

Supplementary Table 3. Outcome Assessment Methods of the Included Studies

No.	Measurement instrument	Assessment timing	Comparison type
A1	Disaster triage accuracy/time Disaster triage confidence Learning immersion Cognitive flexibility inventory	Pre & post test	Within-group pre-post and between-group comparison
A2	Disaster literacy scale General disaster preparedness belief scale	Pre & post test	Within-group pre-post and between-group comparison
A3	Knowledge test Attitude scale Student satisfaction and self-confidence in learning scale	Pre & post test	Within-group pre-post and between-group comparison
A4	KTAS triage competency Disaster nursing core competency Disaster nursing confidence Self-efficacy	Post-test only	Between-group comparison
A5	Disaster nursing competency scale Disaster preparedness scale Triage score Critical thinking scale Confidence in disaster nursing	Pre & post test	Within-group pre-post and between-group comparison
A6	Disaster response core competencies Problem-solving ability Self-leadership capacity	Pre & post test	Between-group comparison only
A7	Disaster mental health competence Problem-solving process Self-leadership Learning self-efficacy Motivation to transfer	Pre & post test	Within-group pre-post and between-group comparison
A8	Knowledge test Motivation questionnaire Cognitive load questionnaire	Pre & post+final test	Within-group pre-post and between-group comparison
A9	Disaster preparedness scale Disaster nursing core competency scale	Pre & post (repeated measures)	Within-group pre-post and between-group comparison
A10	20-item MCQ knowledge/decision-making tests Instructional mode opinion survey	Pre & post test Final test at 6 weeks	Within-group pre-post and between-group comparison
A11	ICCAS Post-activity questions Open-ended feedback	Retrospective pre-post+post-activity	Within-group pre-post and between-group comparison
A12	Disaster nurses' knowledge questionnaire Five-station OSCE checklist	Pre & post + 1-week OSCE + 1-month OSCE	Within-group pre-post and between-group comparison
A13	Psychological first aid knowledge competence Self-efficacy questionnaires	Pre & post test	Within-group pre-post and between-group comparison
A14	Chemical disaster preparedness scale Self-efficacy scale	Pre, 1-week post, 3-week follow-up	Within-group pre-post and between-group comparison
A15	EPIQ Researcher-developed OSCE checklist	Pre & post (1 month)	Within-group pre-post and between-group comparison
A16	Questionnaire of Disaster Rescue Ability	Pre & post test	Within-group pre-post and between-group comparison

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Supplementary Table 3. Continued

No.	Measurement instrument	Assessment timing	Comparison type
A17	Decontamination checklist NLN student satisfaction and self-confidence in learning survey	Post-test only	Between-group comparison only
A18	Elsevier test-bank pre/post-test Unver et al. 12-item self-assessment survey Qualitative Wiki responses	Pre & post (after live/virtual simulations)	Within-group pre-post and between-group comparison
A19	Knowledge test Technical skills checklist Emergency care capacity scale Disaster preparedness questionnaire	Pre & post (3-month training)	Within-group pre-post and between-group comparison
A20	Preparedness survey Communication rating checklist Evacuation performance checklist	Post-test only	Between-group comparison only
A21	Disaster nursing knowledge Disaster attitude Disaster nursing implementation ability	Pre & post test	Within-group pre-post and between-group comparison
A22	Knowledge test Performance checklist Performance time Satisfaction questionnaire	Pre & post +6-month follow-up	Within-group pre-post and between-group comparison
A23	EPIQ FEMA 20-item MCQ Decontamination Checklist	Pre & post for EPIQ/FEMA (post-performance for checklist)	Within-group pre-post and between-group comparison
A24	20-item MCQ knowledge assessment	Pre & Post+2-month follow-up	Within-group pre-post and between-group comparison

EPIQ = Emergency Preparedness Information Questionnaire; FEMA = Federal Emergency Management Agency; ICCAS = Interprofessional Collaborative Competency Attainment Survey; KTAS = Korean Triage and Acuity Scale; MCQ = multiple choice questions; NLN = National League for Nursing; OSCE = objective structured clinical examination.