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Experiences in learning research methods: Recommendations from under-graduate nursing students at two African universities

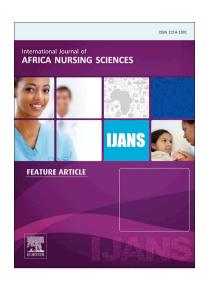Florence Mbuthia, L.J. Mogakwe, Champion Nyoni, Marianne Reid, Winfred Wambui, Simon Githui

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Experiences in learning research methods: Recommendations from undergraduate nursing students at two African universities

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ABSTRACT

Background

Globally there is increasing demand for high-quality nursing care driven by research and evidence-based practice. Engagement of undergraduate nursing students in research activities identifies experiences and strategies that bring best outcomes in nursing practice. This study sought to establish strategies that will improve research practices among undergraduate nursing students at two African universities.

Methods

The study was conducted in University of the Free State (UFS) in South Africa and Dedan Kimathi University of Technology (DeKUT) in Kenya. Nominal group technique (NGT) was used to collect data from 116 undergraduate nursing students (South Africa=53; Kenya=63). Participants recruitment involved complete collection sampling with 5 group discussions (South Africa=2; Kenya=3). Data analysis involved initial intra-group analysis step done to tally and combine scores for specific ideas. Second step identified top five ideas across groups per institution based on highest scores. Final step compared similarities and differences between the two institutions. Ethical clearance was obtained in both countries.

Results

The nominal group results showed top five priorities for the students in Kenya were group work research, calm manner of addressing mistakes, timely feedback from supervisors, standardised assessment, face to face teaching of data analysis software and avoidance of nullification of research projects. South African university students prioritised Student support, knowing expectations, supervisor's feedback and contact classes, interactive classrooms and breaking down research jargon.

Conclusion

The participants reported need for creating supportive learning experiences with peer/teacher mentorship. Timely feedback, structured supervision, and student-centred approach to learning new information in research enrich learners' positive experience.

Keywords

Research, Nursing, Undergraduate, University, positive experiences

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INTRODUCTION AND BACKGROUND

The necessity of evidence-based practice in nursing practice coupled with the obligation of nurses to conduct research in their practice, and integration of research in nursing curricula requires a positive student learning experience for better educational outcomes. The learning experiences in

health sciences are influenced by the integration of various factors. These factors include the educators, the education program, the curriculum, the student's motivation, the assessment, and the educational climate (Webster et al., 2009). Further, Webster et al. (2009) argue, in their validation of the course experience questionnaire, that there is a reported correlation between the learning experience in any course and students' attainment of learning outcomes. Therefore, educators - who are at the core of developing and implementing educational activities - must contribute to a positive learning experience among their students. In addition, student involvement may not be ignored if positive learning experiences are to be achieved since it is associated with student enjoyment of the subject matter though it does not necessarily correspond with improved performance and learning (Allen & Baughman 2016).

Health sciences programmes educators are described as crucial in influencing student attainment of learning outcomes (Murray et al., 2019). These educators are involved in the development of educational programmes, while in most cases, where such programmes are developed- educators are responsible for refining the educational programmes. These activities include stipulating learning outcomes, designing teaching and learning activities, determining the learning environment, availing associated resources for learning, and leading assessments (Allen & Baughman 2016).

It is during these activities that the educators' expertise, experience, and outlook towards the subjects they facilitate and their students contribute towards a positive learning experience for students. In as much as educators are crucial in influencing the learning experiences of their students, their work integrates various stakeholders toward students' learning experiences.

Students, regulations, institutional policies, and patients are stakeholders that have a direct influence on the experience of learning in health sciences (Murray et al., 2019). Dewey (1978) arguing from a constructivist learning lens, stated that students are not 'tabula rasa' as they already possess prior knowledge, experience, expectation, and motivation when they enroll in education programmes (Lumadi, 2020). Landis et al. (2021) support this notion that students' professional identity is even formed from the day they decide to engage in a particular profession. This knowledge, experience, expectation, and motivation are not shared among the students, complicating the concept of a shared positive learning experience. The plural nature of such prior knowledge and experience determines how students experience each other, the learning outcomes, the content, and also their context of learning with a direct implication on the educational climate which determines the attainment of educational outcomes.

Health professions are often regulated in various contexts. Regulation is driven by an agenda of protecting the public and maintaining high standards of professional practice (Saks, 2021). The literature explains that professional regulation influences the selection of students into a profession, what they are taught during the profession and where such teaching occurs, who is deemed qualified to teach these students, and how they maintain their license to practice within the profession (Schwill et al., 2022). Inadvertently, regulation influences the learning experience of students and their attaining of educational outcomes including specifications of registration into practice. Furthermore, these educational institutions are guided by overt policies that influence the interaction of educators and students. This is an example of the multifaceted process and stakeholders that influence and drive student learning experience in modules that strengthen the adoption of evidence-based practice.

In a bid to promote evidence-based practice, undergraduate nursing students are expected to learn about and in some instances conduct research. Tingen et al (2009) add that as part of undergraduate studies, nursing students should be exposed to research to develop an appreciation for and become more involved in nursing research, thus integrating research outcomes into the delivery of optimal professional nursing practice. However, the literature suggests poor educational outcomes for students in undergraduate research modules. Undergraduate nursing students have expressed little interest in EBP because of their attention to establishing the clinical skills necessary to provide care (Holmström & Larsson, 2005). Velarde-García et al. (2023) reported a lack of time, ambiguity, inadequate tutoring or novelty of the work, and inequity in the distribution of tasks and workloads as the barriers to nursing research education. Additional barriers are organizational, e.g., strict regulations on doing student research projects and research administration staff's inappropriate conduct; environmental factors such as the absence of competent researchers to support students in understanding research further complicate students' experience of learning research.

In the African context, as with other low-resource settings, the competence of the nurse educator facilitating research modules is often questionable. There are a limited number of educators with research capabilities, who are actively involved in research and are publishing their research (World Health Organisation, 2022). This has been documented by Nyoni CN et al., (2024), who reported limited studies done by doctoral nurses on nursing research compared to those that study nursing practice, education, and administration aspects in sub-Saharan Africa. Unlike the clinical nursing modules, where educators are expected to have expertise and experience within the clinical field before teaching (Jayasekara et al., 2018) such an expectation does not apply to teaching or facilitating research among nursing students. The incompetence of the educators may further compromise the learning experience of undergraduate nursing students. In addition, the lack of established nursing and midwifery research priorities in some countries like Kenya may influence the educator's competence and practices (Mutisya et al.,2023).

In this study, we argue that positive experiences are essential for learning research with students being important informative stakeholders in determining what makes up their positive experience Their recommendation will be the strategies that will form an integral part of the research module and curriculum review.

Purpose of the study

To describe strategies recommended by final-year nursing students for improving their learning experience in research methodology

3. Materials and Methods

3.1 Study design and setting

The Nominal Group Technique (NGT) was used in this study to explore the strategies for improving the research learning experiences of students in undergraduate nursing programmes at the two nursing education institutions. NGT is a well-structured consensus technique that incorporates in both qualitative data (acquired during discussions) and quantitative data (from numerical rankings of ideas). The method was suitable in this study that required generation of

ideas and solutions that were ranked in the order of priorities, thus providing the best strategies for consideration in improving learning research experiences.

The context of the study

This study was conducted at two universities, one in Kenya and the other in South Africa. The focus of this work was on the undergraduate nursing degree programme. We used the curriculum design framework by Dent & Harden (2013) to describe the specific modules of interest in Table 1

Table 1 Comparison of curriculum elements in Kenya and South Africa

Curriculum Element	University in Kenya	South African university
Learning Outcome	• Conduct research on a nursing-related problem	• Conduct a scoping review of the literature with nursing on specified timelines
Content	• Basics of research • Research design • Data collection methods • Population and sampling • Data analysis • Rigour and ethics in research	• Basics of research • Research design • Data collection methods • Population and sampling • Data analysis • Rigour and ethics in research • Conducting a scoping review
Educational strategies	• Face-to-face classroom sessions • Lectures • Tutorials • Individualised supervision	• Blended learning - asynchronous engagement and online discussion • Flipped classroom • Group supervision
Educational environment	• Classroom	• Learning management system
Learning opportunities	• Engaging the literature • Actual collection of data • Feedback from supervisors	• Only engaging literature, Feedback from supervisors • Group discussions
Assessment	• Written tests on research methodology • Submitted individual research project • Oral presentation and viva voce of the project.	• Written tests • Submitted group research project • Oral presentation of the research project in groups

These two universities both offer undergraduate nursing research modules which have areas of chiasm and some differences based on contextual realities. The university in Kenya adopted a more empirical approach to engaging students in research, where students have to conduct individual research projects, are supervised by all the lecturers in the department and their assessment involves a face-to-face oral viva voce in addition to the submitted completed project. The university in South Africa expects research groups to conduct scoping reviews over five years. The students are taught through a blended approach, supervised in groups and the groups are expected to submit a final report which is presented as well.

3.2 Study population and sampling

The study population comprised 116 undergraduate nursing students enrolled for research module from South Africa (n=53) and Kenya (n=63). The authors recruited participants using complete collection sampling (Cohen et al. 2018), leading to five group discussions in South Africa (n=2) and Kenya (n=3).

3.3 Data collection

Data were collected through the NGT which was held face-to-face at the respective NEI. The researchers invited students to be part of the study through an information leaflet that detailed the purpose of the study and the approaches to data collection. The students who expressed interest in being part of the study signed up for a specific group meeting. Independent facilitators, who were unknown to the students, sought to facilitate the NGTs. All facilitators had been trained in the data collection technique. On the set date for data collection, private rooms within the institution were identified and prepared for the session. The data collection process was repeated to the students and opportunities to ask questions about the process were availed.

After signing the informed consent, the independent data collected posed the following question to the participants:

"How can the research learning experiences of undergraduate nursing students be improved in this institution?

The students were allowed an opportunity to generate their response to this question through 'generating ideas in silence' (Botma et al., 2010; Dang, 2015). The generated ideas were verbalised by each student and captured in a visible flip chart, where all the students in the room could see them. Through a round-robin technique, each student was asked to explain their thinking or reasoning for their suggested strategy. Some of the strategies that read the same, or had a similar meaning were discussed and merged.

The second round of the NGT involved 'prioritisation' of the generated idea. The participants were requested to write down what they thought were the top five priority strategies from the presented ideas on the flip chart. After writing their top five ideas, the participants were instructed to prioritise the ideas from the most important to the least important by allocating a score. The highest

priority ideas were allocated a 5 and the lowest idea a 1. The next subsequent important idea was scored a 4 while the next lowest idea was scored a 2. The remaining idea scored a three.

The participants then submitted their score sheets to the data collector. These score sheets had no identifiable information but were labelled based on the group of which the participants were part. For example, G1 were participants from the first group. The NGT sessions lasted between 75 to 90 minutes across the five groups.

3.4   Data analysis

The submitted scripts were captured on a Word document. A second researcher confirmed the captured data to ensure consistency in capturing. Data analysis was executed in a stepwise process as described by Van Breda (2005). In the initial step, intra-group analysis was done where the scores for specific ideas were tallied and combined. The second step focused on identifying the top five ideas across the groups per institution based on the highest scores. The final step focused on comparing the similarities and differences between the two institutions.

3.5 Ethical considerations

The Health Sciences Research Ethics Committee of the University in South Africa (UFS-HSD2022/1968) and Dedan Kimathi University of Technology Ethic Review Committee (DeKUT/ISERC/03422/010) approved this study. The ethics principles enshrined in the Belmont report (ref) were applied across the data collection sites. An information leaflet, explaining the purpose of the study, the approaches to data collection, aspects of confidentiality, and the rights of students including the right to refuse to be part of the study or withdraw from the study at any time. All data were stored in password-protected folders and accessed only by the researchers.

3.6 Rigour

The trustworthiness framework by Lincoln & Guba (1985) was used to enhance the rigour of this study. The methods for engaging this research were explicitly described enhancing an audit trail for this work. Data triangulation through data from multiple sites enhanced the credibility of the study. Discussion and sound boarding of the data with the participants during the session reflected member checking which is a strategy to enhance confirmability of the study findings.

4. Results

This study sought to describe strategies to improve student experience when learning research methods at two nursing education institutions in Kenya. The recruited undergraduate students were in their fourth year of study. Data was collected through an NGT and analysis was executed through a stepwise process. The results of the study are presented in Table 1 and Table 2.

Table 1 presents strategies and their scores per group from the University in Kenya.

Table 2: Priorities from the University in Kenya

P	Group 1	Score	Group 2	Score	Group 3	Score
1	The research committee to address mistakes in a calm manner	24	Feedback from the not take more than a week	20	Supervisors be allocated based on their area of specialisation	17
2	Group work research	21	A standardised way of assessing the research	19	Research to start in the 1st year of study	8
3	Software for analysing data be taught face to face	17	The students' research proposal should not be nullified in the first defence after going through its development with the supervisors	17	One-on-one interaction all through research process	7
					Group work research	7
4	Many supervisors for harmonisation of research work	13	The Supervisor should have a say in the defence panel	16	Supervisor's Views during oral defenses	4
					Having both the examiner and supervisor involved in the draft of the research proposal	4
					Allow room for change of supervisors in times of incompatibility	4
5	Nullification of a topic to be done with an alternative in place	12	The lecturer should avoid a tough scary tone as this may affect the student's confidence and flow of thoughts	12	Addressing perception and negative attitude toward research	3
	Detailed learning of the research concept	12				

According to the table, the priority strategies to improve positive experience in learning research methods at the University in Kenya were:

1. The research committee should address mistakes in a calm manner.

2. The research should be done as a group work.

3. Feedback from the supervisor should not take more than a week.

4. Supervisors should be allocated based on their area of specialisation.

5. Supervisors and lecturers should have a standardised way of assessing the research.

6. Software for analysing data should be taught and not learned virtually.

7. The student's research proposal should not be nullified in the first defence after going through its development with the supervisors.

The second table presents the priorities according to the students at a University in South Africa.

Table 3: Priorities from the University of the Free State / University B

P	Group 1	Score	Group 2	Score
1	Individual supervisor feedback and contact classes	17	Student support	25
2	Breaking down the research jargon	15	Knowing what is expected	19
3	Practical exposure and examples	12	Interactive classrooms	16
4	Research theory in second years- basics	10		
5	Individual participation	9		
	Make research exciting – how it's presented, exciting studies, and seeing the bigger picture	9		

Accordingly, the students at the university in South Africa identified the following top five strategies.

1. Student support.

2. Knowing what is expected.

3. Individual supervisor feedback and contact classes.

4. Interactive classrooms.

5. Break down the research jargon.

5. Discussion

This paper discusses the results of priority strategies that nursing students from two Universities consider key to improving student experiences in learning research methods

5.1 Priorities from the Kenyan University

The findings from this study highlighted the top five priority strategies that can be utilized to improve nursing students' research learning experiences with the fifth priority having a tie of three strategies. The priority was the need for the research committee to calmly address the mistakes made by the students' learners. A calm approach is likely to enhance constructive feedback. This finding agreed with Ramsay et al.'s (2020) study which associated the motivation and friendly attitude of research instructors with increased research engagement of their students. The study further revealed that students' fear and anxiety due to harsh correction by some instructors caused a negative impact which slowed the progression of research projects (Ramsay et al., 2020). In another study, it was evident that positive correction of student mistakes by educators birthed a positive attitude toward undergraduate research and students became more inclined to actively participate in research (Ross et al., 2020).

The second priority was that research projects should be done as a group work. The respondents expressed how teamwork effectively simplified the huge research work by encouraging shared responsibility among the learners hence easing the workload and motivating learners. This finding agreed with Hermanns et al. (2022) study which reported that assignments divided among group members provided flexibility in the research workflow. In addition, students in groups have opportunities to think critically, participate actively, and assume responsibility for allocated portions of the project work (Pierce & Reuille, 2018). Furthermore, working in small groups of not more than five participants is advantageous in ensuring accountability in task sharing and harmonious interaction and orderliness (Velarde-García et al., 2023).

The third priority was that feedback from the supervisors should not take more than a week. The respondents suggested that timely feedback was essential in facilitating swift progression. Some participants expressed dissatisfaction and lost research interest when their respective supervisors took longer periods to provide feedback on their work. The length of time when engaging students in research has been described as a key factor that could promote or hinder the progression of research among students (Ross et al., 2020).

The fourth priority strategy was that the supervisors should be allocated to supervise students based on their area of nursing specialization. For instance, a midwifery and reproductive health lecturer should be allocated to students who have research interests in this area. This approach would bring the lecturers' vast knowledge in their area of specialization to assist in guiding the students in their respective areas of interest. For the growth of nursing education research at the international level, specialization has been embraced by having more specialized doctoral-trained research trainers in the Nursing association that give oversight in Nursing training and profession including research (Coyne et al., 2018). Furthermore, it is reported that nurse educators guiding students with topics

that are outside their specialization are faced with salient problems of having limited knowledge and proficiency (Roberts-Grice, 2022).

The fifth suggested strategy was that supervisors and lecturers should have a standardized way of assessing the research projects. They should have one agreed format for assessing students' research so that all the students can have a chance to be examined using a standard tool. This finding agreed with a study by Hermanns et al. (2022) who reported that adaptation of a standard content of research and joint research faculty agreement on possible topics and designs that were best suited for their students' research needs was important.

The sixth strategy stated that software for analyzing data should be taught and not learned virtually. Studies have reported that the majority of nursing students lack computer skills to operate statistical software and therefore teaching them is essential (Watwood, Bormann, and Bennett, 2018). However, nursing students are reported to experience difficulties in mastering software operations from online sources (Ramsay et al., 2020) but face-to-face teaching strategies are known to promote adequate learning and mastery of various research software techniques by the students (Roberts-Grice, 2022). Therefore, to improve research learning among undergraduate nursing students, software needs to be taught during face-to-face interactions.

The seventh priority stated that the student's research proposal should not be nullified in the first oral defense after going through its development with supervisors. The students suggested that at least the panelists should reason with them and consider the student's perspective on the topic of interest rather than just rejecting the proposal completely. This finding agreed with a study by O'Brien and Hathaway (2018) who reported that continuous rejection of students' topics created negative student perceptions and consequently resulted in few numbers of students having timely completion of research. Lecturers' interest in the study area being handled by their students is a factor that promotes students' participation in research even when the students make mistakes during the supervision (Ross et al., 2020).

5.2 Priorities from the South African University

The priority was student support. Respondents acknowledged ease when their supervisors supported them during the period of supervision. This finding agreed with a study done at the University of Virginia in the USA whereby increased student engagement with their supervisors enhanced student interest in conducting research projects (Coyne et al., 2018). Prompt student support combined with their research needs exploration by their supervisors is reported to improve the conduct of research by students (Devos et al., 2021). Student support is vital in enhancing critical thinking in research for nursing students (Hermanns et al., 2022). Student support also enables lecturers to identify the learning needs of different students and this helps to focus their guidance on individuals' needs (O'Brien and Hathaway, 2018). Therefore, to ensure student progression in research, adequate supportive supervision should be provided by lecturers (Roberts-Grice, 2022).

The second priority was the need for the students to know what was expected of them. Nursing students have been reported to struggle to see the relevance of research in their nursing studies because they did not know what they were expected to be doing when they were introduced to research (Devos et al., 2021). Therefore, nursing students must be introduced to research

opportunities and methodologies early in their careers to build their expectations in research (Coyne et al., 2018; Devos et al., 2021). In addition, highlighting the right image of the importance of research among students will impact their future professional role and ability to conduct research successfully (Ünver et al., 2018).

The third strategy was individual supervisor feedback and contact classes. Supervisors should use one-on-one responses to the needs of their students. The contact classes would provide a chance to emphasize areas that may have not been understood by the students thus leading to improved experiences for the students (Coyne et al., 2018). The fourth strategy was to have interactive classrooms with the students. Interactions would help supervisors address challenges encountered by the students in research. This finding was in concurrence with Csiernik et al. (2018) study that indicated that interaction with supervisors enabled students to engage in research activities such as data analysis and writing publications. In addition, interactive classrooms help to shift the research instruction and command from the lecturer to the student thus encouraging a student-centred approach and easing the solving of all the problem-based research concepts (Pierce and Reuille, 2018). Furthermore, Hermanns et al. (2022) in his study demonstrated that the research concepts became easy to understand and apply when they interacted with their supervisors.

The fifth strategy to improve nursing students' research as identified by the students was the need to have a breakdown of the research jargon. Nurse educators should continually devise teaching methods to circumvent the challenge of teaching research concepts that appear hard for students to understand (Roberts-Grice, 2022). Hard-to-understand research concepts lead to different interpretations, generating ambiguity and eventually leading to confusion among students (Velarde-García et al., 2023).

In comparison, the students from both universities have highlighted similar recommendations that are geared towards their supervisors. In both universities, having supervisors and students support through feedback and interactions has been recommended to create positive experiences. Though this clearly shows the significant role played by the supervisors in influencing nursing student research experiences, it may also indicate that students are willing and interested to learn and apply research methodology if their supervisors are supportive.

Limitations

The study was conducted in two African countries and the generalizability may be limited. However, a clear explanation of the study areas and the methodology used has been provided making it possible for any researchers who wish to transfer the results to a similar setting. The study utilized a Nominal Group Technique data collection method that may not be popular in other settings, but the authors systematically followed and explained all the steps involved ensuring that rigor was maintained thus the method may be replicated in other settings. The supervisors were also not interviewed although their role is key to student learning and became a focus of the students' responses. However, given that the use of NGT to generate and rank priorities is the basis of further research, then future studies or a follow-up study can focus on the aspect of supervisors. In addition, the study focused on undergraduate students and could be extended to postgraduate students in future research.

Conclusion

To guarantee a positive experience in learning research methods, the undergraduate students reported the need to be actively involved in creating supportive learning experiences, rich in support and mentorship from their peers and teachers. Timely feedback, structured supervision, and a student-centred approach to learning new information in research enrich the student's research positive experience.

References

Allen, P. J., & Baughman, F. D. (2016). Active learning in research methods classes is associated with higher knowledge and confidence, though not evaluations or satisfaction. *Frontiers in Psychology*, *7*, 279.

Botma, Y., Greeff, M., Mulaudzi, F.M. & Wright, S.C.D. 2010. Research in health sciences. Cape Town: Pearson Education South Africa.

Coyne, B.M. *et al.* (2018) 'A Comprehensive Approach to Undergraduate Nursing Students' Research Experiences.', *The Journal of Nursing Education*, 57(1), pp. 58–62. Available at: https://doi.org/10.3928/01484834-20180102-12.

Csiernik, R. *et al.* (2018) 'Nursing students' perceptions of participatory action research', *Journal of Nursing Education*, 57(5), pp. 282–286. Available at: https://doi.org/10.3928/01484834-20180420-05.

Dang, V.H. 2015. The use of nominal group technique: Case study in Vietnam. *World Journal of Education,* 5(4):14-25. doi: 10.5430/wje.v5n4p14

Dent, J. A., & Harden, R. M. (2013). New horizons in medical education. *A Practical Guide for Medical Teacher fourth edition. Elsevier: London*, 3-7.

Devos, F. *et al.* (2021) 'Identification and comparison of France to other countries of the teaching of research to nursing students: Results of an international survey of nursing educator', *Nurse Education Today*, 97(December 2020). Available at: https://doi.org/10.1016/j.nedt.2020.104717.

Hermanns, M. *et al.* (2022) 'Engaging nursing honors students in research: A model program', *Journal of Professional Nursing*, 43(September), pp. 129–133. Available at: https://doi.org/10.1016/j.profnurs.2022.10.002.

Holmström, I. and Larsson, J., 2005. A tension between genuine care and other duties: Swedish nursing students' views of their future work. *Nurse Education Today*, *25*(2), pp.148-155.

Jayasekara, R., Smith, C., Hall, C., Rankin, E., Smith, M., Visvanathan, V., & Friebe, T. R. (2018). The effectiveness of clinical education models for undergraduate nursing programs: A systematic review. *Nurse education in practice*, *29*, 116-126.

Landis, T., Godfrey, N., Barbosa-Leiker, C., Clark, C., Brewington, J.G., Joseph, M.L., Luparell, S., Phillips, B.C., Priddy, K.D. and Weybrew, K.A., 2022. National study of nursing faculty and administrators' perceptions of professional identity in nursing. *Nurse educator*, 47(1), pp.13-18. doi: 10.1097/NNE.0000000000001063

Lincoln, Y.S. & Guba, E.G. 1985. Naturalistic inquiry. Newbury Park, CA: SAGE Publications.

Lumadi, M. W. (2020). Fostering an equitable curriculum for all: a social cohesion lens. *Education as Change*, *24*(1), 1-20.

Murray, C.C., Sheremenko, G., Rose, I.D., Osuji, T.A., Rasberry, C.N., Lesesne, C.A., Parker, J.T. and Roberts, G. (2019). The influence of health education teacher characteristics on students' health-related knowledge gains. *Journal of School Health*, 89(7), pp.560-568. doi:10.1111/josh.12780

Mutisya, A., Wagoro, M., Nzengya, D., Edwards, J. & Secor-Turner, M. (2023) Nursing and midwifery research priorities for Kenya: Results from a national Delphi survey. *International Nursing Review*, 70, 569–577. https://doi.org/10.1111/inr.12893

Nyoni CN, Botma Y, Hugo-van Dyk L. Doctoral Contribution to Nursing Science in Sub-Saharan Africa: A Document Review. Nursing Science Quarterly. 2024;37(1):64-70. doi:10.1177/08943184231207380

O'Brien, T. and Hathaway, D. (2018) 'Students and Faculty Perceptions of an Undergraduate Nursing Research Internship Program', *Nurse Educator*, 43(2), pp. E1–E4. Available at: https://doi.org/10.1097/NNE.0000000000000412.

Pierce, L.L. and Reuille, K.M. (2018) 'Instructor-created activities to engage undergraduate nursing research students', *Journal of Nursing Education*, 57(3), pp. 174–177. Available at: https://doi.org/10.3928/01484834-20180221-10.

Ramsay, A., Wicking, K. and Yates, K. (2020) 'In what ways does online teaching create a positive attitude towards research in nursing students studying a first-year evidence-based practice undergraduate subject online?', *Nurse Education in Practice*, 44(January), p. 102744. Available at: https://doi.org/10.1016/j.nepr.2020.102744.

Roberts-Grice, C.J. (2022) *Nurses educators' experiences teaching research and EBP concepts to undergraduate nursing students*. Capella University.

Ross, J.G. *et al.* (2020) 'Pre-licensure nursing students' attitudes toward clinical research, education research, and pedagogical research participation in the United States', *Nurse Education Today*, 93(May), p. 104522. Available at: https://doi.org/10.1016/j.nedt.2020.104522.

Saks, M. (2021). The regulation of healthcare professions and support workers in international context. *Human resources for health*, 19(1), p.74.

Schwill, S., Kadmon, M., Hahn, E. G., Kunisch, R., Berberat, P. O., Fehr, F., & Hennel, E. (2022). The WFME global standards for quality improvement of postgraduate medical education: Which standards are also applicable in Germany? Recommendations for physicians with a license for postgraduate training and training agents. *GMS journal for medical education*, *39*(4), Doc42. https://doi.org/10.3205/zma001563

Tingen, M.S., Burnett, A.H., Murchison, R.B. and Zhu, H., 2009. The importance of nursing research. *Journal of Nursing Education*, *48*(3), pp.167-170.

Ünver, S. *et al.* (2018) 'Attitude of Nursing Students Toward Scientific Research: A Cross-Sectional Study in Turkey', *Journal of Nursing Research*, 26(5), pp. 356–361. Available at: https://doi.org/10.1097/JNR.0000000000000244.'

Van Breda, A.D. (2005). Steps to analysing multiple-group NGT data. *The Social Work Practitioner-Researcher*, 17(1), 1-14.

Velarde-García, J.F. *et al.* (2023) 'Barriers and Facilitators to the Learning and Acquisition of Research Competencies among Nursing Students through Active Methodologies: A Qualitative Study Using Reflective Writing', *Healthcare (Switzerland)*, 11(8), pp. 1–14. Available at: https://doi.org/10.3390/healthcare11081078.

Watwood, C., Bormann, L. and Bennett, M. (2018) 'I can do this – collaboration on a global nursing assignment to increase the self-efficacy of pre-nursing students for research skills', *Journal of Electronic Resources in Medical Libraries*, 15(2), pp. 59–65. Available at: https://doi.org/10.1080/15424065.2018.1481481.

Webster, B.J., Chan, W.S., Prosser, M.T. and Watkins, D.A. (2009). Undergraduates' learning experience and learning process: Quantitative evidence from the East. *Higher Education*, 58, pp.375-386.

World Health Organization. (2022). *Towards a global guidance framework for the responsible use of life sciences: summary report of consultations on the principles, gaps and challenges of biorisk management, May 2022* (No. WHO/SCI/RFH/2022.01). World Health Organization.

Highlights

- Research experiences among undergraduate nursing students exposes them to actual research activities that integrates the outcomes into delivery of optimal professional nursing practice.
- Undergraduate nursing students have expressed little interest in evidence based practice due to varied learning experiences during their studies
- This study, argues that positive experiences are essential for learning research among undergraduate nursing students.
- Undergraduate nursing students recommends timely and constructive feedback, structured supervision, and student-centred approach to learning research