



# Pharmacology in Nursing Education

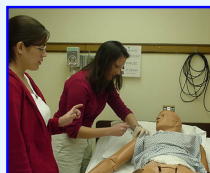
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## Purpose of the Research

- To evaluate the utility of web-based pharmacology modules on students' acquisition of knowledge and satisfaction
- To strengthen the pharmacology content in an integrated curriculum in baccalaureate nursing education
- To strengthen the ability of new graduates of the nursing programs at UW-Eau Claire to provide competent, safe nursing care

## Research Question

What is the effect of implementing web-based pharmacology modules on knowledge and satisfaction of undergraduate students in a baccalaureate nursing program?

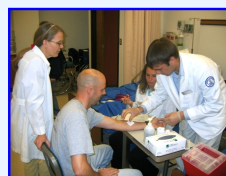


## Significance

- Trends in medical care are marked by increased use and complexity of pharmacological therapies, increased acuity of hospital patients, and aging of the population
- Nurses in hospital settings are the surveillance system to protect patients from complications of medications; nurses not only administer medications, but they assess both therapeutic and adverse effects
- Nurses teach patients how to manage their medications and monitor the medication effects at home
- Knowledge of clinical pharmacology is an important educational outcome for nursing education
- Media attention to medical errors, specifically medication errors in nursing practice (Berens, 2000), has focused increased attention on pharmacology in nursing education

## Sample

- Medium sized public comprehensive university
- Two cohorts of graduating seniors in the nursing program
  - December 2006 graduates (n=40)
  - May 2007 graduates (n=64)
    - Eau Claire site (n=42)
    - Marshfield site (n=23)

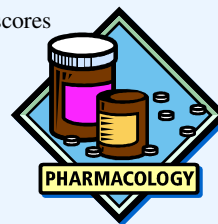


## Design

Evaluation research data were collected at the end of each semester. The pharmacology modules were integrated in three senior courses. NLN Achievement Test was administered to both cohorts of students in the 10<sup>th</sup> week of their final semester.

## Data Collection

- **Pharmacology knowledge**
  - NLN Achievement Test scores
- **Student Satisfaction**
  - Likert scale evaluation
  - Open-ended comments



## Data Analysis

- T tests to compare scores on the NLN Pharmacology Achievement Test before and after implementing the pharmacology modules
- Descriptive summary of quantitative data on student satisfaction
- Qualitative summary of strengths and weakness of using web-based pharmacology modules and students' perceptions on the adequacy of the pharmacology curriculum

## Findings

Student Evaluations of Pharmacology Modules

	EC-F06	M-F06	EC-S07	M-S07
1. The pharmacology modules helped me understand and apply what I've learned.	$\bar{x} = 3.0$	$\bar{x} = 3.0$	$\bar{x} = 2.6$	$\bar{x} = 2.4$
2. The modules helped improve my clinical decision-making skills.	$\bar{x} = 2.9$	$\bar{x} = 3.1$	$\bar{x} = 2.8$	$\bar{x} = 1.6$
3. The time spent in studying the modules was a good use of my time.	$\bar{x} = 2.7$	$\bar{x} = 3.1$	$\bar{x} = 2.1$	$\bar{x} = 2.1$
4. I felt actively engaged in learning when I used the pharmacology modules.	$\bar{x} = 2.9$	$\bar{x} = 3.3$	$\bar{x} = 2.3$	$\bar{x} = 1.4$
5. I felt motivated to learn in using the pharmacology modules.	$\bar{x} = 2.8$	$\bar{x} = 3.2$	$\bar{x} = 2.3$	$\bar{x} = 1.7$
6. Analyzing test questions helped me learn pharmacology content.	$\bar{x} = 3.1$	$\bar{x} = 3.2$	$\bar{x} = 2.6$	$\bar{x} = 2.2$
7. Analyzing test questions helped me learn test-taking techniques.	$\bar{x} = 2.8$	$\bar{x} = 3.3$	$\bar{x} = 2.5$	$\bar{x} = 2.3$
8. I recommend continuing to use the pharmacology modules in the nursing curriculum.	$\bar{x} = 3.2$	$\bar{x} = 3.3$	$\bar{x} = 2.3$	$\bar{x} = 1.7$

Key: Strongly agree = 4; Agree = 3; Disagree = 2; Strongly disagree = 1

Effects of Online Pharmacology Modules on the Knowledge of Nursing Students

Pharmacology Scales	Group	N	Mean % and Standard Deviation	t	Significance
Drug Calculations	Control Group	40	77% (14)	2.209	p = .030
	Online Modules	41	69% (16)		
Medication Principles	Control Group	40	66% (8)	-3.217	p = .002
	Online Modules	41	73% (10)		
Medication Effects	Control Group	40	71% (11)	-1.767	p = .081
	Online Modules	41	75% (9)		
Total	Control Group	40	71% (9)	-0.883	p = .380
	Online Modules	41	73% (9)		

## Open-ended comments on evaluation form

- 30 % of the students recommended adding a pharmacology course to the nursing curriculum
- 20% of the students recommended more pharmacology brought into class lectures in the nursing curriculum

## Conclusions

- The technological strategy of using online pharmacology modules as an independent course assignment was not effective.
- Outcomes support previous curriculum evaluation findings that students would prefer a separate pharmacology course in addition to current integration of pharmacology into all relevant courses.
- This study provides evidence for decision-making by the Undergraduate Nursing Curriculum Committee.