Simulation-Based Education on Adult Patients' Understanding and Retention of Information in Clinical Settings

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Background

Effective comprehension and retention of medical instructions are essential for healthcare outcomes. Poor understanding leads to non-adherence, adverse outcomes, and increased costs (Holcomb et al., 2022). This study explores strategies to improve post-discharge retention, focusing on long-term interventions (Talevski et al., 2020). Current methods, like teach-back, assess short-term comprehension but neglect long-term retention, affecting compliance and outcomes (Holcomb et al., 2022; Zare-Kaseb et al., 2024). Simulation-based education (SBE), using interactive tools, may enhance both comprehension and retention (Zare-Kaseb et al., 2024). The PICOT question is: In adult patients, how does SBE combined with teach-back compare to teach-back and printed resources in influencing healthcare information retention immediately and at follow-up?

Objectives

- Evaluate the effectiveness of SBE in improving adult patients' understanding and retention of healthcare information post-discharge.
- Compare SBE to traditional methods (teach-back and printed resources).
- Demonstrate SBE's impact on both immediate comprehension and long-term retention of medical instructions.
- Inform best practices in patient education to enhance treatment adherence and health outcomes.

Implications for Nursing Practice

- Effective comprehension and retention of medical instructions are crucial for quality healthcare, especially post-discharge, to prevent non-adherence, poor outcomes, and high costs (Holcomb et al., 2022).
- SBE improves patient comprehension and retention (Zare-Kaseb et al., 2024).
- Traditional methods like teach-back focus on short-term comprehension but may not assess long-term retention or real-world application (Holcomb et al., 2022; Talevski et al., 2020).
- SBE improves understanding, but gaps remain in translating competence to real-world outcomes (e.g., DeWalt et al. (2023) found no significant reduction in falls despite improved risk assessments).
- SBE and virtual reality (VR) enhance patient engagement and satisfaction, improving safety outcomes.
- Valieiny et al. (2023) showed a reduction in fall rates among elderly patients using simulated video education, indicating improved discharge protocols and quality of care.

Results

- Study evaluated the impact of SBE on patients' understanding and retention of healthcare information compared to traditional methods.
- Findings revealed significant improvements in comprehension and retention:
  - Liang et al. (2021) showed SBE increased insulin injection success rates in diabetic patients (73.33% vs. 46.67%, p = 0.006).
  - Valieiny et al. (2023) reported a 46% reduction in fall rates and decreased fear of falling in elderly patients using simulated video education (p = 0.039, p < 0.001).
- Limitations noted in some studies:
  - DeWalt et al. (2023) found improved fall risk assessment but no significant reduction in falls or rehospitalizations, suggesting short-term comprehension doesn't always lead to long-term behavior change.
  - Barsuk et al. (2021) found a 20% decline in skill retention after three months, highlighting the need for ongoing education.
- Shepherd et al. (2024) showed VR use in informed consent improved accuracy (100% vs. 80% in the control group, p = 0.03).
- SBE and VR show promise in improving immediate understanding but require focus on long-term retention and sustained application.
- Future research should include larger, multicenter trials to validate findings and explore strategies for maintaining patient competence over time.

Conclusions

- Current methods (e.g., teach-back technique) assess short-term understanding but not long-term retention, vital for treatment compliance and outcomes (Holcomb et al., 2022; Zare-Kaseb et al., 2024).
- SBE improves both comprehension and retention (Zare-Kaseb et al., 2024), outperforming traditional methods:
  > Liang et al. (2021) show improvements in diabetes education.
  > Valieiny et al. (2023) report a 46% reduction in fall rates among the elderly.
- Some studies indicate inconsistencies in long-term retention with SBE (DeWalt et al., 2023; Barsuk et al., 2021), but it consistently enhances immediate understanding, important for post-discharge education.
- VR shows promise, particularly in informed consent (Shepherd et al., 2024), but small sample sizes and single-site studies limit generalizability.
- SBE and VR are shifting patient education, complementing traditional methods to improve outcomes.
- Future research should focus on long-term retention, diverse population applicability, and technology integration in patient-centered education.

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