

Abstract

Background: Stroke is a medical emergency that requires rapid, accurate, and coordinated management. Therefore, emergency nurses must acquire a comprehensive understanding of stroke triage to enhance their triage decision-making abilities. Training based on specialized and locally-developed triage scales is an innovative approach to improving learning effectiveness and enhancing nurses' decision-making skills. The present study aimed to determine the effect of video-based education based on the Iranian Stroke Triage Scale (ISTS) on emergency nurses' triage decision-making skills in the assessment and prioritization of patients with acute stroke in the emergency department.

Methods: This randomized controlled trial was conducted in 2025 and included 50 emergency nurses affiliated with Lorestan University of Medical Sciences, Iran. Participants were randomly assigned using block randomization to either the intervention group ($n = 23$) or the control group ($n = 27$). The intervention group received stroke triage education based on the Iranian Stroke Triage Scale through video-based instruction using seven designed clinical scenarios. The educational videos were developed based on seven simulated clinical scenarios designed in accordance with the Iranian Stroke Triage Scale developed by Abedi et al. The intervention was delivered over a total of four hours in two 2-hour sessions. The control group received routine stroke triage training through lectures based on the Emergency Severity Index (ESI). Data were collected using a demographic characteristics form and the Triage Decision-Making Inventory (TDMI). Both groups completed the questionnaires before the intervention and again two weeks after the educational program. Data were analyzed using descriptive statistics, paired t-test, independent t-test, Fisher's exact test, and the chi-square test in Stata version 17.

Results: Most of the participants were female (54%), married (54%), nursing bachelor degree (94%), unofficial employment status (52%) and rotating shift (48, 96%). An independent t-test showed that the mean change in the total triage decision making score was significantly greater in the intervention group than in the control group (14.21 ± 15.59 vs. -7.33 ± 5.56 , $t=6.70$, $p<$

0.001). Similarly, the mean changes in the subscale scores for cognitive characteristics (2 vs. -1.74, $t=5.63$, $p< 0.001$), critical thinking (6.34 vs. -3.40, $t=7.96$, $p< 0.001$), experience (4.13 vs. -2.14, $t=4.68$, $p< 0.001$), and intuition (1.73 vs. -0.037, $t = 1.72$, $p=0.09$) were greater in the intervention group than in the control group. Statistical analysis revealed significant between-group differences in the mean changes of the total TDM score and all of its subscales, except for the intuition subscale, following the intervention

Conclusion: Video-based education based on the Iranian Stroke Triage Scale (ISTS) can effectively improve emergency nurses' triage decision-making skills. Considering the high sensitivity and specificity of this locally-developed scale and its positive impact on enhancing nurses' cognitive, critical thinking, and experiential skills, incorporating this educational approach into continuing professional development programs is recommended to enhance nurses' competence in the timely assessment and prioritization of patients with acute stroke in emergency departments.

Keywords: Stroke triage; Video-based education; Triage decision-making; Emergency department; Emergency nurses.

