

---

78 **Classification and Regression Tree Model for Predicting Satisfaction with Life Scale Scores After Burn Injury**

Zephorah Bissoon, Emma L. Gause, MS MA, Gretchen J. Carrougher, MN, RN, Claudia Baker, BA, Shelley A. Wiechman, Ph.D., Tam N. Pham, MD, FACS, Nicole S. Gibran, MD FACS, Barclay T. Stewart, MD, PhD

*Johns Hopkins University, Baltimore, Maryland; Harborview Medical Center, Seattle, Washington; Department of Surgery, The University of Washington, Seattle, Washington; Harborview Medical Center, Seattle, Washington; University of Washington, Seattle, Washington; University of Washington, Seattle, Washington; University of Washington, Wellfleet, Massachusetts; University of Washington, Seattle, Washington*

**Introduction:** Current early burn care prognostication models predict in-hospital mortality (e.g., revised Baux Score). However, patients, families and clinicians need more holistic tools in the hours and days after injury to identify specific factors that might affect their quality of life and indicate a need for more intensive services. This project aims to predict Satisfaction with Life (SWL) in survivors of burn injury using patient, injury, and care factors available within 24 hours of admission.

**Methods:** Two hundred and fourteen participants were identified from a multicenter national longitudinal database and merged with clinical data from a single institution's trauma registry. Patients were randomized into a training dataset (80%) and a testing dataset (20%). A CART algorithm was used to examine the relative contributions of individual predictor variables in classifying low SWL at six-month follow up (SWL  $\leq$  20). Seventeen covariables obtained within 24 hours of index hospital admission were analyzed from five domains: demographics, comorbidities, injury, care, and host response to injury. Lab values were those closest to but not greater than 24 hours after index hospital admission.

**Results:** Multiple covariables contributed to the SWL score. CART analysis selected a pre-injury SWL score  $<$  31 as the first node and strongest indicator of low SWL. CART then selected the following subgroups at risk for SWL  $\leq$  20 at 6 months: (1) hematocrit  $>$ 55%; (2) lactate  $>$ 4 mmol/L, age  $>$  59; (3) total body surface area (TBSA) burned  $>$ 30%, presence of a hand, neck, and/or face burn. The cross-validated predictive accuracy of the CART model was 69.4% with a cross-validated relative error of 0.379. In the validation data set, sensitivity and specificity were 62.5% and 72.0%, respectively.

**Conclusions:** The findings demonstrate the potential feasibility of creating a model that can predict a clinically meaningful quality of life outcome using covariables gathered within hours of hospital admission after burn injury. Predictive measures suggest that while some of the included covariables may be associated with SWL, they are not consistently and reliably predictive of low SWL alone. With more data and additional refined inputs, a similar model could be used to identify those in need of more intensive services earlier on in the hospitalization.

---

79 **Factors Predicting Burn Survivor Group Interest in an Outpatient Burn Clinic**

Erin E. Ross, BS, Rachel A. Colbath, BS, Jeremy Yu, MS, Naikhoba Munabi, MD, MPH, Justin Gillenwater, MD, Haig A. Yenikomshian, MD  
*Keck School of Medicine, University of Southern California, Los Angeles, California; Keck School of Medicine of USC, Carlsbad, California; University of Southern California, Los Angeles, California; Keck school of medicine of USC, Los Angeles, California; USC/LAC+USC Medical Center, Los Angeles, California; USC/LAC+USC Medical Center, Los Angeles, California*

**Introduction:** Outpatient peer support groups have been demonstrated to help patients reintegrate with the community and improve self-acceptance following burn injury. Despite this, there is little data examining who desires participation. This is especially true for minority and socio-disadvantaged populations. The purpose of this study is to examine factors that influence desire to participate in burn survivor groups and actual participation rates.

**Methods:** Patients attending outpatient clinic were asked about participation in burn survivor group, interest in joining a group, and administered National Institute of Health Patient-Reported Outcomes Measurement Information System (PROMIS) Managing Emotions (ME) and Managing Social Interactions (MSI) questionnaires. Patient demographics, total body surface area burned (TBSA), initial hospital length of stay (LOS), and surgical intervention were collected from the medical record. While controlling for age and gender, indicators of injury severity and scores on PROMIS questionnaires were each examined for associations with survivor group interest using Firth or standard binary logistic regression.

**Results:** 70 patients completed surveys in English (60%, 42/70) and Spanish (40%, 28/70). Current or past participation in burn survivor group was low (n=3/70, 4.2%), with greater interest in joining burn survivor group (n=20/66, 30.3%). Most patients interested in burn survivor group were Spanish speaking (65%, 13/20). Interest in joining a burn survivor group was associated with all collected measures of injury severity (Table 1). Scores on ME and MSI were not significantly associated with burn survivor group interest (ME p=.636, MSI p=.133).

**Conclusions:** There is a gap between interest and participation in burn survivor group, particularly among Spanish speaking patients. Patients with increase in TBSA, LOS, and undergoing surgery were more likely to express interest in burn survivor group participation. Interestingly, patients' self-reported outcomes on emotional distress and interactions with others were not related to interest in burn survivor group.