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Effectiveness of Simulation-based Learning compared to Integrated Clinical Experience in Development of DPT Students’ Clinical Decision-Making Skills

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Background
• Simulation-based learning has a significant footprint on entry-level physical therapy programs.1
• Students’ clinical decision-making (CDM) skills development through simulation-based learning (SBL) format when compared to the Integrated Clinical Experience (ICE) remains unknown.
• Self-efficacy of Clinical and CDM skills tool measures clinical skills, clinical decision-making, and total self-efficacy of clinical and CDM skills.2
• A need to evaluate the effectiveness of simulation-based learning compared to ICE in development of CDM skills.

Methods
• Survey-based descriptive and exploratory cross-sectional design.
• The survey was administered before and after an 8-week simulation course, and after a 6-week Integrated Clinical Experience (ICE).
• Survey comprised of 36-questions on clinical decision-making skills, clinical and CDM skills, self-efficacy, demographics, and effectiveness of simulation.
• Participants- 215 second year DPT students from private health science university during Fall 2021-Summer 2022 simulation-based learning course and ICE.
• N=79 students pre-simulation, N=73 post-simulation, and N=63 post-ICE.

Results
Clinical Decision Making (CDM) clinical skills total:
• Significant increase in score from pre-simulation (Md=94, n=79) to post-simulation (Md=103, n=73), U=4296, r=.42, p<.001 (Fig 1a; Table).
• No significant difference in post-simulation (Md=103, n=73) and post-ICE (Md=102, n=63), U=2326, p=.908 (Fig 1b; Table).

CDM (21-item) subscale:
• Significant increase in score from pre-simulation (Md=86, n=73) to post-simulation (Md=94, n=73), U=4257.5, r=.41, p<.001 (Fig 2a; Table).
• No significant difference in post-simulation (Md=86, n=73) and post-ICE (Md=85, n=63), U=2326, p=.908 (Fig 2b; Table).

Clinical Skills subscale:
• Significant increase in score from pre-simulation (Md=16, n=79) to post-simulation (Md=17, n=73), U=4187, r=.40, p<.001 (Fig 3a; Table).
• No significant difference in post-simulation post-simulation (Md=17, n=73) and post-ICE (Md=17, n=63), U=2302, p=.991 (Fig 3b; Table).

Discussion/Conclusion
Significant increases in DPT Students clinical skills, clinical decision-making, and total self-efficacy of clinical and CDM skills tool scores were found between pre-simulation and post-simulation in curriculum.

No Significant differences in clinical skills, clinical decision-making, and total self-efficacy of clinical and CDM skills tool scores were found between post-simulation and post-ICE, although CDM skills continued to improve during ICE, suggesting a ceiling effect for development of CDM skills may exist.

Findings suggest simulation-based learning was effective in preparing DPT students to begin their ICE with enhanced clinical skills, clinical decision-making, and self-efficacy.

We recommend expanding DPT students’ simulation-based learning to optimize the development of clinical decision-making skills prior to clinical experiences.3,4

Limitations
• DPT students recruited were from one large private university.
• Self-efficacy answer choice options were defined on a 5-point scale limiting elaboration on participant responses.

Future Research
• Investigate longitudinal factors impacting development of clinical decision-making skills to facilitate best practice when transitioning from classroom to clinical experiences.
• Suggest use of Self-efficacy of Clinical and CDM skills tool to identify students who may benefit from remediation before and during clinical experiences.

References

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