Associations among Blood Pressure, Pain, and Treatment Outcomes for Pediatric Patients with Amplified Musculoskeletal Pain Syndrome

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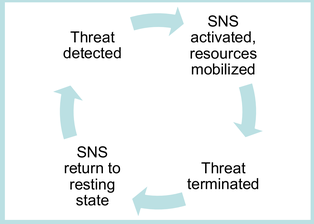
Background

- **Amplified musculoskeletal pain syndrome (AMPS):** continuum of presentations of non-inflammatory chronic musculoskeletal pain
- Pain serves as body signal of threat
- Threat → sympathetic nervous (SNS) system enervation



Methods

Chart reviews

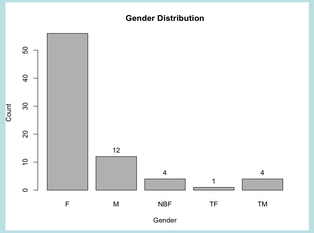
- 2021-2025
- Child and adolescent patients with AMPS through the Golisano Children's Hospital Amplified Musculoskeletal Pain Program (GCHAMPP)

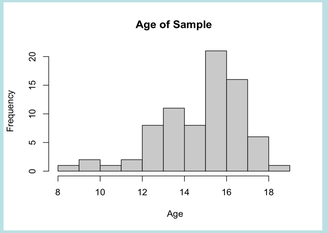
Measures

- Systolic and diastolic blood pressure
- Self-reported pain scores (1-10)
- Functional Disability Inventory (Walker & Greene, 1991), child-report

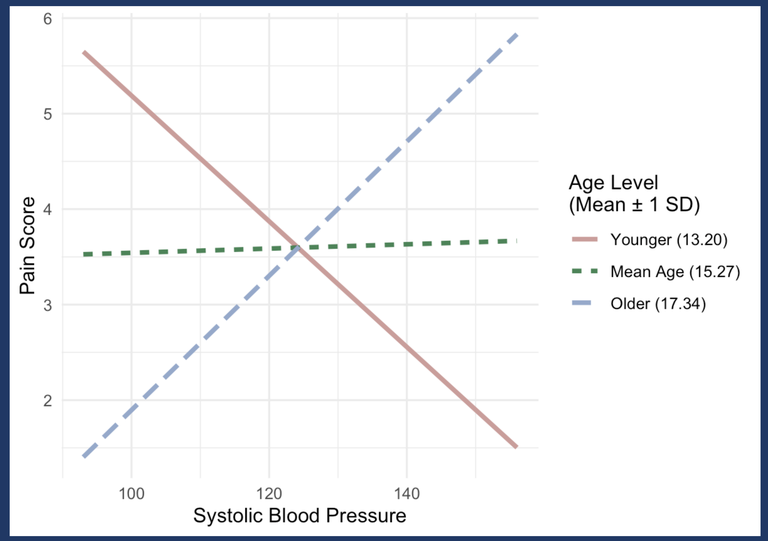
Results

N= 77





Systolic blood pressure and age interact to predict pain in pediatric AMPS patients



(β = .12, $t(69)$ = 2.21, p = .03)

Results

Variable Correlations				
	1	2	3	4
1. FDI	-			
2. Pain Score	.20	-		
3. SBP	-.04	-.04	-	
4. DBP	-.18	.01	.37***	-
5. Age	-.29*	-.19	.12	.25*
Note. * p < .05, ** p < .01, *** p < .001				

- Systolic blood pressure differentially predicts pain scores depending on age
- As systolic blood pressure rises..
  - Younger patients reported **lower** pain scores
  - Older patients with reported **higher** pain scores
- Diastolic Blood Pressure did not predict pain scores at any age
- No blood pressure metrics predicted FDI scores

Conclusions

- Systolic blood pressure differentially relates to pain scores depending on age
  - Hypoarousal for children and younger adolescents
  - Hyperarousal pattern later in adolescence
- Potential explanations and future research directions:
  - Role of pubertal development
    - hormonal and physiological stress response development
  - Physiological underpinnings of pain different across development
  - Feedback loop calibration

Implications

- Understanding of physiological risk factors
- Informing intervention selection