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Examining Clinical Librarians' Support for Evidence-Based Medicine at Teaching Hospitals: A Case Study of Namibia

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ABSTRACT

This study highlights the value of evidence-based medicine (EBM) in resource-limited healthcare systems and the role of clinical librarians in promoting EBM at the University of Namibia Teaching Hospitals. By employing qualitative research techniques alongside a convenience sampling method, we can effectively gather insights and perspectives that enrich our understanding of the subject matter. The study examined the contributions of clinical librarians through literature searches, study evaluations, and training for medical practitioners. Despite challenges like limited funding, interviews with 19 participants emphasized their impact on patient care. The study recommends integrating librarians into clinical rounds, offering specialized literature search services, and developing tailored information packages to support timely decision-making. Showcasing Namibia's successes and challenges, this paper provides a model for strengthening EBM in developing countries to enhance healthcare delivery.

KEYWORDS

Clinical librarian; evidence-based medicine; patient care; resource-limited healthcare systems; UNAM teaching hospitals; Namibia

1. Introduction

In the age of information overload, the most valuable resource in healthcare is not just knowledge but also the ability to access and apply proper expertise at the right time. It highlights clinical librarians' critical and growing role in navigating vast amounts of available medical information, emphasizing their importance in evidence-based medicine (EBM). The rapid expansion of information technology and the plethora of medical information resources necessitate medical personnel to actively search for accurate, reliable, and current professional scientific medical information. However, time constraints and demanding schedules underscore the essential role of clinical librarians in connecting medical professionals to scientific EBM. Clinical librarians or medical or health sciences librarians specialize in planning, organizing, maintaining, and distributing medical information to benefit healthcare professionals, researchers, and patients. Their crucial role in

teaching hospitals globally and in Africa involves providing timely and accurate scientific medical information to enhance productivity, maximize patient care, improve results and elevate the satisfaction levels of patients and their families (Dilhani, 2021). They collaborate with medical faculties and hospital departments to mobilize evidence-based medical research, support evidence-based decision-making, continuous professional development (CPD), and encourage staff learning (Moth, 2020).

Additionally, Blacklock's (2020) work highlights the significant impact of dedicated individuals on the growth of clinical services in Africa, pointing to organizations such as African Hospital Libraries (AHL) that have established healthcare library services in government referral hospitals and healthcare training institutions in Sierra Leone. These efforts underscore the necessity of incorporating Clinical Medical Librarianship into the Library and Information Science (LIS) curriculum to equip professionals to meet the region's evolving healthcare

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demands (Dilhani, 2021). In Namibia, clinical librarianship is relatively new, and librarians' contributions can be significant because of the unique challenges and opportunities in the country's rapidly developing health sector. This study aims to identify and analyze the obstacles encountered in the absence and advantages stemming from the presence of clinical librarians within the framework of applying EBM in clinical departments at a prominent University of Namibia (UNAM) teaching hospital in northern Namibia.

1.1. Problem statement

Incorporating EBM into clinical settings enhances patient care and educates future medical professionals. However, at UNAM Teaching Hospitals, healthcare practitioners face obstacles in effectively adopting EBM because of limited time, resources, and varying levels of information literacy, which hinders their ability to access, evaluate, and implement scientific evidence. Clinical librarians possess expertise in managing information and are ideally suited to tackling these issues, yet their presence in Namibia is scarce. The lack of clinical librarians impedes the implementation of EBM, negatively affects the quality of patient care, and involves medical education. This research investigates the function of clinical librarianship in Namibia, recognizes existing shortcomings, and offers suggestions to improve support for EBM, ultimately advancing healthcare and education in this context.

1.2. Research questions

The purpose of this study is to answer the following questions:

1. How important is access to reliable, up-to-date medical information for practising EBM?
2. What impact do clinical librarians have on patient care?
3. How do clinical librarians contribute to lifelong learning and professional development among healthcare providers in teaching hospitals?
4. What challenges do clinical librarians face in supporting EBM?

5. How can clinical librarians facilitate EBM practice in Namibian teaching hospitals?

1.3. Significance of the paper

This study is valuable as it highlights clinical librarians' essential role in advancing EBM, a cornerstone for improving patient care, enhancing medical education, and strengthening healthcare systems, especially in resource-limited settings like UNAM Teaching Hospitals. This study goes beyond identifying the benefits of EBM; it also addresses the practical barriers to its integration, such as limited resources and access to up-to-date medical information, which are common challenges in many developing countries. By documenting these challenges and offering actionable insights, the study provides practical strategies for integrating EBM more effectively within resource-poor settings, making it highly relevant to Namibia and other developing nations facing similar healthcare challenges.

Additionally, this research offers valuable insights that contribute to the field's ongoing development and global discourse on healthcare improvement, illustrating how clinical librarians can be central to bridging the gap between medical research and clinical practice. Through enhanced information management strategies, clinical librarians can empower healthcare providers to obtain timely and accurate evidence for better decision-making and patient outcomes. The findings of this study advocate for the professionalization of clinical librarianship within teaching hospitals, positioning librarians as integral members of the healthcare team, especially in countries with constrained resources. By emphasizing the critical need for such roles, this article offers scholarly contributions and practical recommendations for healthcare policymakers, educators, and librarians working to enhance EBM practices in low-resource contexts.

2. Literature review

2.1. Role of clinical librarians in supporting EBM

Clinical librarians play a pivotal role in supporting EBM by acting as intermediaries between the medical staff and a vast array of medical

information resources. Their involvement is crucial in various capacities, such as training healthcare professionals in information literacy skills and enhancing their ability to effectively utilize evidence-based resources, thereby improving patient care and management systems (Oluwatoyin, 2023). Medical librarians actively engage in evidence dissemination and resource management in Africa. However, they face skill deficiencies and poor internet connectivity (Popoola et al., 2024). The presence of clinical librarians in hospital settings, such as the Children's Medical Center Hospital in Tehran, has been shown to positively influence physicians' information-seeking behaviors by providing training and facilitating an EBM-oriented approach to clinical practice (Habibi et al., 2023).

Furthermore, clinical librarians are instrumental in developing collaborative educational tools, such as evidence-based blogs and libguides, successfully integrated into residency programs to enhance resident education and promote interdisciplinary collaboration (Lovasik et al., 2021). Embedded clinical librarians in emergency departments have demonstrated their value by efficiently mobilizing evidence at the point of need, thus supporting decision-making and continuous professional development (Moth, 2020). Additionally, initiatives such as the Chitambo Emergency Care Communications Project in Zambia have highlighted the role of librarians as knowledge brokers, translating evidence into actionable knowledge to improve healthcare delivery (Ndalameta-Theo et al., 2020). These roles underscore the importance of clinical librarians in fostering an evidence-based culture within healthcare settings; this effort ultimately enhances patient outcomes and elevates the overall quality of healthcare (Jarvis et al., 2023; Willis et al., 2021).

2.2. Background of UNAM teaching hospitals in Namibia

Teaching hospitals are essential for Namibia's healthcare and medical education. The UNAM School of Medicine, established in 2010, collaborates with four teaching hospitals: Windhoek Central Hospital, Katutura State Hospital, Oshakati Intermediate Hospital, Ongwediva Medi-Park, and

Onandjowe Hospital. These hospitals provide a comprehensive environment for medical students' clinical training and internships, encompassing various departments and specialized units. They enable students to integrate theoretical knowledge with practical applications through hands-on, real-world experiences supervised by medical professionals. UNAM medical students undergo extensive training, starting with foundational sciences and progressing to clinical rotations in specialties, such as gynecology, internal medicine, surgery, pediatrics, and obstetrics. These rotations occur primarily in teaching hospitals, allowing students to interact with patients, engage in diagnostics, and develop clinical skills. Furthermore, teaching hospitals promote a research-oriented culture among students and faculty, offering a platform for clinical research essential for advancing medical knowledge and improving patient care. Clinical librarians in these institutions ensure access to the latest scientific evidence and medical literature, support evidence-based practice and enhance healthcare quality (Appendix A).

These institutions lack professional librarians to manage specific scientific information requirements. In seeking accreditation for the Bachelor of Surgery (MBChB) programme, the Health Professions Council of Namibia (HPCNA) evaluated adherence to international and regional medical education standards (HPCNA, 2020). The accrediting body emphasized incorporating EBM principles into the curriculum to equip future medical professionals with skills to apply scientific evidence in clinical decision-making. They highlighted library services and information literacy as crucial for supporting evidence-based practice. The HPCNA assessment report identified a lack of specialized professional library services for healthcare practitioners and trainees. To address this, they recommended appointing a clinical librarian at a teaching hospital, emphasizing specific areas for improvement.

1. **Access to Up-to-Date Resources:** Ensuring students and clinicians access current high-quality medical literature and databases.
2. **Information Literacy Training:** Providing structured training to improve students' and

clinicians' skills in searching, appraising, and applying medical evidence in practice.

3. **Support for Research and EBM:** Offering specialized services to support clinical research, systematic reviews, and the application of EBM in patient care.
4. **Integration into Clinical Teams:** Facilitating the involvement of a clinical librarian in ward rounds, case discussions, and clinical decision-making to enhance the practical application of EBM.

The accrediting body's broader objective to improve the educational standards of the MBChB program and equip its graduates for the demands of contemporary medical practice was in line with the suggestion of employing a professional clinical librarian. Collaborative efforts between UNAM and the Ministry of Health and Social Services (MoHSS) revealed substantial shortcomings in the infrastructure and resources at the northern Oshakati Teaching Hospital, which also functions as a primary resource for other teaching hospitals. These deficiencies were deemed significant barriers to fulfilling the accreditation body's requirements for the MBChB degree. The accrediting body emphasized inadequacies in various crucial areas that impeded the effective implementation of evidence-based medical education and clinical practice. These included:

2.2.1. Library infrastructure

The resource center lacked the modern facilities necessary to support learning and research. The physical space was insufficient to accommodate students and healthcare professionals, and the technology infrastructure, such as computer stations and Internet access, was outdated or unavailable.

2.2.2. Access to resources

Limited access to essential medical and clinical literature, including journals, textbooks, and electronic databases, restricts students' and clinicians' ability to remain fully informed about the latest research.

2.2.3. Human resources

The resource center lacked adequate staffing. No dedicated clinical librarian or trained personnel could provide specialized support in accessing and utilizing medical information effectively.

2.2.4. Information literacy and training

There is a gap in providing structured training for students and healthcare professionals regarding information literacy, EBM, and research skills. This limitation affects their ability to locate, appraise, and apply medical evidence in clinical settings.

2.3. The memorandum of understanding (MOU)

UNAM and MoHSS negotiated and established a Memorandum of Understanding (MOU) to address these shortcomings and upgrade Oshakati Teaching Hospital's Resource Center. The MOU created a collaborative framework to tackle these inadequacies and ensured that the hospital's resource center fulfilled the requirements set by the accrediting organization. The primary goals of the MOU are as follows:

1. **Renovating Infrastructure:** Upgrading physical facilities, including study spaces, Internet connectivity, and equipment, to create a conducive environment for learning and research.
2. **Improving Resource Availability:** Acquiring and providing access to essential medical resources, including digital and print collections, to support clinical education and practice.
3. **Recruiting Professional Staff:** Appointing a clinical librarian with expertise in EBM to oversee the resource center and support medical students, clinicians, and researchers would elevate the excellence of resources and services.
4. **Capacity Building:** Developing training programs in information literacy and research skills to empower users with the knowledge needed for evidence-based practice.
5. **Sustainability and Maintenance:** Establishing mechanisms to ensure the ongoing support and maintenance of the resource center, including funding, staffing, and resource acquisition.

By addressing these gaps through the MOU, UNAM and MoHSS aimed to strengthen the

foundation of medical education and clinical practice in the region, ensuring that students and healthcare professionals received the tools to deliver high-quality, evidence-based patient care.

2.4. An analysis of Namibia's healthcare system and infrastructure

Namibia's healthcare system features a dual structure, with the public sector serving most of the population and the private sector providing additional services. The Ministry of Health and Social Services (MoHSS) coordinates healthcare delivery at the national, regional, and district levels, providing a mix of promotive, preventive, curative, and rehabilitative services (Christians, 2020; Nuuyoma & Ashipala, 2020). Despite its comprehensive structure, the system faces significant challenges, particularly in Health Information Systems (HISs), which are fragmented and lack interoperability. This fragmentation leads to data duplication and underreporting, compromising the reliability of health data and service delivery (Kapepo & Yashik, 2018; Nengomasha et al., 2018). Efforts to integrate HISs through big data solutions and service-oriented architectures are underway to improve data management and healthcare outcomes (Garises & Quenum, 2018; Hashiyana et al., 2021).

Additionally, the healthcare system struggles with resource allocation inequities, a legacy of historical budgeting practices that have disadvantaged regions with more significant healthcare needs (Zere et al., 2007). Strengthening the health system, including improving workforce competence and healthcare financing, is crucial for enhancing public healthcare consumption, as evidenced by studies in Northern Namibia (Magumba et al., 2013). The economic context, with GDP growth of 4.6% in 2022, provides a backdrop for potential improvements in healthcare infrastructure. However, inflation and fiscal deficits persist (International Monetary Fund, 2023). Quality improvement initiatives, such as those at Katutura Hospital, emphasize the need for training frameworks to equip health professionals with the skills necessary for effective healthcare delivery (Maseke & Nyathi, 2021).

Namibia's healthcare system has a solid foundational structure, and addressing the challenges of HIS integration, equitable resource allocation, and workforce training are essential for its advancement.

2.5. Access to reliable, up-to-date medical information for EBM

Healthcare professionals can effectively utilize online resources to access reliable, up-to-date medical information for EBM by leveraging digital tools and platforms to enhance clinical decision-making. Developing a best-practice framework for healthcare websites is crucial as it can guide the creation of more effective online resources that translate research evidence into practice, ultimately improving patient outcomes (Tieman & Nicholls, 2024). In the digital age, the integrity of information is paramount. The EBM provides a structured approach to evaluate the reliability of sources through a hierarchy of evidence, which is essential for informed clinical decision-making (Arman, 2024). To stay current with medical information, healthcare professionals can utilize web-based channels, such as medical newsletters, electronic databases, podcasts, and mobile apps, facilitating both passive and active information seeking (Bougioukas et al., 2020). EBM databases offer quick access to a wide range of research findings, including guidelines, systematic reviews, and clinical trials, which are critical for enhancing patient care and clinical practice (Chandran et al., 2020).

Additionally, evidence-based healthcare involves accessing and implementing evidence effectively, as outlined in models such as the JBI model of evidence-based healthcare (Carrier & Jones, 2022). Studies show that resources like UpToDate reduce diagnostic errors and improve health outcomes, demonstrating the importance of reliable clinical resources (Valtis et al., 2016). The EBM resources toolkit, which categorizes electronic resources according to the 6S Pyramid, is a critical pathway for efficiently locating clinical answers (Kendall et al., 2017). Furthermore, point-of-care resources that provide rapidly accessible and periodically updated evidence-based information are essential for effective

bedside care (Campbell et al., 2015). By utilizing these diverse online resources and adhering to evidence-based practices, healthcare professionals can make informed, up-to-date decisions that enhance patient care and support lifelong learning (Olayemi, 2016).

2.6. Impact clinical librarians have on patient care: Global perspective

Clinical librarians are pivotal for enhancing patient care by providing invaluable support to healthcare teams. Studies from diverse geographical regions, including Italy, the United Kingdom, and the United States, have demonstrated the positive effects of integrating librarians with expertise in the scientific literature within healthcare teams, resulting in more appropriate and efficient clinical decision-making (Divall et al., 2022; Siemensma et al., 2022). Research indicates that clinical librarians contribute significantly to modified clinical practice, patient advice, medication selection, diagnoses, and even the duration of patient hospitalization, underscoring their direct impact on patient care and organizational governance (Habibi et al., 2023; Jarvis et al., 2023). Moreover, the presence of clinical librarians in critical care units generates a positive return on investment, manifesting in improved patient care, healthcare staff time optimization, and support for professional development (Hartfiel et al., 2021). This environment is conducive to training competent and skilled medical practitioners.

2.7. African perspective

Various studies and projects indicate that clinical librarians significantly impact African patient care. The Africa Center for Systematic Reviews and Knowledge Translation in Uganda and East Africa, supported by Makerere University, underscores the role of health librarians in evidence-based medical practice and health policymaking. These librarians conduct systematic reviews, develop research questions, and educate professionals to enhance healthcare quality (Kinengyere et al., 2015). The Chitambo Emergency Care Communications Project in Zambia exemplifies

librarians as knowledge brokers, translating evidence-based information into actionable healthcare practices and improving emergency care responses (Ndalameta-Theo et al., 2020). Additionally, studies have shown that clinical librarians enhance clinical decision-making and patient outcomes. Partnerships fostered by UK charity Partnerships in Health Information (Phi) significantly benefit African health librarians by improving their capacity to provide high-quality information crucial for patient care (Phillips & Twomey, 2020). The KwaZulu-Natal Department of Health libraries' integration of digital resources supports the timely dissemination of health information, which is essential for improving health outcomes (Ntloko, 2024). These initiatives demonstrate that clinical librarians are crucial in enhancing patient care and outcomes in African healthcare settings by providing access to critical information and supporting evidence-based decision-making.

2.8. Biases and conflicts of interest in EBM for clinical librarians

Clinical librarians at UNAM Teaching Hospitals may encounter several potential biases and conflicts of interest in their roles in EBM. One significant challenge is the potential conflict between professional and institutional ethics, where librarians may struggle to balance their loyalty to the library profession, leading to ethical dilemmas in decision-making (Murphy, 2001). Additionally, the lack of familiarity and recognition of the role of clinical librarians among healthcare professionals can lead to underutilization of their services, as evidenced by studies showing that many clinicians are unaware of the benefits that clinical librarians can provide in facilitating EBM (Habibi et al., 2023; Mohaghegh et al., 2019). This lack of recognition can create bias against integrating librarians into clinical teams, potentially limiting their effectiveness.

Furthermore, visibility issues can hinder inter-professional collaboration, where clinical librarians are not incorporated into the healthcare system team, thus affecting their ability to contribute effectively to EBM practices (Thomas & Hoey, 2020). The rapid growth of information

technology and medical data challenges clinical librarians, who must navigate vast information to provide reliable, timely results, often under pressure that can introduce bias (Olayemi, 2016; Zare-Farashbandi et al., 2019). Moreover, the emphasis on evidence-based healthcare has increased the demand for high-quality information; however, variability in the skills and support systems available to hospital librarians compared with their academic counterparts can lead to inconsistencies in the delivery of EBM resources (Pappas, 2008). These factors collectively highlight the potential biases and conflicts of interest clinical librarians face. They emphasized the need for clear guidelines and support to enhance their role in EBM at teaching hospitals.

2.9. Challenges of clinical librarians in the African context

The benefits of clinical librarian services in teaching hospitals are well documented; however, clinical librarians in Africa face various challenges, as highlighted in research papers. These challenges include inadequate training and skills for participating in systematic reviews, limited cooperation between libraries, budget constraints leading to insufficient access to electronic collections, low Internet accessibility, disparities in the use of classification schemes, and a lack of specialized services in medical libraries (MacKenzie, 2021; Kinengyere et al., 2020). Furthermore, the general growth of librarianship in African nations is slower than in industrialized countries, leading to concerns about the future of the profession, with issues such as inadequate funding, poorly skilled librarians, and insufficient infrastructure hindering academic library financing (Bouaamri et al., 2022). Promoting and supporting enhanced skill development initiatives is essential to tackle these challenges effectively and explore alternative funding sources for African academic libraries (Kinengyere et al., 2020).

2.10. AI tools used by librarians for searches and predictive suggestions

Artificial Intelligence (AI) tools are being incorporated into library services to enhance search capabilities and provide predictive suggestions,

significantly transforming the roles of librarians and user experience. AI-driven systems are pivotal in automating routine tasks, such as cataloguing and organizing, which allows librarians to focus on more intellectually stimulating activities and ensure a more accurate and organized library system (Preethi, 2024). These systems can effectively analyze extensive data to improve search functionalities, facilitate seamless information retrieval, and enhance user experience (Anandraj & Aravind, 2024; Chandramani, 2024). AI tools, including virtual assistants, offer valuable support and improve user experiences and are being employed to assist library patrons in navigating catalog systems, answering queries, providing real-time language translation services, and making libraries more inclusive and accessible (Mukherjee & Patra, 2024; Preethi, 2024). AI is instrumental in personalizing library services through machine learning algorithms that analyze user behavior and preferences to offer customized recommendations for reading materials and resources (Preethi, 2024; Visnudharshana & Kishore, 2024).

Implementing AI in libraries also includes advanced search and discovery tools, content recommendation systems, and data analytics, which are crucial for digital preservation and for enhancing the accessibility of digital knowledge (Anandraj & Aravind, 2024; Chandramani, 2024). However, integrating AI into libraries is not without challenges, including concerns about algorithmic bias, privacy, and the digital divide, which necessitates careful consideration to ensure responsible and equitable AI use (Chandramani, 2024; Mallikarjuna, 2024). Librarians are encouraged to develop AI literacy, encompassing data management and ethical decision-making skills, to effectively communicate and collaborate in an AI-driven environment (Cox & Mazumdar, 2024; Tzanova, 2024). As AI evolves, libraries must address these challenges and leverage AI's potential to enhance their services and operations, ensuring that librarians remain integral to the information management landscape (Cox & Mazumdar, 2024; Mallikarjuna, 2024).

3. Methodology and study design

This study employed qualitative research techniques to examine the role of clinical librarians in

fostering EBM at UNAM Teaching Hospitals. The researchers chose a qualitative approach because it provides rich, in-depth insights into participants' lived experiences, perceptions, and challenges regarding clinical librarianship in an EBM context, rather than using quantitative or mixed methods. Given the study's exploratory nature, qualitative methods provided flexibility in data collection and a chance to capture perspectives that quantification may struggle to represent.

3.1. Data collection

The researchers gathered information through semi-structured interviews with a carefully selected group of key participants, including healthcare professionals, medical trainees, and library personnel. The interview questions used for data collection are provided in Appendix A. This approach ensured a diverse range of viewpoints, reflecting the demand for and provision of clinical librarian services in teaching hospitals. Interviews were conducted in person using a prepared interview guide designed to elicit detailed responses about the nature of clinical librarians' support, the specific services required by healthcare providers, and the perceived impact on clinical practice and patient care. With the interviewees' permission, the researchers documented the conversations in real time, enhancing data accuracy and reliability. This documentation minimized recall bias and recorded respondents' views. The study collected primary data from key respondents at three major teaching hospitals in northern Namibia during five-day site visits from March 18–22, 2019. This on-site data collection facilitated firsthand engagement with the hospital environment, allowing the researcher to contextualize participants' responses within the real-world settings of their professional practice.

3.2. Data analysis

The researchers transcribed the interviews verbatim, allowing for a thorough content analysis using Microsoft Excel, a widely used qualitative data organization and coding tool. Data analysis followed Braun and Clarke's (2006) thematic analysis framework, which involved identifying recurring themes, reviewing and refining them, defining and

naming them, and producing a final report. This systematic approach to thematic analysis facilitated the identification of patterns, trends, and key insights into the contributions of clinical librarians to the promotion of EBM and the challenges they face in Namibian teaching hospitals. The qualitative design of the study enabled a thorough exploration of the subject, allowing for a rich grasp of the respondent's perceptions.

3.3. Justification for the qualitative approach

The researchers opted for a qualitative approach instead of a quantitative or mixed methods design for several reasons. Given the limited prior research on clinical librarianship in Namibia, a qualitative approach provided an open-ended, flexible framework to uncover insights that structured surveys might overlook. It also enabled a deeper understanding of clinical librarians' real-life challenges and contributions, capturing the complexity of their roles in ways that qualitative methods excel at. Unlike quantitative research, which focuses on numerical trends, qualitative research facilitates an in-depth exploration of professional experiences, institutional dynamics, and service impact. Additionally, the findings from this study serve as a foundation for future quantitative or mixed-methods studies, which can further quantify the effect based on the identified themes. By adopting this rigorous qualitative methodology, the study offers rich, contextually relevant insights into the evolving role of clinical librarians in supporting EBM in resource-limited settings, contributing to both scholarly discourse and practical policymaking, and emphasizing the need for enhanced librarian engagement in clinical settings.

3.1. Study participants and sampling

The study featured a diverse group of healthcare professionals and associated personnel: 10 clinicians, one unit manager, five medical students, one intern doctor, one nursing student, and one library staff member. This range provided perspectives from experienced practitioners, trainees, and support staff involved in healthcare information. The participation of ten clinicians contributed extensive clinical knowledge, while the unit

manager offered insights into healthcare operations. Medical and nursing students and interns represent future clinicians, contributing to fresh perspectives on healthcare professionals involved in patient care. The study included library staff members, underscoring the importance of information management in healthcare. This diverse group offered valuable insights into healthcare challenges by incorporating various perspectives, leading to more comprehensive research findings. Additionally, this approach ensured the inclusion of professionals actively engaged in clinical practice, offering valuable and actionable insights into the challenges and opportunities in integrating EBM. The study used convenience sampling as participants' busy schedules constrained their availability.

3.2. Ethical considerations

Ethical considerations were central to the study, with confidentiality and anonymity as key components. The researchers assured participants that they would not reveal their personal information and would present the findings anonymously. This approach protects their privacy and enhances the reliability and credibility of the research outcomes. Emphasizing the right to withdraw at any stage fostered trust, encouraged openness, and respected participants' comfort levels, reinforcing the ethical integrity of the study.

4. Findings and discussion

The study found that most doctors have been working at the hospital for over five years, while student interns have typically been there for more than two months, having recently commenced their year-long internship. This variation in experience levels highlights the diverse information needs within the hospital, ranging from seasoned practitioners requiring advanced, specialized literature to interns seeking foundational EBM resources. Clinical librarians are crucial in bridging these gaps by providing targeted literature searches, evidence summaries, and training tailored to different expertise levels. Their support ensures that experienced doctors and new interns access high-quality, evidence-based

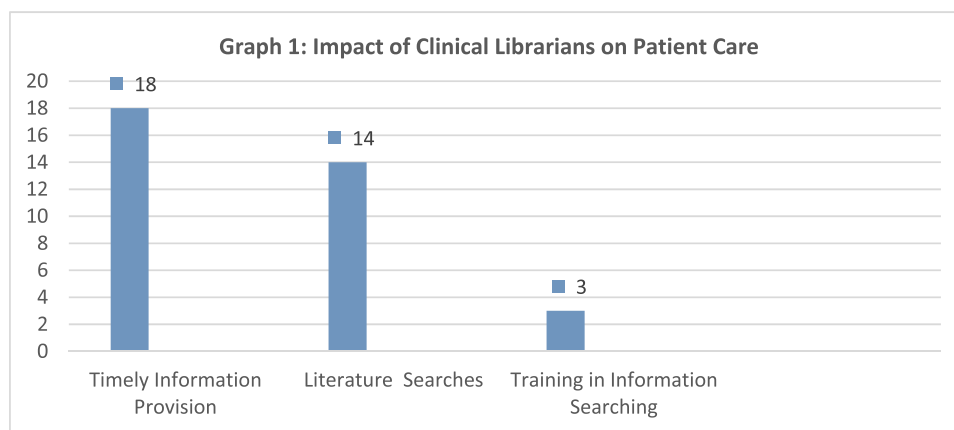
information to enhance clinical decision-making and patient care. Integrating clinical librarians into hospital workflows, including clinical rounds and structured EBM training sessions, can further optimize knowledge transfer and support lifelong learning within the healthcare environment.

4.1. Access to reliable, up-to-date medical information for practising EBM

Many interviewed participants emphasized that access to dependable medical information is crucial for healthcare practitioners employing EBM in their decision-making processes. Such reliable data offers a methodical approach to assessing and implementing scientific findings in clinical practice. EBM emphasizes the amalgamation of high-quality research evidence with clinical know-how and patient preferences, rendering it essential for well-informed decisions in patient care. Participants stressed the significance of consulting trustworthy information sources, including peer-reviewed publications and esteemed databases, such as PubMed and ScienceDirect, to ensure the utilization of precise and current scientific data. Moreover, while the digital age has enhanced access to medical information, respondents have also pointed out the growing challenges of misinformation. The finding emphasizes the importance of healthcare workers developing and using critical assessment abilities to efficiently sort and evaluate the abundance of available information.

4.2. Impact of clinical librarians on patient care

This research highlights the critical role of integrating clinical librarians into UNAM Teaching Hospitals to advance EBM. All respondents, except the library staff, affirmed the necessity of clinical librarians for timely access to current research and evidence. Fourteen respondents noted that the duties of clinical librarians included conducting comprehensive literature reviews, which significantly enhanced their capacity for evidence-based clinical decisions. Additionally, two medical interns and one nursing student appreciated the educational support from clinical librarians, including customized



training in adequate information searching and developing critical evaluation skills. These educational initiatives were crucial for improving EBM proficiency and elevating hospitals' overall medical education and clinical practice quality. (Graphic 1)

4.3. Contribution of clinical librarians to lifelong learning and professional development

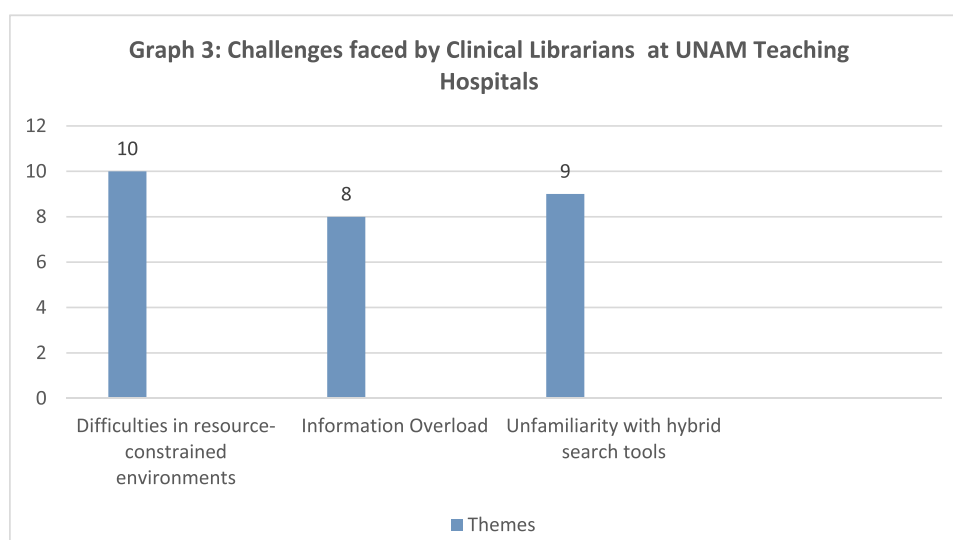
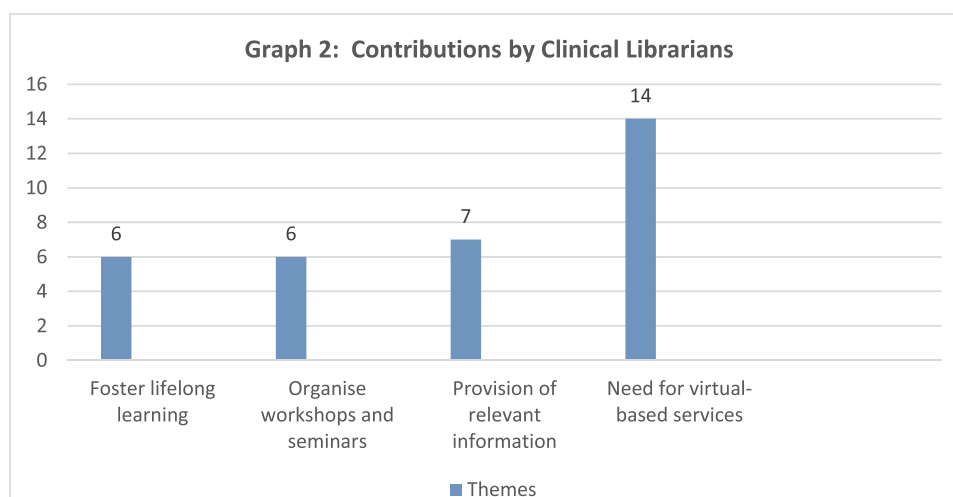
The analysis revealed the significant contributions of clinical librarians beyond information retrieval. Six participants praised their role in fostering lifelong learning and professional development among healthcare providers, positioning them as key players in the ongoing education of medical professionals. The findings align with Divall et al. (2022), who highlight the role of clinical librarians in advocating for the continuous improvement of hospital healthcare services. Six respondents highlighted the critical role of clinical librarians in organizing workshops and seminars, providing valuable possibilities for healthcare professionals to remain informed about the most current advancements in their field, and ensuring they are equipped with current knowledge to improve patient care. Additionally, seven respondents emphasized the support provided by UNAM librarians in facilitating access to relevant information and fostering collaboration between research and practical application, particularly in resource-limited environments. However, 14 respondents stressed the need for virtual-based services to stay updated on medical cases and developments. These results

highlight the growing demand for digital tools and online platforms to ensure continuous access to high-quality medical resources. For clinical librarians to remain effective in supporting evidence-based medicine, they must adapt to the digital age, utilizing technology to enhance the delivery of information and educational resources. The analysis demonstrates that clinical librarians play a crucial role in supporting ongoing learning, organizing educational programs, and ensuring access to critical information, all vital for promoting evidence-based medicine in Namibia's healthcare system (Graphic 2).

4.4. Challenges faced by clinical librarians at UNAM teaching hospitals

Clinical librarians globally face significant obstacles in supporting evidence-based medicine (EBM), a challenge echoed by healthcare professionals and academic library staff at UNAM Teaching Hospitals. Ten respondents identified barriers such as healthcare providers' lack of technical expertise in searching library resources and time constraints preventing access to necessary materials. Sanyal et al. (2019) highlight that restricted access to full articles and subscription-based publications can hinder literature searches, limiting healthcare providers' ability to integrate current evidence into practice.

Participants also noted difficulties in resource-constrained environments, such as limited familiarity with remote library services and challenges with database authentication. These barriers reduce the effectiveness of clinical librarians in



providing timely support. Additionally, eight participants mentioned information overload, and nine were unfamiliar with hybrid search tools essential for managing information efficiently. A key concern was the limited professional development opportunities for clinical librarians due to financial constraints, which restricted their ability to acquire necessary skills. Previous research by Weightman and Williamson (2005) underscores challenges related to a lack of recognition and integration within healthcare teams, which hinders librarians' contribution to clinical decision-making. Tackling these challenges demands a united and strategic collaboration among medical

professionals, academic institutions, and healthcare administrators. Fostering a culture that supports clinical librarians in EBM practices, providing training, and improving access to digital resources is essential to enhance their role in improving patient care and supporting evidence-based practices in resource-limited settings (Graphic 3).

4.5. Facilitating EBM in resource-poor teaching hospitals

Clinical librarians are crucial in bridging the gap between research and clinical decision-making,

particularly in resource-poor teaching hospitals in Namibia and other developing nations. In settings where access to current medical information is limited, these professionals support medical students and healthcare practitioners in finding, evaluating, and applying the latest scientific evidence to patient care. Information retrieval and critical appraisal expertise are essential to guide clinical decisions based on the best available research. One of the key ways in which clinical librarians facilitate EBM is through specialized training in information literacy. Healthcare professionals develop essential skills to navigate their field, assess research quality, and synthesize findings, ensuring that clinical decisions rely on reliable evidence. In low-resource environments, outdated or incomplete medical information can compromise patient care.

Beyond training, clinical librarians can integrate directly into clinical teams, providing real-time literature searches and concise evidence summaries during multidisciplinary rounds. This hands-on involvement enhances access to evidence at the point of care. It promotes an environment that encourages ongoing education and growth among healthcare professionals. In addition, they can collaborate with researchers and clinicians in systematic reviews and meta-analyses, contributing to the development of locally relevant medical evidence to address specific health challenges. Advocacy is another critical function for clinical librarians. By working closely with hospital administrators and the medical faculty, they can promote the inclusion of EBM principles in institutional policies, clinical protocols, and medical curricula. Through such initiatives, strengthening the research infrastructure within teaching hospitals ensures that EBM is integral to healthcare practices.

Ultimately, clinical librarians can significantly enhance patient care and improve the quality of healthcare systems in resource-limited settings by improving access to evidence, promoting research literacy, and fostering knowledge creation. Their contributions are instrumental in advancing evidence-based practice and ensuring that medical decisions are guided by the best available science, even in environments with constrained resources.

5. Implications of the study

5.1. Theoretical implications of the paper

This study advances the theoretical understanding of the role of information professionals in healthcare, particularly in promoting EBM within teaching hospitals. It highlights the pivotal role of clinical librarians as essential intermediaries between information science and clinical practice, reinforcing their position as integral medical team members. Clinical librarians contribute to a more informed and evidence-driven healthcare environment by bridging the gap between research and patient care. Furthermore, the study expands existing knowledge on cross-disciplinary collaboration, illustrating how clinical librarians' expertise in information retrieval, critical appraisal, and knowledge synthesis complements the clinical expertise of healthcare practitioners. The diverse insights from the group reinforce theoretical perspectives on interprofessional cooperation and the integration of specialized knowledge domains, which enhance decision-making in complex healthcare settings.

Additionally, this research strengthens theories related to evidence-based practice by emphasizing the importance of specialized information roles in facilitating the translation of research findings into clinical decision-making. It provides insights into how information experts can drive EBM adoption, particularly in resource-constrained settings such as Namibia, where medical literature and evidence-based resources may be inaccessible. By clarifying clinical librarians' unique contributions and challenges, this study presents a valuable theoretical framework that enhances our understanding of the subject and its impact and potential in improving healthcare outcomes through informed decision-making.

5.2. Professional implications of the paper

From a professional standpoint, this study's results have considerable ramifications for clinical librarianship in practice and development. They emphasize the necessity of integrating clinical librarians into medical teams and promoting their acknowledgement as critical contributors to healthcare delivery and medical training. This

research indicates that medical institutions, including UNAM Teaching Hospitals, ought to allocate resources for the ongoing professional growth of clinical librarians, ensuring that they remain current with emerging technologies and methodologies in information science. Such investment could strengthen their capacity to support EBM effectively. Moreover, the study underscores the need for healthcare managers to tackle resource constraints that impede clinical librarians from realizing their full potential. Hospitals can maximize the impact of clinical librarians by providing adequate resources and backing; this approach fosters enhanced patient outcomes and promotes greater efficiency in healthcare administration. The insights from this research can guide policy formulation and strategic planning, encouraging healthcare systems to implement best practices in incorporating clinical librarianship into their operations.

5.3. Practical implications of this paper

The findings of this study highlight the growing recognition of clinical librarians as valuable contributors to hospital-based healthcare. Healthcare professionals acknowledge that clinical librarian services support evidence-based medical practice by enhancing access to high-quality, up-to-date information. These insights can, in turn, influence patient interventions and recommendations, ultimately leading to improved patient care outcomes. Additionally, the study highlights the crucial contribution of clinical librarians in facilitating research and professional development for healthcare teams. Clinical librarians enhance clinical decision-making and promote patient safety by providing targeted information services, assisting with literature searches, and supporting continuous medical education. Healthcare organizations can leverage these services to strengthen service delivery and embed evidence-based practices within medical workflows.

Integrating clinical librarians into healthcare teams presents an opportunity to enhance decision-making processes, ensuring that clinicians base their judgments on the latest and most reliable medical evidence. While medical librarianship is still in its early stages in Namibia, these findings could catalyze discussions on expanding and

institutionalizing clinical librarian roles within hospitals. Furthermore, these insights have significant implications for stakeholder training and recruiting medical librarians. Institutions responsible for developing Library and Information Science curricula can use these findings to tailor training programs that equip future librarians with specialized skills needed in clinical settings. Similarly, healthcare administrators can consider strategies to revitalize hospital resource centers by incorporating skilled clinical librarians, ultimately fostering a culture of evidence-based healthcare. By demonstrating the tangible benefits of clinical librarianship, this research offers a basis for well-informed decision-making at institutional and policy levels, paving the way for strengthened library services that directly support improved healthcare outcomes.

6. Limitations of the paper

This study relied on self-reported data from librarian-conducted interviews, which may have introduced response bias. Additionally, the 5-day engagement period (18–22 March 2019) may have limited the breadth of respondent opinions. Variations in sample size and representativeness across Namibian teaching hospitals could also impact the findings. Notwithstanding these drawbacks, this research offers insightful information on the role of clinical librarians in supporting EBM. It underscores the need for universities with medical curricula to integrate such positions into teaching hospitals. Furthermore, it highlights the cost-effectiveness and resource implications of establishing clinical librarian roles in the healthcare sector, offering a compelling case for their inclusion.

7. Future directions for research and practice

As clinical librarianship continues to evolve within the library and healthcare fields, future research and practice should focus on strengthening its integration within clinical teams to maximize impact. One promising area for further investigation is the development of structured value chains between clinical librarians and healthcare professionals. Cross-disciplinary studies and observational research could

analyze teaching hospital workflows, identify critical information needs during clinical rounds, and assess the role of librarians in case conferences and decision-making meetings. Embedding clinical librarians more deeply into the clinical workflow would enable them to provide real-time, evidence-based support tailored to the immediate needs of healthcare providers.

Efforts must focus on expanding access to high-quality medical information resources. Increasing access to high-quality medical information resources could be achieved by establishing partnerships with international libraries, joining consortia memberships, or negotiating enhanced institutional subscriptions to specialized medical databases. Strengthening these access points would empower clinical librarians to deliver more comprehensive, high-quality information services. Additionally, continuous professional development is essential to ensure that librarians remain updated on emerging trends in both information science and healthcare. Attending international conferences, obtaining advanced certifications, and participating in specialized training programs would enhance their expertise, benefiting the clinical teams they support. Future research should also focus on evaluating the tangible impact of clinical librarians on patient care and healthcare quality.

Longitudinal studies tracking metrics such as reduced hospital stays, improved patient satisfaction, and enhanced clinical decision-making could provide empirical evidence of their value. Regular reporting of librarian activities, publishing case studies, and active participation in institutional committees would further demonstrate their contributions. Policy advocacy is another crucial area for advancing clinical librarianship. As Weightman and Williamson (2005) recommend, policymakers should formally recognize and support the role of clinical librarians in healthcare settings. This includes securing dedicated funding, integrating librarian roles into healthcare regulations and accreditation standards, and embedding librarianship within medical education curricula. By implementing these recommendations, institutions such as UNAM Teaching Hospitals can strengthen the role of clinical librarians in supporting evidence-based medicine, ultimately enhancing healthcare delivery and patient outcomes.

8. Conclusion

This study offers valuable insights into how information experts can advance the adoption of EBM in diverse healthcare settings, particularly in resource-constrained environments like Namibia. By highlighting the unique contributions of clinical librarians and addressing the challenges they face, this research underscores their potential to bridge critical gaps in knowledge access and utilization, ultimately enhancing healthcare outcomes. The findings illuminate the multifaceted role of information experts in promoting EBM, positioning clinical librarians as key facilitators' crucial intermediaries between medical knowledge repositories and healthcare practitioners. Their expertise in information retrieval, critical appraisal, and the dissemination of current research enables clinicians to use the most recent data to make well-informed judgements. This role is especially significant in settings where technological, financial, or infrastructural limitations restrict access to up-to-date medical information.

Moreover, this research explores clinical librarians' challenges in advancing EBM adoption, including limited resources, technological barriers, and potential resistance from healthcare professionals accustomed to traditional practices. By identifying these hurdles, this study paves the way for targeted interventions and strategies to enhance the effectiveness of clinical librarians in their roles. This comprehensive approach reinforces the importance of information experts in improving healthcare delivery. It lays the foundation for developing tailored solutions to overcome barriers to EBM implementation. Ultimately, this study reaffirms the indispensable role of clinical librarians in ensuring that medical decisions are based on the most recent and pertinent scientific findings, advancing patient care and strengthening healthcare systems in resource-limited settings.

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Data availability statement

Supporting data cannot be shared publicly to comply with ethical guidelines and protect participant confidentiality, as study participants did not provide written consent for data sharing.

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Appendix A

Interview Guide: Examining Clinical Librarians' Support for Evidence-Based Medicine at Teaching Hospitals: A Case Study of Namibia.

Instructions to participants

Introduction

We appreciate your willingness to participate in this research. Your observations will help us understand how clinical librarians at the University of Namibia Teaching Hospitals impact evidence-based medicine.

Confidentiality

All information you provide will be confidential and utilized solely for research objectives. Any published results will exclude details that could potentially identify individual participants.

Voluntary participation

Taking part in this study is optional. You have the right to decline to answer particular questions or cease your involvement at any point without facing any repercussions.

Note-Taking

With your consent, we would like to ensure the accurate recording of your responses. To achieve this, we shall make written notes throughout our discussion.

Estimated time

The interview will take approximately 30–45 min.

Scope

The discussion will focus on your experiences and perspectives regarding the support provided by clinical librarians in your practice or studies.

Consent

By continuing with this interview, you consent to participate under the terms explained. Please feel free to ask any questions before we begin.

Interview questions

1. Background Information:
Can you briefly describe your current role (e.g., clinician, student intern, clinical librarian) and how long you have worked or interned at this teaching hospital?
2. Understanding Evidence-Based Medicine (EBM):
How important is access to reliable, up-to-date medical information for practising EBM?
3. Impact of Clinical Librarians on Patient Care:
In your experience, what impacts can clinical librarians have on patient care?

4. How do clinical librarians contribute to lifelong learning and professional development among healthcare providers in teaching hospitals?
5. Challenges and Limitations:
What challenges are faced by clinical librarians in supporting EBM?
6. Suggestions for Improvement:
How can clinical librarians facilitate EBM practice in Namibian teaching hospitals?
7. Final Thoughts:
Is there anything else you would like to share about your experiences or perceptions regarding clinical librarians?

We appreciate your valuable contribution. Your insights play an essential role in this study and will help improve the position of clinical librarians in Namibia. If you have any additional thoughts or queries, please don't hesitate to contact us.