

Background and Purpose

The advantages and disadvantages of pre- versus post-operative external beam radiation therapy (EBRT) for adjuvant local control of soft tissue sarcomas (STS) have been extensively studied. However, there is minimal data on patient reported outcomes (PROs) associated with pre- or post-operative EBRT, and none in the PROMIS literature.

The goals of this study were to

- Compare PROMIS scores across peri-operative time points for patients receiving pre- and post-operative EBRT
- Evaluate for associations between PROMIS scores and patient, tumor, or operative characteristics
- Determine the minimum clinically important change in PROMIS scores for this patient population

Methods

- Anxiety, depression, pain interference, and physical function PROMIS domains were collected at the pre-operative (1), immediate post-operative (2), and post-treatment completion (3) timepoints for patients undergoing excision of STS.
- Median PROMIS scores were compared between patients undergoing pre- versus post-operative RT using the Kruskal-Wallis test.
- Patient (age, gender, race, marital status), tumor (size, location, histologic subtype), and operative (margins, wound complications) characteristics were evaluated for association with PROMIS scores in a regression model.
- The reliable change index (RCI) was used to determine minimum clinically important change in PROMIS scores and to compare scores between timepoints on an individual and population level.

Results

- 95 patients were included (19 pre-operative, 76 post-operative EBRT).
- There were no significant differences between EBRT groups for any PROMIS domain at any timepoint (Figure 1). Both groups had significant decreases in function between timepoints 1 and 2, while the pre-operative EBRT group had significant improvements in pain and function between timepoints 2 and 3.
- More patients with pre-operative than post-operative EBRT had wound complications ($p = 0.06$). Patients with wound complications were more likely to have significant increases in anxiety (36.4% vs. 8.3%; $p = 0.020$) and decreases in physical function (57.1% vs. 16.2%; $p = 0.011$) independent of EBRT timing.
- The minimum important change in PROMIS scores was found to range from 4-7 across all patients and PROMIS measures.

Discussion

- We found no association of EBRT timing with PROMIS outcomes, suggesting that neither pre- nor post-operative EBRT is associated with superior patient-reported outcomes on a population level.
- Patients with wound complications in both groups had worse anxiety and function at the completion of treatment compared with those that did not. The association of wound complications with worse anxiety and physical function should be considered when making individualized treatment recommendations regarding the timing of EBRT.

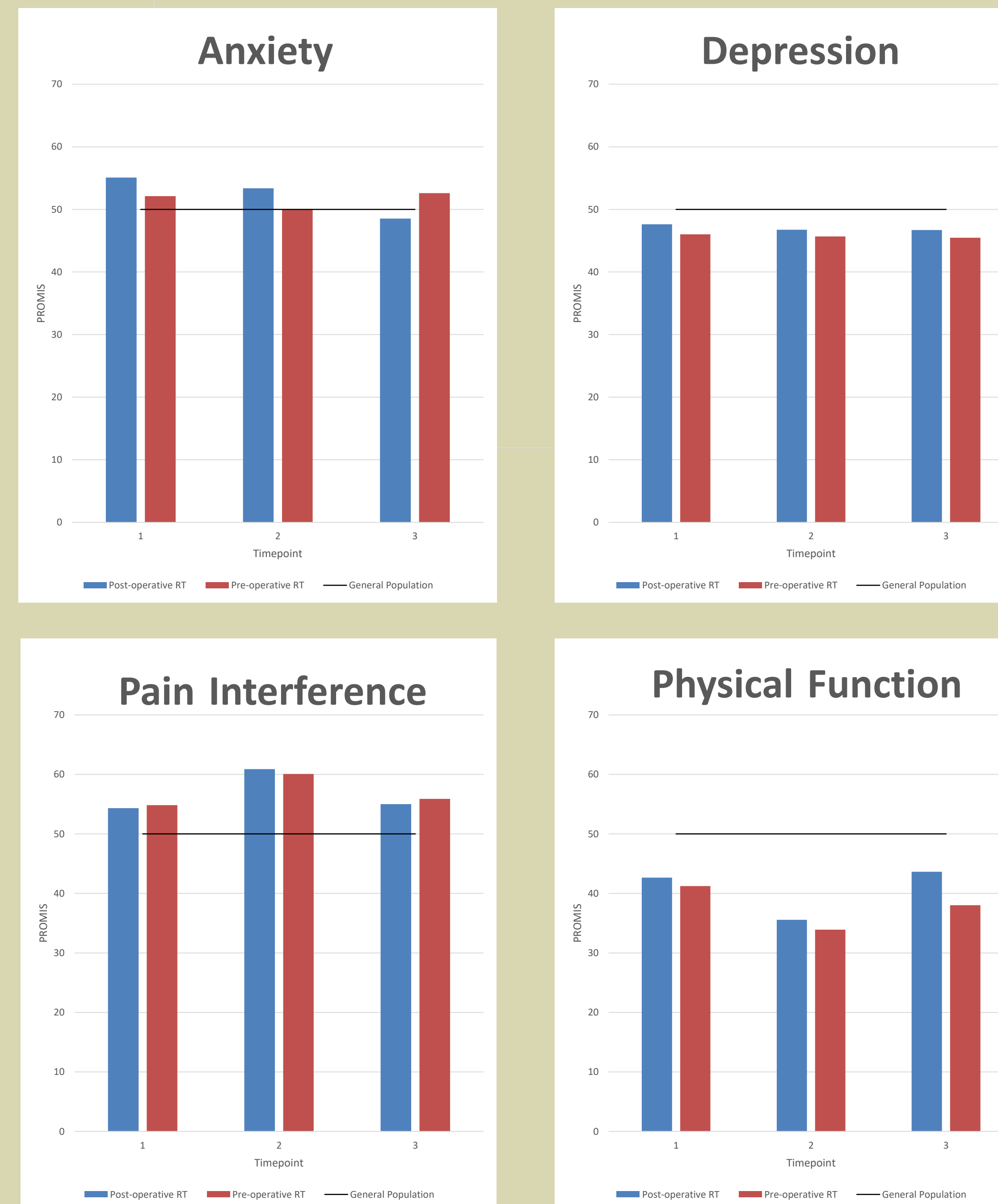


Figure 1. PROMIS A) Anxiety, B) Depression, C) Pain Interference, and D) Physical Function scores of patients undergoing pre- versus post-operative EBRT for treatment of soft tissue sarcoma, relative to the general population.