Cogent Education

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/oaed20

Barriers and facilitators of evidence-based practice among lecturers at Makerere University College of Health Sciences, Uganda: a qualitative study

Dorothy Irene Nalweyiso, Johnson Mbabazi, Joseph Kabanda, Jeff Breckon, Lawrence Achilles Nnyanzi, Michael Grace Kawooya, Aloysius Gonzaga Mubuuke, Josette Bettany Saltikov & Katherine Sanderson

To cite this article: Dorothy Irene Nalweyiso, Johnson Mbabazi, Joseph Kabanda, Jeff Breckon, Lawrence Achilles Nnyanzi, Michael Grace Kawooya, Aloysius Gonzaga Mubuuke, Josette Bettany Saltikov & Katherine Sanderson (2024) Barriers and facilitators of evidence-based practice among lecturers at Makerere University College of Health Sciences, Uganda: a qualitative study, Cogent Education, 11:1, 2407185, DOI: 10.1080/2331186X.2024.2407185

To link to this article: https://doi.org/10.1080/2331186X.2024.2407185

COGENT EDUCATION
2024, VOL. 11, NO. 1, 2407185
https://doi.org/10.1080/2331186X.2024.2407185

HIGHER EDUCATION | RESEARCH ARTICLE

OPEN ACCESS Check for updates

Barriers and facilitators of evidence-based practice among lecturers at Makerere University College of Health Sciences, Uganda: a qualitative study

Dorothy Irene Nalweyiso[a], Johnson Mbabazi[a], Joseph Kabanda[b], Jeff Breckon[a], Lawrence Achilles Nnyanzi[a], Michael Grace Kawooya[c], Aloysius Gonzaga Mubuuke[d], Josette Bettany Saltikov[a] and Katherine Sanderson[a]

[a]School of Health and Life Sciences, Teesside University, UK; [b]Medical, Doctors' Medical Centre, Kampala, Uganda; [c]Ernest Cook Ultrasound Research and Education, Ernest Cook Ultrasound Research and Education Institute, Kampala, Uganda; [d]Department of Radiology, School of Medicine, Makerere University, Kampala, Uganda

ABSTRACT

The implementation of Evidence-Based Practice (EBP) in healthcare can significantly improve health outcomes and alleviate poverty, particularly in developing countries like Uganda. Despite its potential, EBP adoption remains limited due to challenges such as resource constraints and inadequate infrastructure. This study explores the barriers and facilitators of EBP implementation among lecturers at Makerere University College of Health Sciences (Mak-CHS) in Uganda, providing insights relevant to resource-limited settings. This qualitative study employed semi-structured interviews with 12 purposively sampled lecturers at Mak-CHS. Interviews were transcribed verbatim and analysed using thematic analysis to identify key themes related to EBP barriers and facilitators. Participants (n = 12) identified EBP as a relatively new concept in Uganda. Key barriers included resistance to change, lack of resources, inadequate organisational support, and insufficient locally generated research. Facilitators included strong organisational support, integration of EBP training into curricula, and the adoption of a 'train-the-trainers' approach. These factors are closely tied to the challenges and opportunities typical of resource-limited settings. EBP adoption in Uganda faces significant challenges, particularly within resource-limited environments. However, strong institutional support and targeted training programs, such as integrating EBP into undergraduate curricula and implementing 'train-the-trainers' strategies, are critical for overcoming these barriers.

Implications for Practice: To enhance EBP adoption, it is essential to incorporate EBP training into healthcare curricula, develop robust 'train-the-trainers' programs, and ensure the availability of necessary resources. These strategies are crucial for fostering a culture of evidence-based decision-making in healthcare, particularly in resource-limited settings like Uganda.

ARTICLE HISTORY
Received 11 April 2024
Revised 13 September 2024
Accepted 17 September 2024

KEYWORDS
Evidence-based practice; developing countries; barriers; facilitators; healthcare education; Uganda

SUBJECTS
Sustainability Education, Training & Leadership; Teachers & Teacher Education; Theory of Education; Adult Education and Lifelong Learning; Higher Education; Open & Distance Education and eLearning; Research Methods in Education; Education - Social Sciences

Introduction

The Sustainable Development Goals (SDGs), established by the United Nations in 2015, represent a comprehensive blueprint aimed at achieving a more equitable and sustainable world by 2030 (Fallah Shayan et al., 2022). Comprising 17 interconnected goals, the SDGs address global challenges ranging from poverty and inequality to climate change and environmental degradation. Central to the SDGs is the aspiration to ensure healthy lives and promote well-being for all, encapsulated in Goal 3: Good Health and Well-being. In developing countries, achieving the SDGs necessitates a multifaceted approach, leveraging

CONTACT Dorothy Irene Nalweyiso Nalweyisos6091063@live.tees.ac.uk or renado2001ug@yahoo.com School of Health and Life Sciences, Teesside University, Southfield Road, Middlesbrough, UK

evidence-based research to inform and optimise health care policies and interventions (Kruk et al., 2018). Evidence-based research in health care involves the systematic use of current best evidence in making decisions about the care of individual patients or the delivery of health services (Connor et al., 2023). This approach ensures that health care practices are based on the latest and most robust scientific data, improving the quality and effectiveness of care.

In Uganda, the government's educational strategy extends beyond the Sustainable Development Goals (SDGs) to include initiatives such as Uganda Vision 2040. This comprehensive plan outlines a strategic path towards transforming the country into a middle-income nation (Republic of Uganda, 2013). The Vision emphasises the importance of building a robust human capital base, recognising that superior human resources are pivotal for national development (Oketch & Rolleston, 2007). As part of this agenda, the Ugandan government has prioritised educational research to enhance the quality and relevance of education, particularly in areas such as science, technology, engineering, and mathematics (STEM) (Nangoli et al., 2021). This focus on STEM education aims to equip students with the skills necessary to thrive in a rapidly evolving global economy, addressing the need for innovative solutions to local challenges (Nabushawo et al., 2022). In addition, Uganda's National Development Plan III (NDP III) underscores the role of education in fostering economic growth and social development by aligning educational outcomes with labour market demands (National Planning Authority, 2020).

This study defines Evidence-Based Practice (EBP) in healthcare as the conscientious use of the best available research to guide decisions about patient care. EBP ensures that medical interventions are grounded in up-to-date, high-quality evidence, which leads to improved outcomes and optimised resource allocation. In contrast, research culture refers to the collective practices, values, and norms within academic and healthcare institutions that promote the generation, sharing, and application of scientific knowledge to enhance healthcare and education. A strong research culture is crucial for fostering EBP, as it encourages the adoption of evidence-driven practices in healthcare settings.

In developing countries, the integration of Evidence-Based Practice (EBP) into healthcare systems holds tremendous potential to alleviate poverty (Dineen-Griffin et al., 2019). Evidence-based practice (EBP) in healthcare involves the conscientious use of current best evidence in making decisions about patient care. This approach ensures that medical practices and interventions are grounded in the most reliable, up-to-date research, optimising health outcomes and resource use. Despite its promise, the adoption of EBP in many developing countries remains limited, facing several challenges that hinder its full implementation. The concept of EBP is almost non-existent in professional practice in many developing countries (Dineen-Griffin et al., 2019).

Existing research has predominantly focused on EBP implementation in developed countries, where healthcare systems are often better equipped with the resources and support structures necessary for effective EBP integration. However, there is a significant gap in understanding how these practices can be successfully translated and implemented in developing countries, where unique socio-economic, cultural, and infrastructural challenges exist. Most studies have emphasised postgraduate training, leaving a critical gap in understanding the integration of EBP at the undergraduate level (Kyei et al., 2015).

Government policies in developing regions have largely concentrated on evidence gathering but have not adequately equipped practitioners with the skills needed to apply this evidence to practice changes. This shortfall highlights the necessity for targeted educational interventions that address both the lack of training and the reluctance to shift from traditional practices. The literature lacks comprehensive studies examining the barriers and facilitators of EBP from the perspective of healthcare educators, particularly in sub-Saharan Africa.

This study is unique as it addresses this gap by exploring the specific barriers and facilitators to EBP implementation among lecturers at Makerere University College of Health Sciences (Mak-CHS) in Uganda. Unlike existing research, which has primarily examined EBP implementation in developed countries or focused on postgraduate training, this study delves into the undergraduate education setting in a resource-limited context. The emphasis on institutional-level challenges, especially among educators, makes this study distinct as it investigates how lecturers influence future healthcare professionals' understanding and application of EBP.

By focusing on undergraduate training, this study seeks to expand knowledge by showing how early exposure to EBP principles fosters a culture of evidence-based decision-making in healthcare. It provides

Figure 1. The 7-step EBP model (Adapted from Melnyk et al., 2010).

an in-depth qualitative analysis of the challenges faced in a developing country, offering insights to inform policymakers and educational leaders on strategies to overcome institutional and individual barriers. The research emphasises the need for organisational support, resource allocation, and curriculum development tailored to resource-limited settings (Dineen-Griffin et al., 2019). EBP involves seven steps as demonstrated in (Figure 1) necessary to enhance EBP integration in healthcare education.

The seven steps of Evidence-Based Practice (EBP), as outlined in the Melnyk model (Melnyk & Fineout-Overholt, 2022), provide a structured framework for systematically implementing EBP in healthcare. These steps cultivating a spirit of inquiry, formulating a focused clinical question, searching for the best evidence, critically appraising it, integrating it with clinical expertise and patient preferences, implementing it, and evaluating outcomes are vital for translating research into effective clinical practice. This model is significant for the study as it offers a comprehensive pathway to EBP implementation, which is often lacking in developing countries like Uganda. The study explores how institutional barriers and facilitators impact lecturers' ability to teach and apply these steps in healthcare education, addressing a critical gap in EBP integration in resource-limited settings. Through this, the research distinguishes itself from work focused on postgraduate contexts.

Healthcare educators and administrators ask for the restructuring of traditional curricula and teaching methods to accommodate the shift towards EBP in healthcare. Researchers have also advocated for the integration of EBP into undergraduate healthcare curricula as one of the major ways that can facilitate the use of evidence in healthcare practice (Kyriakoulis et al., 2016; Lehane et al., 2021; Melnyk & Fineout-Overholt, 2022). The teaching of EBP to undergraduate, postgraduate, and registered healthcare professionals has become increasingly popular globally (Alcantara & Leach, 2015). For example, EBP is now a component of the foundation years' training programme in the UK, the focus of graduate assessment in the USA, and a requirement of practicing physicians in Canada. This initiative aims to use evidence to guide practice and build the body of knowledge that will support the effectiveness of the practice in managing patients (Dizon et al., 2014; Finotto et al., 2013). However, EBP activities have taken place in these developed countries, and the principle of getting research into practice in developing countries, for example, Uganda, and specifically among undergraduate healthcare students, is still in its infancy stages.

Literature review

Extensive literature on Evidence-Based Practice (EBP) integration in developed countries offers valuable insights for developing contexts. In developed nations, well-established infrastructures support research, training, and EBP integration, enhancing healthcare outcomes by optimising resource use and improving

decision-making. However, these settings contrast significantly with the challenges faced in developing countries, where geographical, political, economic, and social factors hinder the effective use of research evidence in practice.

For countries like Uganda, fostering a culture of EBP is essential to maximising the impact of limited resources. Martin et al. (2006) highlights the importance of healthcare professionals possessing the skills to seek, appraise, and integrate new knowledge to effectively implement EBP. Unfortunately, many developing nations lack the infrastructure and expertise necessary for adequate EBP training (Kiberu et al., 2017; Nalweyiso et al., 2019). This gap is further compounded by a lack of research on EBP barriers and facilitators in these regions, revealing a significant gap in the literature (Khammarnia et al., 2015).

Comparison with other studies

Studies from developed countries, such as Ahonen and Liikanen (2010) research on radiographers in Finland, show that knowledge of research, a research-oriented work approach, and recognition of the significance of research activities are key facilitators of EBP use. These findings emphasise the importance of well-established systems that support healthcare professionals in applying research to practice. However, the context in Uganda and other developing countries is starkly different. Research by Kiberu et al. (2017) and Nalweyiso et al. (2019) indicates that healthcare professionals in these regions often lack both the training and institutional support required to integrate new knowledge into practice. In addition, economic constraints, geographical barriers, and political instability further complicate EBP adoption (Khammarnia et al., 2015). Therefore, findings from developed countries do not fully translate to low-resource settings, emphasising the need for region-specific research.

Application to the Ugandan context

Grol et al. (2007) stress that applying evidence in clinical practice requires approaches tailored to specific regions and target populations. In Uganda, where resources are scarce, creating a culture of EBP is critical. This aligns with Martin et al. (2006) argument that healthcare professionals must be equipped with the skills to appraise and integrate research evidence. However, the limited research on EBP barriers and facilitators in low-resource settings, like Uganda, underscores the need for studies that address these gaps.

Addressing research gaps

This study seeks to fill these gaps by exploring the unique barriers and facilitators of EBP among lecturers at Makerere University College of Health Sciences. While existing research from developed countries may not fully account for the resource constraints faced in Uganda, this study will provide contextually relevant insights for fostering EBP in the healthcare education system. By focusing on how EBP can be integrated into a developing context, this research could inform strategies that align with local needs, enhancing healthcare outcomes and improving the use of scarce resources.

Understanding the barriers and facilitators of EBP in Uganda is crucial to addressing the unique challenges faced by healthcare professionals in low-resource settings. This research aims to contribute to the limited body of knowledge on EBP in developing countries, providing insights that will inform context-specific strategies for integrating EBP into healthcare practice and education.

Methods

Qualitative research design and interview methodology

A qualitative research design was employed using individual face-to-face semi-structured interviews because they gave participants the freedom to say what they thought. This method of data collection created a good relationship between the researcher and the participants taking part in the study (Corbin & Strauss, 2014). The study was conducted among healthcare professionals who were lecturers

in the school of human medicine at Mak-CHS because they were the experts at teaching in this institution.

Sampling strategy and recruitment process

A purposive homogeneous sampling technique (a method where researchers choose participants who share similar characteristics or traits) was employed in this study to identify eligible participants (Palinkas et al., 2015; Sharma, 2017). This method involves the deliberate selection of individuals based on specific criteria set by the researcher, ensuring that the participants are well-suited to provide valuable insights into the research topic. The homogeneous sampling approach, a subtype of purposive sampling, was chosen to focus on a specific subgroup of lecturers at Makerere University College of Health Sciences (Mak-CHS) who are involved in teaching healthcare subjects. These lecturers were selected because their knowledge and experience aligned closely with the study's objectives, making them ideal informants for the exploration of barriers and facilitators to Evidence-Based Practice (EBP) in healthcare education.

To mitigate potential selection bias inherent in purposive sampling, several strategies were employed. Institutional approval was obtained from relevant institutional review boards (IRBs) to ensure that ethical standards were met. This approval process is crucial in safeguarding the rights and welfare of participants, as well as ensuring the credibility of the research. In addition to gaining ethical approval, administrative assistants were trained to facilitate the recruitment process. Their training included thorough guidance on the research process, emphasising impartiality and confidentiality. This training ensured that administrative assistants could effectively communicate with potential participants, provide consistent information, and uphold ethical standards throughout the recruitment phase.

Once ethical approval was granted, the administrative assistants played a key role in the recruitment process. They were responsible for distributing Participant Information Sheets (PIS), which contained detailed information about the study, its aims, and the participants' rights. This ensured that potential participants were fully informed before agreeing to take part in the study. By providing clear and transparent information, the recruitment process fostered trust and encouraged voluntary participation among eligible lecturers.

This systematic approach to sampling and recruitment ensured that the participants chosen for the study were well-informed, met the study's inclusion criteria, and contributed meaningful, contextually relevant insights into the barriers and facilitators of EBP in healthcare education at Mak-CHS.

Participant recruitment and ethical considerations

The PIS provided detailed information about the study's aim, participation requirements, and potential benefits and risks. It included the researcher's and thesis supervisor's contact information to facilitate open communication. There was clear communication between the principal researcher and the participants. The language used in the PIS was clear and accessible to ensure that all potential participants could understand the study's purpose and requirements, regardless of their level of familiarity with research processes (Ennis & Wykes, 2016). For example, there was broad distribution. The PIS was distributed widely within the Mak-CHS to all eligible lecturers, ensuring a broad reach and reducing the chance of excluding potential participants. Furthermore, encourages voluntary participation. The PIS explicitly stated that participation was voluntary and that there would be no repercussions for non-participation, promoting an unbiased recruitment environment. Also, lecturers were encouraged to directly contact the researcher.

The study ensured that the principal investigator provided a dedicated email and telephone number were provided to interested participants to maintain anonymity and confidentiality. These contacts were solely for the study and not associated with any previous or future personal or professional use, ensuring participant privacy. To further protect anonymity, participants were assigned pseudonymous study ID numbers upon expressing interest, which were used throughout the study to safeguard their identities. To ensure mitigation of selection bias and a diverse participant pool, efforts were made to include lecturers from various departments within Mak-CHS, ensuring representation from a wide range of healthcare disciplines and educational backgrounds.

Selection criteria were transparent and targeted lecturers actively teaching healthcare subjects, without considering seniority, reputation, or prior involvement with EBP initiatives (Dagne & Beshah, 2021). Regular follow-ups were conducted with potential participants who had shown initial interest but had not yet confirmed their participation (Jenkins et al., 2020). This approach accommodated various schedules and helped prevent the loss of participants due to time constraints or hesitation.

Additionally, pilot testing was conducted (In, 2017), with no significant feedback affecting the final interview guide. The pilot test refined the guide to ensure it produced reliable and comparable responses across different interviews. This refinement improved the consistency and reliability of the data collected. The pilot test also allowed for adjustments to recruitment materials and processes, enhancing clarity and minimising misunderstandings that could bias participation. Furthermore, an independent reviewer periodically monitored the recruitment process to maintain oversight and prevent any potential bias (Yarborough, 2021).

Two days before the interview date, the researcher called each of the participants to introduce herself once again and to remind them about the scheduled interview (the date, time and venue). Every semi-structured interview lasted between 40-50 minutes to provide sufficient time and flexibility for both the participant and the researcher to get to know each other without necessarily fatiguing the participants. On the day of the interview, participants were taken through a consent process and interviews were only conducted with those who signed the consent form. Each participant was given a pseudonymous study ID number to ensure anonymity, asked to use the number if they wished to contact the researcher (Saunders et al., 2015). Participants were interviewed only once. Participants who wanted to proceed signed a written consent form immediately before the commencement of the interview. The researcher also informed each participant that a transcribed copy of the interview would be sent to them for verification.

Data recording and transcription

The data collection process was meticulously designed to ensure reliability and validity, employing several controls and validation methods to enhance the study's robustness. A standardised semi-structured interview guide was developed to ensure consistency across all interviews (Evans et al., 2023; Mbabazi et al., 2023). This guide included open-ended questions designed to elicit comprehensive and unbiased responses while allowing for the exploration of emerging themes (Mbabazi et al., 2024). The guide was pilot tested with a small group of lecturers not involved in the final study, and feedback from this phase was used to refine the questions, ensuring clarity and reducing the potential for interviewer bias. To maintain consistency, the same interviewer conducted all interviews, reducing variability and ensuring familiarity with the nuances of each interview context.

All interviews were audio-recorded with participants' consent to ensure accurate capture of responses. This practice eliminated reliance on memory or handwritten notes, enhancing data accuracy. Transcriptions were completed verbatim to accurately capture participants' words. Transcripts were compared against audio recordings to verify accuracy, and any discrepancies were resolved through discussion. The researcher and a research assistant transcribed the recordings verbatim after each interview, allowing them to synchronise key notes and audio recordings to produce clear transcripts. The transcripts were then proofread by the researcher, and all identifying data was removed before importing the transcripts into Atlas ti Version 6 for analysis.

Strategies used for ensuring reliability and validity methodological controls

Inter-coder Reliability**:** The initial coding was performed independently by two researchers, and inter-coder reliability was assessed by calculating the percentage agreement between them (O'Connor & Joffe, 2020). This process involves having multiple coders review the same data and agree on how to label or categorise it, ensuring that the coding is consistent and reliable. Any discrepancies were discussed and resolved to maintain consistency and accuracy in the thematic analysis.

Peer Debriefing: Regular debriefing sessions were conducted with peer researchers not directly involved in the study (Evans et al., 2023). These sessions provided an opportunity for external review of

the coding process and interpretation of findings, helping to identify potential biases or overlooked themes (Mbabazi et al., 2024).

Member Checking: Participant Validation: After initial data analysis, participants were provided with a summary of findings and asked to review and validate the interpretations (Birt et al., 2016). This step ensured that the participants' perspectives were accurately represented and enhanced the credibility of the results.

Control Groups: Although not a traditional control group in qualitative research, comparisons were made between different departments and faculty roles within Mak-CHS to control for variability and ensure that findings were not skewed by department-specific practices (Sutton & Austin, 2015).

Data analysis

Thematic analysis

Systematic Coding Process: A systematic coding process was utilised, involving multiple rounds of coding to ensure thorough identification of themes. Codes were independently generated by two researchers and then compared to identify discrepancies. Thematic analysis was used to identify patterns in the data relating to the study objectives. It was chosen because it allowed for flexibility in the researcher's choice of theoretical framework compared to other methods of analysis such as, interpretive phenomenological analysis (IPA). This technique was used with an inductive approach to broaden the analytic field of vision by initially familiarising oneself with the dataset (Braun & Clarke, 2022). A six-step guide Braun and Clarke (2006) was used to guide the analysis process. Codes were generated and assigned within the Atlas ti Version 6 software, and the process of coding involved documentation of initial ideas of interest from the text throughout the dataset (Braun & Clarke, 2022). The codes were combined to generate sub-themes, and sub-themes were collapsed to form themes. The generated themes were then defined in the final written report.

Reflexivity

The researcher recognised the role of the data collection process, which could have influenced the data obtained. To manage potential biases, member checking was employed during the transcription stage to ensure that the transcripts accurately reflected participants' responses. During the data analysis phase, the researcher adopted a naïve attitude to avoid swaying the data due to her personal assumptions. However, as described by Braun and Clarke (2006) argue that it is impossible to code data in an epistemological vacuum, and thus it is acknowledged that the outcomes of this study may have inevitably been influenced by the researcher's involvement. Nevertheless, since the researcher's values were threaded throughout the research process, this could have improved the quality of the data that was obtained and used to answer the research questions.

Results

Data saturation was reached with 12 participants, as no additional new information was being obtained (Saunders et al., 2015). The majority of the lecturers were male (66.7%). Twenty-five percent (25%) of the lecturers were below forty years old while 75% were above forty years old. Half (50%) of the lecturers were from the radiology department. Two major themes emerged: (1) Barriers to training EBP at Mak-CHS, (2) facilitators of EBP training at Mak-CHS.

Theme 1: Barriers to training EBP at Mak-CHS

Participants stated several factors that contributed to the barriers of training and practicing EBP in the universities of resource-poor countries. These are divided into institutional and personal barriers as demonstrated in Figure 2.

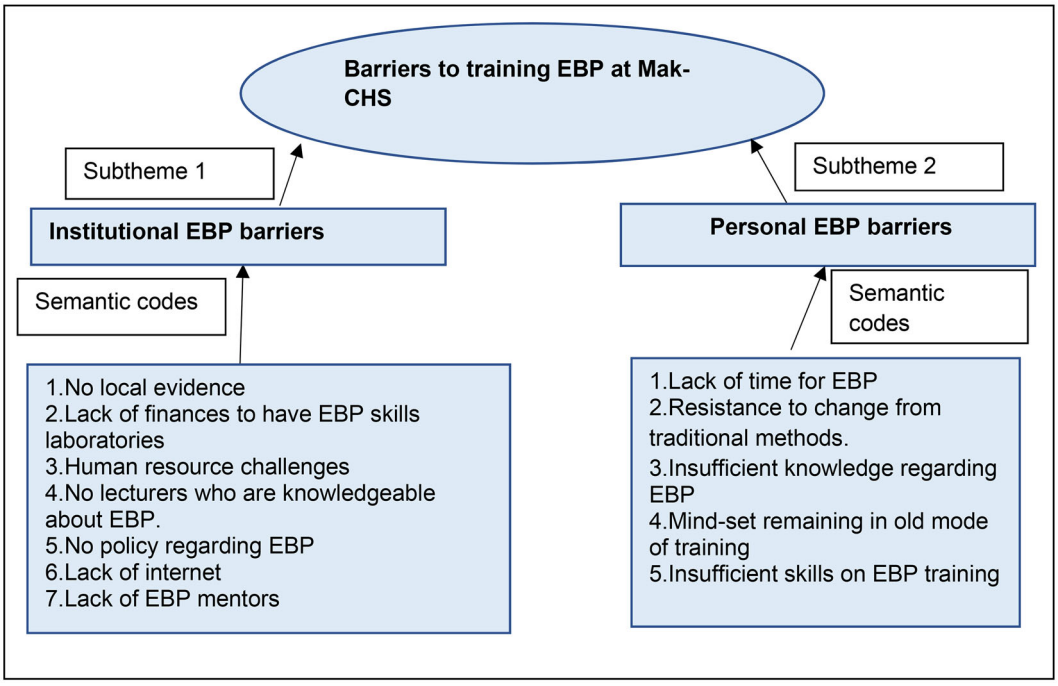

Figure 2. Barriers to training EBP at Mak-CHS.

Personal EBP barriers

Personal EBP barriers are challenges that individuals face that make it complex for them to reach their goals when it comes to using or implementing EBP as demonstrated in Figure 2.

> *Well, I'm not sure if the lecturers involved have enough knowledge of evidence-based practice. In fact, even we lecturers might not know how to use it. Instead, we just blindly follow previously set procedures* (Participant 10).

Resistance to change from traditional to contemporary approaches to practice

Resistance to change is the act of opposing or struggling with modifications or transformations that alter the status quo. Thus, the use of traditional teaching approaches that are still dominant instead of contemporary evidence-based approaches was emphasised in the current dataset.

> *'… because there are things people already know in their minds, so it is hard to change the mindset of people by relying on just research done by another researcher; they may say okay, but this is what I know' (*Participant 9).

Lack of time. Participants (n = 3) felt that EBP would consume a lot of time, yet they had limited time to teach other modules such as anatomy, physiology, pathology, and film interpretation during their scheduled teaching hours. For instance, a participant described the lack of time as follows:

> *'… Yes, time is also another problem because evidence-based practice requires an investment of time'* (Participant 6)

Institutional EBP barriers

Participants highlighted several institutional barriers to EBP use at Mak-CHS as highlighted in Figure 2.

> *'There is no policy or guidelines to support EBP training and practice in Uganda. I think for us to start training anything new, it should be backed by policy. Management should be encouraged to provide some guidelines for us to follow… '* (Participant 1).

Lack of and poor access to the required resources. Participants (n = 8) stated that a lack of resources and a lack of access to resources were two of the main reasons they did not implement EBP. Moreover, lack of the right technology, stable internet, drugs, guidelines, hospital protocols, books, research

articles, and training in their institution were key challenges to EBP. One of the participants described the situation like this:

> '… not all the technology is around; the evidence may say this is the best technology, and because you are in a third-world country, even the best technology or the best drug may not be there, so you opt for the second or third best.… ' (Participant 11).

Lack of locally generated research. Participants (n = 3) were concerned about the lack of locally generated research findings. They emphasised the fact that most of the published evidence was not locally generated. Thus, the available evidence could be used out of context since it is generated from other settings, especially developed countries. One of the participants remarked:

> '… but we need locally generated data; sometimes we use research findings that others have done; this may not work here depending on our setup; thus, what may work in Sweden may not work here.' (Participant 12).

Furthermore, a few participants argued that the latest quality evidence may be available, but this evidence may not be accessible to a student, a lecturer, or a clinical health worker in a resource-poor country.

> 'Having access to the latest evidence is also a problem…. Journals may not be there…. Some journals we need to subscribe to, and then there are issues with technology as well as the network that may not be there'. (Participant 11).

Lack of finances to have EBP skills laboratories. One participant advised that if the EBP movement is supported financially, then its implementation would be easier.

> 'So, the challenge is basically financial, and others we can overcome' (Participant 2).

Lack of organisational support. They also cite a lack of motivation, and a structure of lecturers tasked with teaching an increasing number of undergraduate students as major challenges. One of the participants stated:

> 'Then the challenge of teaching EBP is that EBP is not a requirement for the course; all the course's requirement is to do research to generate evidence, but it is not a requirement for the student to interpret, aggregate, or translate evidence.… … ' (Participant 7).

Theme 2: facilitators of EBP training at Mak-CHS

EBP facilitators vary from one context to another. Participants highlighted several facilitators which were categorised into three subthemes (Figure 3). Those were 1) Availability of time to implement EBP, 2) Organisational support towards EBP and 3) EBP training of staff.

Organisational support through policy development (Figure 3)

Several participants (n = 5) talked about the involvement of EBP into organisational policy as a way of supporting the EBP movement. For example, participant 5 said:

> '…. So, the key requirements are there, then of course there are requirements for the university approvals at different levels even up to level of Senate because once Senate says yes, then everything else can move accordingly' (Participant 5).

Another participant echoed a similar view. Participant 2 said:

> '… Once the administration is on board, then the facilitation for the process can be done. (Participant 2).

Availability of time to implement EBP (Figure 3)

A few lecturers (n = 2) expressed the view that they needed additional time to discuss ideas with colleagues.

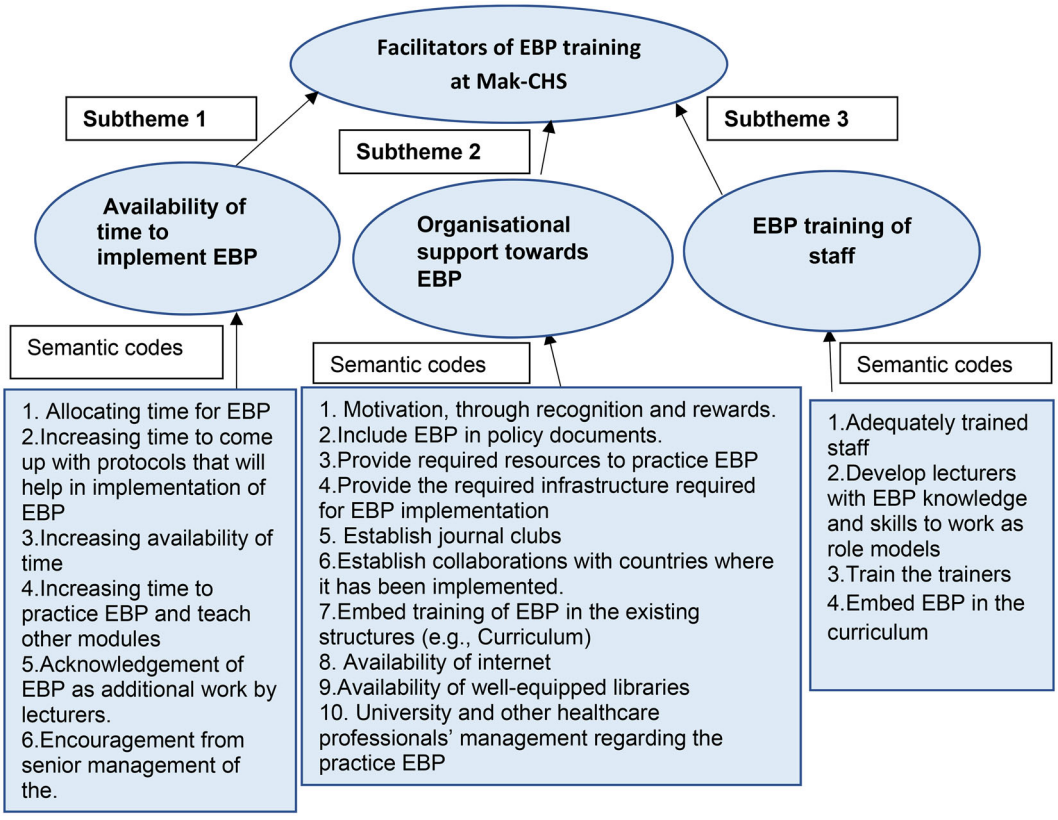

Figure 3. Facilitators of EBP training at Mak-CH.

'Yes, time is also another problem because evidence-based practice requires investment in time. For instance, if you are going to take the COVID vaccine, you can't just walk in and take medicine.'' (Participant 6).

EBP training of staff

Although participants had positive attitudes towards EBP, they lacked EBP knowledge and skills for teaching the undergraduate healthcare students. They believed that they needed to themselves first be trained on the EBP principles before they could train their students. Participant 3 said:

'… and one way of making people aware is by training teachers; once teachers are trained, then it will be easy to move forward' (Participant 3).

Availability of resources. Resources were cited as crucial facilitators to EBP training and implementation at Mak-CHS. A participants suggested noted:

'There should be access to that information, especially electronic; are we able to access journals and publications, research elsewhere, and of course the costs involved and personnel too; human resource issues?' (Participant 6).

Staffing and teamwork. Staffing and teamwork were cited as facilitators by several participants. Participant 6 said

'… We also have limited staff, limited human resources—this is a very big challenge here' (Participant 6).

Awareness of EBP and cultural change. Participants indicated that awareness of EBP and cultural change are key facilitators of EBP.

'Well, in my own understanding, I would look at it in a way that first people need to know what 'evidence-based' is…. Once they know it, it becomes easier, but that alone is something that must be put into the organisational structure for it to be implemented' (Participant 2).

Discussion

The SDGs set up the 2030 agenda to reduce poverty globally (Terry et al., 2017). Nevertheless, there is still a lot of severe poverty in developing countries (Morris, 2019). To achieve this agenda, every clinical practice should successfully implement the findings and conclusions of relevant health research. The government of Uganda is concerned with improving the health and commitment to promoting research use in healthcare practice (Settumba et al., 2022). One of the main global strategies to research implementation in healthcare practice is the use of EBP. Moreover, several barriers have been reported to hinder the implementation of EBP (Settumba et al., 2022). EBP is a new paradigm in developing countries like Uganda (Nalweyiso et al., 2019). In addition, training EBP among healthcare lecturers who are the mentors of future healthcare practitioners is still at an early stage of development in developing countries (Tlili et al., 2022). Moreover, the barriers and facilitators to the implementation of EBP in Uganda are not known. They highlighted several challenges that hinder them to train, conduct, organise, utilise, and appraise research in developing countries. This qualitative study sought to fill in the gap regarding the barriers and facilitators of EBP use among healthcare professionals in developing countries like Uganda.

One of the primary barriers identified is the lack of knowledge and skills as demonstrated in the results section (Figure 2) necessary for effectively implementing EBP. This aligns with findings from Shayan et al. (2019). It can be argued that a lack of EBP knowledge and skills necessary to evaluate and apply research findings widens the research-practice gap. Shayan et al. (2019), who observed that nurses in Iran faced significant challenges in understanding and applying EBP due to limited educational opportunities and training resources. Similarly, Hsieh and Chen (2020) reported that Taiwanese nurses struggled with EBP implementation because of insufficient educational programs focused on research literacy and critical appraisal skills.

Moreover, Alatawi et al. (2020) highlighted that healthcare professionals in Saudi Arabia experienced a gap in EBP knowledge, which hindered their ability to apply research findings to clinical practice. The study emphasised the need for targeted educational interventions to enhance the skills necessary for EBP (Figure 3). Training and engaging professionals in research practice helps improve EBP skills, including the identification and use of research evidence, which is essential to boost their knowledge and skills to participate in the research process as well as interpret the findings (Gifford et al., 2018; Khammarnia et al., 2015).

Participants in the current study proposed a 'train the trainers' strategy (Figure 3), which is a structured framework designed to equip potential EBP experts with the necessary skills and knowledge to train others within their organisations (Rapp et al., 2010; Triplett et al., 2020). Although participants in the current study have positive attitude towards EBP, they lacked EBP knowledge and skills (Figure 2) for teaching the undergraduate healthcare students. Participants suggested being first trained on the EBP principles. By creating a network of well-trained EBP trainers, healthcare organisations can foster a culture of continuous learning and evidence-based decision-making. The 'train the trainers' model has been effectively used in various settings, demonstrating that when trainers are well-prepared, they can significantly improve the competency and confidence of those they train (Rapp et al., 2010). This approach not only addresses the immediate need for EBP expertise but also builds a sustainable system for ongoing education and support. Furthermore, as Triplett et al. (2020) highlight, empowering trainers with advanced skills creates a ripple effect, leading to widespread organisational improvements in EBP adoption and patient care outcomes.

Despite the participants' positive attitudes towards EBP, the study revealed a significant gap in EBP knowledge and skills, particularly in their ability to teach undergraduate healthcare students (Figure 2). This gap underscores the necessity for foundational training in EBP principles before participants can effectively educate others. Participants expressed a strong desire to first be trained in EBP principles, emphasising the importance of a solid understanding of evidence-based methodologies, critical appraisal of research, and practical application in clinical settings. According to Rapp et al. (2010), the initial training of trainers should focus on building these core competencies to ensure that trainers can confidently disseminate knowledge. Moreover, studies have shown that when trainers possess a thorough understanding of EBP, they are more likely to inspire confidence and engagement among their trainees

(Triplett et al., 2020). Addressing this educational need is crucial for preparing healthcare educators who can effectively mentor future practitioners, thereby embedding EBP into the fabric of healthcare education and practice.

Unwillingness to change from traditional to modern approaches of practice was highlighted as a barrier by the participants. Rapp et al. (2010) argues that negative attitudes, a lack of willingness to change, and search methods that do not work well are personal barriers to using EBP. Nonetheless, such personal barriers can be alleviated by training on the efficiency of EBP use in practice (Majid et al., 2011; Rapp et al., 2010). If individuals are trained about the role of EBP in clinical practice, personal attitudes might be altered over time and this could be possible with organisational support (Figure 3) (Hewston et al., 2021). On the other hand, experts in EBP could talk about their success stories where EBP has been successful. These strategies have been used successfully to introduce and change the mindset of healthcare providers towards EBP in other studies (Fineout-Overholt et al., 2005; Sharplin et al., 2019).

The current study highlighted lack of time (Figure 2) as a significant individual barrier, which makes it necessary to think about measures to enhance lecturers' time management. Several other research (Immonen et al., 2022; Stander et al., 2021) have corroborated this finding. Participants cited a general staffing deficit. They revealed that, compared to the steadily increasing student population, the overall number of lecturers required to carry out university activities increase at a slower rate.

Scorgie et al. (2012) and Khammarnia et al. (2015) argue that human resources are a universal problem to EBP implementation. Therefore, it is crucial to address the shortage of human resources through EBP training at Mak-CHS.

The major institutional barrier reported in the current study is a lack of resources (Figure 2). This finding is consistent with several studies that have identified a lack of resources as a major barrier to EBP implementation (Jordan et al., 2016; Sidani et al., 2016). For instance, lack of human resources, lack of infrastructure, and institutional incentives have been reported as barriers to EBP. Lack of resources as a barrier may be interpreted differently in developed countries compared to developing countries. Despite the context, the required resources are necessary to implement EBP in the most effective way. Unfortunately, in developing countries like Uganda, it is all too common to find that there are several inadequate resources needed to start or to properly implement EBP. Therefore, organisations in developing countries need to focus on their contexts and provide the required resources to introduce and scale up EBP.

The lack of locally generated evidence (Figure 2) was also revealed as a barrier in the current empirical study. A study by Ondari(2007) conducted at Moi University in Eldoret, Kenya, on the challenges and opportunities of scholarly publishing in sub-Saharan Africa, revealed several challenges that make scholarly publishing impossible. For example, scholars from sub-Saharan Africa do not get to publish their research in top international journals such as EMBASE, CINAHL to mention a few, due to limited funds (Waiswa et al., 2007). In addition, the major centres of knowledge creation in Africa are universities (Teferra & Altbachl, 2004). However, the majority of these universities have many challenges that constrain knowledge productivity for example, research funding. Several universities in the developing countries have seen enrolment student numbers escalate while the number of staff members have remained the same over a prolonged period (Hayward & Ncayiyana, 2015).

Lack of organisational support was identified as a barrier to EBP implementation (Figure 3). Organisational support as a barrier to EBP has also been reported in other studies (DeBruyn et al., 2014; Duncombe, 2018; Florczak, 2016) Nevertheless, Schoonover (2009) recommends that organisational strategies are needed to influence research awareness and utilisation and to influence change towards the implementation of EBP. In other developing countries, similar organisational barriers have been identified, further underscoring the need for strategic interventions. For instance, in India, Sharma (2017) reported that the lack of organisational support and resources significantly impeded EBP adoption among nurses. The study suggested that policy-level changes and organisational commitment were necessary to create an enabling environment for EBP.

In Kenya, Kamau et al. (2015) found that organisational barriers, such as inadequate leadership support and resource constraints, were major hindrances to EBP implementation. The study highlighted the importance of organisational policies that promote research utilisation and provide ongoing support for healthcare practitioners.

These comparisons indicate that organisational support is a common barrier across developing countries, emphasising the need for comprehensive strategies that address both systemic and cultural factors. By fostering an environment that supports EBP, healthcare organisations can enhance the quality of care and improve patient outcomes.

EBP is a novel idea at Mak-CHS. This could be explained by a lack of lecturers who can teach EBP to undergraduate students in this institution. Nonetheless, this finding is not new. The national surveys on the delivery of EBP education carried out in the United States, Canada, and the United Kingdom, found a shortage of academic and clinical staff who are proficient in teaching EBP (Meats et al., 2009, Blanco et al., 2014). Lehane et al. (2021) argue that even though the educational practices could be available, their uptake may be constrained due to the dearth of the right human resources.

Without the proper facilitators, it is difficult for any healthcare professional to 'buy into' a new practice (Waddell et al., 2021). The participants highlighted organisational support for EBP and the availability of financial and human resources as the main EBP facilitators in developing countries. For example, from the interview dataset, financial resources were highly recommended as one of the major facilitators in developing countries. Participants argued that the availability of funds could improve EBP use. These findings are consistent with previous research (Kueny et al., 2015). In addition, several studies suggest that securing adequate funding to train and educate staff on the new initiative, allocating human resources to make the change, providing monitoring and feedback to ensure trustworthiness at the change sites, as well as ensuring a smooth transition for the implementation of the new concept were as important (Kueny et al., 2015). Further significant findings by Lehane et al. (2021) suggests that EBP needs to be included in both the training of the trainers' programs for the lecturers and the undergraduate healthcare curriculum.

Conclusion

The study underscores that Evidence-Based Practice is a relatively new concept in Uganda, particularly in healthcare training institutions like Makerere University College of Health Sciences. It offers novel insights into lecturers' perceptions regarding the barriers and facilitators of EBP education for undergraduate healthcare students. This research is novel in its field and finds that the barriers to implementing EBP in Uganda are more significant compared to developed countries, where EBP is more established. Key findings indicate an urgent need to integrate the teaching of EBP principles and processes into the undergraduate healthcare curricula at Mak-CHS and similar institutions. Strategies must be developed to overcome barriers and enhance facilitators to improve the use of research in EBP. The study highlights that most lecturers are unfamiliar with EBP, pointing to the necessity of training the trainers and engaging all stakeholders to support the adoption of EBP in developing countries. The findings from this study align with those from similar research in developed nations, reinforcing the global relevance of EBP while also highlighting the unique challenges faced in the Ugandan context.

Limitations and future research

The study focuses on perceptions rather than actual implementation of EBP practices. Future studies should explore the roles and perceptions of different stakeholders, including students, administrators, and policymakers, to create a holistic approach to EBP education. The opinions generated do not accurately reflect how all developing countries feel about the barriers and facilitators of EBP. However, the current study is not trying to generalise findings to all contexts but, instead, to gain an in-depth understanding of EBP barriers and facilitators in developing countries from the lecturers' perspectives at Mak-CHS in Uganda. The findings could be transferable to other similar contexts, e.g., other sub–Saharan African developing countries. However, exploring EBP perceptions and implementations across multiple institutions in Uganda or other developing countries can highlight contextual differences and common challenges.

Broader implications of the study's constraints

Another significant limitation is the exclusion of key stakeholders such as students, administrators, and policymakers from the study's scope. The perceptions of these groups can provide valuable insights into the broader educational and policy-related barriers to EBP implementation. Students, as future healthcare professionals, are essential to understanding how EBP education can be effectively integrated into curricula. At the same time, administrators and policymakers can influence the institutional and regulatory frameworks that support or hinder EBP practices. By not including these perspectives, the study may miss critical factors that impact the holistic adoption of EBP in healthcare settings. This limitation underscores the importance of adopting a multi-stakeholder approach in future research to develop a more comprehensive understanding of the systemic factors that affect EBP implementation.

Additionally, the study's qualitative nature, while providing deep insights into the perceptions of Mak-CHS lecturers, inherently limits the ability to generalise findings to a larger population. Qualitative research is often context-specific and aims to explore the nuances of human experiences, which can vary significantly between individuals and settings. As such, the findings are primarily transferable to similar contexts such as other sub-Saharan African developing countries with comparable educational and healthcare systems rather than universally applicable to all developing countries. To enhance generalisability, future studies could incorporate quantitative methods, such as surveys or experiments, that allow for statistical analysis and broader generalisation of findings. By combining qualitative depth with quantitative breadth, researchers can gain a more balanced and generalisable understanding of EBP barriers and facilitators across diverse settings.

Acknowledgements

All authors consent to publication. Each author testifies that this is their own work and gives their consent for submission.

Ethical approval

The study adhered to the General Data Protection Regulation and the Data Protection Act 2018. Ethical approval was obtained from Teesside University School of Health and Social Care Research Governance (reference number: 202/18), Makerere University College of Health Sciences School of Biomedical Sciences Higher Degrees Research (reference number: SBS-782), and the Uganda National Council for Science and Technology (reference: HS1246ES). Participant data were handled in accordance with these regulations, ensuring security and confidentiality. Informed consent was obtained from all participants.

Disclosure statement

No potential conflict of interest was reported by the author(s).

The authors state that they have no financial, consulting, institutional, or other connections that would sway their judgement or create a conflict of interest in reference to this publication.

Special recognition

- All lecturers at Makerere University College of Health Sciences who participated in the study and provided information.
- Lecturers in the School of Health & Life Sciences at Teesside University for all the support and supervision of the research.

About the authors

Dorothy Irene Nalweyiso is a Doctor of Public Health at Teesside University, Director of Doctors' Medical Centre in Uganda, a senior Radiographer, a Board Chair of the Society of Radiographers in Uganda (SRU), part-time lecturer at Makerere University College of Health Sciences, an Executive Committee Member of Teesside University Health Students Research Network (TUHSRN), a Fellow of the European Public Health Association. She has published peer-

reviewed articles and a book on parenting. Award winner of the Asia's Science, Technology, and Research Award (ICRE 2024 Awards).

Johnson Mbabazi is a lecturer at Teesside University. He is also the Co-founder and Chairman of the TUHSRN. He is a Fellow of the Royal Society of Public Health, a Fellow of the European Public Health Association, and an Associate Fellow of the Royal College of Physicians. He has published a lot of peer-reviewed articles and books. A multiple international award-winning author, lifetime author award winner, Award winner of Asia's Science, Technology, and Research Award (ICRE 2024 Awards). and UK Plaque winner.

Joseph Kabanda is a medical supervisor at Doctors' Medical Centre Kampala and an academic researcher.

Jeff Breckon is an associate dean for Research and Innovation in the School of Health and Life Sciences at Teesside University, Mentor, and Co-founder of TUHSRN. Award winner of the Asia's Science, Technology, and Research Award (ICRE 2024 Awards).

Lawrence Achilles Nnyanzi is a Senior Lecturer in Research Methods Programme Leader Doctorate in Public Health Mentor and a Co-founder of the TUHSRN. Award winner of the Asia's Science, Technology, and Research Award (ICRE 2024 Awards).

Michael Grace Kawooya is a Ugandan physician, academic, researcher and academic administrator, who serves as Director at the Ernest Cook Ultrasound Research and Education Institute (ECUREI). He is a professor (emeritus) of Radiology at Makerere University College of Health Sciences and an academic researcher.

Aloysius Gonzaga Mubuuke, PhD, is a Senior Lecturer in the Department of Radiology, School of Medicine, College of Health Sciences, Makerere University. He is the Deputy Chairperson of the School of Medicine Higher Degrees Committee and the Research Ethics Committee. He is a FAIMER Fellow as well as a Fellow of Bioethics and co-chair the Education Committee of the Consortium of Universities in Global Health (CUGH). He's an Editor with several journals and currently supervisor of both Masters and PhD students. He has won research grants and has over 80 publications in peer-reviewed journals.

Josette Bettany Saltikov is a senior Lecturer in Research Methods at Teesside University and a member of the Health Professions Council, the Chartered Society of Physiotherapists, the British Scoliosis Society, the International Research Society of Spinal Deformities and the Society of Spinal and Orthopaedic Rehabilitation Treatment (SOSORT). She is also on the editorial board of the journal Scoliosis and the Internet Journal of Rehabilitation and is a manuscript reviewer for several journals. She is also a reviewer for the National Institute for Health Research, health technology assessment programme as well as an abstract reviewer for the World Confederation of Physical Therapy Conference.

Katherine Sanderson is a retired Senior Lecturer in Research Methods at Teesside University in the United Kingdom, a mentor and research academic researcher.

ORCID

Dorothy Irene Nalweyiso http://orcid.org/0000-0002-0539-8260

References

Ahonen, S. M., & Liikanen, E. (2010). Radiographers' preconditions for evidence-based radiography. *Radiography*, *16*(3), 217–222. https://www.sciencedirect.com/science/article/pii/S1078817410000064 https://doi.org/10.1016/j.radi.2010.01.005

Alatawi, M., Aljuhani, E., Alsufiany, F., Aleid, K., Rawah, R., Aljanabi, S., & Banakhar, M. (2020). Barriers of implementing evidence-based practice in nursing profession: A literature review. *American Journal of Nursing Science*, *9*(1), 35–42. http://www.sciencepublishinggroup.com/j/ajns https://doi.org/10.11648/j.ajns.20200901.16

Alcantara, J., & Leach, M. J. (2015). Chiropractic attitudes and utilization of evidence-based practice: the use of the EBASE questionnaire. *Explore*, *11*(5), 367–376. https://www.sciencedirect.com/science/article/pii/S1550830715001093 https://doi.org/10.1016/j.explore.2015.06.002

Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, *26*(13), 1802–1811. https://doi.org/10.1177/1049732316654870

Blanco, M. A., Capello, C. F., Dorsch, J. L., Perry, G. J., & Zanetti, M. L. (2014). A survey study of evidence-based medicine training in US and Canadian medical schools. *Journal of the Medical Library Association*, *102*(3), 160–168. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4076124/ https://doi.org/10.3163/1536-5050.102.3.005

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://www.tandfonline.com/doi/pdf/10.1191/1478088706qp063oa https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, *9*(1), 3–26. https://psycnet.apa.org/doiLanding?doi=10.1037/qup0000196 https://doi.org/10.1037/qup0000196

Connor, L., Dean, J., McNett, M., Tydings, D. M., Shrout, A., Gorsuch, P. F., Hole, A., Moore, L., Brown, R., Melnyk, B. M., & Gallagher-Ford, L. (2023). Evidence-based practice improves patient outcomes and healthcare system return on investment: Findings from a scoping review. *Worldviews on Evidence-Based Nursing*, *20*(1), 6–15. https://sigmapubs.onlinelibrary.wiley.com/doi/pdf/10.1111/wvn.12621 https://doi.org/10.1111/wvn.12621

Corbin, J., & Strauss, A. (2014). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage publications. https://www.researchgate.net/profile/Brad-Wuetherick/publication/277197202_Review_Basics_of_Qualitative_Research

Dagne, A. H., & Beshah, M. H. (2021). Implementation of evidence-based practice: The experience of nurses and midwives. *PLOS One*, *16*(8), e0256600. https://journals.plos.org/plosone/article?id= https://doi.org/10.1371/journal.pone.0256600

DeBruyn, R. R., Ochoa-Marín, S. C., & Semenic, S. (2014). Barriers and facilitators to evidence-based nursing in Colombia: Perspectives of nurse educators, nurse researchers and graduate students. *Investigacion y Educacion en Enfermeria*, *32*(1), 9–21. http://www.scielo.org.co/scielo.php?pid=S0120-53072014000100002&script=sci_arttext https://doi.org/10.17533/udea.iee.v32n1a02

Dineen-Griffin, S., Garcia-Cardenas, V., Williams, K., & Benrimoj, S. I. (2019). Helping patients help themselves: A systematic review of self-management support strategies in primary health care practice. *PLOS One*, *14*(8), e0220116. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0220116 https://doi.org/10.1371/journal.pone.0220116

Dizon, J. M., Dizon, R. J., Regino, J., & Gabriel, A. (2014). Evidence-based practice training for health professionals in the Philippines. *Advances in Medical Education and Practice*, *5*, 89–94. https://www.tandfonline.com/doi/pdf/10.2147/AMEP.S54459 https://doi.org/10.2147/AMEP.S54459

Duncombe, D. C. (2018). A multi-institutional study of the perceived barriers and facilitators to implementing evidence-based practice. *Journal of Clinical Nursing*, *27*(5–6), 1216–1226. https://onlinelibrary.wiley.com/doi/pdf/10.1111/jocn.14168 https://doi.org/10.1111/jocn.14168

Ennis, L., & Wykes, T. (2016). Sense and readability: Participant information sheets for research studies. *The British Journal of Psychiatry: The Journal of Mental Science*, *208*(2), 189–194. https://doi.org/10.1192/bjp.bp.114.156687

Evans, T. R., Burns, C., Essex, R., Finnerty, G., Hatton, E., Clements, A. J., Breau, G., Quinn, F., Elliott, H., Smith, L. D., Matthews, B., Jennings, K., Crossman, J., Williams, G., Miller, D., Harold, B., Gurnett, P., Jagodzinski, L., Smith, J., … Weldon, S. (2023). A systematic scoping review on the evidence behind debriefing practices for the wellbeing/emotional outcomes of healthcare workers. *Frontiers in Psychiatry*, *14*, 1078797. https://doi.org/10.3389/fpsyt.2023.1078797

Fallah Shayan, N., Mohabbati-Kalejahi, N., Alavi, S., & Zahed, M. A. (2022). Sustainable development goals (SDGs) as a framework for corporate social responsibility (CSR). *Sustainability*, *14*(3), 1222. file:///C:/Users/user/Downloads/sustainability-14-01222%20(1).pdf https://doi.org/10.3390/su14031222

Fineout-Overholt, E., Melnyk, B. M., & Schultz, A. (2005). Transforming health care from the inside out: Advancing evidence-based practice in the 21st century. *Journal of Professional Nursing: Official Journal of the American Association of Colleges of Nursing*, *21*(6), 335–344. https://www.sciencedirect.com/science/article/pii/S8755722305001456 https://doi.org/10.1016/j.profnurs.2005.10.005

Finotto, S., Carpanoni, M., Turroni, E. C., Camellini, R., & Mecugni, D. (2013). Teaching evidence-based practice: Developing a curriculum model to foster evidence-based practice in undergraduate student nurses. *Nurse Education in Practice*, *13*(5), 459–465. https://www.sciencedirect.com/science/article/pii/S1471595313000814 https://doi.org/10.1016/j.nepr.2013.03.021

Florczak, K. L. (2016). Evidence-based practice: What's new is old. *Nursing Science Quarterly*, *29*(2), 108–112. https://doi.org/10.1177/0894318416630096

Gifford, W., Zhang, Q., Chen, S., Davies, B., Xie, R., Wen, S. W., & Harvey, G. (2018). When east meets west: A qualitative study of barriers and facilitators to evidence-based practice in Hunan China. *BMC Nursing*, *17*(1), 26. https://doi.org/10.1186/s12912-018-0295-x

Grol, R. P., Bosch, M. C., Hulscher, M. E., Eccles, M. P., & Wensing, M. (2007). Planning and studying improvement in patient care: The use of theoretical perspectives. *The Milbank Quarterly*, *85*(1), 93–138. https://doi.org/10.1111/j.1468-0009.2007.00478.x

Hayward, F. M., & Ncayiyana, D. J. (2015). Confronting the challenges of graduate education in Sub-Saharan Africa. *International Higher Education*, *1*(79), 16–18. https://ejournals.bc.edu/index.php/ihe/article/view/5843 https://doi.org/10.6017/ihe.2015.79.5843

Hewston, P., Kennedy, C. C., Borhan, S., Merom, D., Santaguida, P., Ioannidis, G., Marr, S., Santesso, N., Thabane, L., Bray, S., & Papaioannou, A. (2021). Effects of dance on cognitive function in older adults: A systematic review and meta-analysis. *Age and Ageing*, *50*(4), 1084–1092. https://doi.org/10.1093/ageing/afaa270

Hsieh, P. L., & Chen, S. H. (2020). Effectiveness of an evidence-based practice educational intervention among school nurses. *International Journal of Environmental Research and Public Health*, *17*(11), 4063. https://doi.org/10.3390/ijerph17114063

Immonen, K., Tuomikoski, A. M., Kääriäinen, M., Oikarinen, A., Holopainen, A., Kuivila, H., Männistö, M., Mikkonen, K., Mattila, O., Vesterinen, S., Päätalo, K., Koivunen, K., Ylimäki, S., & Mikkonen, K. (2022). Evidence-based healthcare

competence of social and healthcare educators: A systematic review of mixed methods. *Nurse Education Today*, *108*, 105190. https://doi.org/10.1016/j.nedt.2021.105190

In, J. (2017). Introduction of a pilot study. *Korean Journal of Anesthesiology*, *70*(6), 601–605. https://doi.org/10.4097/kjae.2017.70.6.601

Jenkins, S. P., Calvert, M. J., & Draper, H. (2020). Potential research participants' use of information during the consent process: A qualitative pilot study of patients enrolled in a clinical trial. *PLOS One*, *15*(6), e0234388. https://doi.org/10.1371/journal.pone.0234388

Jordan, P., Bowers, C., & Morton, D. (2016). Barriers to implementing evidence-based practice in a private intensive care unit in the Eastern Cape. *Southern African Journal of Critical Care*, *32*(2), 50–54. https://www.ajol.info/index.php/sajcc/article/view/150145 https://doi.org/10.7196/SAJCC.2016.v32i2.253

Kamau, A. M., Mugo, F. W., & Kirwa, J. L. (2015). Organizational factors influencing evidence-based practice among nurses in Kenyan hospitals. *African Journal of Midwifery and Women's Health*, *9*(3), 109–115. https://doi.org/10.12968/ajmw.2015.9.3.109

Khammarnia, M., Haj Mohammadi, M., Amani, Z., Rezaeian, S., & Setoodehzadeh, F. (2015). Barriers to implementation of evidence-based practice in zahedan teaching hospitals, Iran, 2014. *Nursing Research and Practice*, *2015*, 357140–357145. https://doi.org/10.1155/2015/357140

Kiberu, V. M., Mars, M., & Scott, R. E. (2017). Barriers and opportunities to implementation of sustainable e-Health programmes in Uganda: A literature review. *African Journal of Primary Health Care & Family Medicine*, *9*(1), e1–e10. https://doi.org/10.4102/phcfm.v9i1.1277

Kruk, M. E., Gage, A. D., Arsenault, C., Jordan, K., Leslie, H. H., Roder-DeWan, S., Adeyi, O., Barker, P., Daelmans, B., Doubova, S. V., English, M., García-Elorrio, E., Guanais, F., Gureje, O., Hirschhorn, L. R., Jiang, L., Kelley, E., Lemango, E. T., Liljestrand, J., … Pate, M. (2018). High-quality health systems in the sustainable development goals era: Time for a revolution. *The Lancet. Global Health*, *6*(11), e1196–e1252. https://doi.org/10.1016/S2214-109X(18)30386-3

Kueny, A., Shever, L. L., Lehan Mackin, M., & Titler, M. G. (2015). Facilitating the implementation of evidence- based practice through contextual support and nursing leadership. *Journal of Healthcare Leadership*, *7*, 29–39. https://doi.org/10.2147/JHL.S45077

Kyei, K. A., Antwi, W. K., & Suapim, J. B. (2015). Evidence-based practice in radiography: Attitudes, beliefs, knowledge and practices of radiographers in Ghana. *Omics J Radiol*, *4*(176), 2. https://www.researchgate.net/profile/Kofi-Kyei-2/publication/281935645_Evidence-Based_Practice_in_Radiography_Attitudes_Beliefs_Knowledge

Kyriakoulis, K., Patelarou, A., Laliotis, A., Wan, A. C., Matalliotakis, M., Tsiou, C., & Patelarou, E. (2016). Educational strategies for teaching evidence-based practice to undergraduate health students: Systematic review. *Journal of Educational Evaluation for Health Professions*, *13*, 34. https://doi.org/10.3352/jeehp.2016.13.34

Lehane, E., Agreli, H., O' Connor, S., Hegarty, J., Leahy Warren, P., Bennett, D., Blake, C., Burke, F., Corrigan, M., Drennan, J., Hayes, M., Heffernan, E., Horgan, F., Lynch, H., McVeigh, J., Müller, N., O'Keeffe, E., O'Rourke, N., O'Toole, E., … Savage, E. (2021). Building capacity: Getting evidence-based practice into healthcare professional curricula. *BMJ Evidence-Based Medicine*, *26*(5), 246–246. https://doi.org/10.1136/bmjebm-2020-111385

Majid, S., Foo, S., Luyt, B., Zhang, X., Theng, Y. L., Chang, Y. K., & Mokhtar, I. A. (2011). Adopting evidence-based practice in clinical decision-making nurses' perceptions, knowledge, and barriers. *Journal of the Medical Library Association*, *99*(3), 229–236. https://doi.org/10.3163/1536-5050.99.3.010

Martin, J., Cartabellotta, A., Than, M., & Glasziou, P. (2006). 3rd International Conference of evidence-based health care teachers & developers. *Evidence-Based Medicine*, *11*(1), 7–7. https://ebm.bmj.com/content/11/1/7.short https://doi.org/10.1136/ebm.11.1.7

Mbabazi, J., MacGregor, F., Breckon, J., Tolchard, B., Kunonga, E., Nalweyiso, D. I., Fashina, A., & Nnyanzi, L. A. (2024). Physical activity perceptions and experiences of BAME Teesside University students during the COVID-19 pandemic: A qualitative study. *Cogent Public Health*, *11*(1), 2322832. https://www.tandfonline.com/doi/pdf/10.1080/27707571.2024.2322832 https://doi.org/10.1080/27707571.2024.2322832

Mbabazi, M. J., Nalweyiso, D., MacGregor, F., Breckon, J., Kunonga, E., Tolchard, B., … Nnyanzi, L. (2023). A qualitative study of the experiences of obesity, body image, and mental health of British-born Afro-Caribbean male students at a West Yorkshire University in England. *International Journal of Physical Activity and Health*, *2*(3), 1–25. https://research.tees.ac.uk/ws/portalfiles/portal/61212370/A_Qualitative_Study_of_the_Experiences_of_Obesity_Body_Image_and_Mental_health_of_British_Born_Afro-Carribean_Male_Students_in_UK.pdf

Meats, E., Heneghan, C., Crilly, M., & Glasziou, P. (2009). Evidence-based medicine teaching in UK medical schools. *Medical Teacher*, *31*(4), 332–337. https://doi.org/10.1080/01421590802572791

Melnyk, B. M., & Fineout-Overholt, E. (2022). *Evidence-based practice in nursing & healthcare: A guide to best practice*. Lippincott Williams & Wilkins. http://editaisdesenv.prppg.ufrpe.br/sites/editaisdesenv.prppg.ufrpe.br/files/filefield_paths/evidence-based-practice-in-nursing-healthcare-a-guide-to-best-bernadette-mazurek-melnyk

Melnyk, B. M., Fineout-Overholt, E., Stillwell, S. B., & Williamson, K. M. (2010). Evidence-based practice: Step by step: The seven steps of evidence-based practice. *The American Journal of Nursing*, *110*(1), 51–53. https://doi.org/10.1097/01.NAJ.0000366056.06605.d2

Morris, E. (2019). *Breaking the Cycle: Characteristics that Lead to the Termination of Cyclical Poverty* (Doctoral dissertation). https://www.concern.net/news/cycle-of-poverty

Nabushawo, J., Namusonge, P., & Mukhwana, A. M. (2022). The role of STEM education in fostering economic development in Uganda. *International Journal of Education and Development*, *4*(1), 45–58. https://www.researchgate.net/publication/380057389_STEM_Education_and_the_Role_of_the_HEAC_in_Uganda

Nalweyiso, D. I., Kabanda, J., Mubuuke, A. G., Sanderson, K., & Nnyanzi, L. A. (2019). Knowledge, attitudes and practices towards evidence-based practice: A survey amongst radiographers. *Radiography* , *25*(4), 327–332. https://doi.org/10.1016/j.radi.2019.03.004

Nangoli, E., Namagembe, S., Ntayi, J. M., & Katamba, D. (2021). Educational research in Uganda: A focus on science, technology, engineering, and mathematics (STEM). *Journal of Education and Practice*, *12*(3), 56–70. https://steme-ducationjournal.springeropen.com/articles

National Planning Authority. (2020). Third National Development Plan (NDP III) 2020/21-2024/25. https://www.health.go.ug/cause/third-national-development-plan-ndpiii-2020-21-2024-25/

O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: debates and practical guidelines. *International Journal of Qualitative Methods*, *19*, 160940691989922. https://journals.sagepub.com/doi/pdf/10.1177/1609406919899220 https://doi.org/10.1177/1609406919899220

Oketch, M., & Rolleston, C. (2007). Policies on free primary and secondary education in East Africa: A review of the literature. *Consortium for Research on Educational Access, Transitions, and Equity*. http://www.create-rpc.org/pdf_documents/PTA10.pdf

Ondari, E. O. (2007). Scholarly publishing in sub-Saharan Africa in the twenty-first century: challenges and opportunities. http://197.136.134.32/bitstream/handle/123456780/4318/Scholarly_publishing_in_sub-Saharan_Africa_

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health*, *42*(5), 533–544. https://doi.org/10.1007/s10488-013-0528-y

Rapp, C. A., Goscha, R. J., & Carlson, L. S. (2010). Evidence-based practice implementation in Kansas. *Community Mental Health Journal*, *46*(5), 461–465. https://doi.org/10.1007/s10597-010-9311-7

Republic of Uganda. (2013). Uganda Vision 2040: A transformed Ugandan society from a peasant to a modern and prosperous country within 30 years. National Planning Authority. https://www.greenpolicyplatform.org/sites/default/files/downloads/policy-database/UGANDA)%20Vision%202040.pdf

Saunders, B., Kitzinger, J., & Kitzinger, C. (2015). Anonymising interview data: Challenges and compromise in practice. *Qualitative Research*, *15*(5), 616–632. https://doi.org/10.1177/1468794114550439

Schoonover, H. (2009). Barriers to research utilization among registered nurses practicing in a community hospital. *Journal for Nurses in Staff Development: Official Journal of the National Nursing Staff Development Organization*, *25*(4), 199–212. https://doi.org/10.1097/NND.0b013e3181ae145f

Scorgie, F., Chersich, M. F., Ntaganira, I., Gerbase, A., Lule, F., & Lo, Y. R. (2012). Socio-demographic characteristics and behavioral risk factors of female sex workers in sub-saharan Africa: A systematic review. *AIDS and Behavior*, *16*(4), 920–933. https://doi.org/10.1007/s10461-011-9985-z

Settumba, J. P., Nduhura, A., Lukamba, M. T., & Molokwane, T. (2022). The role of public-private partnerships in Uganda's public health care system: A professional stakeholders' perspective. *African Journal of Public Administration and Environmental Studies*, *1*(2), 143–169. https://journals.co.za/doi/abs/10.31920/2753-3182/2022/v1n2a6

Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, *3*(7), 749–752. https://d1wqtxts1xzle7.cloudfront.net/58765080/Pros_and_cons_of_sampling-libre.pdf?

Sharplin, G., Adelson, P., Kennedy, K., Williams, N., Hewlett, R., Wood, J., Bonner, R., Dabars, E., & Eckert, M. (2019). Establishing and sustaining a culture of evidence-based practice: An evaluation of barriers and facilitators to implementing the best practice spotlight organization program in the Australian Healthcare Context. *Healthcare* , *7*(4), 142. https://doi.org/10.3390/healthcare7040142

Shayan, S. J., Kiwanuka, F., & Nakaye, Z. (2019). Barriers associated with evidence-based practice among nurses in low- and middle-income countries: A systematic review. *Worldviews on Evidence-Based Nursing*, *16*(1), 12–20. https://doi.org/10.1111/wvn.12337

Sidani, S., Manojlovich, M., Doran, D., Fox, M., Covell, C. L., Kelly, H., Jeffs, L., & McAllister, M. (2016). Nurses' perceptions of interventions for the management of patient-oriented outcomes: A key factor for evidence-based practice. *Worldviews on Evidence-Based Nursing*, *13*(1), 66–74. https://doi.org/10.1111/wvn.12129

Stander, J., Grimmer, K., & Brink, Y. (2021). Time as a barrier to evidence uptake-a qualitative exploration of the concept of time for clinical practice guideline uptake by physiotherapists. *Journal of Evaluation in Clinical Practice*, *27*(2), 280–290. https://doi.org/10.1111/jep.13397

Sutton, J., & Austin, Z. (2015). Qualitative research: Data collection, analysis, and management. *The Canadian Journal of Hospital Pharmacy*, *68*(3), 226–231. https://doi.org/10.4212/cjhp.v68i3.1456

Teferra, D., & Altbachl, P. G. (2004). African higher education: Challenges for the 21st century. *Higher Education*, *47*(1), 21–50. https://link.springer.com/article/10.1023/B:HIGH.0000009822.49980.30 https://doi.org/10.1023/B:HIGH.0000009822.49980.30

Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic analysis. *The SAGE Handbook of Qualitative Research in Psychology*, *2*(17-37), 25. file:///C:/Users/U0035617/Downloads/Terry%20et%20al.%20in%20Willig%20and%20Stainton%20Rogers.pdf">///C:/Users/U0035617/Downloads/Terry%20et%20al.%20in%20Willig%20and%20Stainton%20Rogers.pdf

Tlili, M. A., Aouicha, W., Tarchoune, S., Sahli, J., Ben Dhiab, M., Chelbi, S., Mtiraoui, A., Ajmi, T., Ben Rejeb, M., & Mallouli, M. (2022). Predictors of evidence-based practice competency among Tunisian nursing students. *BMC Medical Education*, *22*(1), 421. https://doi.org/10.1186/s12909-022-03487-4

Triplett, N. S., Sedlar, G., Berliner, L., Jungbluth, N., Boyd, M., & Dorsey, S. (2020). Evaluating a Train-the-trainer approach for increasing EBP training capacity in community mental health. *The Journal of Behavioral Health Services & Research*, *47*(2), 189–200. https://doi.org/10.1007/s11414-019-09676-2

Waddell, A., Lennox, A., Spassova, G., & Bragge, P. (2021). Barriers and facilitators to shared decision-making in hospitals from policy to practice: A systematic review. *Implementation Science*, *16*(1), 74. https://doi.org/10.1186/s13012-021-01142-y

Waiswa, P., Kemigisa, M., Kiguli, J., Naikoba, S., Pariyo, G. W., & Peterson, S. (2008). Acceptability of evidence-based neonatal care practices in rural Uganda - implications for programming. *BMC Pregnancy and Childbirth*, *8*(1), 21. https://doi.org/10.1186/1471-2393-8-21

Yarborough, M. (2021). Moving towards less biased research. *BMJ Open Science*, *5*(1), e100116. https://doi.org/10.1136/bmjos-2020-100116