The Effect of ERAS Education in Cardiovascular Surgery Delivered Using the Pecha Kucha Method on Nursing Students' Knowledge Level and Attitudes Toward Evidence-Based Nursing: A Randomized Controlled Trial

PK-ERAS

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Study Title: The Effect of ERAS Education in Cardiovascular Surgery Delivered Using the Pecha Kucha Method on Nursing Students' Knowledge Level and Attitudes Toward Evidence-Based Nursing: A Randomized Controlled Trial

Problem Statement: Global competition and evolving healthcare needs in the 21st century have highlighted the limitations of traditional in-class learning methods. Generation Z students, with limited attention spans and a tendency to become easily bored by monotony and repetition, necessitate changes in conventional teaching methods. In nursing education, developing core skills such as problem-solving, creativity, collaboration, and media literacy is crucial to enhance learning outcomes and strengthen the educational process. These skills help students face challenges in both their careers and social lives. To actively engage nursing students and support critical thinking and life skills, a combination of teaching methods such as lectures, presentations, group discussions, problem-based learning, and role-playing should be employed. Pecha Kucha (PK) is an internationally recognized, innovative, visually-focused presentation technique used in educational settings. Derived from Japanese, meaning "chit chat," PK is a narrative and visualbased slide presentation method. Each presentation consists of 20 slides, shown for 20 seconds each, totaling 6 minutes and 40 seconds. PK allows for concise, fluid, and natural delivery of information. Its structured and time-limited nature enables presenters to communicate key information clearly without straying from the main topic. The "spirit" of Pecha Kucha lies in the harmonious use of strong visuals and carefully selected text. Effective presentations require highquality visuals or images aligned with content knowledge, the intended message, and the target audience. Each slide presents a single concept or idea with balanced information, enabling the presenter to convey content quickly and succinctly. The short, visually-oriented format facilitates active and attentive engagement from the audience. PK has been reported as an effective tool to support student learning outcomes and instructor objectives in health education compared to traditional PowerPoint methods.

The use of PK in nursing education has been studied in areas including knee replacement and nursing approaches, pathophysiology education, development of presentation skills, social anxiety and learning attitudes related to Human Papilloma Virus infection and vaccination, stoma care skills, and teaching vital signs skills. Similarly, Topal et al. and Bakcek et al. reported that PK positively affected student satisfaction. However, no studies have examined the impact of PK on ERAS education in nursing students. Recent advancements in surgical procedures and anesthesia techniques emphasize evidence-based patient care rather than traditional approaches. Enhanced Recovery After Surgery (ERAS) protocols, also known as Fast Track Surgery (FTS), aim to minimize physiological stress, optimize pain control, and accelerate postoperative recovery. Developed in 2001 by a consortium of five centers in Northern Europe for elective colon surgeries, ERAS protocols have since expanded to gynecologic oncology, urology, other gastrointestinal surgeries, orthopedic surgeries, and beyond. The ERAS Society was established in Stockholm in 2012 to formalize and disseminate these protocols. Although ERAS has become standard in many surgical fields, cardiovascular

applications began around 2019. ERAS requires interdisciplinary collaboration, including surgeons, nurses, anesthetists, physiotherapists, and dietitians. Nurses play a critical role in protocol implementation, patient education, and coordination of care. Studies indicate low awareness of ERAS among nurses: Çelebi & İlçe reported that 86.8% of nurses were unaware of ERAS, and 79.2% stated it was not applied in their clinics. Ongun & Ak found that 84.25% of nurses did not know about ERAS, 88.97% reported it was not applied in their workplaces, 99.21% did not follow any publications on ERAS, and 99.21% had not received ERAS training. Güzel & Yava noted low knowledge but high interest among nurses. Akpolat et al. applied escape room teaching for ERAS education, reporting improved student knowledge. Studentcentered methods have been shown to deliver information quickly, increase interaction, and enhance retention compared to traditional teaching. No studies have evaluated PK for cardiovascular ERAS education, representing a significant research gap. This study aims to assess PK's impact on nursing students' ERAS knowledge and attitudes towards evidence-based nursing.

Research Questions: 1. Does cardiovascular ERAS education delivered via Pecha Kucha improve students' theoretical knowledge? 2. Does cardiovascular ERAS education delivered via Pecha Kucha improve students' attitudes toward evidence-based nursing? Study Objectives: 1. Determine differences in cardiovascular ERAS knowledge levels between students educated via Pecha Kucha versus traditional PowerPoint. 2. Assess differences in attitudes toward evidence-based nursing between these groups.

Study Design: A randomized controlled experimental design with pre- and post-test measurements will be employed, following CONSORT guidelines. The study protocol will be registered in ClinicalTrials.gov prior to commencement. Study Location and Period: Lokman Hekim University, Faculty of Health Sciences, Nursing Department, May 15, 2026 – May 15, 2027.

Population and Sample: The population consists of 71 second-year nursing students enrolled in the Surgical Nursing course. Participants will be divided into intervention (PK) and control (PowerPoint) groups using block randomization based on pre-test scores (≤60 / >60) and gender (female/male). Randomization will be performed via https://www.randomizer.org/ (Bacanlı & Uçar, 2013).

Data Collection Tools:

1. Student Demographic Form: Age, gender, prior ERAS knowledge, and satisfaction (5 questions).
2. Cardiovascular ERAS Knowledge Test: 50 multiple-choice and 50 openended questions, totaling 100 points.
3. Evidence-Based Nursing Attitude Scale (KDHYTÖ): 15-item Likert scale, 3 subscales: beliefs and expectations, implementation intention, emotions.

Data Collection: Pre-test conducted one week prior to lecture; block randomization follows; intervention delivered: PK for intervention group, traditional PowerPoint for control. Post-test and delayed post-test conducted to assess retention.

Data Analysis: IBM SPSS 26. Descriptive statistics, t-tests, Mann-Whitney U, paired t-tests, Wilcoxon, Chisquare. Significance at $p<0.05$.

Ethical Considerations: Approved by Lokman Hekim University Scientific Research Ethics Committee and Clinical Research Ethics Committee (Ethics Committee Approval: Decision No. 2025/332, Meeting No. 2025/14, dated December 30, 2025). Informed consent obtained. Data confidential, used for research only, stored securely, and shared only among researchers.

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