

Towards Clinical Teaching and Learning Excellence Using a Formative Assessment Framework in the Skills Laboratory

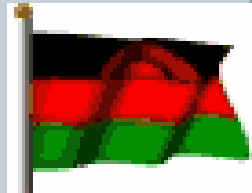


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Disclosure and conflict of interest



- Faculty name where Studying: Health Sciences, Witwatersrand
- Employer : University of Malawi, Kamuzu College of Nursing
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- Conflict of interest: None

Disclosure and conflict of interest (cont.)



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Session Goal & Objectives



Goal:

- The learner will demonstrate an understanding of how a formative assessment framework (FAF) impacts clinical teaching and learning of undergraduate nursing and midwifery students in the skills laboratories.

Specific Objective:

- Acquire knowledge on the use of FAF for effective clinical teaching and learning in the skills laboratories.

Presentation Outline



- Introduction and background
- Study aim and objectives
- Design
- Ethical considerations
- Methods
- Analysis of data
- Results
- Discussion
- Conclusion

Introduction & Background



- Nursing education institutions in Malawi adopted the use of the skills laboratory through benchmarking from the developed countries.
- Kamuzu College of Nursing, at the University of Malawi, has been using the skills laboratory for more than ten years now.

Introduction & Background (cont.)



- Demonstrations and return demonstrations in the skills laboratory have been one of the practical necessities to enrich clinical teaching experiences.
- The OSCE method of evaluation has also been in use for the undergraduate nursing programme
- Both students and nurse educators expressed that it is a good method of assessment.

Introduction & Background (cont.)



- The lack of formative assessment in the skills laboratory was considered by students and nurse educators as one of the major obstacles to clinical teaching and learning.
- As such, in this study, a formative assessment framework (FAF) was developed, validated and tested in the college-based skills laboratories.

Study Aim & Objective



Aim:

- The study aim was to determine how FAF impacts the quality of clinical teaching and learning of undergraduate nursing and midwifery students.

Main objective:

- To evaluate the impact of FAF by determining and comparing the competence between students, in experimental and control groups, in selected general nursing and midwifery skills.

Design



A sequential mixed method design was used

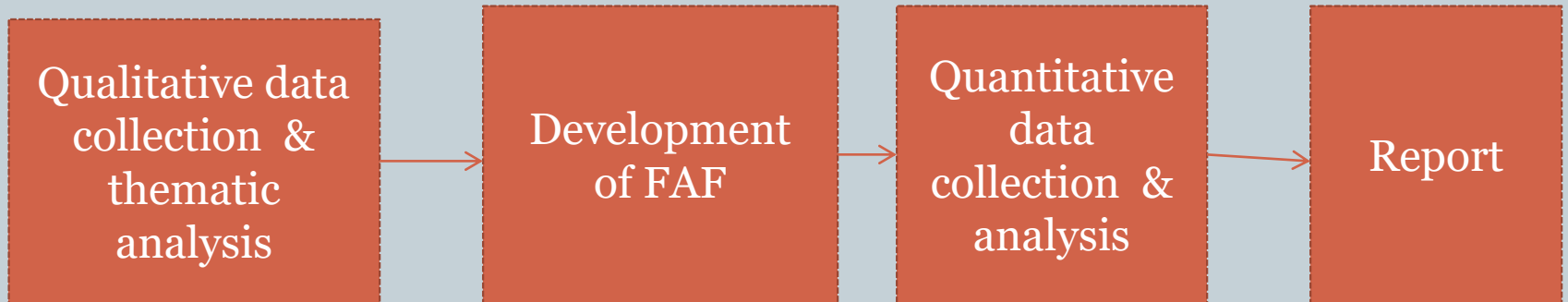


Figure 1. Schematic diagram of sequential mixed methods

Ethical Considerations



- Ethical approval was sought from:
 - Human Research Ethics Committee at Wits (Clearance no. M130527)
 - Kamuzu College of Nursing
 - COMREC (Malawi)
- Informed consent was obtained from the students and the nurse educators
- Participation was voluntary
- All fundamental ethical principles were observed.

FAF Validation



- Validation of the FAF was conducted by a sample of 10 clinical teaching experts from:
 - University of the Witwatersrand (n=5)
 - Kamuzu College of Nursing (n=3)
 - Nurses and Midwives Council of Malawi (n=1)
 - Ministry of Health and Population, Malawi (n=1)

Methods



- Quantitative data were collected using a quasi-experiment:
- Participants:
 - junior students (n=160)
 - senior students (n=101)

Methods (cont.)



- Students in both groups were randomly assigned to the control and experimental groups.
- Control groups were located in Blantyre campus
 - junior group: n=76
 - senior group: n=40
- Experimental groups were located in Lilongwe campus
 - junior group: n=84
 - senior group: n=61

Study Intervention



- Data were collected using the structured clinical teaching and learning checklists routinely used during the OSCE
- 6 assistant Nurse educators were recruited, oriented to the study objectives, intervention and trained for the study for two days.
- Students were recruited and divided into smaller groups of 8-12 students per group
- A maximum of 1: 12 educator ratio was ensured

Study Intervention (cont.)



- Period: 5-7 weeks
- When : April to July, 2015
April to July, 2016
- Number of skills: 18 skills
 - Junior group: 8 skills
 - Senior group: 10 skills

Note: Only 4 skills have been reported in this presentation

Study Intervention (cont.)



- The Formative Assessment Framework involved:
 - a clinical demonstration by the educator
 - observation by the students
 - individual students return demonstration
 - feedback in the skills laboratories , self, peer and educator
 - regular supervised practise
 - a targeted return demonstration by the educator
- Pre-testing was conducted in each group during the second week of the intervention
- Post-testing was conducted during the final week of the intervention

Skills tested



Junior group

- Insulin intravenous administration
- Colostomy care
- blood transfusion
- Health education of a CCF patient
- Wound dressing
- Female catheterisation
- Naso-Gastric Tube insertion
- Suctioning the airway

Senior group

- Breast examination
- Subsequent physical examination of a pregnant woman
- Second stage of labour management
- Third stage management
- Examination of the placenta
- Emergency assessment of a sick child
- Insertion of implants
- Removal of implants
- Episiotomy repair
- Speculum examination

Data analysis



- Data were analyzed using the STATA software statistical packages version 13
- Both descriptive and inferential statistics were used
- For normally distributed data, paired t-tests were used and for skewed data tests, the Wilcoxon signed-rank statistical tests were used.
- The level of significance was set at 0.05 with a confidence level of 95 % (Polit & Beck, 2012).

Results



Intervention group

➤ insulin injection:

- pretest score= 7.873
- posttest score= 9.549
(P=0.0021)

➤ Colostomy care:

- pretest score=16.404
- posttest score=16.042
(P=0.873)

Control groups

➤ Insulin injection:

- pretest score= 8.694
- post score=8.571
(P=0.36)

➤ Colostomy care:

- pretest score= 14.59
- posttest score=14.35
(P=0.126)

Results (Cont.)

Intervention groups

- **Breast assessment:**
 - pre score= 18
 - post score= 21.129
(P= 0.0004)
- **3rd stage management of labour:**
 - pre score= 19.96774
 - post score= 26.67742
(P= 0.0001)

Control groups

- **Breast assessment:**
 - pre score= 15.75
 - post score= 17.125
(P=0.045)
- **3rd stage management of labour:**
 - pre score= 14.375
 - post score= 17.125
(P=0.122)

Results (Cont.)



- The intervention groups performed better than the control groups
- Students demonstrated mean improvement during:
 - insulin procedure (P= 0.0021)
 - breast assessment (P= 0.0004) and
 - third stage management of labour (P= 0.0001).

Results



- However, there was no significant difference in colostomy care between the control and experimental groups. This could mean that students had adequate learning experiences in the clinical sites to perfect their skills.
- Thus, a Wilcoxon signed-rank test was done to confirm the results with skewed data.

Discussion of results



- Results of significant effect (95% confidence interval, 0.65–0.76; $P < .001$) were also identified in a systematic review of 14 articles (McGaghie, Issenberg, Cohen, Barsuk, Wayne, 2012).
- Students had deliberate practise on cardiac life support, laparoscopic procedures, central venous catheterization, cardiac auscultation and thoracentesis, cholecystectomy, instrument, suturing live tissues.
- Focused repetitive practise, informative feedback, monitoring and error correction were some of the elements that contributed to improved performance in the study.

Discussion of results (cont.)



- Similarly, in a randomised controlled trial comparing students who underwent two, week-long, extended simulations with students who attended related workshops and seminars alone (Control).
- The study demonstrated long-term retention of improved prescribing skills ($P < 0.01$) and on knowledge acquisition, reasoning and resuscitation skills ($P < 0.01$) (Rogers, McConnell, Rooy, Ellen & Lombard, 2014).
- It is further documented that supervised deliberate practise of selected nursing skills is one of the effective tools in simulation that exposes students to non-hazardous clinical practise sessions (Glasgow, Dunphy & Mainous, 2010).
- In these studies, additional simulation practise, error correction and feedback contributed to significant improvement in students skill acquisition and retention as well as patient care.

Conclusion



- The use of a formative assessment framework had a significant effect on insulin procedure, breast assessment and third stage of labour.
- Integration of a FAF into clinical learning has the capacity to improve students skill acquisition, performance and competence.
- Improvements as a result of FAF can help students to be better prepared for the summative OSCE in the skills laboratories and ultimately, their clinical competence for better patient care.

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QUESTIONS/COMMENTS



THANK YOU
SIYABONGA
ZIKOMO
DANKIE