

80 Validation of PROMIS-25 Among Children Living with Burn Injuries

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Introduction: Patient-reported outcomes are important for burn injury research and clinical practice. The NIH-funded Patient Reported Outcomes Measurement System (PROMIS)-25 profile has been validated for use in diverse populations of children with many conditions, though not among children living with burn injuries. The purpose of this study was to examine the reliability and validity of PROMIS-25 scores in children living with burn injury.

Methods: Data were provided by children who were participating in a multi-center longitudinal study of outcomes after burn injury. The PROMIS-25 Profile, which includes 4 items for each domain of physical function mobility, anxiety, depression, fatigue, peer relationships, and pain interference, was evaluated for reliability and validity. Floor and ceiling effects, unidimensionality, internal consistency, and reliability were examined. Correlations with other measures (Post-Traumatic Growth Inventory-Child (PTGI-C), Child PTSD Symptom Scale (CPSS) and Burn Outcome Questionnaire Body Image Scale (BOQBI)) were calculated to assess concurrent validity.

Results: 256 children living with burn injury who sustained a moderate to severe injury provided responses on PROMIS-25 domains 6 months-10 years post burn. Participants' age ranged from 8-18 years at time of assessment; mean years since injury was 4.3 (SD 4.1). All PROMIS-25 domains showed high internal consistency (Cronbach's $\alpha=0.90-0.95$). Substantial portions of the sample reported no symptoms (anxiety [58.2%], depressive symptoms [54.6%], fatigue [50.8%], pain [60.1%]). There was a large ceiling effect on peer relationships (46.8%) and physical function mobility (57.5%). One-factor confirmatory factor analyses supported unidimensionality for all domains (all CFI >0.98). Reliability was credible for group mean comparisons (>0.8) across at least some trait levels for all domains except fatigue and anxiety which had low reliability (< 0.8) across the entire trait range. The magnitude and direction of correlations were as anticipated (0.32 for peer relationships and body image; 0.51 for depressive symptoms and PTSD) with the exception of weak negative correlations between PTGI-C and the anxiety and depression domains.

Conclusions: The results provide some evidence of reliability and validity of PROMIS-25 scores among children living with burn injury. Reliability of all domains was low to moderate and would likely be improved, and ceiling effects reduced, by administering the PROMIS-37, which includes 6 items per domain.

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81 Post-operative Self-adherent Compression Wrapping of the Hand and Its Impact on Skin-graft Viability

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Introduction: Potential complications of autografting for burn wound coverage of the hand include edema, hematoma formation, and bleeding; all of which can lead to graft failure. Self-adherent elastic wraps are commonly used by burn rehabilitation clinicians to minimize complications by providing graft protection and decreasing edema post-operatively; however, there is a lack of evidence on its impact on graft healing. The purpose of this study was to determine if the application of self-adherent elastic wraps to the hand in the operating room after autografting improves the percentage of graft viability.

Methods: A retrospective chart review was performed for 37 patients with burned hands who underwent autografting from January 2017 to July 2021. Grafted hands were categorized into 2 groups: post-operative dressings with and without self-adherent elastic wraps. Post-operative day 4 pictures for both groups were collected from the medical record and a blinded digital photograph analysis of graft viability was performed by 5 expert raters including 3 Burn Surgery Fellows, 1 Burn Attending Surgeon and 1 Hand Attending Surgeon. A rating system was developed based on percentage of graft take as seen in Table 1 and presence of hematomas were assessed.

Results: Patients who received self-adherent elastic wraps suffered burns with significantly larger TBSA ($p=0.007$) and were admitted for a longer duration ($p=0.009$) than patients who did not. Patients with elastic wrap had a higher percentage of grafts with >95% take (64.0% vs 41.7%, $p=0.227$) and a lower rate of hematoma formation (24.0% vs. 41.7%, $p=0.443$). Intra-class correlation coefficient across raters was 0.90 for graft take and 0.87 for determining presence of hematomas, indicating excellent interrater reliability.

Conclusions: Despite suffering larger burns requiring longer hospitalizations, patients who received elastic wrap had a higher rate of >95% graft take than those without. This