

Comparing a simple numeric pain rating scale (NPRS) to a descriptive NPRS for the management of pain in an inpatient community hospital setting

Learning Objective: Describe how changing to a more descriptive numeric pain rating scale could change patient medication use and outcomes.

Background: Southeast Hospital uses an 11-point NPRS of 0 to 10 with 0 representing no pain, 1-3: mild pain, 4-6: moderate pain, and 7-10: severe pain. A change to a more descriptive pain rating scale was proposed. Since pain is related to a patient's function, a change to a more specific pain scale will allow for better assessment and management. The purpose of this study is to determine how a patient rates his or her pain with a simple and less descriptive NPRS compared to a more descriptive NPRS, how well pain is controlled, and what types of medications were administered.

Methods: This was a retrospective pre-implementation and post-implementation study with a one month post-implementation pilot analysis. One month of data for medications given as-needed for pain was collected both before and after implementation of the new scale. Data from the pilot study involved one inpatient floor that included administration of pain medications to patients at least 18 years of age. Nurses and other members of the healthcare team were educated on the more descriptive pain scale. Patient age, gender, pain rating pre-medication administration, symptom improvement, class of pain medication, route of administration, and number of administrations were collected and compared between scales. Data was collected from nursing documentation for pain. Statistical tests such as Mann-Whitney U for ordinal data and Chi-square test for categorical data were used to assess differences pre- and post-implementation. The outcomes assessed in the pilot study were the average pain scale score, number of narcotic medication administrations, and the response to pain medications post-administration.

Results: 6683 pain scale ratings have been collected pre-implementation of the descriptive pain scale with a total of 1026 pre-implementation pain scale ratings extracted for the pilot study. 622 post-implementation pain scale scores were collected from the pilot study. 94 patients from the pre-implementation data were extracted to be compared to 82 pilot study patients post-implementation. The average pain scale scores from the pilot study were 6.4 pre-implementation and 6.33 post-implementation which showed no statistically significant difference between scales ($p = 0.46$). There was a statistically significant difference pre- and post-implementation regarding the number of narcotic medications administered (91% vs 86%; $p = 0.01$). Pre-implementation, 96% of pain medication administrations (narcotic and non-narcotic) were effective in treating the patient's pain as opposed to 97% post-implementation ($p = 0.36$).

Conclusions: There was no statistically significant difference between the two scales regarding pain scale scores and the effectiveness in treating pain. There was a statistically significant difference in the number of narcotic medications administered favoring the more descriptive NPRS. However, due to the subjectivity of pain and statistical tests being sensitive to population size difference, this outcome should be interpreted with caution. The limitations of this pilot study were the retrospective design, the small sample size, single-center, single patient floor, the subjectivity of pain and variable nursing documentation. More post-implementation data for various inpatient floors excluding procedural and critical care areas will be collected and analyzed once the more descriptive NPRS is hospital-wide. Reduction in the use of narcotics with the more descriptive NPRS and nursing documentation discrepancies will also be investigated.