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Abstract

INTRODUCTION: To achieve an expert performance of care teams, adequate simulation-based team training courses with an effective instructional design are essential. As the importance of the instructional design becomes ever more clear, an objective assessment tool would be valuable for educators and researchers. Therefore, we aimed to develop an evidence-based and objective assessment tool for the evaluation of the instructional design of simulation-based team training courses.

METHODS: A validation study in which we developed an assessment tool containing an evidence-based questionnaire with visual analogue scales (VAS), and a visual chart directly translating the results of the questionnaire. Psychometric properties of the assessment tool were tested using five descriptions of simulation-based team training courses. An expert-opinion based ranking from poor to excellent was obtained. Ten independent raters assessed the five training courses twice, by using the developed questionnaire with an interval of two weeks. Validity and reliability analyses were performed by using the scores from the raters, and comparing them with the expert's ranking. Usability was assessed by an 11-item survey.

RESULTS: A 42-item questionnaire, using visual analogue scales (VAS), and a propeller chart were developed. The correlation between the expert opinion based ranking and the evaluators' scores (Spearman correlation) was 0.95, and the variance due to subjectivity of raters was 3.5% ($V_{Training \times Rater}$). The G-coefficient was 0.96. The inter-rater reliability (ICC) was 0.91 (95% CI 0.77 to 0.99), and intra-rater reliability for the overall score (ICC) was ranging from 0.91 to 0.99.

CONCLUSIONS: We developed an evidence-based and reliable assessment tool for the evaluation of the instructional design of a simulation-based team training: the ID-SIM. The ID-SIM is available as a free mobile application.

KEYWORDS: simulation, team training, instructional design

What this paper adds

What is already known on this subject

Simulation-based team training is advised to reduce the number of medical errors. Instructional design features for an effective training course are described. However, until now an assessment tool to evaluate the quality of an instructional design is lacking.

What this study adds

We developed a valuable and reliable assessment tool for the evaluation of the instructional design of simulation-based team training courses: the ID-SIM. An objective and standardized evaluation of these courses enables reliable comparisons between different training designs.