Learned Experiences of Specialty Nurses of Human Immunodeficiency Virus: Identifying and Exploring Successful Learning

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Background of the Problem

- National Survey of Nurses from the National Center for Health Workforce Analysis (Bleich et al., 2003), revealed there is a need for almost 2 million nurses in the U.S. workforce.
- Medical errors can occur due to inadequate staffing and insufficient lack of knowledge about the care of complex patients such as patients infected with HIV (Aiken et al., 2004; Buerhaus, 2005)

Background of the Problem

- Because of the 50% increase of HIV among Black Americans and the rapidly increasing infection rate among women and adolescents, it is important that nurses universally have access to a postgraduate comprehensive HIV course (Dancy, et al., 2000).
- Educational content and successful learning strategies identified by HIV-experienced nurses may provide information for a course on HIV that can serve as a model accessible to all nurses in Florida.

Background of the Problem

- Florida Statute 384.31 requires that all pregnant women should receive routine HIV testing
- The state of Florida only requires a one-time mandatory 1-hour update on HIV information after the initial renewal period
- Florida's mandatory HIV course does not include information on antiretroviral medications, information on opportunistic infections, or laboratory parameters such as the CD4 count and HIV viral load

Problem Statement

- The problem is that due to the nursing shortage and the increase in the acuity of the complex HIV patient, nurses may not be meeting the guidelines set by the USDHHS (Anthony, 2004; Bleich, et al, 2003; USDHHS, 2005c).
- No documentation found in the literature review discussed the competency level of nurses caring for HIV, in particular pediatric HIV patients.
- This information is vital for safe patient staffing and for developing sound educational development programs.

Purpose of the Study

- The purpose of this mixed study was to determine the extent of learned HIV content by HIV-experienced nurses and to explore effective learning strategies such as role modeling.
- To measure the content learned (measured variable) with the Pediatric HIV Test (PHT), developed by the researcher and validated by a pilot study of 10 nurses and 15 experts in the HIV field.
  - questions 1-20 measured HIV content triangulated with USDHHS guidelines and Pediatric HIV course*
  - question 27 measured Bandura's (l986, 2004) concept of *self-efficacy* for the content on HIV as per the self-reporting of learning strategies of the nurses

Theoretical Framework Used: Bandura Social Cognitive Learning Theory

- Bandura's framework serves as a theoretical grounded theory that explains the transfer of knowledge among nurses by observing models or preceptors (role modeling) in a socially supported learning environment.
- Bandura's self-efficacy theory notes that individuals are motivated to learn if they perceive they are able to do so and are empowered by others (Bandura, 1986, 2004).

Research Questions & Hypothesis

1. Is there a difference in the extent of learning acquired by hospital-based and community-based nurses in Florida?

2. Does an increased knowledge of HIV lead nurses to self-report an increase in self-efficacy while caring for HIV positive patients?

Hypotheses

- H0: Hospital- and community-based nurses in Florida do not differ in their learning needs on HIV content as measured by the Pediatric HIV Test.
- H1: Community health nurses in Florida require more information on HIV content as measured by their level of postlearning on the HIV test.

Design Mixed Study

The *group variable*- employment setting of ANAC nurse (HIV-experienced nurse) n=84 *

- ✓ Quantitative data: The *measured variable*- responses to the Pediatric HIV test used to determine competency in knowledge
- ✓ The *research questions* addressed the differences between hospital and community health nurses.
- ✓ Qualitative data: The open-ended questions triangulated with the item questions on the test and with the constructs of social support and self-efficacy described by Bandura (l986) n=49**.

Methodology

- Questions on PHT triangulated with *Pediatric HIV Course* taught for re-licensure in Florida & with *USDHHS guidelines on Pediatric HIV care (USDHHS, 2005c)*
- PHT administered to group variable by researcher or Board Member of ANAC & placed in a sealed envelope for data collection.
- The measured variable were questions 1-20 and 27.
  # 1-20 Tested with Chi Square & Z test
  # 27 tested with t- test & F-Test
- Axial coding was performed on questions 21-26, where patterns of words were synthesize to concepts n=49.

Results Chi Square

- Chi Square, a proportion test, used to equalize the responses across the groups since HB group had more responses
  - The number of correct answers divided by the actual responses (tried) was used to calculate a p-value on Excel program, p-value= 0.361072
  - From the data of the Chi Square analysis, the results indicate that there was no difference in the count distribution of right answers between the two groups and that the pattern of answers across the questions was consistent

Results Z Test

- The Z test, a proportion test, was used to consider all the responses for questions 1-20 and to test if there were differences between the correct and tried or completed answers.
- A calculated combined average of the two groups yielded a z score of -0.74463 (an absolute score) which was used to calculate the P-value. p-value= 0.228248*

Interpretation of Hypotheses

✓ Ho: Community mean => Hospital mean tested with Chi Square

✓H1: Community mean < Hospital mean (community nurses need more training), a *numerator* of Community – Hospital is used.

✓Gives a positive z score of +0.744 p-value; therefore, there is no statistical difference between hospital and community nurses.

✓This is a directional test, since H1 states that community nurses need more training.

✓For the second set of hypotheses (community nurse knowledge less than hospital), the numerator = *Community - Hospital* .

✓The z test = -0.7 result numerator is inverted: Hospital - Community. (Cresswell, 2002)

Results t-Test

- A t-test was used to determine if there were differences among the means of the CB and HB groups on the self-reported responses for question 27.
- Nurses self-reported on *self-efficacy* with the seven HIV content areas derived from the Pediatric HIV Course and the guidelines from the USDHHS
  - with ranking from 1-5 , one being the lowest level of comfort Mean=3.66
- T-Test P=0.279469 (one tail)
- T-Test P=0.558937 (two tail)

F-test

- Because the scores of the CB and HB nurses resulted in no differences among the means and standard deviations an F-test was calculated using the mean from the HB and compared to the five groups of nurses.

Results F-Test

	HB	CB
Mean	3.555556	3.686567
Variance	1.320814	1.157847
Observations	72	67
Df	71	66
F	1.14075	
P(F<=f) one-tail	0.294936	
F Critical one-tail	1.4951.36	

Note. P=0.294936 or no statistical significance

Conclusion

- ***All P values were greater than p<0.5***

Null hypothesis is accepted

Directional research hypothesis is rejected

Conclusion

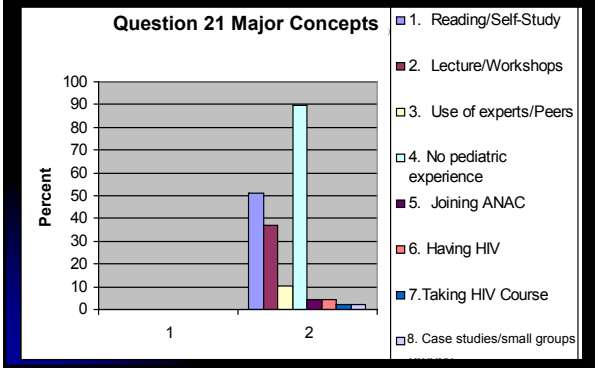
- Research question 1 was negatively answered as Chi Square and the Z test showed that there were no differences in the means and variances of the groups
- Research question 2 was negatively answered as there were no differences in means & variances for the self-reporting scores of the nurses.

Qualitative Data

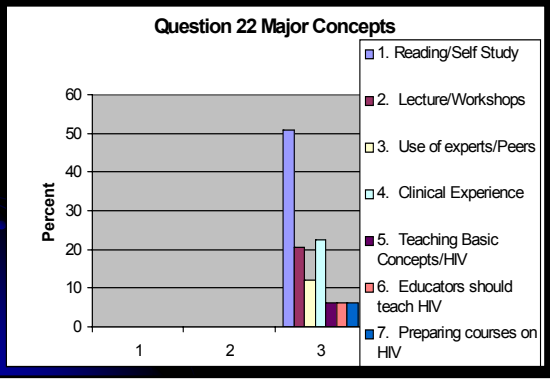
Major Concepts: Nurses preferred to learn information on their own and obtain clinical experience.

- Clinical experience
- Clinical experience/patient management
- Reading/self-study and use of audio-visual aids
- Lectures/workshops
- Use of experts/peers
- Educators should provide workshops
- Educators should know content (HIV)

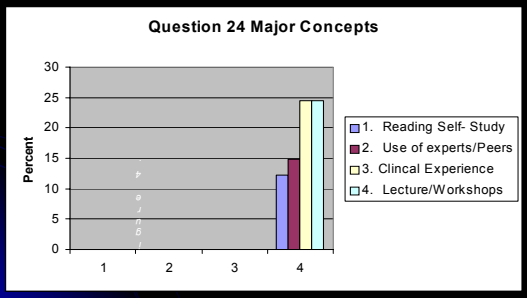
Question #21 I obtained my HIV knowledge by:
Major Concepts identified by CB and HB (n=49)



Question #22: I learned difficult HIV material best by:
Question 22 Major Concepts identified by CB and HB (n=49)

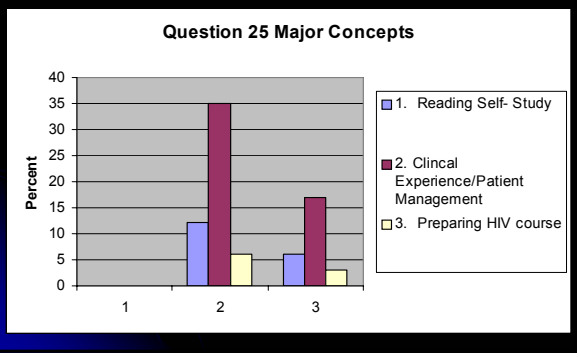


Question #24:
If I were to teach HIV to healthcare providers I would:
Major Concepts identified by CB and HB (n=49)

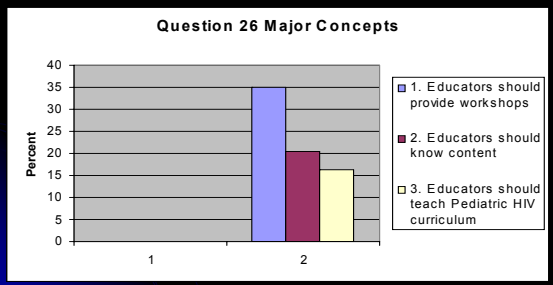


Question # 25: My clinical experience in learning HIV consisted of:

Question 25 Major Concepts identified by CB and HB (n=49)



Question # 26: Nursing leaders can promote pediatric HIV learning by:
Question 26 Major Concepts identified by CB and HB (n=49)



Implications

- Sample nurses do not differ in the extent of HIV knowledge and depend on self-study to learn HIV.
- Self-study may be a result of the nursing shortage with less time for official training.
- Clinical experience is a major concept both for acquisition of knowledge and maintaining knowledge (providing care).
- Educators should be responsible for promoting pediatric HIV knowledge by providing workshops and maintaining their own level of knowledge of HIV.
- The PHT and determining *self-efficacy* are markers of competency in HIV concepts.
- Proportion descriptive tests were needed to equalize differences in responses.

Recommendations

- The study can be modified for other types of nurses
- The PHT could be used for self-assessment and pre and post testing after course work
- A curriculum on Pediatric HIV can be developed in a modular system to incorporate each of the seven content areas tested on the exam for self-study purposes.
- Nursing leaders can use the data to develop teaching strategies that incorporate research papers, self-study, online discourse and other non-Didactic measures
- The major concepts should be researched as a basis of a grounded theory of learning.

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