PENGARUH PEMBELAJARAN VIRTUAL REALITY TRIAGE SIMULATION TERHADAP KEMAMPUAN CLINICAL REASONING TRIASE MAHASISWA KEPERAWATAN
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PENGARUH PEMBELAJARAN *VIRTUAL REALITY TRIAGE SIMULATION* TERHADAP KEMAMPUAN *CLINICAL REASONING* TRIASE MAHASISWA KEPERAWATAN

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INTISARI

Latar Belakang: *Clinical reasoning* merupakan atribut perawat ahli yang diperlukan untuk memecahkan masalah klinis secara tepat, termasuk dalam pengambilan keputusan triase yang sensitif waktu. Salah satu skala triase yang direkomendasikan di Instalasi Gawat Darurat adalah *Emergency Severity Index* (ESI), yang kesalahannya dapat berkonsekuensi terhadap keselamatan pasien sehingga perlu dikembangkan sejak pendidikan keperawatan. Meskipun simulasi berbasis *Virtual Reality* telah dilaporkan menghasilkan luaran pendidikan yang serupa bahkan lebih unggul dibandingkan metode konvensional, bukti penerapannya dalam pembelajaran triase ESI masih terbatas.

Tujuan: Mengetahui pengaruh pembelajaran *Virtual Reality Triage Simulation* (VRTS) yang menggunakan algoritma ESI terhadap kemampuan *clinical reasoning* triase mahasiswa keperawatan dibandingkan metode ceramah.

Metode: Penelitian *quasi-experimental non-equivalent control group design with repeated measures*, dimana kelompok intervensi diberikan metode ceramah dan pembelajaran VRTS (n=33), sedangkan kelompok kontrol hanya diberikan metode ceramah (n=30). Penelitian dilaksanakan pada Februari-April 2026. Pengukuran *clinical reasoning* dan pengetahuan dilakukan sebelum, sesudah, dan retensi dua minggu pasca intervensi menggunakan skala *clinical reasoning* dan kuesioner pengetahuan. Analisis data menggunakan *Linear Mixed Models* (LMM).

Hasil: Analisis multivariabel LMM menunjukkan interaksi signifikan antara waktu dan kelompok ($F=31,773$; $p<0,001$; $\eta^2p=0,342$) dengan *effect size* besar dari *pre-test* ke retensi, terdiri dari skor kelompok intervensi meningkat 17,567 poin lebih tinggi dibandingkan kelompok kontrol dari *pre-test* ke *post-test*, sedangkan dari *pre-test* ke retensi meningkat 16,142 poin lebih tinggi dibandingkan kelompok kontrol.

Kesimpulan: Pembelajaran VRTS berkontribusi meningkatkan sekaligus mempertahankan kemampuan *clinical reasoning* triase mahasiswa keperawatan hingga fase retensi dua minggu.

Kata Kunci: mahasiswa keperawatan, *virtual reality triage simulation*, *emergency severity index, clinical reasoning,* pengetahuan.

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THE EFFECT OF VIRTUAL REALITY TRIAGE SIMULATION LEARNING ON NURSING STUDENTS' CLINICAL REASONING TRIAGE ABILITIES: A QUASI-EXPERIMENTAL

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ABSTRACT

***Background**: Clinical reasoning is an attribute of skilled nurses necessary for accurate clinical problem solving, including time-sensitive triage decisions. One of the recommended triage scales in the Emergency Department is Emergency Severity Index (ESI), whose errors can have consequences for patient safety and therefore need to be developed during nursing education. Although virtual reality-based simulations have been reported to produce similar or even superior educational outcomes compared to conventional methods, evidence of their application in ESI triage learning remains limited.*

***Objective**: To determine the effect of Virtual Reality Triage Simulation (VRTS) learning using the ESI algorithm on nursing students' triage clinical reasoning skills compared to the lecture method.*

***Methods**: A quasi-experimental study using a non-equivalent control group design with repeated measures, in which the intervention group received both the lecture method and VRTS learning (n=33), while the control group received only the lecture method (n=30). The study was conducted from February to April 2026. Clinical reasoning and knowledge were assessed before, after, and at two-week retention point post-intervention using clinical reasoning scale and knowledge questionnaire. Data analysis utilized Linear Mixed Models (LMM).*

***Results**: Multivariable analysis of LMM showed significant interaction between time and group ($F=31.773$; $p<0.001$; $\eta^2p=0.342$) with a large effect size from pre-test to retention, where the intervention group's score increased 17.567 points higher than the control group from pre-test to post-test, while from pre-test to retention it increased 16.142 points higher than the control group.*

***Keywords:** nursing student, virtual reality triage simulation, emergency severity index, clinical reasoning, knowledge.*