review	ARFID: 20-30%; (ASD); ASD: 8.2%-42% (ARFID)	

Table 47: Prevalence of ASD in those with eating disorders, general and specific.

Source	Sample	Prevalence	Other Notes
Sader et al. (2025) [101]	n=5734 (ASD), n=1708 (ARFID); Meta-analysis of N=21 (N=18 ARFID, N=3 ASD); 2010-24	ARFID: 11.41%	(95% CI = 2.89%–35.76%)
Diemer et al. (2025) [27]	n=1424 (ASD); Adult; SPARK	Eating disorder: 17.28% (total), 13.27% (diagnosed <18), 19.39% (diagnosed >18)	p-value 0.004 (between age groups)
Westwood et al. (2017) [126]	n=60 (anorexia nervosa, women), Age: >18	ADOS-2 clinical cutoff: 23.3%	
Carpita et al. (2020) [19]	N=10 , Review, 1992-2019	Range: 4% - 52.5%	
Boltri and Sapuppo (2021) [13]	Review, N=13	Autistic symptoms: 17.8% - 35% (acute Anorexia Nervosa); 24% - 24.5% (recovered Anorexia Nervosa)	
Sader et al. (2025) [101]	n=5734 (ASD), n=1708 (ARFID); Meta-analysis of N=21 (N=18 ARFID, N=3 ASD); 2010-24	ASD: 16.27%	(95% CI = 8.64%–28.53%)
Lacroix et al. (2025) [64]	Narrative and Quantitative Review; N =4, n= 14594 (ASD, female), n= 28049 (ASD, male); excluded papers with less than 12.5% females	Eating disorders, Pooled prevalence [95% CI]: 9.1% [6.5-12.6] (ASD, female), 1.6% [0.8-3.4] (ASD, male)	p: <0.001, OR: 6.10

1.8 Sleep-Wake Disorders

Table 48: Prevalence of sleep issues in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Sleep disorder, any: 17.58% (ASD), 9.60% (non-ASD)	Chi-square p value: <0.001
Elrod et al. (2016) [29]	n=48726 (ASD), n=243810 (non-ASD, age and sex controlled); Age:2-18; TRICARE database; ICD-9; 2000-13	Any sleep disorder: 30.66% (ASD), 13.92% (non-ASD)	p:0.28, RR: 1.97 (95% CI: 1.91-2.02)
Malow et al. (2016) [75]	1518 children age 4-10, 2008-2013, ATN registry, children's sleep habits questionnaire	Sleep diagnoses: 30%, Score $\geq$ 41: 71%	
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	Sleep disorder: 6.2% (ASD), 2.0% (non-ASD)	3.13 (2.66-3.68)
Houghton et al. (2017) [44]	n=46943 (ASD, commercial), Truven Health MarketScan Commercial Database, 2014; n=46696 (ASD, Medicaid), Truven Health MarketScan Multi-State Medicaid Database; Age: >3	Sleep disturbances: 5.73% (commercial), 9.42% (medicaid)	
Lai, et al. (2019) [65]	Meta-analysis, N=96	Sleep-wake disorders: 13%	

Table 49: Prevalence of sleep issues in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Won et al. (2019) [128]	n=440 (ASD), n=484 (ADHD), n=145 (ASD+ADHD); Age: <18; DBPNet Study; 2011-12	Diagnosed sleep disorder: 12.0% (ASD), 15.3% (ADHD), 16.6% (ASD+ADHD); Sleep disorder or PSG: 13.0% (ASD), 16.1% (ADHD), 18.6% (ASD+ADHD); Sleep disorder, PSG, or sleep medication: 15.5% (ASD), 18.0% (ADHD), 20.7% (ASD+ADHD); Sleep disorder, PSG, sleep medication, or Clonidine: 18.0% (ASD), 19.8% (ADHD), 24.8% (ASD+ADHD)	
Hand et al. (2020) [34]	n=4685 (ASD), n=46850 (non-ASD); Age: ≥65; Medicare; 2016-17	Sleep: 1.4% (ASD), 0.7% (non-ASD)	aOR: 2.2(1.7-2.8)
Bowden et al. (2020) [15]	n=8955 (ASD), n=1551342 (non-ASD); Age: 0-24; IDI database, New Zealand	Sleeping: 2.8% (ASD), 1.6% (non-ASD)	aOR: 2.5 (95% CI: 2.2-2.8) - standardized for age, sex, ethnicity, deprivation, and urban/rural
Bougeard et al. (2021) [14]	Review: N=7	Sleep disorder, Range: 2.08% - 72.50%	
Rødgaard et al. (2021) [100]	n=11,914 (ASD, men), n=4212 (ASD, women); Age ≤16; Danish National Patient Registry	Sleep disorder: 2% (men with ASD), 2% (women with ASD)	
Smith DaWalt et al. (2021) [26]	n=2187 (ASD) [n=1716 (male), n=471 (female)], n=21870 (non-ASD, age and sex matched) [n=17160 (male), n=4710 (female)]; Age:>18; EHRs - Marshfield Clinic - Wisconsin; ICD-9 codes	Sleep disorder: 0.20 (female, ASD), 0.22 (male,ASD), 0.07 (female, control), 0.07 (male, control) [predicted probability]	OR: 4.12 (95% CI: 3.62-4.68), p:<0.001 [ASD status], OR: 0.75 (95% CI: 0.57-1.00), p: <0.10 [ASD X Sex]

Table 50: Prevalence of sleep issues in those with ASD, table 3.

Source	Sample	Prevalence	Other Notes
Angell et al. (2021) [5]	n=18355 (ASD, girls), n=65145 (ASD, boys); Age: 1-21; healthcare claims data; integrates ICD-9 and ICD-10 codes	Sleep disorders: 31.39% (ASD, girls), 28.04% (ASD, boys)	aOR: 1.17 (95% CI: 1.13-1.21), p:<0.001 - adjusted for age, race, ethnicity, urbanicity, and insurance
Martini et al. (2022) [79]	n=20841 (ASD) [n=13712 (male, ASD), n=7129 (female, ASD)], n=1314912 (non-ASD) [n=671727 (male, non-ASD), n=643185 (female, non-ASD)]; Age: 16-24; Multiple national registers; Sweden; 2001-13	Sleep disorders: 30.7% (ASD, total), 5.1% (non-ASD, total); 27.0% (ASD, male), 37.8% (ASD, female), 4.2% (non-ASD, male), 6.1% (non-ASD, female)	Male vs female: HR: 0.88 (95% CI: 0.79-0.99), p:0.03 - adjusted for birth year ADHD, ID
Jadav and Bal (2022) [52]	n=4657 (ASD); Adults; online survey, SPARK; 2022	Sleep disorder: 26.6%	
Mutluer et al. (2022) [85]	Review - 8 population and EHR studies (age 6-18)	Sleep disorders: 19.7%	
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Sleep disorders: 11.92% (ASD), 10.73% (non-ASD)	aOR: 1.00 (0.97 1.02)
Koceski and Trajkovski (2022) [61]	n=72 (ASD), n=75 (non-ASD); Age: 3-24; Rochester Health Status Survey IV, Macedonia; 2019	Sleep problems: 18% (ASD), 0% (non-ASD)	p:0.000
Masi et al. (2022) [80]	n=969 (ASD), n=188 (siblings), n=111 (non-ASD, non-related); Age: 2-17; caregiver filled out CSHQ	CSHQ above clinical cutoff: 73.4% (ASD), 54.3% (siblings), 43.2% (non-ASD, non-related)	
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=29 [N=16 (clinical studies from community samples), N=13 (population/registry based)], n=203287	Sleep-wake disorder: Pooled prevalence: 25%, Range: 18% - 34%	

Table 51: Prevalence of sleep issues in those with ASD, table 4.

Source	Sample	Prevalence	Other Notes
Micai et al. (2023) [82]	Meta-analysis of observational studies, N=26 [N=18 (clinical studies from community samples), N=8 (population/registry based)], n=18482	Sleep-wake problem: Pooled prevalence: 43%, Range: 36% - 50%	
Estes et al. (2023) [30]	age: 6–12, n=250 (ASD), n=114 (non-ASD)	Sleep problems: 84.4% (ASD, females), 65.8% (ASD, males), 44.8% (non-ASD, females), 42.4% (non-ASD, males)	
Semovski et al. (2023) [106]	n=2020 (ASD); Age: 12-18; records + interviews; Canada	Sleep disorders: 1.9% (ASD)	
Khachadourian et al. (2023) [58]	n=42569 (ASD), n=11389 (non-ASD siblings); SPARK; Age: <18 at time of registration; 1999-2019	Sleep disorders, estimated: 21% (ASD), 3% (non-ASD)	p: <0.05
Kennedy et al. (2024) [56]	n=246 (ASD); Connecticut Children's Medical Center ASD Assessment Program electronic records; 2018-19	Sleep dysregulation: 35.4%	
Longo et al. (2024) [71]	n=30258 (ASD), n=60516 (non-ASD); Age: 18-64; IBM Market Scan Commercial Claims and Encounters Database; 2019-20	Sleep disorders: 3.3% (ASD), 1.0% (non-ASD)	aOR: 3.5 (95% CI: 3.2, 3.9)
Diemer et al. (2025) [27]	n=1424 (ASD); Adult; SPARK	Sleep diagnosis: 31.81% (total), 33.47% (diagnosed <18), 30.87% (diagnosed >18)	p-value 0.317 (between age groups)

Table 52: Prevalence of sleep issues in those with ASD, table 5.

Source	Sample	Prevalence	Other Notes
Toman et al. (2025) [115]	n=240 (ASD); Al-Subtain Academy, Imam Hussein Centre, Baghdad's National Centre; 2024	≥1 sleep issue: 74.2%; Difficulty falling asleep: 40.4%, Sleepwalking: 10.8%, Waking up during the early morning: 31.3%, Problems arising during the morning: 14.2%, Day-time sleepiness: 7.1%, Sleep-onset associated problems (ie co-sleeping, etc): 32.5%; Difficulty breathing or snoring during sleep: 16.7%, Teeth grinding: 12.1%, Confusional arousal: 14.2%, Behavioral disorders during sleep: 19.2%	
Soke et al. (2018) [108]	n=783 (ASD, age: 4), n=1091 (ASD, age; 8), ADDMN - 5 sites (Arizona, Missouri, New Jersey, Utah, and Wisconsin), 2010	Sleep abnormalities: 26.95% (ASD, age: 4), 37.12% (ASD, age: 8)	Adjusted prevalence, 95% CI: 1.34 (1.15, 1.56) [8 vs 4 years] - adjusted for sex, ethnicity, maternal education, location

1.8.1 Dyssomnia

Table 53: Prevalence of dyssomnia in those with ASD.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Dyssomnia: 15.66% (ASD), 7.85% (non-ASD)	Chi-square p value: <0.001
Davignon, et al. (2018) [25]	n=4123 (ASD), n=20615 (non-ASD, non-ADHD); Age: 14-25; Kaiser Permanente Northern California, 2013-15	Dyssomnia: 5.2% (ASD), 1.7% (non-ASD)	aOR (95% CI): 2.98 (2.50-3.56)
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Dyssomnia: 10.18% (ASD), 8.65% (non-ASD)	aOR: 1.05 (1.02 1.07)

1.8.2 Sleep-Disordered Breathing

Table 54: Prevalence of issues breathing during sleep in those with ASD.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Organic sleep apnea: 4.25% (ASD), 2.68% (non-ASD)	Chi-square p value: 0.005
Elrod et al. (2016) [29]	n=48726 (ASD), n=243810 (non-ASD, age and sex controlled); Age:2-18; TRICARE database; ICD-9; 2000-13	Sleep-disordered breathing: 9.26% (ASD), 4.07% (non-ASD)	p: <0.01, RR: 1.96 (95% CI: 1.88-2.05)
Tomkies et al. [116]	n=45 (ASD); Age: 2-18; EHR from Children's Medical Center Sleep Disorders Center of Dallas; 2009-15	Obstructive sleep apnea: 58%	
Dizitzer et al. (2020) [28]	n=459 (ASD), n=2285 (non-ASD); Children, southern Israel, Negev Autism Center database, born 2009-16, controls age, sex, ethnicity matched	Sleep apnea: 1.1% (ASD), 0.8% (non-ASD)	OR: 1.39 (95% CI: 0.51-3.76), p:0.518
Chen et al. (2021) [21]	n=1310 (ASD), n=1158 (non-ASD); Age: 2-7; China Multi-Center Pre-school Autism Project; 2018-19; Children's sleep habits questionnaire (CSHQ)	Sleep Disordered Breathing: 5.3% (ASD), 1.3% (non-ASD)	p:<0.001
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Organic sleep apnea: 5.25% (ASD), 5.99% (non-ASD)	aOR: 0.80 (0.77 0.82)
Scarpelli et al. (2024) [103]	n=242 (ASD); Age 2-17; Child and Adolescent Neuropsychiatry Unit of the Bambino Gesù Children's Hospital; Rome; 2021-22; Sleep Disturbance Scale for Children	Sleep breathing disorders: 14.9% (ASD)	

1.8.3 Other Sleep Disorders

Table 55: Prevalence of other sleep issues in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Elrod et al. (2016) [29]	n=48726 (ASD), n=243810 (non-ASD, age and sex controlled); Age:2-18; TRICARE database; ICD-9; 2000-13	Circadian rhythm disorder: 0.62% (ASD), 0.09% (non-ASD)	p:<0.01, RR: 5.92 (95% CI: 4.94-7.10)
Elrod et al. (2016) [29]	n=48726 (ASD), n=243810 (non-ASD, age and sex controlled); Age:2-18; TRICARE database; ICD-9; 2000-13	Hypersomnia: 0.75% (ASD), 0.17% (non-ASD)	p: 0.69, RR: 3.96 (95% CI: 3.42-4.59)
Elrod et al. (2016) [29]	n=48726 (ASD), n=243810 (non-ASD, age and sex controlled); Age:2-18; TRICARE database; ICD-9; 2000-13	Narcolepsy: 0.22% (ASD), 0.04% (non-ASD)	p: 0.49, RR: 4.82 (95% CI: 3.62-6.40)
Elrod et al. (2016) [29]	n=48726 (ASD), n=243810 (non-ASD, age and sex controlled); Age:2-18; TRICARE database; ICD-9; 2000-13	Parasomnias: 1.52% (ASD), 0.51% (non-ASD)	p: 0.99, RR: 2.56 (95% CI: 2.33-2.82)
Chen et al. (2021) [21]	n=1310 (ASD), n=1158 (non-ASD); Age: 2-7; China Multi-Center Pre-school Autism Project; 2018-19; Children's sleep habits questionnaire (CSHQ)	Parasomnia: 7.4% (ASD), 4% (non-ASD)	p:<0.001
Scarpelli et al. (2024) [103]	n=242 (ASD); Age 2-17; Child and Adolescent Neuropsychiatry Unit of the Bambino Gesù Children's Hospital; Rome; 2021-22; Sleep Disturbance Scale for Children	Parasomnias: 20.2%	

Table 56: Prevalence of other sleep issues in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Elrod et al. (2016) [29]	n=48726 (ASD), n=243810 (non-ASD, age and sex controlled); Age:2-18; TRICARE database; ICD-9; 2000-13	Restless limb syndrome/periodic limb movement disorder: 0.69% (ASD), 0.13% (non-ASD)	p: 0.20, RR: 4.73 (95% CI: 4.02-5.56)
Elrod et al. (2016) [29]	n=48726 (ASD), n=243810 (non-ASD, age and sex controlled); Age:2-18; TRICARE database; ICD-9; 2000-13	Sleep disorder, not otherwise specified: 21.72% (ASD), 10.77% (non-ASD)	p: 0.22, RR: 1.78 (95% CI: 1.73-1.84)
Elrod et al. (2016) [29]	n=48726 (ASD), n=243810 (non-ASD, age and sex controlled); Age:2-18; TRICARE database; ICD-9; 2000-13	Insomnia: 9.52% (ASD), 1.58% (non-ASD)	p:<0.01, RR: 5.40 (95% CI: 5.14-5.67)
Ivanović (2021) [51]	n=152 (ASD); Mean age: 8.02 (4.26); Autism Center, Montenegro	Insomnia: 7.89%	
Berloco et al. (2024) [10]	n=270 (ASD); Age: 1.8-9.6; Child and Adolescent Neuropsychiatry Unit of Bambino Gesu`	Chronic insomnia: 32%	
Chen et al. (2021) [21]	n=1310 (ASD), n=1158 (non-ASD); Age: 2-7; China Multi-Center Pre-school Autism Project; 2018-19; Children's sleep habits questionnaire (CSHQ)	Bedtime Resistance: 25.6% (ASD), 15.9% (non-ASD)	p:<0.001
Chen et al. (2021) [21]	n=1310 (ASD), n=1158 (non-ASD); Age: 2-7; China Multi-Center Pre-school Autism Project; 2018-19; Children's sleep habits questionnaire (CSHQ)	Sleep Onset Delay: 17.9% (ASD), 12.8% (non-ASD)	p:<0.001

Table 57: Prevalence of other sleep issues in those with ASD, table 3.

Source	Sample	Prevalence	Other Notes
Chen et al. (2021) [21]	n=1310 (ASD), n=1158 (non-ASD); Age: 2-7; China Multi-Center Pre-school Autism Project; 2018-19; Children's sleep habits questionnaire (CSHQ)	Sleep Duration: 9.4% (ASD), 6% (non-ASD)	p: <0.001
Chen et al. (2021) [21]	n=1310 (ASD), n=1158 (non-ASD); Age: 2-7; China Multi-Center Pre-school Autism Project; 2018-19; Children's sleep habits questionnaire (CSHQ)	Sleep Anxiety: 22.7% (ASD), 15.7% (non-ASD)	p:<0.001
Chen et al. (2021) [21]	n=1310 (ASD), n=1158 (non-ASD); Age: 2-7; China Multi-Center Pre-school Autism Project; 2018-19; Children's sleep habits questionnaire (CSHQ)	Night Waking: 5% (ASD), 1.5% (non-ASD)	p:<0.001
Chen et al. (2021) [21]	n=1310 (ASD), n=1158 (non-ASD); Age: 2-7; China Multi-Center Pre-school Autism Project; 2018-19; Children's sleep habits questionnaire (CSHQ)	Daytime Sleepiness: 14.7% (ASD), 6% (non-ASD)	p:<0.001

Table 58: Prevalence of other sleep issues in those with ASD, table 4.

Source	Sample	Prevalence	Other Notes
Scarpelli et al. (2024) [103]	n=242 (ASD); Age 2-17; Child and Adolescent Neuropsychiatry Unit of the Bambino Gesù Children's Hospital; Rome; 2021-22; Sleep Disturbance Scale for Children	Excessive somnolence: 22.7%	
Scarpelli et al. (2024) [103]	n=242 (ASD); Age 2-17; Child and Adolescent Neuropsychiatry Unit of the Bambino Gesù Children's Hospital; Rome; 2021-22; Sleep Disturbance Scale for Children	Hyperhidrosis: 24.0%	
Scarpelli et al. (2024) [103]	n=242 (ASD); Age 2-17; Child and Adolescent Neuropsychiatry Unit of the Bambino Gesù Children's Hospital; Rome; 2021-22; Sleep Disturbance Scale for Children	Disorders of initiating and maintaining sleep: 41.7%	
Gupta et al. (2023) [33]	Review, N=65	Sleep disturbances: 64%-93%	

1.9 Self-harm Related Conditions

Self-Injurious Behaviors/Self-Harm

Table 59: Prevalence of self-harm and SIB in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Rattaz et al. (2015) [91]	n=152 (ASD); Age: recruited 3-7 - followed 10 yrs; subset of French EpiTED cohort; 1997-2009	SIB: 35.8%	Main risk: ASD symptom severity (P=0.04). Main protective factor: cognitive development (P=0.03) [childhood], communicative abilities (P=0.04) [adolescence]
Akram et al. (2017) [2]	n=83 (ASD), age 8-18, 5 special schools, Lahore City (Pakistan), parental report	Non-suicidal self-injury: 33%	
Richards et al. (2017) [94]	n=208 (ASD, children), n=216 (ASD, adults); Age: 6-61; Questionairre data; NAS schools and adult services; UK	SIB: 45.7% (ASD, child), 49.1% (ASD, adult)	p: 0.513
Soke et al. (2018) [108]	n=783 (ASD, age: 4), n=1091 (ASD, age; 8), ADDMN - 5 sites (Arizona, Missouri, New Jersey, Utah, and Wisconsin), 2010	Self-injurious behaviors: 24.52% (ASD, age: 4), 25.02% (ASD, age: 8)	Adjusted prevalence, 95% CI: 0.94 (0.79, 1.12) [8 vs 4 years] - adjusted for sex, ethnicity, maternal education, location
Culpin et al. (2018) [24]	n=5031 (ASD); age: 16; UK; Avon Longitudinal Study of Parents and Children	Self-harm without suicidal intent: 11.9%	
Hunsche et al. (2020) [50]	n=178 (ASD); Age: 7-11; parental report - child behavior checklist	Suicidal and/or self-injurious behavior: 14.6%	
Laverty et al. (2020) [67]	n=67 (ASD), mean age at start: 13.4 years; 10 year longitudinal study; questionnaire filled out by carer; National Autistic Society	Persistent self-injurious behavior: 44%	
Licence et al. (2020) [69]	n=83 (ASD); age: 4-45; questionnaire filled out by parents; recruited via National Autistic Society	Self-harm: 24.10% (ASD)	

Table 60: Prevalence of self-harm and SIB in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Steenfeldt-Kristensen et al. (2020) [110]	N=37, n=14379; meta-analysis	Self-injury: 42% (0.38-0.47)	
Blanchard et al. (2021) [12]	Meta-analysis, N=17	Self-injurious behaviors: not reported	OR, range: 1.21-18.76, OR, pooled: 3.18 (95% CI: 2.45-4.12); Children: 2.99 (1.93-4.64); Adults: 3.38 (2.54-4.50)
Hosozawa et al. (2021) [42]	n=396 (ASD) [n=61 (age 5), n=65 (age 7), n=138 (age 11), n=132 (age 14)], n=11307 (non-ASD); UK Millennium Cohort Study; questionnaire and self-report; born 2000-02	Self-harming behavior: 15.2% (ASD, diagnosed age 5), 23.8% (ASD, diagnosed age 7), 14.8% (ASD, diagnosed age 11), 29% (ASD, diagnosed age 14), 15% (non-ASD)	p: 0.03 (linear trend, unadjusted occurrence); SexaOR, 95% CI: 1 (ref) [no ASD], 1.8 (0.76-4.22) [ASD, diagnosed age 5], 2.58 (1.20-5.59) [ASD, diagnosed age 7], 1.45 (0.80-2.64) [ASD, diagnosed age 11], 3.33 (1.92-5.77) [ASD, diagnosed age 14]
Jokiranta-Olkoniemi et al. (2021) [53]	n=4695 (ASD), n=18450 (non-ASD); matched 1:4 by age, sex, location; The Finnish Prenatal Study of Autism Spectrum disorders (FIPS-A) register study; born: 1987-2005 - diagnosed with ASD by 2007	Intentional self-harm: 0.4% (ASD, total), 0.2% (non-ASD, total); 0.3% (ASD, male), 0.1% (non-ASD, male), 0.7% (ASD, female), 0.2% (non-ASD, female); 0.4% (no ID,ASD), 0.2% (no ID, non-ASD), NS% (ID, ASD), NS% (ID, non-ASD)	Unadjusted: HR: 2.7 (95% CI: 1.5-5.1), p:0.0015 [ASD vs non-ASD]; HR: 2.4 (95% CI: 1.1-5.1), p:0.016 [Male, ASD vs non-ASD]; HR: 3.1 (95% CI: 1.1-8.3), p:0.0255 [Female, ASD vs non-ASD]; HR: 2.8 (95% CI: 1.5-5.2), p:0.0012 [No ID, ASD vs non-ASD]; HR: 1.3 (95% CI: 0.1-12.8), p:0.8050 [ID, ASD vs non-ASD]
Malhi and Sankhyan (2021) [74]	n=1252 (ASD); Age: <18; Diagnosed ASD 1997-2018	SIB: 22.1%	

Table 61: Prevalence of self-harm and SIB in those with ASD, table 3.

Source	Sample	Prevalence	Other Notes
Widnall et al. (2022) [127]	n=2026 (ASD, male), n=437 (ASD, female), n=54552 (non-ASD, male), n=56271 (non-ASD, female); Age: 11-17; South London; National Pupil Database; January 2009-March 2013	Self-harm presentation to ED: 0.5% (ASD, male), <2.3% (ASD, female), 0.2% (non-ASD, male), 1.1% (non-ASD, female)	
Stark et al. (2022) [109]	n=9070 (ASD, all) [n=6753 (ASD, no ID), n=2317 (ASD, ID)], n=402,662 (non-ASD); Stockholm Youth Cohort	Any admission for self-harm: 2.97 % (ASD, all), 0.76% (non-ASD); 3.55% (ASD, no ID), 1.25% (ASD, ID)	RR: 5.88 (95% CI 5.20-6.64) [All ASD], 7.08 (95% CI: 6.23-8.04) [ASD no ID), 2.22 (95% CI: 1.55-3.19) [ASD with ID]; Age and sex adjusted
Lai et al. (2023) [66]	n=379630 (all), n=19800 (ASD, female), n=56126 (ASD, male), n=79200 (non-ASD, female), n=224504 (non-ASD, male); age and sex matched; Emergency health care records - multiple databases; Canada; April 2005-December 2020		Crude hazard ratio 1.83 (95% CI 1.61-2.08) [females, ASD vs non-ASD], 1.47 (95% CI 1.28-1.69) [males, ASD vs non-ASD]
Stewart et al. (2023) [111]	n=276 (AS Traits) [only 7.6% ASD diagnosis], n=10495 (controls, age/sex matched); Age: 50-81; PROTECT study; UK	Self harm, with or without suicidal intent: 19.9% (AS Traits), 4.7% (non-ASD); Self-injury: 9.7% (AS Traits), 2.3% (non-ASD); Ingesting medicine in excess of normal dose: 12.7% (AS Traits), 2.7% (non-ASD); Abusing alcohol or non-prescription drugs: 4.0% (AS Traits), 0.5% (non-ASD); Swallowing dangerous objects/substances: 0.7% (AS Traits), 0.1% (non-ASD); Stopping medication without medical advice: 2.2% (AS Traits), 0.2% (non-ASD)	p:<0.001; p:<0.001; p:<0.001; p:<0.001; p:<0.001; p:<0.001

Table 62: Prevalence of self-harm and self-injurious behavior in those with ASD, table 4.

Source	Sample	Prevalence	Other Notes
Stewart et al. (2023) [111]	n=276 (AS Traits) [only 7.6% ASD diagnosis], n=10495 (controls, age/sex matched); Age: 50-81; PROTECT study; UK	Number of self-harm behaviors: 82.5% (AS Traits), 95.5% (non-ASD) [None], 9.5% (AS Traits), 3.5% (non-ASD) [One], 5.8% (AS Traits), 0.7% (non-ASD) [Two], 2.2% (AS Traits), 0.3% (non-ASD) [3+]	
Hull et al. (2024) [49]	n=85143 (ASD) [n=31288 female, n=53855 male], n=2628382 (non-ASD) [n=1286481 female, n=1341901 male]; Age: 12-37; Sweden; Population registrar; age 12 - December 2021	Self-harm: 6.2% (ASD), 1.4% (non-ASD)	
Lopez-Arvizu et al. (2025) [72]	n=41230 (ASD, ID, or both), n=29001 (ASD), n=27054 (ID); Age: 5-24; Medicaid (6+ months, Midwestern states); 2010-20	Deliberate self-harm: 2.6% (ASD), 2.7% (ID), % (combined)	ASD: HR 1.44 [95% CI 1.23-1.69] (female vs male), older age (vs 5-9 years; 10-14 years: HR 3.71 [95% CI 2.74-5.03]; 15-19 years: HR 4.80 [95% CI 3.50-6.59]; 20-24 years: HR 3.26 [95% CI 2.27-4.71] - other demographics available. ID: HR 1.61 [95% CI 1.38-1.88] (female vs male) and older age (vs 5-9 years: 10-14 years: HR 3.17 [95% CI 2.28-4.41]; 15-19 years: HR 3.98 [95% CI 2.83-5.58]; 20-24 years: HR 2.94 [95% CI 2.02-4.27]

Suicide

Table 63: Prevalence of suicidal thoughts and behaviors in those with ASD, table 1.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Suicide attempts: 1.79% (ASD), 0.32% (non-ASD)	Chi-square p value: <0.0001
Hirvikoski et al. (2016) [37]	n=27122 (ASD), n=2672185 (non-ASD) [n=6240 (low functioning), n=20882 (high-functioning)];National Patient Register; Sweden; diagnosed: 1987-2009; ICD-10 conversion	Suicide: 0.31% (ASD, all), 0.04% (non-ASD); 0.11% (low-functioning ASD), 0.36% (high-functioning ASD)	OR (95% CI): 7.55 (6.04-9.44) [ASD all vs non-ASD], 2.41 (1.14-5.11) [low-functioning ASD], 9.40 (7.43-11.90) [high-functioning ASD]
Culpin et al. (2018) [24]	n=5031 (ASD); age: 16; UK; Avon Longitudinal Study of Parents and Children	Self-harm with suicidal intent: 6.9%; Suicidal thoughts: 15.7%; Suicidal plans: 4.5%	
Kirby et al. (2019) [59]	n=5202 (ASD), n=1928484 (non-ASD) [1998-2002], n=8722 (ASD), n=2126249 (non-ASD) [03-07], n=13890 (ASD), n=2391862 (non-ASD) [08-12], n=16907 (ASD), n=2630221 (non-ASD) [13-17]; URADD statewide autism surveillance data, statewide suicide surveillance data - Utah Office of the Medical Examiner, UPDB, IBIS-PH; Utah; 1998-2017	Cases/Total: 2/5202 (ASD), 1617/1928484 (non-ASD) [1998-2002], 5/8722 (ASD), 1841/2126249 (non-ASD) [03-07], 14/13890 (ASD), 2529/2391862 (non-ASD) [08-12], 28/16907 (ASD), 2791/2630221 (non-ASD) [13-17]; Incidence (95% CI): 0.04% (0.01-0.15) (ASD), 0.08% (0.08-0.09) (non-ASD) [1998-2002], 0.06% (0.02-0.14) (ASD), 0.09% (0.08-0.09) (non-ASD) [03-07], 0.10% (0.06-0.17) (ASD), 0.11% (0.10-0.11) (non-ASD) [08-12], 0.17% (0.11-0.24) (ASD), 0.11% (0.10-0.11) (non-ASD) [13-17]	ASD vs non-ASD RR (95% CI): 0.46 (0.11-1.83) [1998-2002], 0.66 (0.28-1.59) [03-07], 0.95 (0.56-1.61) [08-12], 1.56 (1.08-2.26) [13-17]l

Table 64: Prevalence of suicidal thoughts and behaviors in those with ASD, table 2.

Source	Sample	Prevalence	Other Notes
Hossain et al. (2020) [43]	Umbrella Review - N=5	Ideation: 10.9%-66%, attempts: 1% - 35%	
Hand et al. (2020) [34]	n=4685 (ASD), n=46850 (non-ASD); Age: ≥65; Medicare; 2016-17	Suicide or intentional self injury: 3.6% (ASD), 0.3% (non-ASD)	aOR: 11.1(8.9-13.8)
Hand et al. (2020) [35]	n=21792 (ASD); Age: 18-59; US; Medicare, National; U.S. Medicare Limited Data Set Standard Analytic Files (SAF); 2012-17	Suicidal ideation: 4.32%; Suicide attempt/Self-inflicted injury: 4.14%	
Holden et al. (2020) [40]	n=680 (ASD); Age: 13-18; South London and Maudsley NHS Foundation; 2008-13; longitudinal study - followed until age 18 or June 2016	Suicidality: 19% (ASD)	
Hunsche et al. (2020) [50]	n=178 (ASD); Age: 7-11; parental report - child behavior checklist	Suicidal ideation: 9.6%	
Pelton et al. (2020) [90]	n=350 (ASD),n=339 (non-ASD); Age: 18-90; online survey	Past suicidal thoughts: 16.1% (ASD), 35.9% (non-ASD); Past suicidal plans: 40.9% (ASD), 21.9% (non-ASD); Past suicide attempt: 38.3% (ASD), 10.5% (non-ASD)	

Table 65: Prevalence of suicidal thoughts and behaviors in those with ASD, table 3.

Source	Sample	Prevalence	Other Notes
Hirvikoski et al. (2020) [38]	n=24535 (ASD, no ID, no ADHD), n=122675 (non-ASD, no ID, no ADHD), n=19035 (ASD, no ID, ADHD), n=95175 (non-ASD, no ID, ADHD), n=7704 (ASD+ID), n=38520 (non-ASD+ID), n=2894 (ASD+ID+ADHD), n=14470 (non-ASD+ID+ADHD); Swedish national registers; 1987-2013; diagnoses converted to ICD-10	Attempted suicide (all): 8.42% (ASD, no ID, no ADHD), 2.17% (non-ASD, no ID, no ADHD), 12.59% (ASD, no ID, ADHD), 2.05% (non-ASD, no ID, ADHD), 5.88% (ASD, ID, no ADHD), 2.38% (non-ASD, ID, no ADHD), 9.57% (ASD, ID, ADHD), 1.91% (non-ASD, ID, ADHD); Male: 5.80% (ASD, no ID, no ADHD), 1.98% (non-ASD, no ID, no ADHD), 8.95% (ASD, no ID, ADHD), 1.78% (non-ASD, no ID, ADHD), 5.03% (ASD, ID, no ADHD), 2.19% (non-ASD, ID, no ADHD), 7.56% (ASD, ID, ADHD), 1.71% (non-ASD, ID, ADHD); Female: 13.98% (ASD, no ID, no ADHD), 2.57% (non-ASD, no ID, no ADHD), 20.39% (ASD, no ID, ADHD), 2.62% (non-ASD, no ID, ADHD), 7.45% (ASD, ID, no ADHD), 2.74% (non-ASD, ID, no ADHD), 14.34% (ASD, ID, ADHD), 2.40% (non-ASD, ID, ADHD)	OR (95% CI) - adjusted for depression, anxiety, SUD: 1.70 (1.57-1.84) [All, ASD - no ID, no ADHD vs control], 2.31 (2.11-2.53) [All, ASD+ADHD vs controls], 2.00 (1.76-2.27) [All, ASD+ID vs controls], 2.90 (2.36-3.57) [All, ASD+ID+ADHD vs controls]; 1.47 (1.32-1.63) [Male, ASD - no ID, no ADHD vs control], 2.03 (1.80-2.29) [Male, ASD+ADHD vs controls], 2.03 (1.72-2.40) [Male, ASD+ID vs controls], 3.20 (2.47-4.14) [Male, ASD+ID+ADHD vs controls]; 2.08 (1.84-2.36) [Female, ASD - no ID, no ADHD vs control], 2.83 (2.45-3.26) [Female, ASD+ADHD vs controls], 1.97 (1.61-2.40) [Female, ASD+ID vs controls], 2.46 (1.73-3.49) [Female, ASD+ID+ADHD vs controls]

Table 66: Prevalence of suicidal thoughts and behaviors in those with ASD, table 4.

Source	Sample	Prevalence	Other Notes
Hirvikoski et al. (2020) [38]	n=24535 (ASD, no ID, no ADHD), n=122675 (non-ASD, no ID, no ADHD), n=19035 (ASD, no ID, ADHD), n=95175 (non-ASD, no ID, ADHD), n=7704 (ASD+ID), n=38520 (non-ASD+ID), n=2894 (ASD+ID+ADHD), n=14470 (non-ASD+ID+ADHD); Swedish national registers; 1987-2013; diagnoses converted to ICD-10	Death by suicide: 0.59% (ASD, no ID, no ADHD), 0.07% (non-ASD, no ID, no ADHD), 0.40% (ASD, no ID, ADHD), 0.03% (non-ASD, no ID, ADHD), 0.16% (ASD, ID, no ADHD), 0.07% (non-ASD, ID, no ADHD); Male: 0.62% (ASD, no ID, no ADHD), 0.09% (non-ASD, no ID, no ADHD), 0.43% (ASD, no ID, ADHD), 0.03% (non-ASD, no ID, ADHD), 0.18% (ASD, ID, no ADHD), 0.09% (non-ASD, ID, no ADHD); Female: 0.52% (ASD, no ID, no ADHD), 0.04% (non-ASD, no ID, no ADHD), 0.33% (ASD, no ID, ADHD), 0.02% (non-ASD, no ID, ADHD)	OR (95% CI) - adjusted for depression, anxiety, SUD: 4.46 (3.24-6.13) [All, ASD - no ID, no ADHD vs control], 3.61 (1.94-6.71) [All, ASD+ADHD vs controls], 1.44 (0.70-2.97) [All, ASD+ID vs controls]; 4.68 (3.28-6.67) [Male, ASD - no ID, no ADHD vs control], 3.91 (1.87-8.19) [Male, ASD+ADHD vs controls], 1.32 (0.58-3.03) [Male, ASD+ID vs controls]; 3.85 (1.88-7.91) [Female, ASD - no ID, no ADHD vs control], 3.15 (0.98-10.11) [Female, ASD+ADHD vs controls]
Blanchard et al. (2021) [12]	Meta-analysis, N=16	Suicidality: not reported	OR, range: 0.86-11.10, OR, pooled: 3.32 (95% CI: 2.60-4.24); Children: 2.53 (1.70-3.76); Adults: 3.84 (2.78-5.30)
Kõlves et al. (2021) [63]	n=35020 (ASD), n=6524246 (non-ASD); Age: >10; Denmark; 1995-2016	Suicide attempts: 587/35020 (ASD), 63522/6524246 (non-ASD); Suicide: 53/35020 (ASD), 14144/6524246 (non-ASD)	ASD vs non-ASD, aRR (95% CI): 3.19 (2.93-3.46) [attempt], 3.75 (2.85-4.92) [suicide]. Women vs men - suicide attempt: 4.41 (3.74-5.19) (ASD), 1.41 (1.39-1.43) (non-ASD). ASD only diagnosis, suicide attempt: 1.33 (0.99-1.78). ASD+co-occurring vs those without psychiatric, suicide attempt: 9.27 (8.51-10.10)

Table 67: Prevalence of suicidal thoughts and behaviors in those with ASD, table 5.

Source	Sample	Prevalence	Other Notes
Bal et al. (2022) [7]	3 samples: [KP: n=86 (ASD, diagnosed), n=864 ("ASP", screened ASD, no diagnostic evaluation), n=13473 (non-ASD); Age: 7-12; metropolitan Seoul, South Korea; 2006-09], [CHEER: n=223 (ASP), n=3702 (non-ASD); school aged; cities in South Korea], [S: n=205 (ASP), n=4623 (non-ASD); elementary schools; Sooncheon, South Korea]	Suicidal ideation: 14.0% (ASD, KP), 19.8% (ASP, KP), 5.4% (non-ASD, KP); 27.4% (ASP, CHEER), 6.9% (non-ASD, CHEER); 16.6% (ASP, S), 3.4% (non-ASD, S)	OR (95% CI) - adjusted for demographics, peer victimization, depression, behavior problems [Model 3]: 1.59 (1.29-1.98) p:0.000 (KP: ASP vs non-ASD), 1.95 (1.28-2.97) p:0.002 [CHEER: ASP vs non-ASD], 1.98 (1.22-3.19) p: 0.005 [S: ASP vs non-ASD]
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Suicide attempts: 0.89% (ASD), 0.68% (non-ASD)	aOR: 1.10 (1.01 1.20)
Lai et al. (2023) [66]	n=379630 (all), n=17982 (ASD, female), n=48956 (ASD, male), n=71928 (non-ASD, female), n=195824 (non-ASD, male); age and sex matched 1:4 with non-ASD; Emergency health care records - multiple databases; Canada; April 2005-December 2020	Not listed	Crude hazard ratio: 1.98 (95% CI 1.11-3.56) [females, ASD vs non-ASD], 1.34 (95% CI 0.99-1.82) [males, ASD vs non-ASD]
Newell et al. (2023) [86]	N=36, n=48186 (ASD); Systematic review and meta-analysis; No co-occurring intellectual disability	Suicidal ideation: 34.2% (95% CI: 27.9-40.5), Suicide plans: 21.9% (13.4-30.4), Suicidal attempts and behaviors: 24.3% (18.9-29.6)	
Stewart et al. (2023) [111]	n=276 (AS Traits) [only 7.6% ASD diagnosis], n=10495 (controls, age/sex matched); Age: 50-81; PROTECT study; UK	Suicide attempt: 12.7% (AS Traits), 2.5% (non-ASD)	p:<0.001

Table 68: Prevalence of suicidal thoughts and behaviors in those with ASD, table 6.

Source	Sample	Prevalence	Other Notes
Liu et al. (2023) [70]	n=5291 (ASD), n=4195596 (non-ASD); Age: >45; Swedish nationwide Total Population Register and National Patient Register; born 1932-67; cumulative incidence uses 1:10 sex and birth year matched cohort	Intentional self-injury: 4.6% (ASD), 0.7% (non-ASD) [prevalence over follow up period]; 6.1% (ASD), 0.9% (non-ASD) [estimated cumulative incidence by age 70]	aOR: 7.08 (95% CI: 6.24-8.03), p:<0.0001 (ASD vs non-ASD); aOR: 8.09 (95% CI: 7.07-9.25), p:<0.0001 (ASD without ID vs non-ASD);aOR: 3.48 (2.37-5.11), p:<0.0001 (ASD+ID vs non-ASD); p:<0.0001 (ASD without ID vs ASD+ID); aOR: 6.87 (5.81-8.13), p:<0.0001 (men with ASD vs men without ASD);aOR: 7.45 (95% CI: 6.14-.03), p:<0.0001 (women with ASD vs women without ASD); p: 0.54 (men with ASD vs women with ASD) [AORs from cumulative incidence; adjusted for sex and birth year]
Hull et al. (2024) [49]	n=85143 (ASD) [n=31288 female, n=53855 male], n=2628382 (non-ASD) [n=1286481 female, n=1341901 male]; Age: 12-37; Sweden; Population registrar; age 12 - December 2021	Suicide: 0.4% (ASD), 0.13% (non-ASD)	
O'Nions et al. (2024) [89]	n=13,172 (ASD, men, no ID), n=3958 (ASD, women, no ID) n=4850 (ASD+ID, men) n=1600 (ASD+ID, women); comparison are 1:10 matched by age, sex, ID status, general practice registered to; mortality study; UK; 1989-2019	Self harm/suicide: Men: 6.89% (ASD, no ID); 1.93% (comparison). Women: 17.43% (ASD, no ID); 4.68% (comparison). Men: 5.46% (ASD + ID); 2.38% (comparison). Women: 10.00% (ASD + ID); 5.20% (comparison)	

Table 69: Prevalence of suicidal thoughts and behaviors in those with ASD, table 7.

Source	Sample	Prevalence	Other Notes
Longo et al. (2024) [71]	n=30258 (ASD), n=60516 (non-ASD); Age: 18-64; IBM Market Scan Commercial Claims and Encounters Database; 2019-20	Suicide or intentional self injury: 6.5% (ASD), 1.2% (non-ASD)	aOR: 5.7 (95% CI: 5.2, 6.2)

1.10 Neurocognitive Disorders

Parkinson's

Table 70: Prevalence of Parkinsons in those with ASD.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Parkinson's: 0.93% (ASD), 0.03% (non-ASD)	Chi-square p value: <0.001
Hand et al. (2020) [34]	n=4685 (ASD), n=46850 (non-ASD); Age: ≥65; Medicare; 2016-17	Parkinson's: 6.6% (ASD), 1.2% (non-ASD)	aOR: 6.1 (5.3 - 7.0)
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Parkinson disease and spectrum: 0.50% (ASD), 0.34% (non-ASD)	aOR: 1.54 (1.37 1.72)
Yin et al. (2025) [129]	n=2278565, Nationwide, population, Sweden, all individuals born 1974-99, Age 20 until end of 2022	Parkinson disease: 0.05% [3.9 cases/100,000 person-years] (ASD), 0.02% [1.3 cases/100,000 person-years] (non-ASD)	RR 4.43 (95% CI, 2.92-6.72)

Dementia

Table 71: Prevalence of dementia in those with ASD.

Source	Sample	Prevalence	Other Notes
Croen et al. (2015) [23]	n=1507 (ASD), n=15070 (age, sex matches controls); Adults; Kaiser Permanente Northern California; 2008-12	Dementia: 2.26% (ASD), 0.50% (non-ASD)	Chi-square p value: <0.0001
Vivanti et al. (2021) [121]	Medicaid, age 30-64, n=38,816 (ASD, no ID), n=798,828 (no ASD, no ID)	Early onset dementia: 4.04% (ASD), 0.97% (no ASD, no ID)	adjusted hazard ratio, 1.96; 95% CI, (1.69–2.28)
Schott et al. (2022) [105]	n=155,617 (ASD), n=466,851 (non-ASD); Adults; Medicaid; 2008–12	Dementia: 1.52% (ASD), 1.17% (non-ASD)	aOR: 1.34 (1.26 1.43)
Tewolde et al. (2025) [112]	n=90,229 (ASD); $\geq$ 30 years; Medicaid and Medicare data	Alzheimer's disease and related dementia: 8.11%	(95% CI: 7.92%, 8.30%)
Vivanti et al. (2025) [122]	n=46877 (ASD), n=67705 (ASD+ID); Medicare and Medicaid data; 2014-16; excluded Down Syndrome	Dementia: 8.03% (ASD), 8.88% (ASD+ID)	

Other

Table 72: Prevalence of other neurocognitive disorders in those with ASD.

Source	Sample	Prevalence	Other Notes
Soke et al. (2018) [108]	n=783 (ASD, age: 4), n=1091 (ASD, age; 8), ADDMN - 5 sites (Arizona, Missouri, New Jersey, Utah, and Wisconsin), 2010	Developmental regression: 19.67% (ASD, age: 4), 19.34% (ASD, age: 8)	Adjusted prevalence, 95% CI: 0.98 (0.80, 1.20) [8 vs 4 years] - adjusted for sex, ethnicity, maternal education, location

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