Burn depth is associated with quality-of-life burden but not itch intensity in early post-burn pruritus

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Background: Pruritus is a common and distressing consequence of burn injury and a leading source of long-term morbidity.[1] Existing work has concentrated on mechanism and treatment, where interventional trial evidence remains of moderate-to-low certainty.[2] Which burn characteristics drive itch severity and quality-of-life (QoL) impairment remains unclear. Sensory quality profiles map onto structural skin patterns in chronic pruritus,[3] and neuropathic mechanisms have been implicated in persisting post-burn itch.[4] We characterized itch in an early post-burn cohort and tested burn-related predictors against itch and QoL outcomes.

Methods: This single-center, cross-sectional study involved adults with burn injuries. Participants completed a questionnaire capturing itch intensity (0–10 VAS, current and typical episode), frequency and duration, a 45-item sensory descriptor checklist, a 16-site body map, and

the ItchyQoL. Continuous predictors were tested with Spearman correlations and bootstrap 95% confidence intervals, binary predictors with Mann–Whitney tests and Cliff's δ.

Results: Forty-seven participants (median age 43.5 years [IQR 30.2–56.5]; 63.8% male) completed questionnaires a median of 26.5 days [12.0–73.0] after injury. Third-degree involvement was present in 19/46 (41.3%), with a median of 3 [2–4] burned sites. All participants reported current itch (median VAS 6 [5–8]); typical episode intensity over the preceding two weeks was 5 [4–7], occurring most commonly 2–4 times daily and intermittently in 35/44 (79.5%). Itch ratings (0–4, where 0 = never itchy and 4 = constantly itchy) were higher in the evening and at night (both 3 [2–4]) than in the morning (2 [0–3]). Pain in itching areas was reported by 20/46 (43.5%); frequent exacerbating factors included dry skin (40.4%), sweating (34.0%), and stress (26.1%). Third-degree involvement was associated with worse functional (19.5 [13.3–27.8] vs 11.5 [9.0–18.3]; δ=0.40, p=.029), emotional (δ=0.42, p=.021), and total QoL (δ=0.42, p=.027), and with longer itch duration (60.4 vs 7.0 days; δ=0.57, p=.002), but not with itch intensity (δ=−0.04, p=.819). Number of burned sites correlated with number of itch sites (ρ=.626, p<.001). Longer time since injury correlated with worse emotional QoL (ρ=.367, p=.018) but not with intensity (ρ=−0.05, p=.726).

Conclusion: In this early post-burn cohort, itch intensity was generally moderate-to-severe yet was not associated with burn depth, number of burned anatomical sites, or time since injury. Third-degree involvement was instead associated with greater functional and emotional QoL

impairment and longer itch duration, while the number of burned sites correlated with the anatomical distribution of itch. These findings suggest that itch intensity alone may incompletely capture post-burn pruritus burden and that patients with deeper burns may benefit from additional QoL-focused assessment. Moreover, the consistency of itch intensity across varying burn depths suggests an underrecognized and underreported itch burden, emphasizing the need for systematic itch screening in post-burn care. Findings are exploratory and require confirmation in larger prospective cohorts incorporating TBSA and longitudinal assessment.

Table 1. ItchyQoL mean-item scores by third-degree burn involvement, median [IQR].

Subscale	No third degree	Third degree	P
Symptoms	2.00 [1.50–2.42], n=24	2.50 [1.67–2.83], n=17	.130
Function	1.64 [1.29–2.61], n=24	2.79 [1.89–3.96], n=18	.029
Emotion	1.25 [1.00–2.28], n=22	2.13 [1.56–3.31], n=19	.021

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