

## ORIGINAL RESEARCH

# Facilitating evidence-based practice integration into teaching and learning: A strategy for nurse educators

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## ABSTRACT

**Background:** Evidence-based practice (EBP) is highly recommended for health care professionals to apply in their practice. Provision of healthcare should be current and scientifically proven, hence the necessity for nursing education institutions to pursue nurse training programmes incorporating teaching of EBP skills. The purpose was to explore and describe the experiences of nurse educators with the integration of EBP into teaching and learning at a nursing college to develop a strategy to support nurse educators and to recommend the inclusion of EBP skills in the nurse training curriculum.

**Methodology:** A qualitative, descriptive phenomenological research design was employed, utilizing non-probability purposive and snowball sampling techniques to select nurse educators as participants. Data were collected through unstructured in-depth interviews using a grand tour question, a digital recording device, and field notes to record all interviews. Colaizzi's phenomenological data analysis method guided data analysis using Atlas.ti 24 software for coding.

**Results:** Four themes emerged: nurse educators' experiences with integration and understanding of the EBP concept, facilitating EBP integration, significance of integrating EBP in teaching and learning, and suggested strategies to enhance EBP integration. Based on these findings, a strategy was developed with seven action statements to support nurse educators. Furthermore, recommendations to the college and future research were suggested for the successful integration of EBP.

**Conclusions:** The suggested strategy and recommendations made, would facilitate and create a culture of EBP within the nursing profession and education.

**Key Words:** Curriculum, Evidence-based practice, Integration, Learning, Nurse educator, Strategy, Teaching

## 1. INTRODUCTION

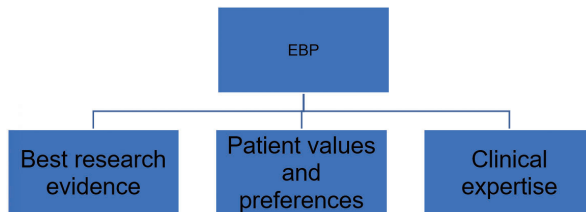
Healthcare professionals have a responsibility to provide care that is current and scientifically proven. Clinical practice guidelines are developed through the application of Evidence-based practice (EBP) principles and skills to offer instructions on how to provide quality healthcare. Adoption of EBP principles into nursing curriculum by nurse educators is an important element in ensuring that training programmes offer relevant exposure to EBP knowledge and skills for nursing students so that EBP is effectively implemented.

### 1.1 Background

For a long time, EBP has been embraced by many health professions as the best way of practice, meaning that effective quality health care should be based on current best available evidence.<sup>[1]</sup> EBP is described by Song et al.<sup>[2]</sup> as the strategy used by health care professionals to achieve high-quality patient care that is safe and cost-effective for health care institutions. The concept of EBP is not new; many scholars among the healthcare professionals have defined it, but the original definition comes from the medical

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field. In 1995, Dr Sackett defined evidence-based medicine (EBM) as the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. By the year 2000, EBM was redefined as the integration of best available evidence, clinical expertise, and patient preferences and values to provide the best care to patients, which has ultimately been adopted by international scholars and organizations.<sup>[3]</sup> Figure 1 illustrates the link formed by the best research evidence, clinical expertise, including patient values and preferences for effective EBP.<sup>[4]</sup>



**Figure 1.** Concept map - Evidence-based practice (EBP)

### 1.2 Research vs EBP vs research utilization

In a study on EBP and nursing research,<sup>[5]</sup> differences between nursing research and evidence-based nursing practice were highlighted, where findings indicated that nursing research is all about researching to generate new knowledge whereas EBP is the utilizing of best available evidence as basis to nursing practice, while research utilization (RU) was described by Dewi and Mani<sup>[6]</sup> as the application of research results to make clinical decisions. EBP is broader because it assimilates research results and expertise from other fields of science.<sup>[6]</sup> Evolving from research utilization to EBP requires the use and integration of best research evidence together with clinical practice experience, patient values, and needs within a conscientious and cost-effective health care delivery manner.

Current clinical practice standards require that professional nurses conduct research studies, apply the best scientific evidence to achieve quality healthcare, and ensure that acquired new knowledge is disseminated through publication.<sup>[7]</sup> Adhering to these standards, nurse educators need to teach research and EBP skills at the undergraduate level during basic training. Therefore, it is suggested that nurse training programmes should include teaching and learning outcomes about research and EBP skills within the curriculum<sup>[2]</sup> so that nurses are adequately skilled and able to evaluate research studies to implement changes in the clinical setting accordingly soon after graduating.

Another study conducted on nursing students about knowledge, attitudes, and application of EBP, the findings suggested that EBP should be integrated into both theoretical

and practical parts of the nursing curriculum to promote effective EBP implementation by the nursing students.<sup>[8]</sup> Although some studies support involving students in the application of EBP as important, some academic programs have not integrated teaching of EBP skills into the curriculum, and this remains a key challenge for nursing education.<sup>[9]</sup> A study conducted in European countries on teaching of EBP in nursing curricula concurred with the statement above that teaching of EBP has not been adequately integrated in the nursing curriculum, then suggests that guidelines and strategies be developed to guide the teaching and learning of EBP in nursing education.<sup>[9]</sup>

This study was conducted from a public nursing college offering undergraduate and postgraduate nurse training programmes accredited by the South African Nursing Council (SANC) and Council on Higher Education (CHE) and registered with the South African Qualifications Authority (SAQA). The college is managed and administered under the health department. It is a single nursing college constituted by eleven campuses widely located across the various districts within the province.<sup>[10]</sup> The college has a research strategy that gets reviewed yearly, and its purpose is to strengthen research activities of the college and to ultimately increase research productivity and interest amongst academic staff and nursing students.<sup>[11]</sup> The strategy does not include teaching of EBP skills activities, hence the importance of including EBP principles and concepts into the nursing curriculum to empower newly qualified nurses with EBP competencies. The study was conducted to enhance nurse educators' knowledge and skills to facilitate the integration of EBP principles. Finally, based on the study findings, a strategy supporting nurse educators with EBP integration into teaching and learning should be developed for the college.

## 2. METHODS

### 2.1 Ethical considerations

An ethical approval certificate was obtained from the Institutional Research Ethics Review Committee of the College of Human Sciences Research Ethics Committee, before commencement of the interviews. Permission was received from the gatekeepers of the health department and the college's relevant campuses. All participants signed informed consent forms following the information session. The principles of autonomy, justice, beneficence, privacy, confidentiality, and anonymity were adhered to, and the scientific integrity of the research was maintained throughout the study.

### 2.2 Study design and setting

The study followed a qualitative approach guided by Husserl's descriptive phenomenological research design that

allowed for personal interaction to gather data on participants' lived experiences at their natural setting. Accessible sites were four campuses, from three districts in the province.

### 2.3 Population and sampling methods

Non-probability methods using purposive and snowballing techniques were used to select participants. The researcher was able to access a homogeneous group of nurse educators who volunteered to participate and met the criteria. The sample consisted of 21 nurse educators from four college campuses offering both undergraduate and postgraduate nurse training programmes. Data saturation occurred at Participant Number 17 at the third site, but the researcher continued to the fourth site to honour the pre-scheduled appointments until Participant 21. Then, the researcher terminated further interviews and proceeded to the organisation and management of data.

### 2.4 Data collection

Data collection took place in February 2024 within the participants' work environment. In-depth individual interviews were conducted using a grand tour questioning with supplementary questions, allowing participants to give deep and rich information about their experiences. The topic guide, digital audio recorder, and note-taking were used as data collection instruments. Interviews were captured on the digital voice recorder and later transcribed verbatim. Field notes were also gathered. Anonymity was ensured through the use of code numbers allocated to each participant. All collected private data would be kept safe and encrypted in the researchers' laptop computer for 5 years.

Due to an extensive literature review conducted as well as the researcher's own experience, the use of reflexivity and bracketing was of utmost importance to reduce the chances of bias during the data collection process. It was important for the researcher to avoid personal bias and to suspend personal judgement through bracketing of own experiences. The researcher applied bracketing before, during, and after gathering data to ensure that data remained pure and raw during analysis to allow for new meanings to emerge. Bracketing prepared the researcher to focus on the essentials of the pending analysis. All the information provided by the participants was accepted as true. The researcher could not interfere and kept calm even in circumstances when a participant seemed way off the topic.

In addition, the researchers' nature of work is grounded in nursing education, as they understood and had read extensively about the topic under study. It was important to put forward a plan to critically reflect on actions, feelings, and preferences during the data collection process to avoid exert-

ing any influence on the participants' responses. To achieve this, the researcher kept reflexive notes, which were kept separately from other field notes. This was done to remind the researcher of any ideas from previous experiences that could affect the research process.

### 2.5 Data analysis

Data analysis happened simultaneously with data collection,<sup>[12,13]</sup> following Colaizzi's data analysis approach because of its rigorous and robust nature to increase the level of credibility and reliability of the findings. Each transcript was read repeatedly to identify segments of statements, which were then coded with the assistance of the Atlas. ti 24 software. Identified common themes and categories of information were grouped to create new main themes. Data presentation, interpretation, and discussion commenced thereafter.

### 2.6 Measures for trustworthiness

The researcher followed Lincoln and Guba's (1995) framework to ensure the quality of data for this study. This framework suggests five criteria for developing the trustworthiness of a qualitative study,<sup>[14]</sup> which are credibility, transferability, dependability, confirmability, and authenticity.

#### 2.6.1 Credibility

Data were collected by the researcher directly from the participants, who were qualified and experienced nurse educators as reliable sources of information with expertise on the study topic. Member checking was employed with participants for data validation and confirmation of information accuracy. Discussions held with a research expert, supervisor, and study editor reached consensus on how the findings were presented. Good rationale given to all methods and procedures, including meeting ethical requirements to earn credibility. The use of Colaizzi's phenomenological data analysis method increased the credibility and reliability of the study.

#### 2.6.2 Transferability

A comprehensive final report on the context under which the study was conducted was clear. Adequate thick description of data, could be easily transferred, applicable, and support generalisation of findings to other settings. The use of purposive sampling ensured that well-informed participants from a similar context contributed to the study. Transparency about the study context, participants, and design would benefit readers in making informed decisions to apply similar procedures in another study.

#### 2.6.3 Dependability

The researcher followed proper documentation of collected data and consultation of reputable journals for publication,

ensured that the stability of collected data was maintained over an extended period, and remained unchanged over time. The use of a digital voice recorder and a USB to save recordings. All recorded information was safely kept by the researcher until completion of the study.

**2.6.4 Confirmability**

Purposive and snowballing sampling techniques were used to get the correct sample, and data were collected through interviews and participant observation. All research activities were documented and recorded to allow for an audit trail from other reviewers. Audio recordings confirmed that the collected data were a true reflection of information received from participants and remained the same. Reflexivity and bracketing were employed from the beginning of the data collection process to minimise researcher bias and to ensure that the researcher had no alternative interest except that of understanding the phenomenon under study.

**2.6.5 Authenticity**

Experiences and feelings of participants were conveyed in the study’s final report as they happened. Discussion of participants’ experiences was supported by real quotes uttered during interviews. Any reader should be able to understand and put themselves in the participants’ shoes. Recording devices increased the legitimacy of the collected data, thus providing a trusted study report.

**3. RESULTS**

**3.1 Biographic data of the participants**

The total sample consisted of 21 participants, all females. Participants of advanced age made up 62% of the sample, while 80% of the sample occupied higher positions or rank-

ing as the head of departments and programme coordinators. Two-thirds of participants had doctoral and master’s degrees with more experience, indicating a well-informed sample to answer the research question, ensuring the reliability of the information. Advanced age is commonly associated with a higher level of work experience, thus suggesting that in-depth knowledge was expected from these participants. Nevertheless, the study found that participants in advanced age and those with more years of experience displayed insufficient knowledge of EBP principles as compared to the younger participants with fewer years of experience, and this was an unexpected outcome. However, older participants remained more competent in their pedagogical skills than the younger participants (see Table 1). Findings by Patelarou et al.<sup>[15]</sup> recommended that university education with active involvement in research and possessing a masters’ degree were essential competencies in nursing education, hence nurse educators with a university qualification tend to base their teaching more on evidence-based knowledge and it was confirmed by participants in possession of masters and doctoral degrees who had a better understanding of EBP principles than those with longer period of experience and advanced age. Therefore, the level of education, age, and years of work experience influenced the level of knowledge and understanding of EBP principles held by the participants. Four themes emerged as (i) nurse educators’ experiences with EBP integration and understanding of EBP concept, (ii) facilitating EBP integration, (iii) significance of integrating EBP in teaching and learning, and (iv) suggested strategies to enhance EBP integration in teaching and learning. This paper discusses the second, facilitating EBP integration at NEIs in detail.

**Table 1.** Demographic information of the sample

Position/Rank		Years of work experience as a nurse educator		Highest qualifications in Nursing		Age distribution	
Criterion	Frequency	Criterion	Frequency	Criterion	Frequency	Criterion	Frequency
Junior	4	0-5 years	3	Diploma	1	Below 30 years	0
Senior	8	6-10 years	1	Bachelors’ degree	4	31-40 years	2
Head of Department	6	11-20 years	13	Honours’ degree	2	41-50 years	3
Programme Coordinator	3	21-30 years	4	Masters’ degree	12	51-60 years	13
		31-40 years	0	Doctoral degree	2	60 and above	3
				Professorship	0		

**3.2 Facilitating EBP integration in teaching and learning**

Findings affirmed that EBP was not a common practice within the college. Participants acknowledged poor knowledge of the integration of EBP in teaching and learning. Inadequate knowledge, lack of resources, lack of IT skills, poor

attitudes, lack of motivation, and time constraints were identified as the possible hindrances to EBP integration. Therefore, to facilitate EBP integration successfully, creating a positive atmosphere about staff attitudes, motivation, knowledge, and skills was suggested. Participants explained how these factors interfered with facilitating EBP integration under the

following categories.

### 3.2.1 Attitude and motivation

Participants mentioned that research is considered difficult by those who are supposed to adapt to the research practice. Attitudes could influence EBP integration positively, where the initiative is supported, or negatively, where it is opposed and/or rejected.

*"I find out that it's difficult for them to understand the processes of research because they've got that negative attitude as far as research is concerned"*.

For some participants, educators' fear or lack of confidence to try something new could be a huge hindrance to facilitating EBP integration. Again, lack of experience in research may bring fear, thus removing any interest in committing to any research activities, and accordingly, one participant made an interesting comment below.

*"I also think fear of the unknown will hinder people in implementing the skills they are supposed to apply, and also not being assertive when one is supposed to be assertive"*.

The development of positive attitudes towards EBP integration amongst nurse educators can be very effective in aligning or shifting their mindset, especially when dealing with those who are resisting change from using old practices. Exposure to and acquisition of EBP competencies in a nursing career facilitate the development of positive attitudes toward research and EBP. A positive attitude increases the chances of nurse educators getting more involved in research activities, resulting in active participation in the application of EBP in both classroom and clinical environments.<sup>[8]</sup> Change is not always accepted by all and can bring a lot of controversies; hence, a paradigm shift towards a positive attitude for nurse educators responsible for curriculum reviews is also encouraged<sup>[15]</sup> through participation in journal clubs and research days, including being part of research studies.

### 3.2.2 Adequate knowledge and skills

Findings showed that participants were concerned about the knowledge and skills needed for EBP integration in teaching and learning. Information technology (IT) skills, as relevant for EBP and the research process, were found lacking. Also, the study revealed that the EBP process was an uncommon practice for nurse educators, even when participants were aware of the EBP concept, but lacked understanding of the five EBP steps. Participants commented as follows when asked to describe their understanding of EBP.

*"I don't have any idea"*.

*"I've never been involved, like being formally trained on it"*.

Knowledge and skills are necessary for researchers to enhance their literature search from the internet using comput-

ers, and this is the area of knowledge that the participants felt the need for them to be upskilled. Insufficient preparation during basic training is a huge challenge that impedes the adoption of EBP by practising nurses; hence, the urgent need to develop and implement effective professional education programmes to facilitate EBP.<sup>[9]</sup>

### 3.2.3 Time management

Time management was understood to be a challenge by some of the participants, and insufficient time was identified as one of the common hindrances to the application of EBP.<sup>[16]</sup> Findings indicated firstly that some participants felt the need for more time should be invested in the application of EBP principles such as problem formulation, literature search, critiquing, implementation, and evaluation of evidence. Secondly, library times are sometimes a barrier to accessing information outside opening hours, and other participants suggested library hours be extended and to consider be open 24 hours. It was highlighted that most of the time was consumed by lesson plan preparation, resulting in less or no time to search and critique literature, according to the following comments:

*"The challenges I am having are that it does take a lot of time to compile the lesson plans, and the thing is like we don't have sufficient time because you have to do like a lot of research"*.

*"And also, another problem our library has is that it closes early, so you'll find that even if you want to utilize it, you can't when it's after-hours"*.

In contrast to the sentiments expressed above, other participants felt that there was adequate time provided within the class timetable and that time could be used for EBP teaching, learning, and for library use, which indicates that the issue of time was viewed differently by the participants. One participant commented:

*"Most of the time, there is a library period in our timetable that they can use"*.

Adequate time is essential for the EBP application to access information. The five-step EBP process warrants that more time and more personnel be allocated whenever a need arises to find solutions to problems facing the nursing fraternity.<sup>[16]</sup> To facilitate effective integration of EBP into the teaching and learning processes, nurse educators need to manage time well to accommodate EBP activities. In addition, new content, changes to the existing curriculum need more time and commitment for curricular updates and development to take effect.

### 3.2.4 Access to information

The challenge of inadequate stock and outdated materials was experienced by most of the college libraries. Avail-

ability of internet-connected computers was highlighted by participants as necessary to access information, and that may require an internet connection, which was not always available. Most participants agreed on the contribution that library services provide and highlighted the reason why access to electronic information was important by stating the following:

*"I think for the students, they need access to journals. Access to journals is through the internet, so they need to have internet access"*.

*"I think the library should first of all have enough computers, the librarian should make sure that there are journals that are printed, and end up on the shelves in the library"*.

Library instruction, information literacy, and journal clubs play a huge role in ensuring access to the relevant information and evidence. According to Shahzad and Younas,<sup>[16]</sup> library sessions should be an integral part of continued professional development, and awareness of information literacy throughout the nursing career can enhance access to EBP literature resources.

### 3.2.5 Role of the librarian

Librarians are highly skilled and more knowledgeable professionals about IT skills with the ability to access relevant journals; therefore, nurse educator may require their assistance and support. Literature search and critiquing of articles are considered to be key competencies for librarians. Findings show that nurse educators were more dependent and reliant on the librarian to access some of the information; hence, participants felt that the librarian could provide short courses to train nurse educators and support nursing students with article search, critiquing skills, correct referencing techniques, and applying references to make EBP integration easy. Here is how the role of the librarian in EBP integration in teaching and learning was described.

*"A huge role in terms of taking students through literature search to teach them how to access information, . . . . . how to critique literature as well"*. *"The librarian can assist by ensuring that we can retrieve what you know, and also, we can have the links that assist us to ensure that we can get the article. But you find that it says you must sign up or must ensure that you buy it, so it limits you because you end up abandoning that"*.

Support and guidance provided by librarians towards the development of searching and critiquing skills to decide on the best available evidence is needed. Therefore, collaboration with librarians to teach EBP principles can bring an improvement in the understanding of the EBP concepts. On strengthening evidence-based health care in Africa, Wakibi

et al.<sup>[17]</sup> indicated the need for the involvement of librarians and information specialists to train healthcare providers on how to conduct a literature search.

### 3.2.6 Engaging students with research

Engaging students with research and EBP promotes critical thinking, encourages students to become more inquisitive, provides opportunity for a change in the mindset, and prepares students to withstand any changes or challenges taking place in the clinical settings, hence involving nursing students with research activities was stressed by some participants.

*"Yes, I usually use research-based information in my teaching"*.

*"We are also empowering the students with updated information, and we are preparing them well for the clinical with all the changes that have taken place. And also, like giving that mindset to the students that they must go forward with this inquisitive mind, to ascertain gaps and problem areas that can be further researched"*.

In doing so, nursing students can understand and adopt the EBP process and begin to use EBP principles, for example, developing the skill of identifying gaps and problems that need attention. In agreement with the above statements, Dewi and Mani<sup>[6]</sup> stressed the point that exposure to and opportunities created by research activities increase the level of EBP understanding and help nursing students to easily grasp the relevant concepts to improve their knowledge of EBP.

### 3.2.7 Teaching and learning strategies

Participants understood that nurse educators should move away from traditional teaching approaches and adopt new, innovative teaching strategies. To effectively facilitate EBP integration and to engage students, participants suggested strategies to include: interactive lecture methods, group discussions, jigsaw puzzle, innovative teaching strategies, role plays, teaching ward rounds, simulation, assignments, tests, case studies, use of scenarios, problem-based learning, blended learning, digital and virtual learning. Participants were quoted saying:

*"We can do this group discussion, we can do the interactive learning, . . . . . we don't just do the lecture method, we're moving a lot away from the lecture method, and the more involved the student is, and the more case presentation, case scenarios, role plays that you use, they integrating"*.

The focus on engaging and motivating students to get involved in research activities encourages critical thinking, self-confidence, knowledge, and skills acquisition,<sup>[18]</sup> furthermore allowing more opportunities to practise EBP principles.<sup>[8]</sup>

#### 4. DISCUSSION OF FINDINGS

The study purpose was to explore and describe nurse educators' experiences with EBP integration into teaching and learning at a particular nursing college, to develop a strategy to enhance facilitation of EBP teaching and learning by the nurse educators. Findings indicated that participants' experiences were either limited, minimal, or absent, which demonstrated that teaching and learning of EBP principles were not part of the nursing curriculum taught at the college. About these findings, it was important to make curricular changes by designing a curriculum strategic plan to strengthen the adoption of EBP integration that will influence the curricula revision and changes. Developing a curriculum plan should consider organizational culture, capacity, and relevant stakeholders in providing guidelines to monitor and evaluate the implementation process to sustain the proposed changes and to ensure that EBP principles remain part of education and training for nursing programs.<sup>[22]</sup> The planning should occur at the provincial level in alignment with the DoH, CHE, and SANC prescripts as the regulating bodies.

Another view was about how nurse educators conduct teaching using evidence-based strategies,<sup>[16]</sup> which was of less relevance for the study. Nevertheless, participants were unable to share much of the related experiences. The understanding was that the absence of EBP components in the curricula and poor exposure to EBP activities contributed to participants' reduced EBP skills and knowledge. Participants related to research process and EBP as similar concepts. The literature explains that nursing research is the study conducted to generate new knowledge, as compared to EBP, which uses the best current evidence to make nursing care decisions. Although RU is the basic step in achieving EBP but RU does not use the patient-centred approach.<sup>[5]</sup> Therefore, it was concluded that the participants' knowledge was limited to research utilization (RU) and lacked the understanding of EBP principles. The research process is taught in some of the nursing programmes at the college, but EBP was not explicitly found within the curricula. However, participants still felt that EBP needed to be integrated into teaching and learning at college; hence, building capacity for nurse educators was important for successful EBP integration, and the need to equip nurse educators with the relevant EBP knowledge and skills to advance EBP integration within nursing programmes was of importance.<sup>[16]</sup> Orientation and training to other relevant personnel, such as librarians and IT specialists, since the EBP process requires their support and assistance with literature search, critiquing skills, and the use of IT equipment; thus, a human resource development plan should form part of the strategy.

The study highlighted the lack of motivation and lack of inter-

est towards research activities hindered research and EBP use in nursing education and practice, and sometimes employees expect incentives to encourage their involvement in research activities. Change is not always accepted and often can bring some controversies; hence, a paradigm shift towards a positive attitude for nurse educators needs encouragement.<sup>[16]</sup> Positive attitude increases chances of involvement in research activities, resulting in active participation in the application of EBP in both classroom and clinical settings.<sup>[8]</sup> Repeated exposure to EBP should prepare and empower nurse educators to teach EBP skills with confidence. Recruitment of relatively qualified staff, skills development, and an EBP-aligned curriculum are recommended for the creation of a positive attitude towards EBP application.<sup>[9]</sup> According to D'Souza et al.,<sup>[22]</sup> conducting periodic workshops could also positively impact nurses' attitudes and stimulate more interest towards EBP. Participants mentioned that the college provides a good platform for research activities, such as research days and research committee meetings for campuses where nurse educators meet to present and critically discuss research studies conducted by some of the nurse educators. Nevertheless, these discussions lacked mention of EBP concepts, thus increasing the need to enhance EBP knowledge and skills. Therefore, to create and sustain the culture of research and EBP amongst nurse educators, continued engagements for such research activities should be strengthened and a positive attitude for nurse educators towards developing and adoption of EBP competencies should be promoted.<sup>[20]</sup>

Insufficient time was also considered an impediment to EBP application.<sup>[19]</sup> Facilitating EBP integration would need more time to accommodate additional new content, changes to existing curriculum, and curricular updates. Again, to follow the EBP five-step process warrants more time and more personnel to find a solution to a nursing problem whenever a need arises.<sup>[17]</sup> Another area of concern was internet literature search and the use of computers, where participants felt the need for an upgrade. Lack of resources appeared to be a common challenge to the adoption of EBP.<sup>[9]</sup> Regarding access to and sharing of information, participants suggested that subscribing to published journals and/or joining local institutional journal clubs should be encouraged. Membership in journal clubs empowers individuals with skills to locate, critically appraise, and read relevant articles, thus enhancing EBP competencies.<sup>[2]</sup> It was also mentioned that subscription fees posed a hindrance to accessing and downloading electronic articles. Again, the use of the intranet instead of the internet became a barrier to connection because of limited access to other websites and controlled centrally by the health department, which is an impediment to access that is outside the pre-approved sites.

Library instruction, information literacy, and journal clubs play a huge role in ensuring that relevant information and evidence are accessible. According to Ewers et al.,<sup>[19]</sup> library sessions are an integral part of continued professional development. Embedding librarians as part of EBP teaching in nursing education is an effective way to promote EBP principles.<sup>[23]</sup> Therefore, collaboration with librarians to teach EBP principles could improve understanding of the EBP concepts.<sup>[9]</sup> To facilitate EBP integration, favourable conditions and a conducive environment should be created for all NEIs that including libraries and computer laboratory spaces set up at full capacity with a permanently employed librarian<sup>[9]</sup> to ensure that a reliable information system is established.

Studies suggest that clinical placement exposes students to real experience to apply EBP through the use of clinical scenarios and EBP role models to gain problem identification and appraisal skills.<sup>[16]</sup> In agreement,<sup>[9]</sup> concurred that students should be allowed to practice EBP through a scenario assignment during clinical practice to open chances to experience learning in real situations. The focus should be on engaging and motivating students to actively participate in their learning. Participants also believed that EBP integration needs nurse educators to teach students research-based information. Exposure and opportunities to research activities increase the level of EBP understanding and could help nursing students to easily grasp relevant concepts to improve EBP knowledge.<sup>[2,6]</sup> Academic institutions must maintain good relationships with clinical practice facilities to encourage adoption of EBP principles during clinical teaching, to ensure professional competency, and to actively bridge the theory-practice gap successfully. Cooperation within this context creates great opportunities for nursing students to integrate theory and practice in real situations.<sup>[18]</sup> Application of EBP principles mainly happens in the clinical settings where clinical judgements are made based on the best available evidence. Clinical EBP experts can provide mentoring to students and also contribute to the sharing of information with nurse educators during clinical visits.

Innovative teaching and learning strategies were mentioned by participants as strategies that could improve students' learning and skills through different ways of engagement inside and outside the classroom.<sup>[16]</sup> Study participants felt that integration of EBP should close the theory-practice gap and increase the level of critical thinking amongst the students, thus removing the burden of teacher-dependent learning, creating opportunities to use current and most recent information. IT, flipped classroom, and simulation were identified as the key methods of teaching EBP in both classroom and clinical settings, encouraging critical thinking and enhancing translation of EBP knowledge to nursing stu-

dents.<sup>[1,8,18,22]</sup> The approaches should be used to promote student engagement with research and EBP principles.<sup>[20]</sup> EBP learning requires adequate supervision, mentoring, and guidance through the use of experienced preceptors and expert EBP mentors to better prepare nursing students for the complexities of patient care and to produce EBP competent practitioners.

NEIs and nurse educators must lead the transformation process towards successful EBP integration into teaching and learning. Based on the reviewed literature, qualitative data, and study findings, a new strategy was developed to support nurse educators and enhance the facilitation of EBP integration into nurse training programs at the college. Roger's Diffusion of Innovation Theory was used to guide the development of the strategy.<sup>[24]</sup> The goal of the strategy was to make EBP an integral part of nursing education by developing a document to guide college personnel through the facilitation process. Different models and frameworks are used as tools to implement and apply evidence-based practice in the nursing profession. Four models discussed by Brunt and Morris<sup>[25]</sup> included the Iowa model, the Star model of Knowledge Transformation, John Hopkins Nursing Evidence-Based Practice, and Advancing Research and Clinical Practice through Close Cooperation; however, none of these models could be found useful or could be adopted to guide integration EBP into teaching and learning.

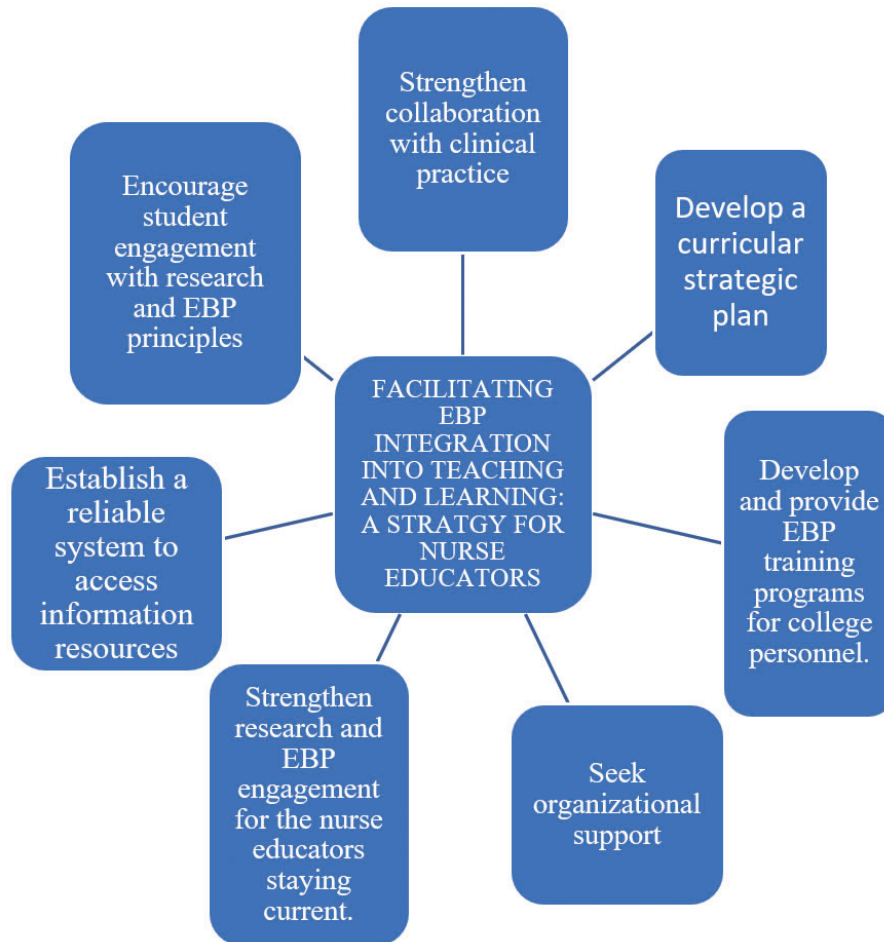
To ensure the sustainability of EBP integration programmes for the college, support from the college management and leadership is very important for the successful adoption of EBP integration. The support should be in the form of policy guidelines encouraging inclusion of EBP into the nurse training curriculum. Policy direction should be influenced at the government level to set standards and procedures to follow.<sup>[15]</sup> Higher authorities of the NEIs, and healthcare services have a critical role to play towards capacity building of the nurse educator and funding the programmes.<sup>[9]</sup> Figure 2 depicts a visual presentation of the proposed strategy.

#### 4.1 Contribution

These findings should play a vital role in enhancing the body of knowledge for the nursing profession, improving teaching skills for nurse educators, and are crucial in empowering clinical and academic staff to acquire EBP competencies, thereby translating knowledge to nursing students during their training. Seven strategic interventions were identified and are entirely based on the facilitation of EBP integration. The proposed strategy is expected to contribute significantly to raising awareness among NEIs, the government, and relevant stakeholders about the importance of integrating EBP into nursing. Moreover, the strategy should guide curriculum

developers at NEIs in strengthening and effecting reviews of nursing curricula. Through this strategy, nursing students and nurse educators should be empowered and motivated to utilize research findings and to implement EBP principles

effectively with confidence, which should lead to improved patient care and eventually assist in averting hindering factors to EBP implementation.



**Figure 2.** EBP integration strategy for nurse educators

**4.2 The scope and limitations of the study**

The study covered four college campuses from three districts in the province. Therefore, these findings have limited generalizability outside of similar colleges with similar settings. The scope was open to and limited only to nurse educators under this college, but it does not prevent repetition of a similar study in another setting. The study could serve as the guiding model for other researchers in the same field. The participant selection process that was primarily controlled by the researcher, who determined the criteria used to select the participants of interest, contributed to the study’s limitations.

**5. CONCLUSIONS**

The ultimate aim of this study was to develop a strategy to empower nurse educators with EBP knowledge and skills to enhance the facilitation of EBP integration into teaching and

learning at this particular college. The suggested strategy and recommendations made, should create a culture of EBP within the nursing profession and education. Eventually, the study aim was achieved, research questions answered, and the set objectives were successfully met.

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Dr. G.N.M. conceptualized the study, contributed towards the design, conducted a literature search and critical appraisal, and wrote the article. Prof. T.M. contributed to the supervision of the research and the writing of the article.

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The authors declare that they have no financial or personal relationships that may have inappropriately influenced their writing of this article.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

**DATA SHARING STATEMENT**

No additional data are available.

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