Use of simulation and case-based learning to improve nursing student's knowledge and attitude towards pressure injury prevention

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Background

Pressure injuries (PIs) pose a significant challenge for patients admitted to hospitals. PIs are underappreciated public health problem that causes suffering and decreased quality for patients and their caregivers. PIs are mostly a preventable occurrence and prevented when nursing staff are well educated on PI prevention (Gill & Moore, 2013).
Nursing students are the future nurses and change in the instructional practices is needed for imparting knowledge to nursing students on prevention of PIs and to have a curriculum that includes adequate course content on prevention of PIs.

Translation Framework

Knowledge to Action Framework guides the project from tool procurement through project implementation via a series of systematic steps.

Aims

- To increase nursing student's knowledge on PI prevention
- To increase the attitude towards PI prevention
- To survey the students' nurse's satisfaction and self-confidence levels with simulation.

Methods

Design: **Pre-Post test project**

Setting & Sample:
- Private-based university in Mid-Atlantic region of United states
- Johns Hopkins University external IRB - human subjects exempt project.
- All students in the second semester BSN baccalaureate program were invited to participate.

Baseline Characteristics of nursing students' participants.

Demographic characteristics	(N =35)
Age, mean (SD)	32.91 (SD = 10.5)
Gender Identity, n (%)	
Male	4 (16.7%)
Female	20 (83.3%)
Missing	11
Prior Health Care Experience yes/no n(%)	
Yes	18 (51.4%)
No	4 (11.4%)
Missing	13 (37.1%)
Year of Last PI Training Year, n (%)	
2015	2 (9.5%)
2018	11 (52.4%)
2019	8 (38.1%)
Missing	14

Intervention

Simulation (medium-fd and case-based learning formed the intervention foundation.
The intervention blended simulation with case-based learning over an hour.
All surveys completed at pre, post-were accessed via excel
_ Knowledge survey –PZ-PUKT Multiple choice questions addressing comprehensive details about PI prevention
- Attitude Survey –APUAP Likert scale (1=strongly disagree to 5=strongly agree), with scores ranging from 11 (most negative attitudes) and 55 (most positive attitudes).
- Satisfaction and Confidence Survey –NLN Survey Tool, Likert scale (five items with simulation activity and self-confidence in learning (8 items), with higher scores showing more satisfaction

Results

Statistical analysis used SPSS statistics Version 26. Demographics were analyzed with descriptive statistics. Sum scores on Knowledge , Attitude were done and then analyzed using paired T-test. Satisfaction and Confidence survey was analyzed with descriptive statistics.
Demographics (Table 1)

- Average age of participants 33
- Participants were mainly female 20%
- 51% with prior experience in healthcare
- 52% of participants with last training on PIs in 2018

Aims (Table 2)

- Significant increase in Knowledge, attitude and confidence scores after attending the education program
- Increased percentage of students agreeing that simulation was effective. 80%

Discussion

- Pre-intervention knowledge scores showed over half of the nursing students did not meet the minimum knowledge and scores were lower.

- Pre-intervention attitude scores were lower in comparison to other studies. The scores significantly improved at post-intervention.

- Sustained knowledge and confidence levels. – RCT

- Controlled study – lecture and simulation with similar outcome.

Table 2. Knowledge and Attitude Scores at Pre-Intervention and Post-Intervention

Survey	Mean	SD	95% CI		t-value	df	p-value
			Upper	Lower			
Knowledge (N=35)							
Pre-Intervention	44.5	7.6	24	58	.891	35	<0.000
Post-Intervention	54.3	7.4	38	68			
Attitude (N=33)							
Pre-Intervention	38.9	6.8	17	45	.294	33	<0.000
Post-Intervention	45.1	6.8	27	55			

Conclusion

- PIs causes harm to patients and prevention should be top priority among health care providers.
- Prevention of PIs should be given importance in academics with course content and instructional strategies carefully assessed.
- There was a significant increase in Knowledge and Attitude after participating in the simulation and case-based learning towards PI prevention
- Future studies should measure the success of transferring this education to the clinical sessions for achieving sustainability.

Limitations

Use of convenience sampling as well as high attrition rate. Lengthy questionnaire could have been a possible reason.

References

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