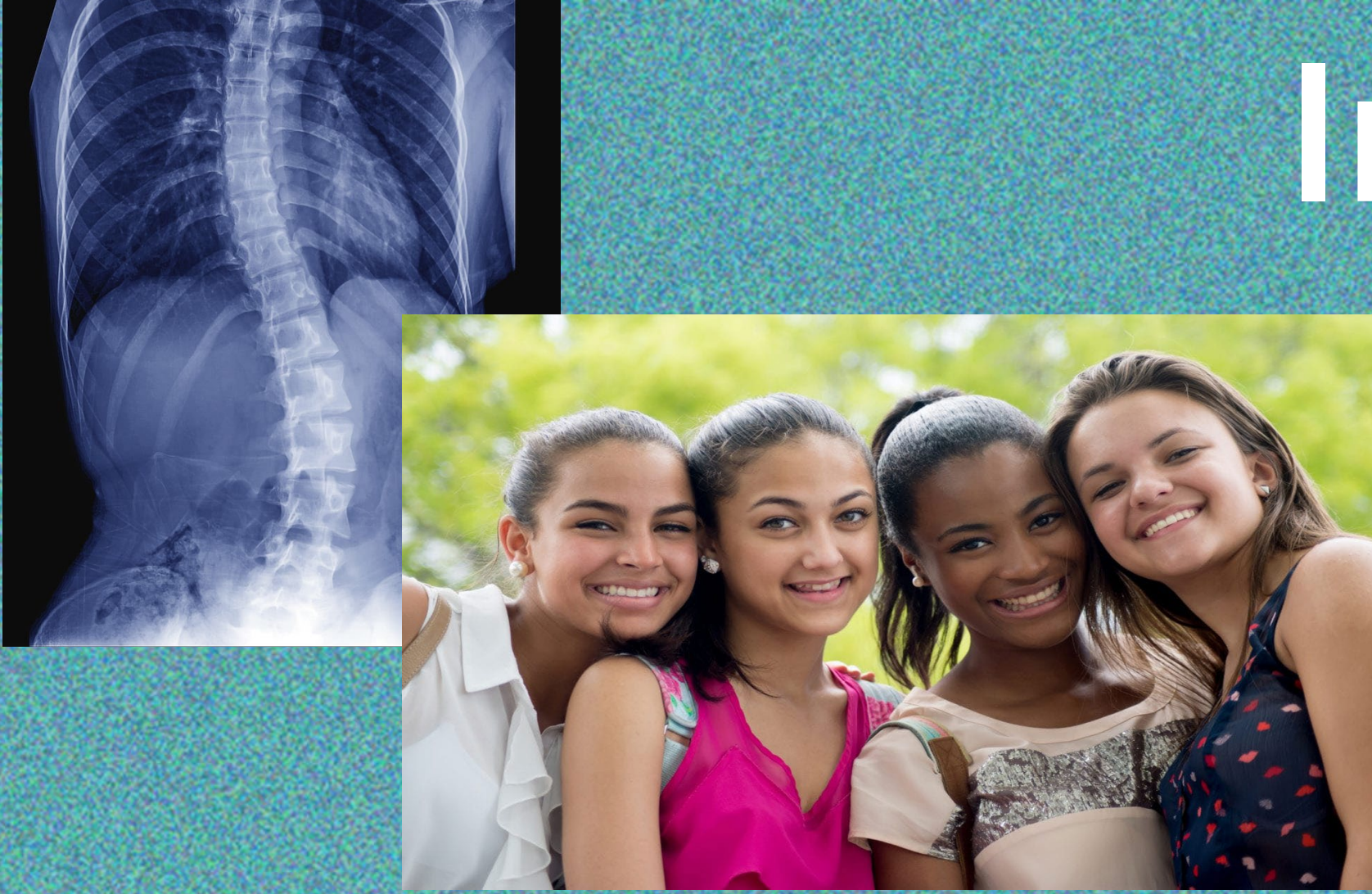


Insights from PROMIS on impact of Adolescent Idiopathic Scoliosis on psychosocial well-being and physical function

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 Examining the impact of adolescent idiopathic scoliosis on psychosocial well-being and physical function: revealing insights from patient-reported outcomes
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Objectives:

PROMIS assessments are beneficial alongside standard care for patients with AIS but interpreting scores and identifying those struggling more than peers can be challenging. This study established PROMIS scores for the AIS population and assessed if those with AIS differ from typical peers. Thresholds to identify individuals with 'at risk scores' were defined. Relationships among patient reported outcome (PRO) scores that assess psychosocial well-being and physical function were investigated.

Methods:

A convenience cohort of 95 patients (age 14.1 ± 1.7 years; primary curve of 33 ± 13°) with AIS completed questionnaires (SRS-22r, SAQ, PODCI, PROMIS). Analyses included descriptive statistics, unpaired t-test comparing to typical peers and correlations. Scores on PRO domains for the lowest interquartile groups (Low IQR) were compared to remaining cohorts (RC) using t-tests and differences evaluated using Cohen's d (ES).

Conclusions:

PROMIS guidelines use means of 50 and SDs of 10 and provide Reference cut points for interpreting patient scores. These cut points may not be sufficient for clinical interpretation. Most patients with AIS score within normal ranges. Interplay among psychosocial well-being domains and physical function are important to recognize. Ceiling effects may limit sensitivity to detect change. Patients in the PROMIS Low IQR groups score lower on psychosocial domains. Using IQR thresholds to identify these individuals can help predict which patients are at risk of negative psychosocial impacts and could benefit from interventions targeting psychosocial well-being, mitigating the potential negative impact of AIS.

Results:

- Study cohort reported psychosocial well-being scores similar to typical peers. Table 1
- Correlations among PROMIS domains were moderate. Mobility demonstrated moderate correlations with other function measures and with self-image and mental health PROs. Table 2
- Low IQR groups for PROMIS MOB, UE and PR reported significantly worse scores than RC on most PRO domains with effect sizes indicating clinically noticeable differences. Figures 1A, 1B, 1C
- Low IQR groups scores were below typical peers on SRS-22r Pain, Mental Health and PODCI domains. [Shaded values Fig 1A, 1B, 1C]

	Total			Interquartile Cut-Off Values		Ceiling/ Floor "ideal/norm"
	N	Mean ± Stdev	95% CI	Q1 <25% population	Q4 >75% population	
PROMIS Peer Relationships	92	54.8 ± 8.9	52.9-56.6	46.7	64.4	35%
PROMIS Mobility	92	52.9 ± 7.5	51.3-54.5	46.0	59.0	54%
PROMIS Upper Extremity	92	53.8 ± 5.2	52.7-54.8	49.0	57.0	69%

Table 1: Descriptive Data

	PROMIS Peer Relationships	PROMIS Mobility	PROMIS Upper Extremity
SRS-22r Self-Image	0.44	0.49	0.39
SRS-22r Mental Health	0.53	0.43	0.38
PODCI Happiness	0.38	0.39	0.17
PROMIS Mobility	0.46	1	0.47
PROMIS Upper Extremity	0.46	0.47	1
SRS-22r Function	0.46	0.65	0.58
PODCI UE Physical Function	0.38	0.51	0.64
PODCI Transfer Mobility	0.38	0.54	0.52
PODCI Sports & Physical Function	0.48	0.66	0.53

Table 2: Correlations

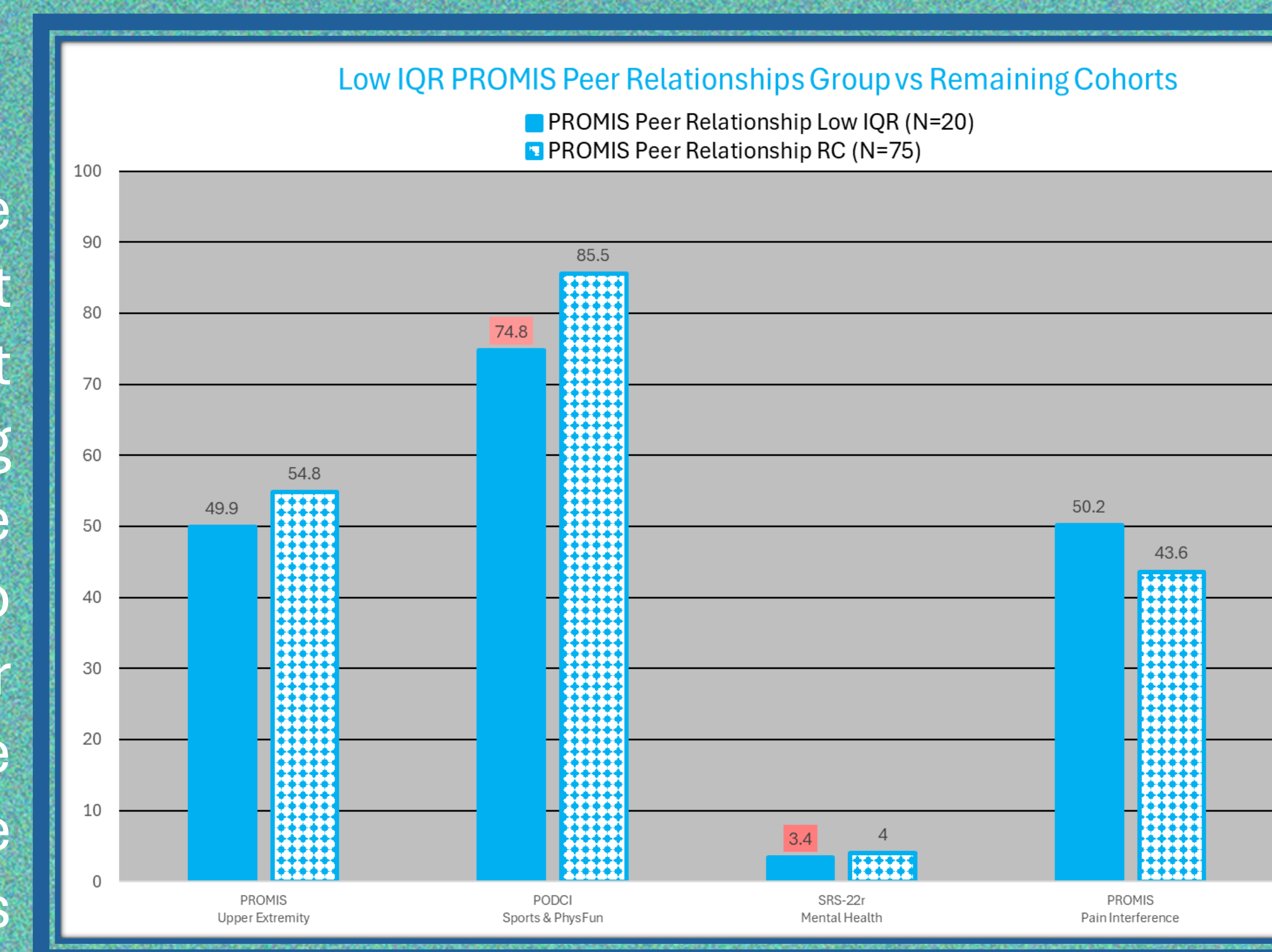


Figure 1A: Low IQR Group Peer Relationships

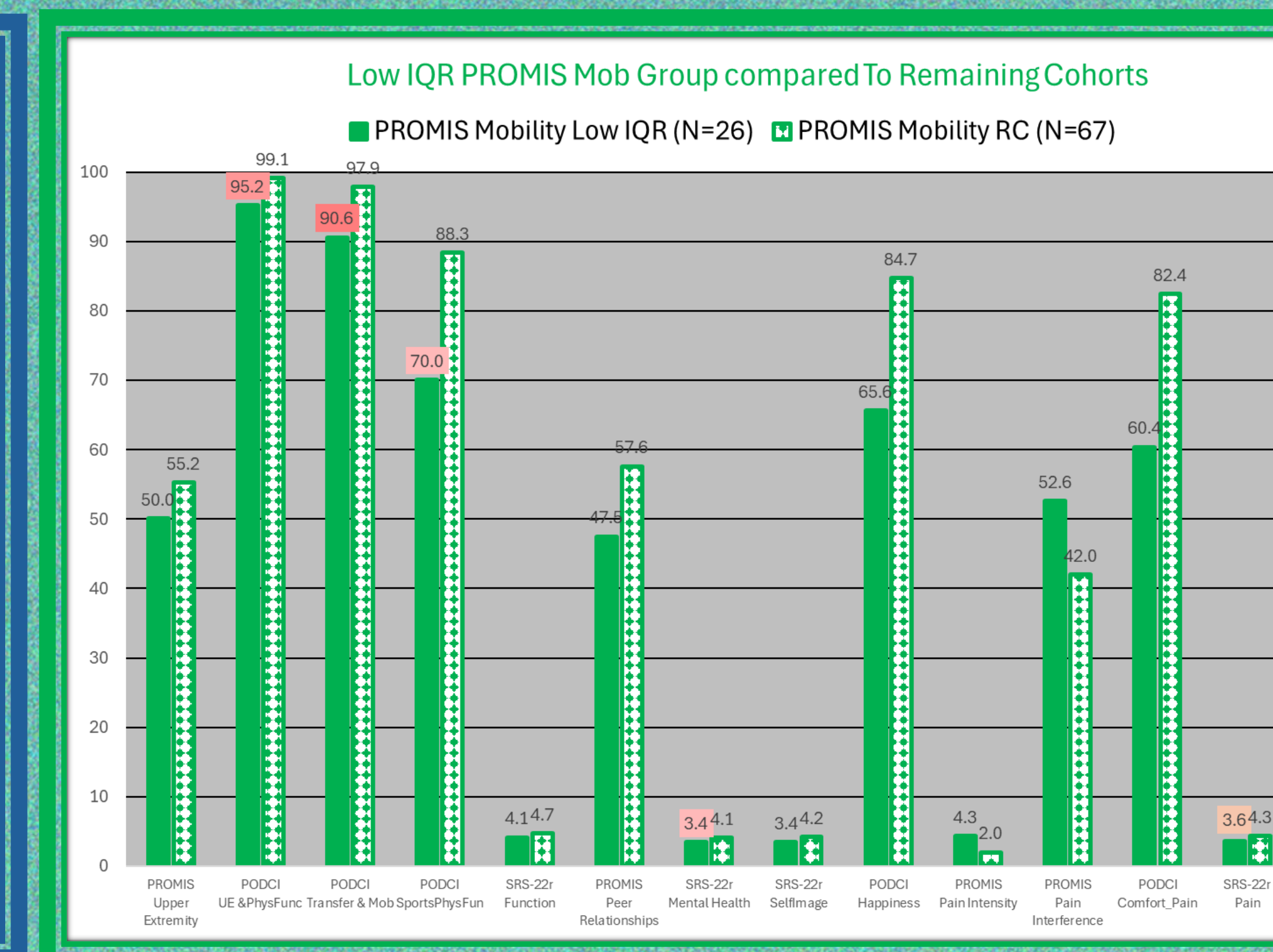


Figure 1B: Low IQR Group Mobility

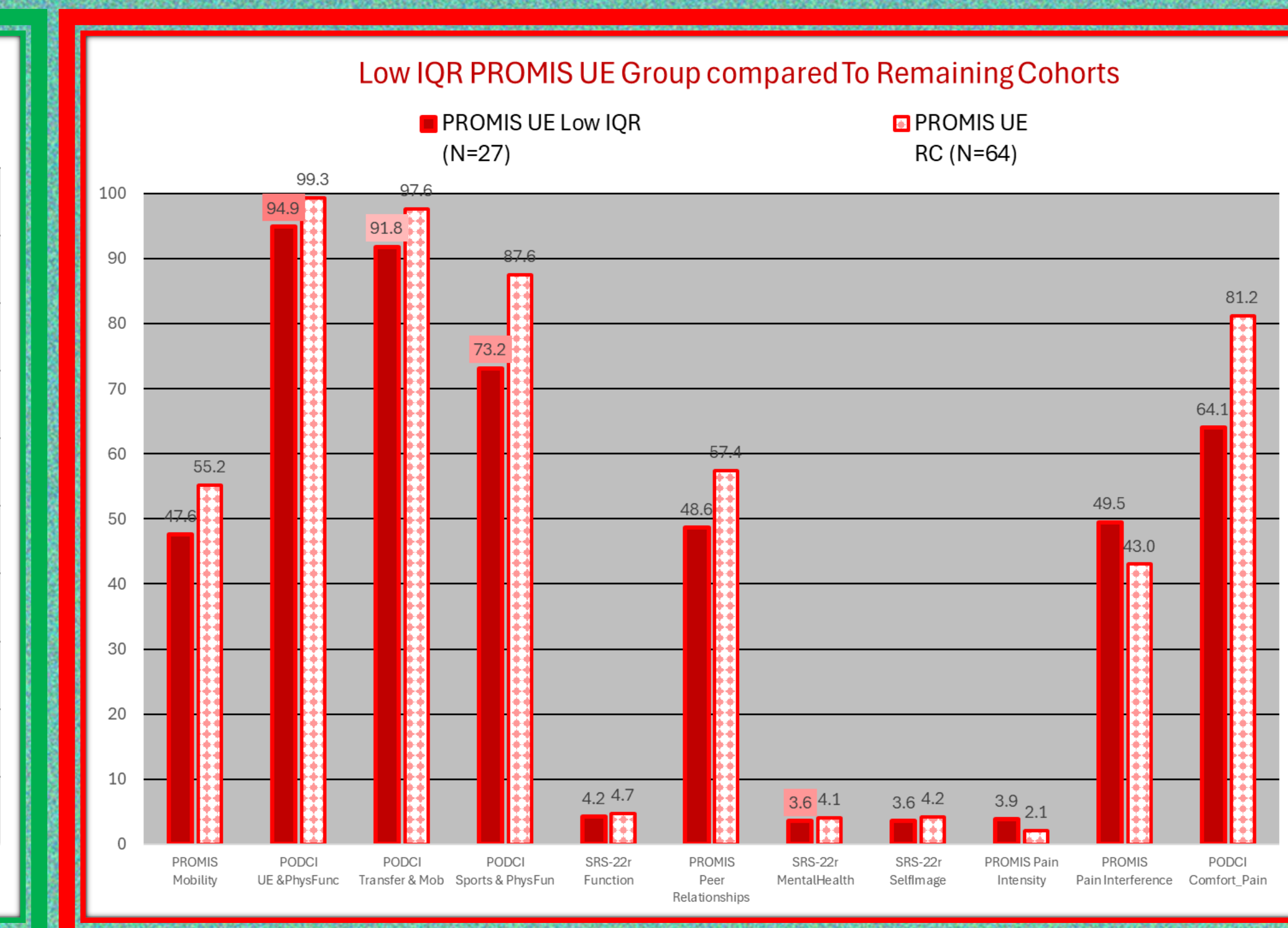


Figure 1C: Low IQR Group Upper Extremity



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