The Role of Comorbid ADHD in Clinical Characteristics, Causal Attributions, and Treatment Utilization among Adults with Insomnia

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INTRODUCTION

Insomnia is a prevalent, chronic, and heterogeneous sleep disorder associated with significant impairment, elevated risk for adverse health outcomes, and poor behavioral treatment utilization.[1,2] Insomnia frequently co-occurs with a range of psychiatric disorders.[3] Among these, ADHD is common, presenting in 13% of adults with insomnia.[3]

ADHD and insomnia are related; ADHD is associated with increased risk for insomnia, and insomnia symptoms are associated with higher ADHD severity.[4] Several studies have shown that comorbid insomnia is associated with higher ADHD severity and poorer quality of life in adults with ADHD.[5] However, the impact of comorbid ADHD on insomnia is not known.

Objective: This study compared insomnia severity, sleep-related impairment, associated clinical features, causal attributions, and treatment utilization in adults with current insomnia with and without lifetime ADHD.

Hypothesis: Insomnia with lifetime ADHD would be associated with greater sleep disturbance and associated impairment, more medication-related causal attributions surrounding insomnia onset, and higher treatment utilization than insomnia without lifetime ADHD.

METHOD

Participants. Eighty-five participants (including 43 with current insomnia with lifetime ADHD diagnosis and 42 with insomnia without lifetime ADHD) aged 18 to 48 years (M = 26.19, SD = 6.75 years). Participants were drawn from an internet survey examining contributing factors and impact of insomnia.

Procedure. Participants provided demographics, and lifetime psychiatric and sleep disorder history, and rated insomnia severity (Insomnia Severity Index),[6] sleep-related impairment (PROMIS Sleep-Related Impairment - Short Form 4a),[7] sleep hygiene (Sleep Hygiene Index),[8] and arousal (Pre-Sleep Arousal Scale - 14),[9] contributing factors to insomnia onset (Causal Attributions of My Insomnia Questionnaire)[10] and insomnia treatment history. Participants met criteria for both current insomnia symptoms and lifetime clinically significant insomnia symptoms present at least 3 days per week for 3 months or more.

Data Analysis. Chi-squared tests of independence were performed to compare clinical characteristics, and causal attributions in participants with insomnia with and without a lifetime diagnosis of ADHD. Independent samples t-tests were performed to compare sleep-related impairment, insomnia severity, sleep hygiene, and pre-sleep arousal in participants who have current insomnia with or without a lifetime diagnosis of ADHD.

RESULTS

Insomnia with ADHD was associated with higher endorsement of one or more lifetime sleep disorders and higher sleep-related impairment relative to insomnia alone. (see Table 1)

Insomnia with ADHD was also associated with higher endorsement of beliefs in biochemical factors and developmental factors, such as adverse childhood experiences and trauma, as contributors to initial onset of insomnia relative to insomnia alone. There were no significant group differences in the endorsement of beliefs regarding the contributions of psychological, biological/physiological, behavioral, and developmental factors to initial onset of insomnia. (see Table 1)

Insomnia with ADHD was associated with higher endorsement of lifetime use of prescription medication for insomnia, cognitive behavioral therapy for insomnia, and supportive/talk therapy for insomnia, and higher frequency of sleep aid use within the prior month, relative to insomnia alone. (see Table 1)

There were no significant group differences for insomnia severity, sleep hygiene, or pre-sleep arousal. (see Table 2).

Table 1. **Chi-Squared Tests Comparing Clinical Characteristics, Causal Attributions, and Treatment Utilization in Adults with Insomnia with and without Lifetime ADHD Diagnosis**

	Insomnia with ADHD n = 43			Insomnia without ADHD n = 42		X^2 (1)	p
	n	%		n	%		
Sex (% male)	15	34.9%		15	35.7%		
Minority Status (% minority)	8	18.6%		7	16.7%		
Marital Status (% single/never married)	32	74.4%		40	95.2%		
One or more lifetime sleep disorders	12	27.9%		2	4.8%*	6.68	.010
Causal Attributions of Insomnia Onset							
Sleep-related thoughts	20	46.5%		24	57.1%	.58	.445
Hormonal factors	5	11.6%		9	21.4%	.86	.355
Bodily arousal	13	30.2%		7	16.7%	1.49	.223
Genetic factors	7	16.3%		2	4.8%	1.89	.170
Lifestyle factors	22	51.2%		16	38.1%	.99	.321
Thinking patterns	34	79.1%		34	81.0%	.00	1.00
Biochemical factors	12	27.9%		3	7.1%*	4.96	.026
Environmental factors	12	27.9%		14	33.3%	.10	.759
Scheduling	20	46.5%		19	45.2%	.00	1.00
Sleep-related emotions	26	60.5%		20	47.6%	.94	.332
Emotions	35	81.4%		32	76.2%	.10	.748
Developmental factors	17	39.5%		6	14.3%*	5.64	.018
Lifetime Use of Insomnia Treatments							
Prescription medication for insomnia	21	48.8%		5	11.9%***	11.97	<.001
Cognitive behavioral therapy for insomnia	10	23.3%		2	4.8%*	4.57	.033
Supportive/talk therapy for insomnia	18	41.9%		5	11.9%**	8.20	.004
Sleep aid use within the last month	29	67.4%		18	42.9%*	4.25	.039

Note: Valid percentages are reported

Table 2. **Independent Samples t-tests Comparing Sleep-related Impairments in Adults with Insomnia with and without Lifetime ADHD Diagnosis**

	Insomnia with ADHD n = 43		Insomnia without ADHD n = 42		$t(83)$	p	Cohen's d
	M	*SD*	*M*	*SD*			
Insomnia Severity Index Total	14.95	4.29	14.90	4.72	.05	.960	4.506
Sleep Hygiene Index Total	24.40	7.27	24.07	5.90	.23	.822	6.632
Pre-sleep Arousal Scale Total	41.00	8.95	39.38	8.60	.85	.398	8.781
PROMIS Sleep-related Impairment Total	65.75	6.90	60.14	8.98	3.24	.002**	7.996

DISCUSSION

Summary

1. Findings supported results from previous literature suggesting the adverse influence of co-occurring ADHD on perceived functional impairments associated with sleep disturbances in adults with insomnia.
2. Results align with previous research suggesting increased treatment utilization among adults with co-occurring ADHD and insomnia.
3. Results also suggest the perceived contribution of childhood adversity and biochemical factors (e.g., neurotransmitters, medication) to insomnia onset among adults with insomnia with ADHD.

Limitations

1. A small sample size may affect the ability to generalize the findings of this study in adults who have ADHD and Insomnia
2. Participants were recruited through a crowdsourcing website, which introduces selection bias. They may also be influenced by monetary gain.
3. Lack of clinician-confirmed insomnia and psychiatric diagnoses through clinical interview.

Future Directions

1. Findings suggest the importance of integrating assessment and management of psychiatric disorders, including ADHD in treatment for insomnia
2. Future research should explore the effectiveness of treatment modalities used by participants to address insomnia symptoms, with and without a lifetime diagnosis of ADHD

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