



A pilot validation study of the electronic pain assessment tool (ePAT) in residents with dementia

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Aim: This correlational study aimed to validate the electronic Pain Assessment Tool (ePAT) against the Abbey Pain Scale (APS) in residents with moderate-to-severe dementia. The ePAT is a novel tool that utilises real-time analysis of facial micro-expressions to detect the presence of pain, then uses these data in combination with non-facial pain cues to automatically calculate a pain severity score.

Methods: A purposive sample of forty residents (30% males, age: 80 ± 9.1 years) with clinical pain were recruited from three aged care homes in metropolitan WA. Residents were independently and simultaneously rated for pain using the ePAT and the APS during standard care, both at rest and on movement. The APS was administered by a carer or nurse employed by the facility whilst the new assessment (i.e. the ePAT) was mainly administered by the primary researcher. Raters were blind to each other's assessment. Concurrent and discriminant validity were evaluated.

Results: The total number of paired assessments were 311 (rest= 192, movement= 119) with an average of 8 assessments per resident. Concurrent validity of the ePAT vs APS showed a correlation coefficient (r) of 0.89 overall ($r=0.87$ at rest; 0.91 with movement) and concordance correlations of 0.61 (at rest) and 0.63 (with movement). Discriminant validity showed that pain scores associated with movement were higher than those at rest in the same resident, when assessed using either of the tools. Statistical analysis demonstrated that the association between ePAT and APS scores was not activity-dependent ($p=0.254$).

Conclusions: The ePAT has demonstrated excellent performance against the APS regardless of involved activity when assessing clinical pain in patients with moderate to severe dementia. These results are highly encouraging and a larger multi-centre implementation is now planned in Australia.

Awarded Best Paper Prize

