

Psychometric evaluation of a structured assessment tool for Nurse Anesthetists' Non-Technical Skills

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Background: Non-technical skills are the essential cognitive, social, and personal resource skills that contribute to safe and efficient task performance. Behavioral rating systems give an opportunity to train and evaluate non-technical skills. A behavioral rating system to evaluate the performance of nurse anesthetists' non-technical skills exists in Denmark and Norway but not in Sweden. The study aims to translate and adapt nurse anesthetists' non-technical skills into Swedish and test its psychometric qualities among Swedish nurse anesthetists.

Methods: This study is a prospective psychometric evaluation that includes translating, evaluating face validity, and testing the psychometric qualities. Twelve short video clips of different situations in anesthesia were recorded in a simulated environment. Before rating the video clips, the nurse anesthetists (n=16) underwent a three-hour workshop. The nurse anesthetists rated all video clips, and after approximately four weeks, a test-retest was conducted, including five video clips. The ratings were analyzed using Cronbach alpha and intraclass correlation coefficient.

Results: Internal consistency shows an acceptable result on the element level, and Interrater reliability shows a good result. Retest reliability shows poor to moderate reliability. There is a substantial variance in the use of "Not Relevant" by the raters, the length of the video clip, and the provider that was rated.

Conclusions: This initial psychometric testing shows uncertainties when rating short video clips, rating of the secondary provider, and affected by individual raters due to the high amount of rating "Not Relevant". Even so, there is good stability, inter-rater reliability, and poor to moderate test-retest reliability.