

Supplemental Information

SUPPLEMENTAL TABLE 5 Characteristics of Children With a CSHQ That Was >90% Complete ($n = 2339$)

	ASD Cases ($n = 637$)	DD w/ASD ($n = 259$)	DD w/o ASD ($n = 624$)	POP ($n = 819$)
Sex, n (%)				
Female	114 (17.9)	63 (24.3)	230 (36.9)	377 (46.0)
Male	523 (82.1)	196 (75.7)	394 (63.1)	442 (54.0)
Maternal race or ethnicity, n (%)				
Non-Hispanic white	354 (55.6)	118 (45.6)	408 (65.4)	584 (71.3)
African American	119 (18.7)	73 (28.2)	77 (12.3)	88 (10.7)
Other	155 (24.3)	68 (26.3)	130 (20.8)	137 (16.7)
Maternal education, n (%)				
Some college or less	297 (46.6)	167 (64.5)	223 (35.7)	256 (31.3)
Bachelor's	196 (30.8)	59 (22.8)	213 (34.1)	304 (37.1)
Graduate school	136 (21.4)	33 (12.7)	183 (29.3)	253 (30.9)
Family income, n (%)				
First quartile	144 (22.6)	97 (37.5)	87 (13.9)	100 (12.2)
Second quartile	164 (25.7)	71 (27.4)	158 (25.3)	171 (20.9)
Third quartile	154 (24.2)	35 (13.5)	184 (29.5)	225 (27.5)
Fourth quartile	151 (23.7)	36 (13.9)	164 (26.3)	294 (35.9)
Genetic and/or neurologic diagnosis ^a , n (%)				
Yes	28 (4.4)	12 (4.6)	46 (7.4)	5 (0.6)
No	609 (95.6)	247 (95.4)	578 (92.6)	814 (99.4)
Cognitive (MSEL) score, n (%)				
≤ 70	388 (60.9)	86 (33.2)	119 (19.1)	25 (3.1)
> 70	241 (37.8)	169 (65.3)	505 (80.9)	788 (96.2)
Melatonin use, n (%)				
Yes	40 (6.3)	13 (5.0)	2 (0.3)	6 (0.7)
No	503 (79.0)	208 (80.3)	516 (82.7)	682 (83.3)
Child enrollment age, mean (SD), mo	56 (6.9)	56 (7.3)	56 (7.4)	56 (7.7)

^a Down syndrome, fragile X syndrome, Rett syndrome, tuberous sclerosis, cerebral palsy, and neurofibromatosis.

SUPPLEMENTAL TABLE 6 Mean CSHQ TS (>90% Complete) by Final Classification and by Use of Melatonin: Multiple Imputation Analysis

	Melatonin Use			No Melatonin Use		
	n	Mean (SD)	Range	n	Mean (SD)	Range
ASD average TS	40	56.7 (1.7)	(56.5–56.8)	503	48.3 (0.4)	(48.2–48.3)
DD w/ASD average TS	13	55.6 (2.4)	(55.6–55.6)	208	50.5 (0.7)	(50.5–50.5)
DD w/o ASD average TS	2	43.0 (4.9)	(37.0–49.0)	516	44.6 (0.3)	(44.6–44.7)
POP average TS	6	45.8 (2.5)	(45.8–45.8)	682	43.5 (0.3)	(43.5–43.5)

Ten data sets using the fully conditional specification technique and including all covariates used in the complete case analyses were created. Final estimates were obtained by using PROC MIANALYZE and Rubin's formula.

SUPPLEMENTAL TABLE 7 Average Difference in the Mean CSHQ TS and Subscale Scores by Final Classification With CSHQ 90% Complete: Multiple Imputation Analysis

	Mean (SD)				Adjusted Mean Difference (95% CI)		
	ASD (n = 637)	DD w/ASD (n = 259)	DD w/o ASD (n = 624)	POP (n = 819)	ASD Versus DD w/ ASD	ASD Versus DD w/o ASD	ASD Versus POP
CSHQ TS	50.2 (0.6)	50.7 (0.7)	46.6 (0.5)	45.7 (0.6)	-0.5 (-1.7 to 0.8)	3.6 (2.6 to 4.6)**	4.5 (3.5 to 5.5)**
Bedtime resistance	10.1 (0.2)	10.4 (0.3)	9.5 (0.2)	9.2 (0.2)	-0.3 (-0.8 to 0.2)	0.6 (0.2 to 1.0)*	0.9 (0.5 to 1.2)**
Sleep onset delay	1.7 (0.1)	1.6 (0.1)	1.4 (0.1)	1.4 (0.1)	0.0 (-0.1 to 0.1)	0.2 (0.2 to 0.3)**	0.3 (0.2 to 0.4)**
Sleep duration	4.1 (0.1)	4.1 (0.1)	3.7 (0.1)	3.7 (0.1)	0.0 (-0.2 to 0.2)	0.4 (0.2 to 0.6)**	0.5 (0.3 to 0.7)**
Sleep anxiety	6.5 (0.1)	6.5 (0.2)	5.9 (0.1)	5.7 (0.1)	0.0 (-0.3 to 0.3)	0.6 (0.3 to 0.8)**	0.8 (0.5 to 1.0)**
Night waking	4.6 (0.1)	4.6 (0.1)	4.2 (0.1)	4.0 (0.1)	-0.1 (-0.3 to 0.2)	0.4 (0.2 to 0.6)**	0.6 (0.4 to 0.7)**
Parasomnias	9.8 (0.1)	9.6 (0.2)	9.0 (0.1)	8.9 (0.1)	0.2 (-0.1 to 0.5)	0.8 (0.6 to 1.0)**	0.9 (0.7 to 1.2)**
Sleep disordered breathing	3.9 (0.1)	3.9 (0.1)	3.8 (0.1)	3.7 (0.1)	0.1 (-0.1 to 0.2)	0.2 (0.0 to 0.3)*	0.3 (0.1 to 0.4)**
Daytime sleepiness	13.0 (0.2)	13.5 (0.3)	12.3 (0.2)	12.3 (0.2)	-0.5 (-0.9 to 0.0)	0.7 (0.4 to 1.1)**	0.7 (0.4 to 1.1)**

Adjusted for child sex, genetic condition, MSEL score, and age at enrollment and maternal race or ethnicity, education, and income. Ten data sets using the fully conditional specification technique and including all covariates used in the complete case analyses were created. Final estimates were obtained by using PROC MIANALYZE and Rubin's formula.

* $P < .007$;

** $P < .001$.

SUPPLEMENTAL TABLE 8 Odds of a CSHQ TS Above the Specified Threshold for Children With ASD Classification Compared With the Other Final Classification Groups (With CSHQ >90% Complete): Multiple Imputation Analysis

	Frequency, %				aOR (95% CI)		
	ASD (n = 637)	DD w/ASD (n = 259)	DD w/o ASD (n = 624)	POP (n = 819)	ASD Versus DD w/ASD	ASD Versus DD w/o ASD	ASD Versus POP
TS >41	78.9	83.2	66.6	60.7	0.92 (1.39 to 0.61)	1.57 (2.11 to 1.17)*	1.86 (2.50 to 1.38)**
TS >48	48.1	57.6	29.6	25.5	0.88 (1.23 to 0.64)	2.11 (2.78 to 1.61)**	2.41 (3.18 to 1.82)**

Adjusted for child sex, genetic condition, MSEL score, and age at enrollment and maternal race or ethnicity, education, and income. Ten data sets using the fully conditional specification technique and including all covariates used in the complete case analyses were created. Final estimates were obtained by using PROC MIANALYZE and Rubin's formula.

* $P = .003$;

** $P < .001$.