

Youth with functional abdominal pain disorders have more sleep disturbances. A school-based study

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Introduction

- FAPDs are among the most common pediatric pain conditions.
- FAPDs are associated with significant pain impairment and sleep disturbances.
- There is a bidirectional relationship between sleep disturbances and pain
 - Sleep disturbances increase the risk for pain, which can disrupt sleep patterns and quality,
- There is a lack of published literature on the impact of sleep disturbances in youth with FAPDs.
- We aim to compare subjective sleep characteristics of youth diagnosed with FAPDs with healthy peers
 - Correlate changes in sleep measures with GI symptoms

Methods

Inclusion criteria:

- 11-18y from a large private public school located in Cali, Colombia

Exclusion criteria

- Organic gastrointestinal conditions
- Diagnosed sleep disorders
- Abdominal migraine
- Participants with non-episodic AP-DGBIs were matched 1:1 with healthy children based on age and gender.
- We included demographic data, medical history, and validated questionnaires collected as part of routine clinical care.

Questionnaires included:

All Participants	Case Only Completed
Rome 4 Diagnostic Questionnaire (R4DQ)	Abdominal Pain (API)
Adolescent Sleep Wake Scale (ASWS-SF)	Nausea (NSS)
Insomnia (PISI)	Functional Disability (FDI)
Daytime Sleepiness (ESS)	Anxiety (PROMIS Anxiety)
Sleep Disturbance (PROMIS SD)	Depression (PROMIS Depression)
Sleep-Related Impairment (PROMIS SRI)	
Sleep Hygiene (SHIP)	

Results

Demographics (n=235)

Variables	All participants (n = 120)	FAPDs (n = 60)	Healthy youth (n = 60)
Age	13.5 ± 1.9y (10.7–18.5)	13.5 ± 1.8y (10.7–17.9)	13.6 ± 1.9y (11.0–18.5)
8–12 y	32 (26.7)	16 (26.7)	16 (26.7)
13–18 y	88 (73.3)	44 (73.3)	44 (73.3)
Sex			
Female	60 (50.0)	30 (50.0)	30 (50.0)
Male	60 (50.0)	30 (50.0)	30 (50.0)
Race			
Mixed race	65 (54.2)	34 (56.7)	31 (51.7)
White	39 (32.5)	16 (26.7)	23 (38.3)
Black	10 (8.3)	5 (8.3)	5 (8.3)
Native	6 (5.0)	5 (8.3)	1 (1.7)
Nutritional status BMI			
Normal	83 (69.2)	39 (65.0)	44 (73.3)
Malnutrition**	37 (30.8)	21 (35.0)	16 (26.7)

*Data is formatted as mean ± standard deviation. All other data is formatted as value (percentage). FAPDs: Functional Abdominal Pain Disorders.

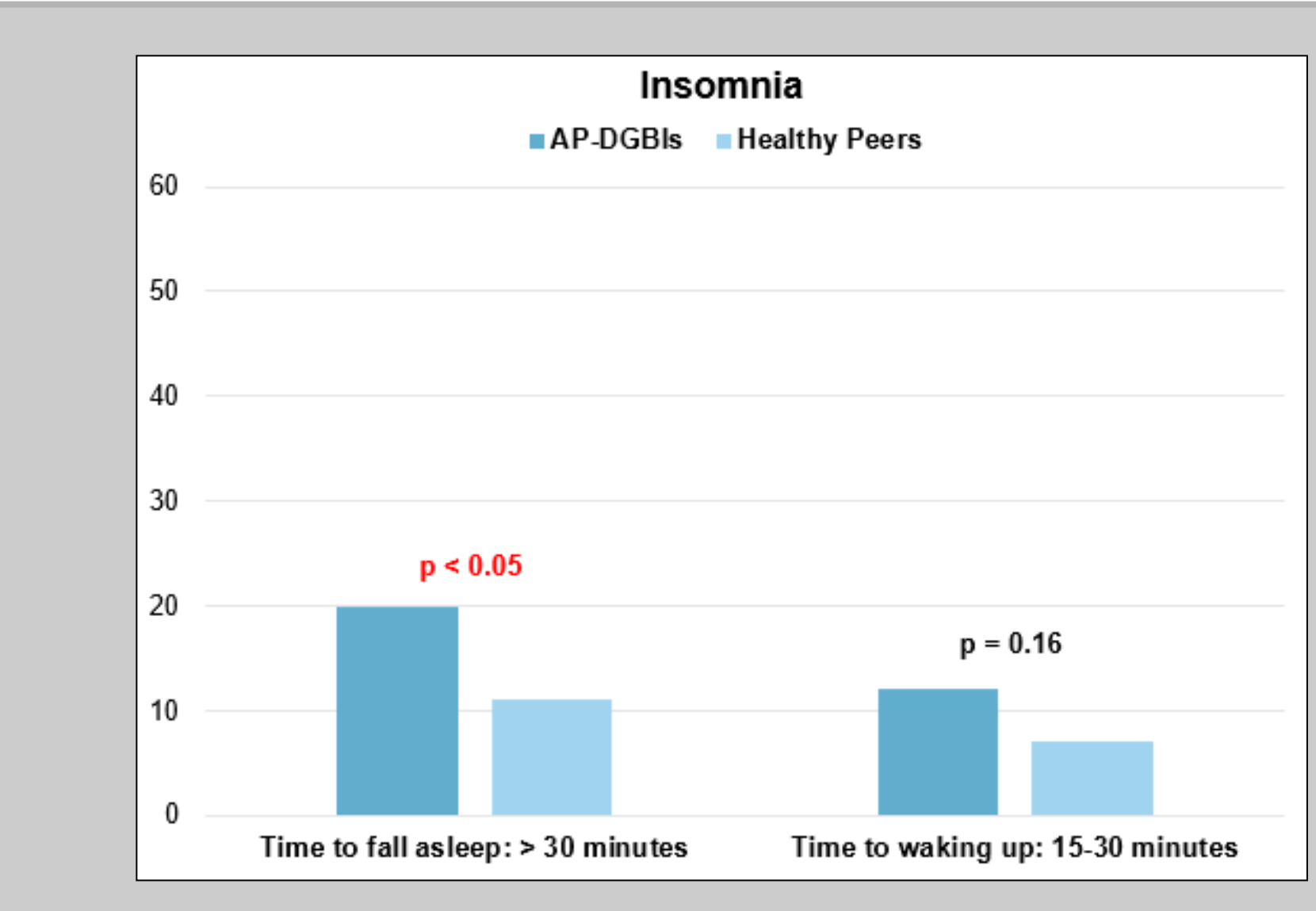
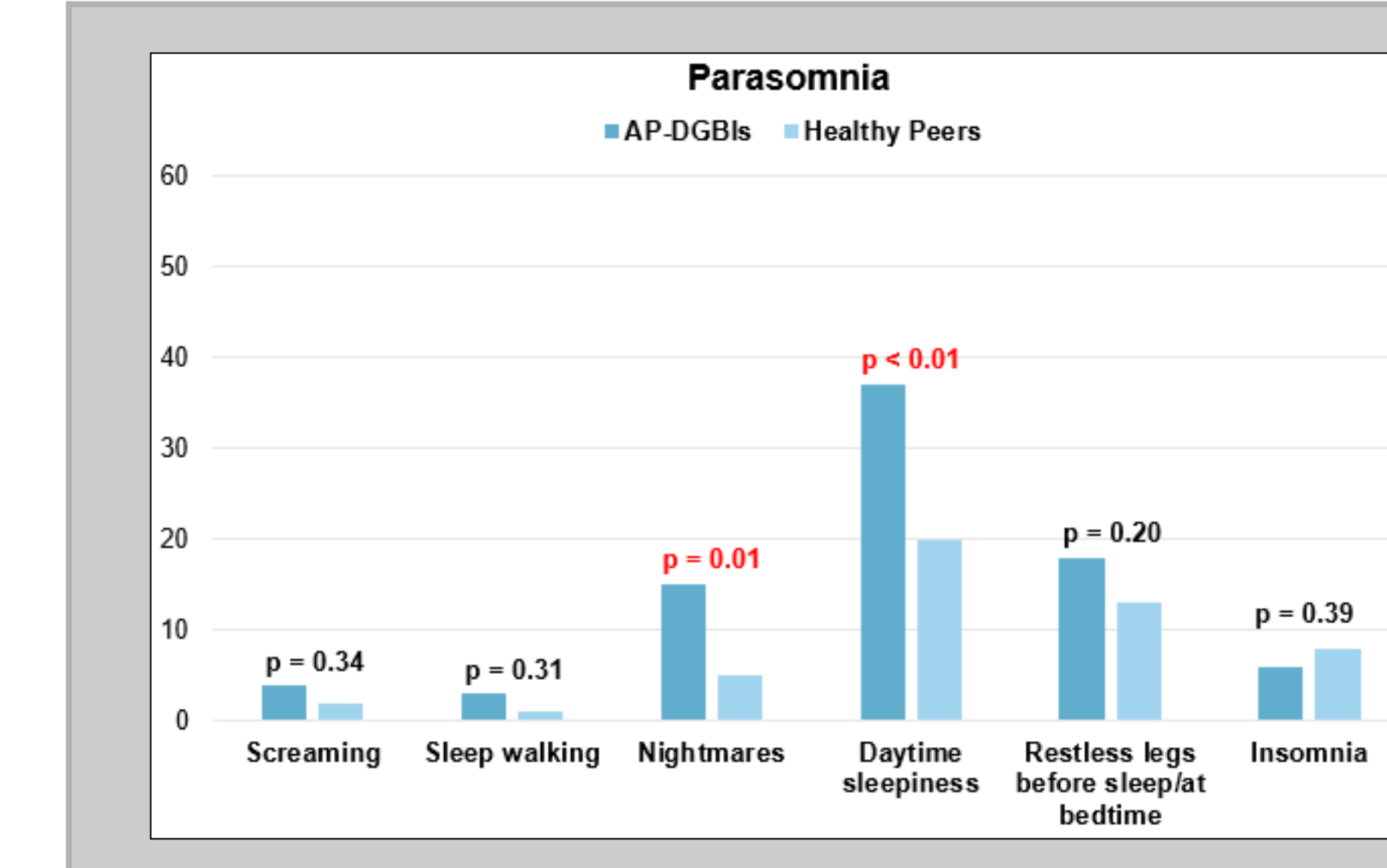
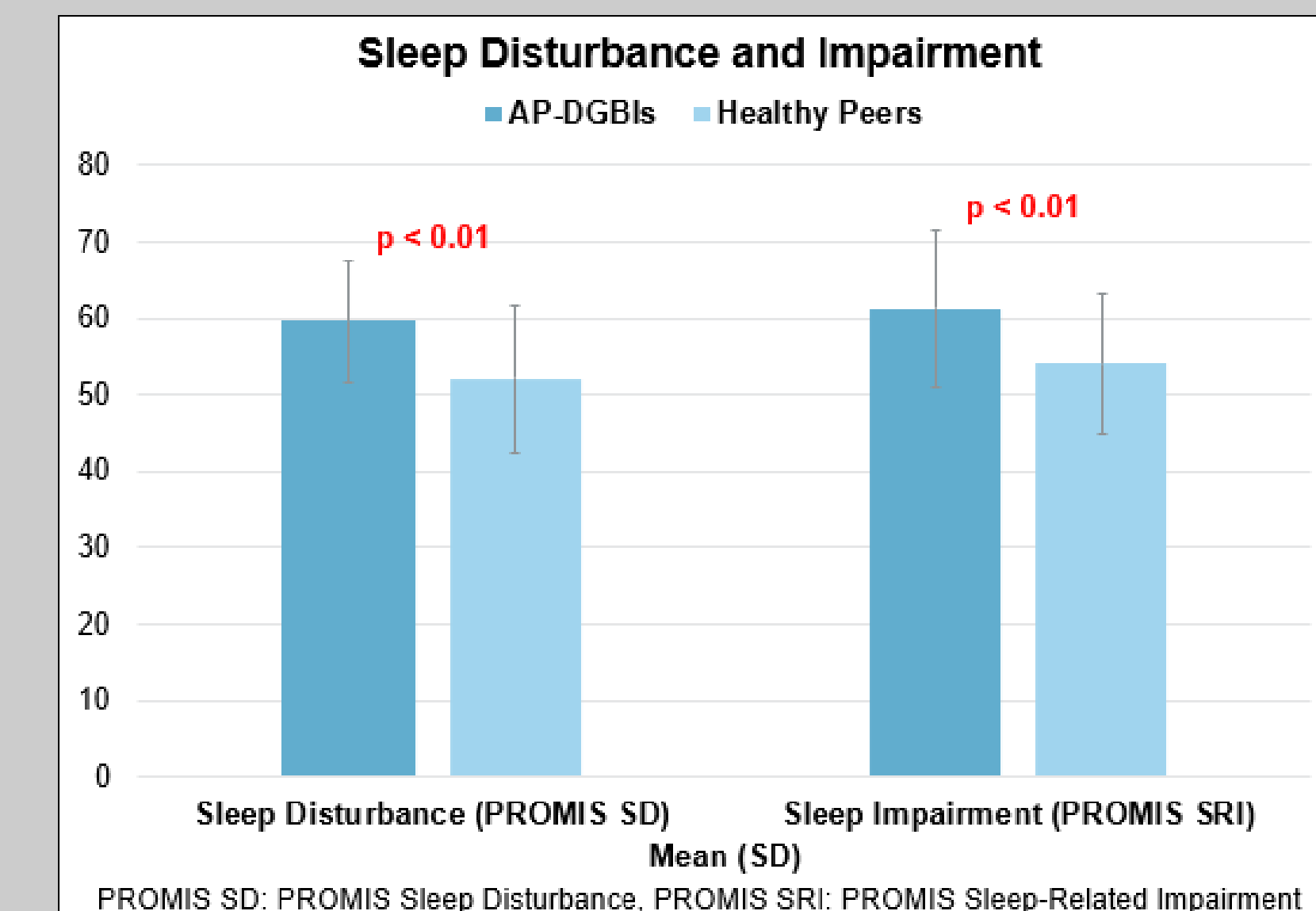
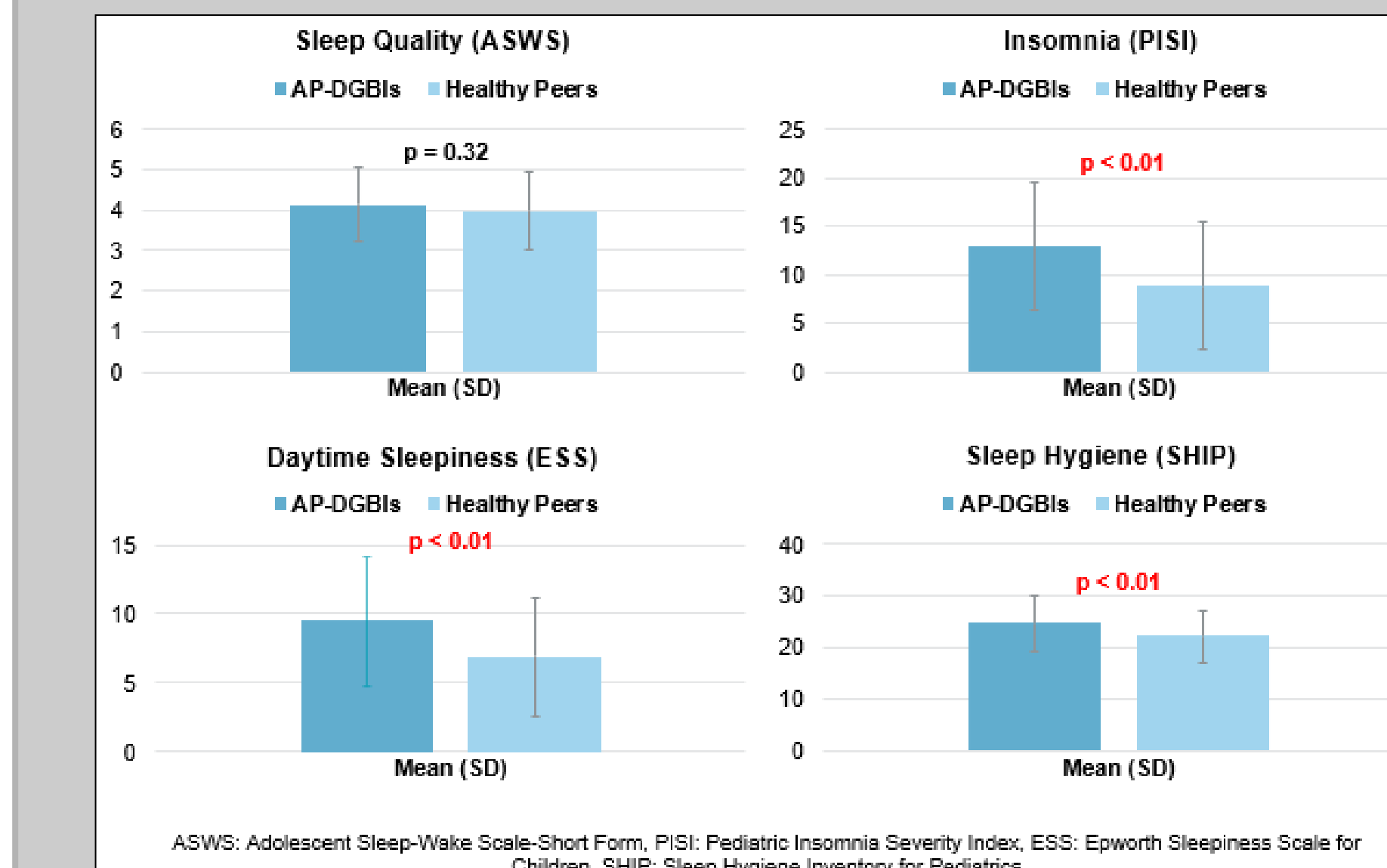
PROMIS Sleep Disturbance Severity



PROMIS Sleep Related-Impairment

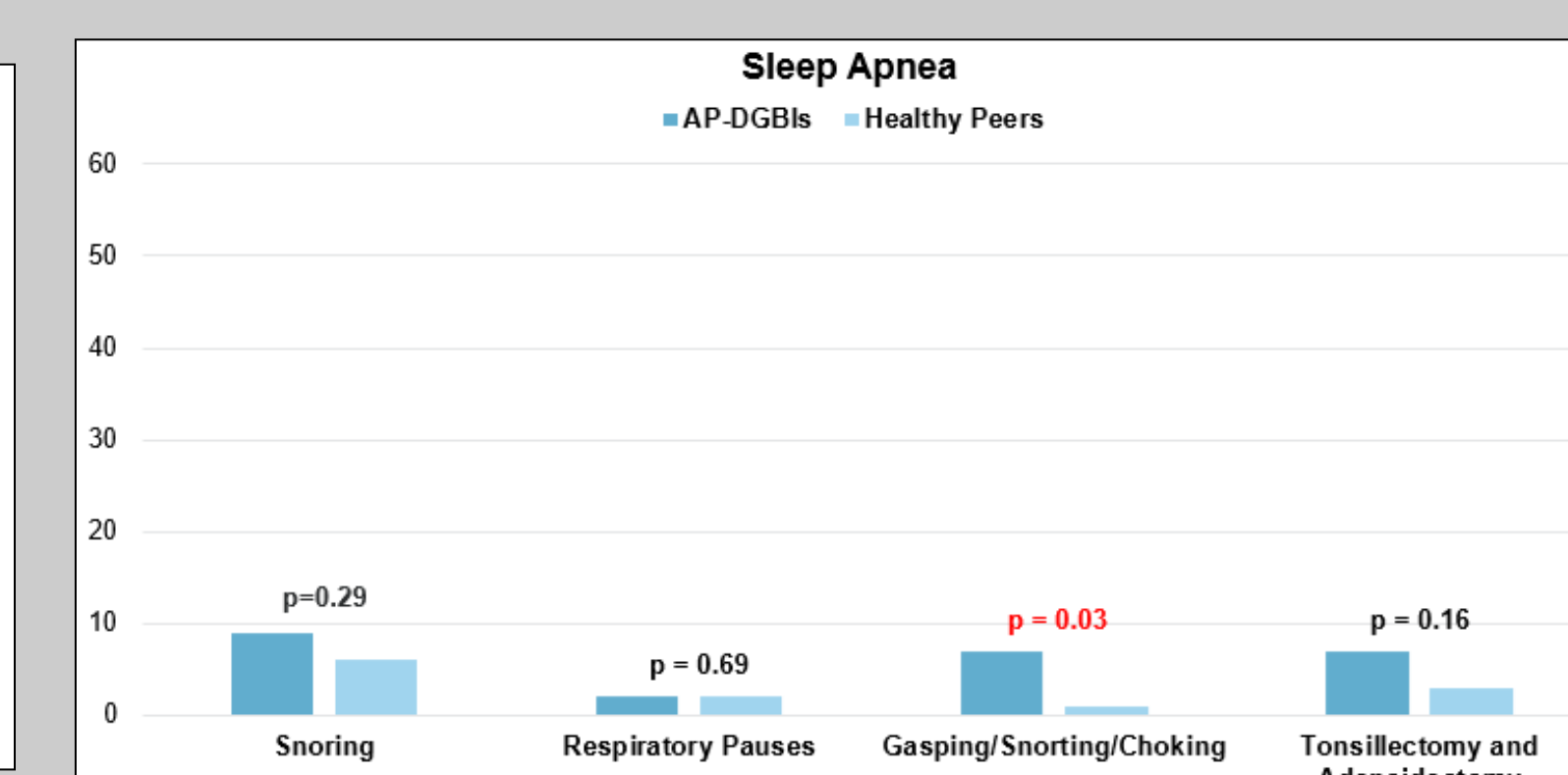


*p < 0.05, **p < 0.001



	PISI	ASWS	ESS	PROMIS SD	PROMIS SRI	SHIP
API	0.41**	0.17	0.38**	-0.08	-0.02	0.18
NSS	0.26*	0.21	0.26*	-0.20	0.02	0.22
PROMIS Anxiety	-0.15	-0.39**	-0.008	0.28*	0.34**	0.07
PROMIS Depression	-0.17	-0.25*	-0.12	0.14	0.33**	0.07
FDI	0.11	0.40**	0.18	-0.05	-0.01	0.32*

*p < 0.05, **p < 0.01. ASWS: Adolescent Sleep-Wake Scale-Short Form; PISI: Pediatric Insomnia Severity Index; ESS: Epworth Sleepiness Scale for Children; PROMIS SD: PROMIS Sleep Disturbance; PROMIS SRI: PROMIS Sleep-Related Impairment; SHIP: Sleep Hygiene Inventory for Pediatrics; API: Abdominal Pain Index; NSS: Nausea Severity Scale; FDI: Functional Disability Inventory



Conclusions

- Youth with FAPDs have worse insomnia, daytime sleepiness, sleep disturbance, and sleep-related impairment and sleep hygiene compared with healthy peers.
- They endorsed more gasping/choking/snorting and nightmares than healthy peers
- There was a trend for lesser total sleep time in youth with FAPDs compared with healthy peers
- They did not differ from healthy peers in bedtime routine, meals and caffeine consumption
- Higher insomnia severity (PISI) correlated with worse abdominal pain and higher ASWS correlated with worse FDI in children with FAPDs
- Future studies are needed to identify possible mechanisms by which sleep disturbances affect GI symptoms and vice versa
- This may lead to novel therapeutic applications with sleep targets to improve GI symptoms

References

- Santucci NR, King C, El-Chammas KI, et al. Effect of percutaneous electrical nerve field stimulation on mechanosensitivity, sleep, and psychological comorbidities in adolescents with functional abdominal pain disorders. *Neurogastroenterol Motil.* 2022;34(8):e14358.
- Santucci NR, King C, El-Chammas KI, et al. Effect of percutaneous electrical nerve field stimulation on mechanosensitivity, sleep, and psychological comorbidities in adolescents with functional abdominal pain disorders. *Neurogastroenterol Motil.* 2022;34(8):e14358.
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