

00229 **Validation of the Triage Scales: Emergency Severity Index Versus the Patient Acuity Category Scale in a Singapore Emergency Department**

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Aims: Overcrowding and long waiting times remain perennial issues in Singapore's emergency departments (EDs). Previous studies showed that implementation of five-level triage scales significantly reduced waiting times and left without being seen rates. The five-level Emergency Severity Index (ESI) was chosen to be compared against the four-level Patient Acuity Category Scale (PACS) in Singapore as it uniquely incorporates resource utilisation in its triage algorithm. The aim of this study was to compare the interrater reliability and construct validity of the ESI and the PACS in a Singapore ED.

Methodology: A descriptive, correlational, and cross-sectional design was used. Twenty-seven triage nurses were recruited to test interrater reliability for 20 patient case scenarios. Subsequently, 300 patients were recruited via consecutive sampling to test for interrater reliability on actual patients. All triage nurses were blinded to each other's ratings. Patients' hospital dispositions and the number of resources utilized were collected from the hospital's database to examine construct validity.

Result: Interrater reliability for patient case scenarios for both ESI and PACS were very good, at $\kappa=0.87$ (95% CI: 0.86–0.88) and $\kappa=0.88$ (95% CI: 0.87–0.89) respectively. Interrater reliability for actual patients were moderate for both ESI and PACS, at $\kappa=0.59$ (95% CI: 0.50–0.68) and $\kappa=0.49$ (95% CI: 0.40–0.60) respectively. Both the ESI and the PACS showed construct validity with moderate correlations with the number of resources used (ESI: $p=-0.609$, PACS: $p=-0.620$, $p<0.001$). Higher odds of admission were correlated with higher acuity triage ratings.

Conclusion: Both triage systems showed good reliability and validity in triaging actual patients. However, the ESI demonstrated better resource discrimination ability compared to the PACS. Many PACS 2 patients fell into the ESI 3 category, perhaps because resource intensive patients were not the most unstable in the ED. Hence, ESI's implementation can improve resource management and patient throughput in EDs.