First Year Undergraduate Nursing Students’ Self-Efficacy in Numeracy

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Background

- RNs have obligation to competently calculate and administer medications
- Nursing students within tertiary institutions continue to struggle to become competent with medication calculation
- Attributed to mathematical anxiety, negative attitudes as well as having poor numeracy skills

(Andrew et al., 2009; Australian Nursing and Midwifery Council, 2016; Ramjan et al., 2014; Wright, 2005)
Background

- Prior to registration many UG nursing students have expressed that they do not feel suitably prepared to administer medications safely.

- Can follow student into their 1st transition year as an RN

(Coyne, Needham & Rands, 2013; Ramjan, et al, 2014; Zahara-Such, 2013)
Our Numeracy Teaching Strategy

- 1st year students enrolled in BN degree exposed to a range of pedagogical strategies to improve performance and confidence with medication calculations
- Foundational knowledge instruction
- Practical applications
- Contextual application
3 Step Process

1. Foundation
   - Foundational knowledge instruction
   - Instructed about numeracy calculations & formulas
   - Online textbook & resources

2. Practice
   - Examples to practice in class
   - Answers and calculations discussed
   - Practice quizzes provided online
   - Weekly in class practice

3. Contextual
   - Learn to apply drug calculation as part of medication administration in clinical laboratory environment
Purpose of the Study

- To investigate students’ perception of the effectiveness of the educational strategies implemented to assist in the preparation, confidence and further development of numeracy skill literacy.
Methods

- Survey completed by 525 undergraduate nursing students
- Open-ended responses:
  - components they found easy
  - aspects they found difficult
  - further comments about numeracy content covered in the unit
- Content analysis used to analyse the open-ended comments
- Data systematically coded and categorised to identify patterns and trends
Results

Four main themes emerged from the data

1) Self-realisation
2) Practice, practice, practice
3) Boosting confidence
4) Wanting More
Self-realisation

- Numeracy competence was highly relevant to nursing practice
- Students need to invest in improving their abilities
- Appreciation of the teaching and learning resources to develop self-efficacy in numeracy

“It allows us to practice to become prepared for the real situation”

“Every time when I do the practice quiz I learn a lot from it”

“We practice in the class, kahoot also helps to develop your confidence to calculate”
Practice, practice, practice

- Students identified that they needed to refresh their numeracy skills through practice

- Practice prepared them for medication administration in practice settings

“It is very useful but I need more time to practice and understand the concepts”

“I need more practice”

“Practice for practical skill benefits me in the future greatly”

“Numeracy lessons are essential not only for the test but for clinical purposes”
Boosting confidence

- Teaching and learning strategies assisted students to develop confidence and competence in medication calculation

- Teaching and learning strategies assisted students to reduced anxiety around numeracy

  “It's good practice and aids to lower rate of anxiety”

  “It helped me to gain confidence to calculate easily”

  “Various activities I feel have been very beneficial to helping improve my numeracy”
Wanting More

- More time for processing and practicing online teaching and learning content
- Need for more face-to-face teaching on numeracy

“Need a bit more worksheets/practice sheet”

“Has been helpful although could use more time spent on numeracy and practice tests”

“Kind of makes you think, although we definitely don’t do enough numeracy in class”

“I think we should get more practice in class to enhance our learning for numeracy”
Conclusion

- Students were satisfied with the numeracy resources and teaching and learning content

**BUT**

- They wanted more practice each week in a classroom environment with the tutor

- Study findings have the potential to provide valuable insights into best practice for tertiary level nursing education in numeracy and medication calculation and administration
References

References for Images


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