

Linking Daily Dynamics of Irritable Mood and Sleep in a Pediatric Sample: Clinical and Conceptual Implications

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BACKGROUND

- Sleep directly impacts emotion regulation and plays a critical role in psychological health and well-being¹.
- Inadequate or disrupted sleep are both a common symptoms of and risk factors for a range of psychiatric disorders including, most commonly, anxiety and mood disorders².
- Associations between sleep and irritability³, an increased proneness to anger and a common and impairing symptom in pediatric psychopathology, are understudied⁴.

STUDY OBJECTIVES

Examine real-time, bidirectional associations between irritability and total sleep time (TST).

METHODS

- **N = 125**
- 26.20% Female, 10.10% Black, 68.80% White, 83.20% Non-Hispanic or Latino
- Age Mean (SD) = 12.58 (2.56)
- Transdiagnostic sample
Ns: DMDD=37; ADHD=33; Anxiety=28, Controls =27



Ecological Momentary Assessment

Youth and Parents report for 7 days:

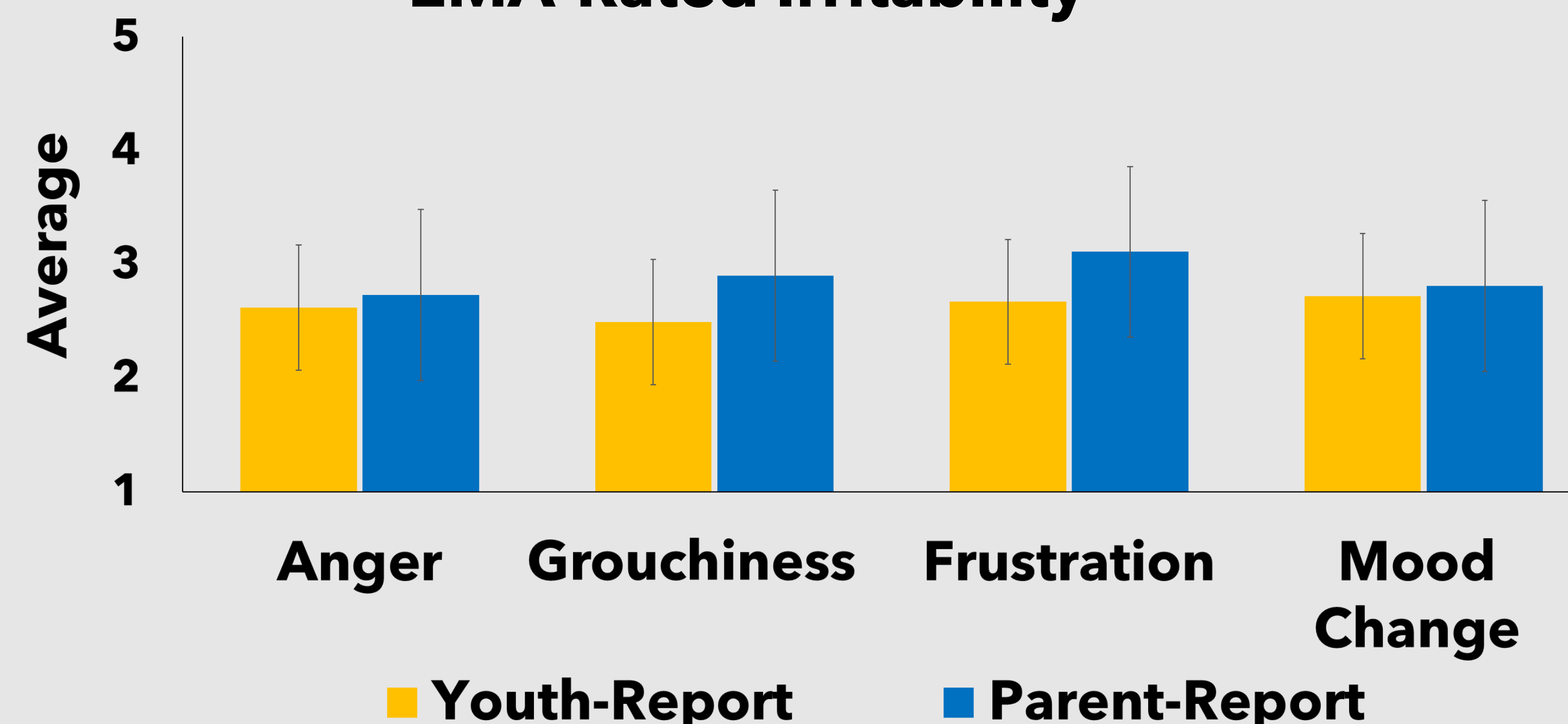
- Bed and wake times (for TST)
- Waking and evening irritability:
 - Frustration, grouchiness, anger
 - Mood change



- High compliance rate (Child: 83%; Parent: 84%)

- ARI : Affective Reactivity Index (Stringaris et al., 2012)

EMA-Rated Irritability

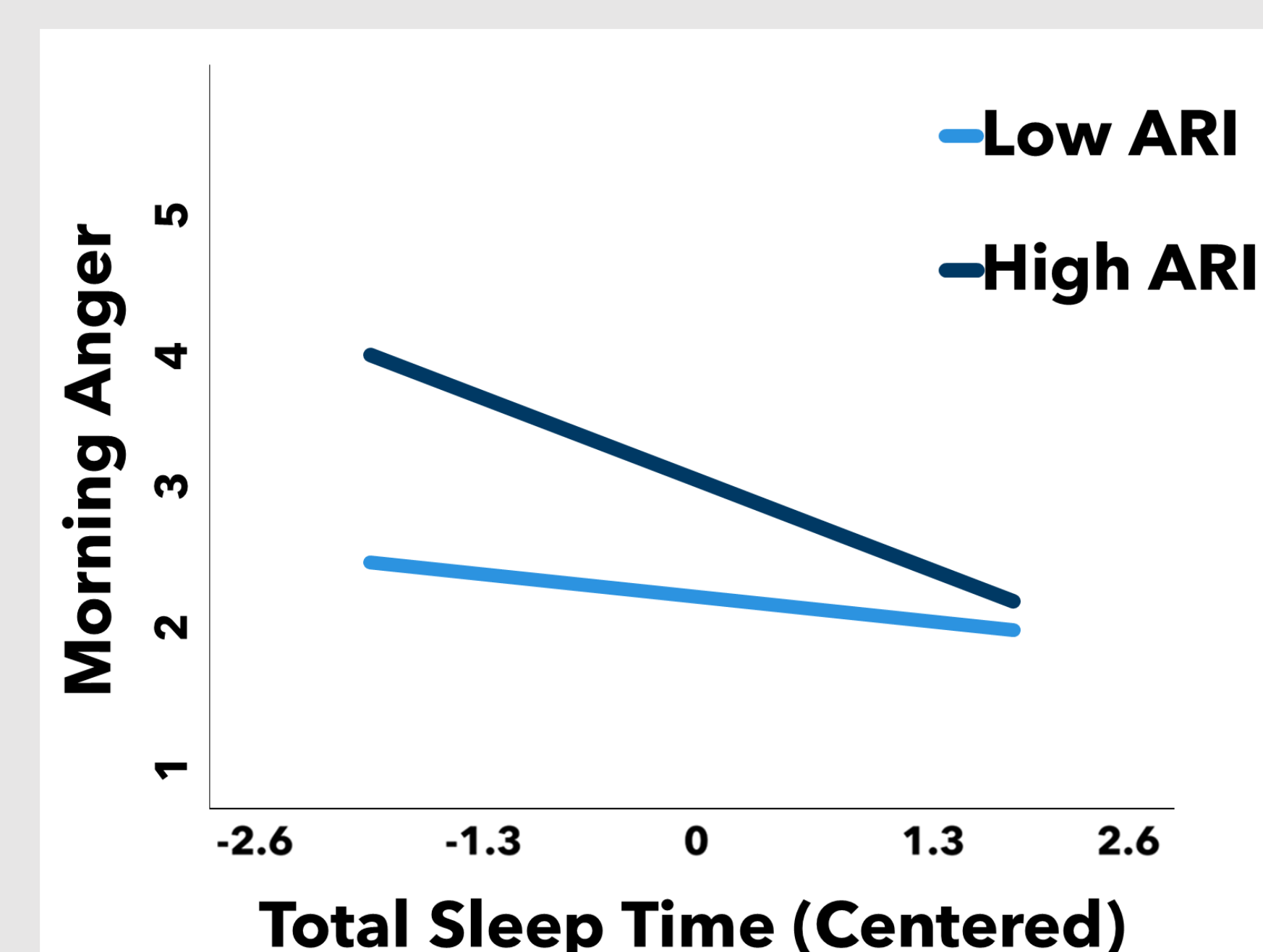


Descriptive Data

	M (SD)	TST (hours)	ARI
Youth-Report	8.72 (1.10)	8.72 (1.10)	3.43 (3.28)
Parent-Report	9.18 (1.10)	9.18 (1.10)	3.98 (3.75)

Sleep Predicting Waking Irritability: Lagged MLM

Outcome:	Predictor: TST		Moderator: ARI	
	coefficient	p-value	coefficient	p-value
Anger	$\beta = -0.26$	p < .001	$\beta = -0.03$	p = .04
Grouchiness	$\beta = -0.10$	p = .04	$\beta = -0.01$	p = .64
Frustration	$\beta = -0.16$	p = .005	$\beta = -0.03$	p = .23
Mood Change	$\beta = -0.21$	p < .001	$\beta = -0.03$	p = .48



Similar findings for Clinician-rated ARI and for youth-rated ARI

Evening Irritability Predicting Sleep: Lagged MLM

Predictor:	Outcome: TST	
	coefficient	p-value
Anger	$\beta = -0.17$	p < .019
Grouchiness	$\beta = -0.07$	p = .24
Frustration	$\beta = -0.07$	p = .25
Mood Change	$\beta = -0.10$	p = .059

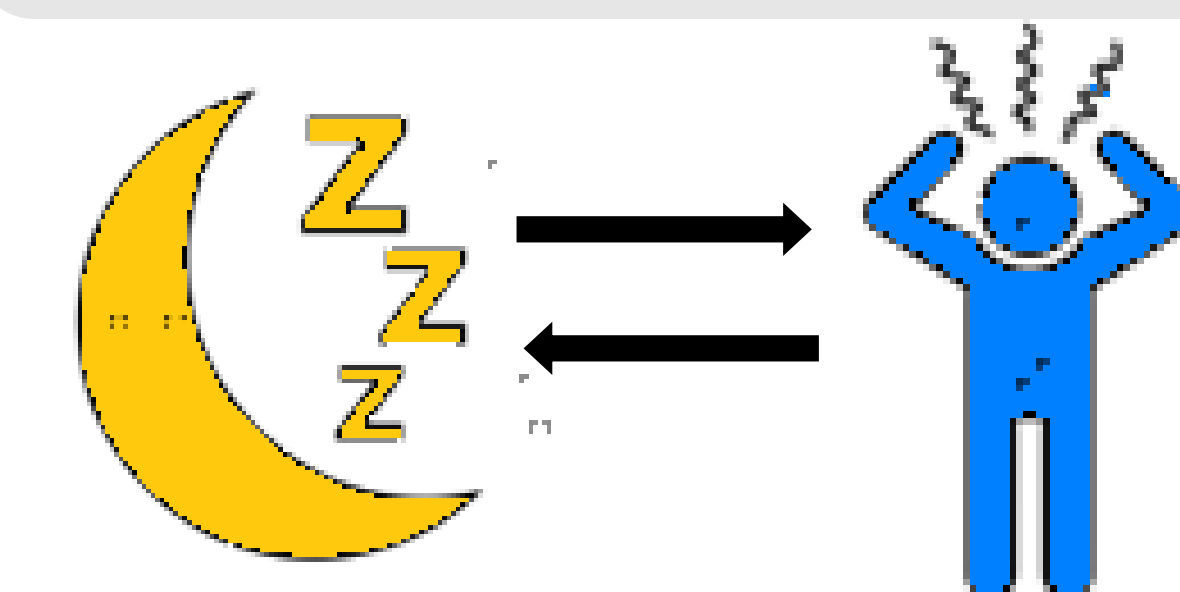
Findings did not replicate with other EMA positive (i.e., happy) or negative (i.e., sad) mood items but did with worry ($\beta = -0.08$, $p = 0.011$).

Secondary Analyses:

Explored within clinical groups, TST and irritability were associated in the ADHD and DMDD groups across symptoms and informants (all β s > -0.18, p s < 0.012).

In the ADHD group, less sleep at night also predicted increased anger lability the following day ($\beta = -0.18$, $p = 0.019$).

CONCLUSIONS



- Findings suggest some specificity for TST-irritability associations versus other EMA mood items.
- Sleep insufficiency may serve as a potential treatment target to improve daily irritability in pediatric youth (i.e., via sleep education).

FUTURE DIRECTIONS

- Disentangle effects of irritability vs. those of ADHD.
- Integrate with objective measures.
- Just-in-time interventions.



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3. Leibenluft E. Severe mood dysregulation, irritability, and the diagnostic boundaries of bipolar disorder in youths. *The American Journal of Psychiatry*. 2011 Feb;168(2):129-142.
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