

An Update on the Impact of Case-Based Learning on Critical Thinking in Clinical Decision Making in Uganda Nursing Education: A Narrative Review

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ABSTRACT

Nursing education in Uganda plays an essential role in preparing healthcare professionals to address the country's diverse and complex health challenges. However, traditional teaching approaches, which often rely heavily on rote learning, fail to adequately equip nursing students with critical thinking and clinical decision-making skills, essential competencies for effective patient care. Case-based learning (CBL) has emerged as a promising instructional strategy that promotes active engagement, problem-solving, and the application of theoretical knowledge to real-world scenarios. This review examines the potential of CBL to transform nursing education in Uganda by fostering critical thinking and enhancing clinical decision-making among students. Evidence from global studies indicates that CBL significantly improves professional students' competencies by bridging the gap between theory and practice, encouraging reflective thinking, and providing context-specific learning experiences. In Uganda, the integration of CBL remains limited due to systemic challenges, including resource constraints, large student-to-teacher ratios, and insufficient access to simulation tools. Additionally, cultural and institutional resistance to shifting from traditional teaching methods hinders the adoption of innovative pedagogies like CBL. Despite these barriers, subjective evidence and preliminary studies suggest that when implemented effectively, CBL can lead to improved critical thinking, better clinical judgment or decision making, and enhanced readiness for professional practice among nursing students. To fully realize the benefits of CBL in Uganda, a multi-faceted approach is required. This includes incorporating CBL into nursing curricula, providing educators with targeted training and resources, and investing in infrastructure such as simulation labs and digital learning platforms. Aligning case scenarios with local healthcare challenges can enhance the relevance and effectiveness of CBL in preparing students for the realities of clinical practice. Handling these challenges and fostering a culture of pedagogical innovation, Uganda's nursing education system can leverage CBL to produce competent and confident nursing professionals capable of meeting the country's evolving healthcare needs.

Keywords: Impact, Case-Based Learning, Critical Thinking, Clinical Decision Making, Uganda, Nursing Education.

INTRODUCTION

Nursing education is a crucial component of the healthcare system, aiming to produce competent, skilled, and compassionate nurses who can effectively contribute to patient care and address the diverse healthcare needs of the population. The nursing education system in Uganda typically follows a structured curriculum designed to impart theoretical knowledge, practical skills, and ethical values essential for nursing practice [1]. Nursing education programs in Uganda are governed by regulatory bodies such as the Uganda Nurses and Midwives Council (UNMC) as well as the Ugandan National Council for Higher Education which sets standards and guidelines for nursing education institutions [2]. These programs can be found in universities, vocational schools, and training hospitals across the

country. Nursing education programs often encompass a combination of theoretical classroom learning and hands-on clinical training [3]. The curriculum includes foundational courses in anatomy, physiology, pharmacology, and nursing theory, followed by clinical rotations in various health care settings. Practical training is a crucial component of nursing education in Uganda [4]. Students engage in clinical practicums or rotations in hospitals, clinics, and community health care settings, where they apply theoretical knowledge under the supervision of experienced nurses and healthcare professionals. In Uganda, nursing education employs various teaching methods and strategies aimed at providing comprehensive learning experiences for aspiring nurses. Some common teaching methods include lectures and didactic teaching, clinical practicum and hands-on training, simulation-based learning, case-based learning, group discussions and interactive learning, clinical skills labs and workshops, E-learning and technology integration, preceptorship and mentorship and problem-based learning (PBL) [5-7]. Nursing education places a strong emphasis on developing essential skills such as critical thinking, patient assessment, clinical decision making, therapeutic communication, and evidence-based practice. These skills are vital for nurses to deliver quality care and make informed clinical decisions.

However, challenges within nursing education in Uganda may include limited resources, inadequate staffing, and disparities in access to quality education across different regions [8]. There are ongoing efforts to enhance nursing education through collaborations with international partners, training upgrades, and the adoption of innovative teaching methodologies. Trained nurses play a critical role in handling healthcare challenges in Uganda, including maternal and child health, infectious diseases like malaria, anemia and HIV/AIDS, non-communicable diseases, and public health initiatives [9]. Nursing education in Uganda is evolving to meet the demands of a changing healthcare, aiming to produce skilled and adaptable nurses capable of delivering quality care and addressing the healthcare needs of the population [10-11]. Also, critical thinking acquired through nursing education is integral to the nursing process. Nurses must assess situations, gather relevant information, analyze data, and make sound judgments about patient care. This process involves synthesizing knowledge from various sources to formulate appropriate interventions. Nurses encounter complex and diverse healthcare challenges daily [12]. Critical thinking equips them with problem-solving skills to identify issues, evaluate alternatives, and implement solutions in a timely and efficient manner. Nurses with strong critical thinking skills are better equipped to recognize subtle changes in a patient's condition, anticipate potential complications, and take proactive measures to ensure patient safety which is crucial in preventing medical errors and providing high-quality care [13]. Nurses use critical thinking to analytically appraise research findings, scientific evidence, and best practices to integrate this evidence into their clinical decision-making process, ensuring that patient care is based on the most current and reliable information available [14]. In essence, critical thinking in nursing goes beyond mere problem-solving; it encompasses a holistic approach to patient care. Nurses who possess robust critical thinking abilities in clinical making contribute significantly to improved patient outcomes, enhanced care quality, and the advancement of the nursing profession. As such, fostering and nurturing critical thinking skills is essential in nursing education and professional development. Among the essential skills required for nursing students to excel in clinical practice, critical thinking and effective clinical decision-making stand as corner stones. In Uganda, recognizing the significance of these skills, has been actively exploring educational methodologies to enhance their students' capabilities. This review aims to investigate the profound influence of utilizing case-based learning as an educational tool on the development and refinement of critical thinking skills in clinical decision-making in nursing education with its main focus on nursing students. Also, Uganda's healthcare system, like many others globally, demands nurses who can swiftly analyze complex situations, make informed decisions, and provide effective patient care [15]. The integration of case-based learning into the nursing curriculum in Uganda intends to nurture these competencies among students, enabling them to navigate the intricate challenges of clinical practice with confidence and proficiency. Consequently, the contextual relevance of reviewing the impact of case-based learning on critical thinking in clinical decision-making in Uganda is significant due to several key factors. Nursing education represents a unique educational context within Uganda, with its distinct cultural diversity, societal norms, and healthcare challenges [16]. This review can capture the specific needs and dynamics of nursing education within the Ugandan context. Understanding the impact of case-based learning on critical thinking aligns with objectives of providing comprehensive and relevant education to student nurses. It supports the institution's commitment to fostering a robust learning environment conducive to skill development and clinical proficiency. It considers the adaptability and inclusivity of teaching methodologies to cater to diverse learner profiles. Findings from this review can inform curriculum development and teaching strategies tailored to the specific needs of Ugandan students. This can lead to the refinement of educational approaches that optimize critical thinking skill development within the local context. It can contribute to the broader discourse on nursing education, providing valuable perspectives and methodologies that could be beneficial beyond Uganda's borders and potentially influence best practices in nursing education globally. By conducting this review, researchers can delve

into the intricacies of case-based learning implementation within the specific context of Ugandan nursing education, offering insights that align with the institution's goals, address local healthcare needs, and potentially contribute to advancements in nursing education both locally and internationally.

Case-based Learning

Case-based learning plays a pivotal role in education across various disciplines, including nursing, due to their multifaceted contributions to learning and skill development. Case-based learning provides a bridge between theoretical concepts taught in classrooms and their practical application in real-life scenarios [17]. They enable student nurses to apply their theoretical knowledge to simulated or authentic patient cases, enhancing their understanding of complex concepts. CBL is an instructional strategy where students analyze and solve real-world clinical scenarios, promoting active engagement and knowledge application [18]. CBL encourages active learning, bridges the gap between theory and practice and enhances problem-solving and decision-making skills [19]. Implementation of CBL involves small group discussions, real-life or simulated case scenarios and guided facilitation by educators [20]. Case-based learning encourages critical thinking by presenting authentic, multifaceted situations that require analysis, evaluation, and problem-solving. Students nurses are prompted to assess data, identify patterns, consider various perspectives, and make informed decisions, thereby fostering critical thinking abilities in clinical decision making. Case-based learning engage students in active learning, encouraging them to actively participate, discuss, and collaborate in analyzing and resolving the presented case. This interactive approach fosters deeper engagement and a more profound understanding of the subject matter [20]. Through case-based learning, students gain practical experience without direct patient involvement, allowing them to practice skills such as critical thinking, communication, and clinical judgment in a safe and controlled environment. Case-based learning often includes diverse patient populations and complex ethical dilemmas, exposing students to various cultural contexts and ethical considerations. This exposure contributes to the development of cultural sensitivity and ethical decision-making skills. Case-based learning is instrumental in nursing education as they promote active learning, critical thinking, clinical reasoning, and decision-making skills essential for future nursing practice. Reviewing the impact of case-based learning on critical thinking may lead to better-prepared graduates capable of making sound clinical judgments and decisions. Strengthening critical thinking skills through case-based learning may promote a more evidence-based approach to nursing practice among graduates. Despite the acknowledged importance of critical thinking in nursing practice, gaps persist in understanding the precise influence of case-based learning on the development of these crucial skills among student nurses in Uganda [21]. While case-based learning is commonly utilized in nursing education as a method to bridge theoretical knowledge with practical application, their specific impact on fostering critical thinking abilities [22] and subsequent implications on decision-making skills among students nurses in Uganda remain inadequately explored and understood. This review seeks to address this gap by examining how the integration of case-based learning into the nursing curriculum influences the enhancement of critical thinking skills in clinical decision making among students. Review of studies related to case-based learning as a pedagogical tool showed case-based learning is crucial and has positive impact on critical thinking in clinical decision making among student nurses. Case-based learning is utilized more as a teaching pedagogy in European continent than Africa. McLean in [23] reported based on worldwide review articles 54.9% for North America, Europe(25.4%), Asia (15.5%), South America (2.8%) and Africa (1%) on use of case-based learning in medical profession. Kaur *et al.* [24], Koto-Shimada *et al.* [25], Makoni [26] and Mostafa *et al.* [27] reported, case-based learning have positive impact on critical thinking in clinical decision making among student nurses. The above researchers further specify that CBL participants had a higher level of critical thinking skills than the lecture-based student nurses. Liao *et al.* [28] stated 90.8% of respondents like CB-TBL practice, 82.57% indicated CB-TBL approach enhanced team co-operation and 80% agreed CB-TBL facilitate their ability to find out, analyze and solve problems indicating enhanced critical thinking. It means, case-based learning is more effective method for educating nursing students to enhance their critical thinking in clinical decision making as well as team nursing or inter professional team practices compared to lecturing or didactic method of nursing education. Koto-Shimada *et al.* [25] indicates that the CBL participants had a higher level of critical thinking skills than the lecture-based program student nurses. There was no study involving case-based learning on critical thinking in clinical decision-making of student nurses or nursing education in Uganda and East Africa at time of this review. However in Uganda, Musiime [29] conducted a study on role of case-based learning on student performance, report that Case based learning is the most effective teaching method in enhancing student performance with prediction potential of 71.1% than traditional method. Student performance is the reflection of skills that emerge from the instruction. Traditional (lecture) method is the used teaching methodology in Ugandan universities [29]. Addressing this challenge requires a deeper understanding of the efficacy of educational tools, particularly the utilization of case-based learning, in stimulating critical thinking abilities and refining clinical decision-making among nursing students.

Critical Thinking in Clinical Decision making in nursing education

Critical thinking in nursing is the ability to think analytically, logically, and systematically in order to make sound, informed clinical decisions [30]. It involves questioning assumptions, considering multiple perspectives, and evaluating evidence before reaching conclusions. This process requires nurses to reflect on their thought patterns, biases, and assumptions, which helps them arrive at well-reasoned and patient-centered decisions. In nursing education, critical thinking is often emphasized as a core competency that directly influences clinical outcomes, patient safety, and the quality of care provided [31]. Critical thinking is a core competency in nursing education, integral to clinical decision-making and effective patient care. It involves the ability to analyze, evaluate, and apply knowledge in complex clinical situations, enabling nurses to make informed, logical, and patient-centered decisions [32]. In clinical decision-making, critical thinking helps nurses assess patient conditions, prioritize care, choose appropriate interventions, and evaluate outcomes, ultimately improving patient safety and healthcare quality [31]. In nursing education, critical thinking is developed through active learning strategies such as case-based learning (CBL), simulation-based learning, problem-based learning (PBL), and reflective practice [33]. These methods encourage students to engage with real-world scenarios, analyze problems from multiple perspectives, and work collaboratively to find solutions. However, barriers such as traditional teaching methods, limited clinical exposure, and overburdened curricula can hinder the development of critical thinking skills [34]. Fostering critical thinking in nursing education is essential not only for individual clinical practice but also for improving overall patient care. Nurses equipped with strong critical thinking skills are more adept at recognizing early warning signs, making timely interventions, and delivering patient-centered care [35]. Overcoming challenges and integrating critical thinking into nursing curricula ensures that future nurses are prepared to navigate the complexities of modern healthcare, making decisions that enhance patient outcomes and safety.

The Role of Critical Thinking in Clinical Decision-Making

Clinical decision-making is a dynamic process in which nurses are required to assess patient conditions, prioritize care needs, identify appropriate interventions, and evaluate outcomes [35]. Critical thinking plays an essential role in this process by ensuring that nurses make evidence-based decisions, consider patient preferences, and account for the complexities of each unique case. Critical thinking in clinical decision-making involves assessment, analysis, prioritization, intervention and evaluation [36]. Assessment is collecting comprehensive data through patient history, physical examination, and diagnostic tests to understand the clinical situation. Analysis refer to evaluating and synthesizing the information gathered to identify the underlying health issues, risks, and priorities [36]. Prioritization is deciding which issues require immediate attention based on urgency, severity, and available resources [36]. Intervention is choosing and implementing appropriate nursing care that are supported by evidence and aligned with the patient's goals. Evaluation involves continuously assessing the outcomes of interventions and making adjustments as needed [37]. Critical thinking enables nurses to recognize patterns, make connections between clinical signs and symptoms, and anticipate potential complications. By engaging in reflective practice, nurses develop a deeper understanding of their actions, which leads to improved clinical judgment and better patient outcomes.

METHODOLOGY

The review aimed to explore the impact of case-based learning (CBL) on critical thinking in clinical decision-making in nursing education of Uganda. The methodology involved a comprehensive search of academic databases and grey literature, using keywords related to nursing education, critical thinking, clinical decision-making, and CBL. Studies were selected based on predefined inclusion and exclusion criteria, focusing on research that assessed CBL's effectiveness in nursing education, particularly in relation to critical thinking and decision-making. The review employed thematic analysis to synthesize the findings from the selected studies. Data extraction focused on identifying key themes such as the effectiveness of CBL in developing critical thinking, roles of critical thinking in clinical decision making, barriers to its implementation, and recommendations for improving its integration into nursing curricula. The synthesis provided insights into the potential benefits and challenges of adopting CBL in Uganda's nursing education context.

FINDINGS

This review explored the impact of case-based learning (CBL) on critical thinking and clinical decision-making in nursing education, particularly in Uganda. The findings reveal several key insights which include positive impact of CBL that significantly enhances students' critical thinking and clinical decision-making skills by engaging them in real-world scenarios. It helps students apply theoretical knowledge, improves problem-solving abilities, and prepares them for complex clinical situations. Contextual relevance of CBL revealed that effectiveness of CBL is enhanced when case scenarios are based on the local healthcare context. In Uganda, focusing on prevalent health issues such as infectious diseases and resource limitations makes CBL more relevant and engaging for nursing

students. Barriers to Implementation of CBL showed that despite its potential, the adoption of CBL in Uganda faces challenges, including resource constraints like limited access to simulation tools, overcrowded classrooms, and faculty members' lack of training in CBL methods. Additionally, is resistance to shifting from traditional teaching approaches to more student-centered models. Conclusively, CBL holds great promise for enhancing nursing education in Uganda, but handling the barriers is essential for its broader adoption and effectiveness.

DISCUSSION

The findings of this review highlight the transformative potential of case-based learning (CBL) in nursing education, particularly in fostering critical thinking and clinical decision-making skills. While global evidence supports the efficacy of CBL, its integration into Uganda's nursing education system presents unique opportunities and challenges that require critical examination. CBL's emphasis on real-world problem-solving aligns closely with the need to prepare nursing students for the complexities of clinical practice [23]. In Uganda, where healthcare challenges are multifaceted and often resource-limited, CBL offers a platform for students to develop contextually relevant skills. Engaging students in active learning and reflective thinking, CBL bridges the gap between theoretical knowledge and its practical application, leading to better preparedness for real-world clinical scenarios [20]. This is especially significant given the critical role nurses play in frontline healthcare delivery in Uganda. Despite its potential, implementing CBL in Uganda is hindered by systemic challenges. Limited resources, including inadequate simulation tools and overcrowded classrooms, restrict opportunities for interactive learning [38]. Faculty members often lack training in student-centered pedagogies, which perpetuates reliance on traditional, lecture-based approaches. Resistance to change, both at the institutional and cultural levels, further complicates the adoption of innovative teaching methods like CBL [39]. Addressing these barriers requires strategic investments in infrastructure, faculty development, and curriculum reform. The effectiveness of CBL in Uganda depends on familiarizing it to the local context. Case scenarios must reflect the realities of the Ugandan healthcare system, such as managing high patient loads, addressing infectious diseases, and delivering care in resource-constrained environments. This contextual relevance not only enhances student engagement but also ensures that the skills acquired are directly applicable to the challenges they will face in clinical practice. Collaborative efforts between educators, policymakers, and healthcare practitioners are essential to developing cases that resonate with the local context [40].

Implications for Nursing Education

Integrating case-based learning (CBL) into nursing education in Uganda offers transformative potential by enhancing critical thinking and clinical decision-making skills, vital for addressing complex healthcare challenges. CBL bridges the gap between theory and practice, preparing students for real-world scenarios and improving patient care outcomes (McLean 2016). The shift to CBL necessitates curriculum reform and faculty development, fostering active learning and professional growth among educators. Aligning case scenarios with Uganda's healthcare priorities, nursing education becomes more relevant and impactful. Also, CBL increases student engagement, retention, and competence, contributing to a skilled nursing workforce [41]. Although challenges like resource constraints and resistance to change exist, addressing these barriers can drive innovation in teaching methods and strengthen the overall healthcare system. CBL thus holds the potential to revolutionize nursing education in Uganda, producing critically thinking and adaptable healthcare professionals.

Recommendations for Future Research and Practice

Future research should focus on longitudinal studies to evaluate the long-term impact of CBL on nursing competencies and patient outcomes in Uganda. Also, pilot programs incorporating CBL in selected nursing schools could provide valuable insights into best practices for wider implementation. Faculty training programs and investments in digital and simulation tools should also be prioritized to ensure sustainable adoption.

CONCLUSION

Conclusively, while challenges remain, the adoption of CBL represents a promising strategy to enhance nursing education in Uganda. Managing systemic barriers and aligning learning strategies with local healthcare needs, CBL can play a vital role in preparing a competent, confident, and critically thinking nursing workforce for the country's evolving healthcare landscape.

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