

A Mobile Application Improves Health Literacy After Orthopaedic Trauma

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Purpose: Low health literacy has been associated with limited adherence to treatment recommendations and with poor outcomes. The purpose of this study was to evaluate the utility of an educational mobile application (app) for improving orthopaedic trauma health literacy and patient engagement. We hypothesized that app users would be more knowledgeable about their injury and associated treatment recommendations.

Methods: 228 adult patients with lower extremity injuries were approached during their initial presentation following injury. An informational flyer about the app was provided, with the app available for download from either Google Play or the Apple App Store. 183 patients were surveyed prior to app usage and were recorded as control patients. The survey queried knowledge of fracture location, type of treatment, weight-bearing status, healing time, and type of deep vein thrombosis (DVT) prophylaxis. After using the app 45 patients were surveyed at their next outpatient visit.

Results: All patients were stratified according to sex, race, age (<25 years, 25-39 years, 40-60 years, >60 years), and highest level of education. App users were more likely to be female (58% vs 39%, $P = 0.03$) and to have at least a high school education (9.8% vs 0, $P = 0.03$) but were no different regarding age or ethnicity. App users showed stronger health literacy in 3 of 5 categories: knowledge of fracture location (64% vs 38%, $P = 0.001$), weight-bearing status (100% vs 82%, $P = 0.003$), and estimated healing time (53% vs 21%, $P < 0.0001$). No differences were noted in knowledge of type of surgery or DVT prophylaxis, but control patients correctly answered >85%, so there was minimal room for improvement. In addition to collecting health literacy measures, the researchers also collected app satisfaction data to improve the app's utility for patients. Regarding content, study patients favored the "My Injury Section" (80%) and suggested more information on exercises (11%) and nutrition (11%).

Conclusion: Trauma app users had better health literacy, particularly pertaining to knowledge of injury type, weight-bearing status, and healing time. Additionally, app users were predominantly female and had at least a high school education. The results of this study support the app to strengthen health literacy and suggest continued investigation to ascertain whether this translates into better adherence to treatment and to better patient-reported outcomes.