Simulation for Life

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-BOOK OF ABSTRACTS-

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Simulation-Based Learning in the College of Health Sciences University of Jos: Overview, Lessons Learnt, Challenges and Prospects

Simon Yiltok[1], Amaka Ocheke[2], Henry Emb[3], Bose Toma[4], Grace Daniel[5], Tolulope Afolaranmi[6], Esther Envuladu[6]

[1]Department of Surgery, [2]Department of Obstetrics & Gynaecology, [3]Department of Anaesthesiology, [4]Department of Paediatrics, [5]Department of Nursing Science, [6]Department of Community Health College of Health Sciences, University of Jos, Nigeria.

Introduction: It is known that Simulation-based learning (SBL) helps learners to acquire skills without exposing patients in need of care to risks. This learning is increasingly being adopted for the training of health in many training institutions. For us as a university, SBL has not been part of the curriculum of our medical and nursing programs.

Methods: This is an overview of the introduction of SBL in our college with the implementation of the *Sim for Life* project Phase II which is titled Strengthening and Scaling up medical simulation-based Interventions to save lives in East and West Africa. Taking notes of the lessons learnt, the challenges and the prospects. Training workshops were organized to train facilitators drawn from several departments of the college for the implementation of the SBL.

Results: Four (4) training courses (two faculty development courses and two refresher courses) were organized over a two (2) year period covering 2021 and 2022. A total of 53 facilitators were trained. There were 37 males and 17 females with M: F ratio of 2.2:1. Thirty-two of the facilitators trained were lecturers (faculties) and 22 were either Hospital Consultants, Resident Doctors or Clinical Instructors. Nineteen scenarios have been developed by the facilitators that have been trained. There were challenges such as the prolonged industrial by the university unions that were encountered and there were lessons learned that helped us and will be useful as we progress in the program. From the feedback we have received from the students and faculty members, it is an acceptable means of instruction and the prospects of implementing SBL in all our clinical courses is very good.

Conclusion: The implementation of simulation-based learning in medical and nursing education is a welcome development in our college. Its full implementation will go a long way in the training of our students.

Keywords: Simulation-based learning, lessons learnt, challenges, prospects

The Students' Voice on the Integration of Simulation Based Learning into Routine Teaching Timetables at a Medical School in Uganda

Albert Muhumuza[1], Josephine Najjuma[1], Heather MacIntosh[2], Shifra Nankunda[1], Joanita Tebulwa[1], Flavia Tumwebaze[1], Nishan Sharma[2], Nalini Singhal[2], Gwendolyn Hollaar[2], Ian Wishart[2], Francis Bajunirwe[1], Data Santorino[1]

[1]Mbarara University of Science and Technology, [2]University of Calgary, Canada

Introduction: Simulation based learning (SBL) has gained popularity in recent decades as an effective training method for health professional students. Mbarara University of Science and Technology (MUST) established a simulation center in 2016. Simulation is timetabled for third and fifth-year medical and nursing students every 1 - 2 weeks. This frequent simulation exposure for medical and nursing students is not common in many learning centers, globally. We aimed to prospectively collect student feedback on simulation exposure frequency, session organization, their lived simulation experiences and suggestions for improvement.

Methods: Third and fifth-year medical and nursing students were exposed to simulation scenarios in accordance with the central teaching timetable for simulation from the academic registrar. At the end of each simulation session, participants were requested to complete a simulation session evaluation survey adopted from the KiDSIM Centre, Calgary, Canada using a Google form on tablets. Qualitative data was coded and themed. Quantitative data was analyzed using Stata.

Results: A total of 606 medical and nursing students completed the feedback survey 2533 times after 591 simulation sessions between September 2021 and April 2023. Medical students comprised 86% (521/606) of total respondents. Up to 96% (2007/2270) of student responses desired simulation exposure at least once a week. On a scale of 1 - 5 where 1 = strongly disagree and 5 = strongly agree, simulation sessions were rated highly for aspects of scenario organization (Mean score 4.14, SD=1.7), participant group size (mean score 4.05, SD 1.72), overall educational experience (Mean score 4.41, SD 1.66), scenario appropriateness (mean 4.26, SD 1.6), and post scenario debrief (mean = 4.43, SD 1.46). The usefulness of medical simulation was described by the students in five themes: 1) patient assessment and management, 2) teamwork and interprofessional collaboration, 3) facilitator disposition and post-scenario discussion, 4) Confidence and decision making and 5) safe environment and scenario fidelity. Participants suggested five areas for improvement: 1)Scenario variety, duration and frequency, 2) Student - facilitator ratio, 3) increasing scenario variety and manikin realism, 4) interprofessional and senior provider involvement, and 4) simulation space.

Conclusion: Medical and nursing students rate their simulation educational experience highly. They see benefit and desire for increased simulation methodology use in their teaching and learning.

Adopting Medical Simulation Based Learning in LMICs: What Needs to be Changed?

Santorino Data[1], Albert Muhumuza[1], Heather MacIntosh[2], Josephine Najjuma[1], Jennifer Brenner[2], Christine Acio[3], Fredfly Bulamba[4], Kimberly Manalili[2], Simon Yiltok[5], Edgar Ndaboine[6], Nalini Singhal[2], Francis Bajunirwe[1]

[1]Mbarara University of Science and Technology, [2]University of Calgary, Canada, [3]Lira University, [4]Busitema University, [5]University of Jos, Nigeria, [6]Catholic University of Health and Allied Sciences, Tanzania

Introduction: Simulation based learning (SBL) is relatively new to Sub-Saharan Africa. SBL implementation is constituted of strategies with different dynamic components. For these strategies to fit the Low and Middle income countries context where SBL implementation is happening several modifications are needed.

Methods: We tracked and documented adaptations using the Framework for Reporting Adaptations and Modifications-Enhanced(FRAME). Data informing the adaptations was collected through site visits, implementation progress reports and meetings.

Results: The SBL scale-up experienced content adaptation, contextual adaptations, training adaptations and modifications in implementation and scale-up activities. Largely, these adaptations were unplanned while some were planned.

Simulation facilitators were trained in Advocacy and inquiry as the debriefing conversation strategy different from Plus Delta in phase 1 of the implementation of simulation. Advocacy and inquiry enabled facilitators unearth learner frames and foster change behavior. We adopted the EPIQ10 steps quality improvement workshop to explore and address gaps in readiness to implement.

We experienced both human and resource limitations. Human resource limitations in the implementing sites, a case in point is the patient actors and limited availability of life-size manikins were addressed with volunteer faculty and students in lower years as patient actors. Outsourcing of equipment from hospitals to create realism was helpful but may not be sustainable.

Challenges in operationalizing simulation centers after the training informed the extension of the simulation educator training course from 3 days to 5 days. The additional time facilitated utilization of SBL methodology in real-time to identify and address operational challenges. Simulation skills mentorship initially planned as virtual was conducted physically to improve skills and boost confidence following COVID-19 lockdown and institution closures. Facilitator peer drills helped keep educator skills. Micro-timetabling of simulation sessions within departments paved the way for integration into routine schedules.

Conclusion: SBL implementation process in LMICs is likely to meet special challenges and is subject to modification depending on context.

Mentorship, Peer-To-Peer Learning Methodologies and Prisms Revive Decayed Newborn Management Skills Post COVID-19 Pandemic

Santorino Data[1], Shifra Nankunda[1], Josephine Najjuma[1], Douglas McMillan[2], Joanita Tebulwa[1], Flavia Tumwebaze, Nalini Singhal[3], Jennifer Brenner[3], Heather MacIntosh[2], Francis Bajunirwe[1]

[1]Medical Simulation Center, Mbarara University of Science and Technology, [2]Department of Neonatology, Dalhousie University, Canada, [3]Cumming School of Medicine, University of Calgary, Canada

Introduction: Maintenance of maternal and newborn care skills plays a critical role in providing quality maternal and neonatal care. Interventions for skills retention still fall short with a characteristic post-training skills decay. We evaluated the effect of COVID-19 interruptions on skills decay in a randomized controlled trial planned prior to COVID-19.

Methods: We randomized 36 health facilities into an intervention and a control group. In each facility, two providers were trained in peer-to-peer training methodologies, and four received either Helping Babies Breathe (HBB), Essential Care for Every Baby (ECEB), or Helping Mothers Survive (HMS) training. The intervention arm received a newborn clinical decision technology called PRISMS, which provides recommendations for routine newborn care. The control arm did not receive PRISMS until the final six months of the study. We measured HBB, ECEB, and HMS skills and knowledge acquisition and retention immediately post-training, and again at 12 and 18 months. Due to COVID-19 restrictions, in the first 12 months, one PRISMS and peer-to-peer mentorship session was done at the 11th month versus 2 sessions, 3 months apart, in the last 6 months.

Results: Significant skills acquisition occurred with training in all three programs across both arms (p<0.001). While ECEB and HBB skills decay occurred in both arms at 12 months post-training, HMS skills were retained. More specifically, ECEB skills dropped significantly in the control from a mean score of 69% immediately post-training to 42% at 12 months (p<0.001) and in the intervention from 70% to 43% (p<0.001). Similarly, HBB skills decayed significantly in the control from 65% post-training to 33% at 12 months (p<0.001) and in the intervention from 68% to 33% (p<0.001). Importantly, compared to at 12 months, ECEB skills scores at 18 months significantly improved to 57% in the control (p<0.001) and 53% in the intervention arm (p=0.014). At 18 months, HBB skills also significantly improved to 55% (p<0.001) in the control and 53% (p<0.001) in the intervention arm. HMS skills scores immediately post-training were 59% in the control arm and 64% in the intervention arm. These skills were retained at 12 months in the control (p=0.41) and intervention arms (p=0.31). Continued retention was observed at 18 months in the control (p=0.160) and intervention arms (p=0.960).

Conclusion: These findings provide evidence that a combination of mentorship, peer-to-peer learning methodologies, and PRISMS are effective in improving decayed newborn care skills.

Enhancing Health Professionals' Education at Lira University: Experiences and Outcomes of Implementing Medical Simulation

Christine Acio[1], Judith Abal Akello[2]

[1]Faculty of Nursing and Midwifery, Lira University, [2]Faculty of Business and Management, Lira University

Abstract: Medical simulation has emerged as a valuable tool in health professionals' education, providing students with realistic, hands-on experiences to develop clinical skills and enhance patient safety. This study presents Lira University's experience in implementing medical simulation within its midwifery curriculum, highlighting the challenges faced, strategies employed, and outcomes achieved. Lira University recognized the need for a more practical, experiential learning approach to health professional education and adopted medical simulation as an integral component of its curriculum. Over the course of two years, the university invested in simulation equipment, infrastructure, and faculty training to establish a simulation centre. To ensure the successful integration of medical simulation, Lira University employed several strategies, including: Developing simulation-based learning modules aligned with curricular objectives; Training faculty members in simulation facilitation and debriefing techniques; Collaborating with national and international partners for technical expertise and support; and Engaging students in regular simulation sessions, with a focus on teamwork, communication, and clinical decision-making. Preliminary outcomes of the medical simulation initiative at Lira University indicate a positive impact on student learning and performance. Students have reported increased confidence in their clinical abilities, improved critical thinking, and enhanced teamwork skills. Additionally, faculty members have noted a marked improvement in students' clinical competence during practical examinations and clinical rotations. However, challenges remain, including limited resources, faculty resistance, and the need for ongoing professional development. To address these challenges, Lira University is committed to continuous evaluation and improvement of its medical simulation program, seeking external funding, and fostering collaborations with other institutions.

The Growth of Medical Simulation Training at Busitema University Faculty of Health Sciences

Hasifa Namutebi[1]

[1]Department of Anesthesia, Faculty of Health Sciences, Busitema University

Background: Busitema university faculty of health sciences (BUFHS) offer undergraduate medical courses including medicine and surgery, nursing and anesthesia. Over 70% of the students are admitted without clinical experience and therefore often "learn on job" when they start clinical training. Transforming these learners into competent clinicians necessitates mastery of skills which should be achieved in the safest way possible. (Naggar *et al*, 2020)

The MBChB and BNS program curricula were initially designed with lectures, tutorials, and clinical exposure as the main training methods. On the wards, the students were guided by preceptors and clinical instructors, who found it difficult when students are not clinically prepared. On the other hand, simulation has been one of the key features of the Bachelors of anesthesia and critical care program. The introduction of simulation in our undergraduate training programs offered a tool for preparation of students and augmentation of learning of clinical skills and approaches. (Hing *et al,* 2019) We describe the introduction, and incorporation of simulation medical training in our programs at BUFHS.

Objective: To describe the development of medical simulation as a method of clinical training amongst our undergraduate programs.

Methods: Through several collaborations, two simulation facilities have been established at BUFHS. These have been equipped and a simulation technician employed by the faculty. Simulation has been introduced in the BNS training program and will be included in the MBChB curriculum during review. A simulation tracker, facilitated by the Sim4life project has been used to track simulation activities over the last three years.

Results: We will discuss the development of simulation at BUFHS under the following themes: Collaborations and research projects, training of simulation faculty and simulation fellows, showcasing simulation at BUFHS (national science week, etc), development of simulation scenarios and Increase in simulation sessions

Conclusion: Simulation training rate at BUFHS is increasing exponentially with increase in trainers, simulation sessions and visibility.

Understanding the Dynamics of Postgraduate Involvement as Medical Simulation Facilitators: A Prospective Study in Uganda

Josephine Najjuma[1], Albert Muhumuza[1], Heather MacIntosh[2], Shifra Nankunda[1], Joanita Tebulwa[1], Flavia Tumwebaze[1], Nishan Sharma[2], Nalini Singhal[2], Gwendolyn Hollaar[2], Ian Wishart[2], Francis Bajunirwe[1], Data Santorino[1]

[1]Mbarara University of Science and Technology, [2]University of Calgary, Canada

Introduction: Medical simulation based learning (SBL) is an effective teaching and learning methodology. The small group nature of SBL requires a high learner to facilitator ratio. Trained SBL facilitators in LMICs are few largely due to low staffing in medical training institutions. We aimed to determine the factors that influence postgraduate retention as SBL facilitators in a medical school.

Methods: We trained medical postgraduates as SBL facilitators. SBL was conducted as scheduled in the teaching schedule of clinical-year undergraduate medical and nursing students. Heads of departments were requested to assign SBL-trained facilitators including postgraduate medical trainees to scheduled SBL sessions. We determined retention of postgraduate SBL facilitators over 4 academic semesters. We interviewed 20 postgraduate simulation facilitators and 5 heads of departments to determine factors that influenced retention of postgraduate medical trainees as simulation facilitators. Rapid Data Analysis Approach (RDA) was used to analyze qualitative data.

Results: A total of 61 postgraduate medical trainees were trained as SBL facilitators from 6 departments which include: obstetrics and gynecology, pediatrics, surgery, internal medicine, emergency medicine and nursing. 62.3% of the trained postgraduate simulation facilitators were retained. The factors that facilitated retention include: friendliness of the medical simulation time table, departmental support, training and engagement support by the SIM for LIFE team and availability of appropriate equipment. Barriers to involvement in simulation facilitation included competing time demands, poor perception of SBL and scenario topic-learner expectation mismatch. Participants suggested integration of simulation facilitation into postgraduate timetable, implementation of quality control measures for simulation sessions and certification of facilitators.

Conclusion: Supportive departmental leadership, a friendly simulation timetable, and availability of adequate simulation equipment enabled retention of trained postgraduates as simulation facilitators. There is a need to address some negative perceptions and ensure student learning expectations are met.

Effect of Advocacy Inquiry Conversational Strategy on Gender, Hierarchy and Interprofessional Team Dynamics Among Medical and Nursing Students

Joanita Tebulwa[1], Josephine Najjuma[1], Albert Muhumuza[1], Shifra Nankunda[1], Flavia Tumwebaze[1], Primrose Nakazibwe[1,2], Francis Bajunirwe[1,2], Heather MacIntosh[3], Jennifer Hatfield[3], Ana Rame[3], Dianne Mosher[3], Mirette Dube[3], Alyshah Kaba[3], Ian Wishart[3], Suzette Cooke[3], Data Santorino[1,2]

[1]Medical Simulation Center, Mbarara University of Science and Technology, [2]Mbarara University of Science and Technology, [3]Cumming School of Medicine, University of Calgary, Canada

Objectives: This study determines whether Advocacy Inquiry (AI) simulation-based learning programs for Ugandan/ medical and nursing students equips participants with (a) communication strategies to navigate long standing workplace hierarchies between healthcare professionals, (b) increases gender sensitization in and outside a healthcare context, and (c) clinical skills and knowledge.

Background: Interprofessional healthcare teams are designed to improve patient outcomes and cultivate learning-oriented teams. In reality, diverse teams form hierarchies based on seniority, gender, and profession; these power dynamics restrict a member's ability to disagree, challenge, or ask for help from team heads. Consequently, non-collaborative teams threaten patient safety, hinder team growth, foster hostile working environments, and increase care provider turnover. Communication frameworks like AI address barriers to effective communication within teams with promising outcomes in previous studies. However, AI training has neither been tested among medical and nursing student participants nor in low-middle income countries.

Setting: This occurred at the low-fidelity simulation program at the Mbarara University of Science and Technology (MUST) in Mbarara, Uganda.

Participants: The study recruited 50 participants (23 Nursing students and 27 medical students, in their fourth year of study. There were 16 female and 7 male nursing students. For medical students, there were 15 females and 12 males.

Methods: Facilitators received basic gender and AI training to score participants during scenario executions and explore participant frames of action and thought during debriefs. Second, participants completed a multiple choice questionnaire (MCQ) as an AI and gender knowledge check. Students attended facilitator-led AI and gender training before their first simulation. Afterwards, students completed three clinical simulation scenarios in groups where each required students to navigate either gender and equity, a team hierarchy, and interprofessional collaboration. Each simulation was followed by a facilitator-guided debrief about the study's themes. Intervention and group responses were compared based on the use of engagement strategies to mediate cases of conflict. Data was collected through a digitally-completed Interprofessional Socialization and Valuing Scale tool (ISVS) and pre and post-training MCQs evaluations completed by participants. Additionally, facilitators completed clinical checklists in real-time, and the Gender Analysis Tool and the Nurse-Physician Collaboration Tool using pre-recorded simulation sessions.

Results: Results show a significant increase in mean scores of participants' knowledge scores on gender and its relationship to healthcare among medical students (n = 27; p<0.0001) and nursing students (n = 23; p = 0.007). Similar trends were observed among male (n = 20; p = 0.0005) and

females (n = 30; p = 0.0002). Mean performance in hierarchy and power dynamic skill simulations, as scored by facilitators, significantly increased (n = 10; p = 0.04). The mean student performance score in gender equity simulations (n=10; p <0.001) and IPC simulations (n=10; p <0.001) increased significantly as well.

Conclusion: This study supports the use of simulation training to improve IPC, hierarchical communication, and gender sensitization among medical and nursing students.

Keywords: Advocacy Inquiry, Hierarchical Communication, Gender Sensitization, Medical Simulation

Simulation Training for Residents on Conducting Medical Simulation for Health Care Providers at the Catholic University of Health and Allied Sciences, Mwanza, Tanzania

Edgar Ndaboine[1], Tulla Masoza[2], James Mundamushimu[3], Igembe Nkandala[4], Dismas Matovelo[1]

[1]Department of Obstetrics and Gynecology, [2]Department of Pediatrics and Child Health, [3]Department of Clinical Nursing, [4]Department of Internal Medicine, Catholic University of Health and Allied Sciences, Mwanza, Tanzania

Background: Simulation-based training has emerged as a valuable educational tool in healthcare, offering a safe and controlled environment for skill acquisition and competency development. This novel initiative will be launched at the Catholic University of Health and Allied Sciences (CUHAS) in Mwanza, Tanzania, to teach medical residents how to conduct medical simulations for healthcare practitioners.

Objectives: To equip medical residents with the necessary knowledge, skills, and resources. To design and facilitate simulation-based training sessions for healthcare providers.

Methods: A comprehensive course will be created addressing major components of simulation-based education, such as scenario creation, debriefing procedures, and the use of simulation equipment and technologies. To equip medical residents with a comprehensive understanding of medical simulation principles and best practices, the training program will use didactic lectures, hands-on workshops, and immersive simulation experiences. Through interactive workshops, residents will learn to design realistic and relevant scenarios that reflect clinical circumstances experienced in real-world healthcare settings. The residents will be exposed to a variety of simulation modalities, such as high and low-fidelity mannequins, standardized patient actors, and virtual simulations. The program will emphasize the value of debriefing as an essential component of simulation-based training, as well as constructive debriefing sessions, encouraging reflection, and creating a safe learning environment for healthcare providers to address difficulties, successes, and areas for improvement.

Anticipated outcomes: Outcomes anticipated include increased confidence in designing and delivering simulation-based training sessions, as well as a greater understanding of the benefits and applications of medical simulation in healthcare education and skill acquisition.

Conclusion: By empowering medical residents with the skills and knowledge to conduct medical simulations, this initiative has the potential to foster a culture of continuous learning and professional development among healthcare providers at CUHAS and beyond. The program will serve as a model for other institutions in Tanzania and similar resource-constrained settings, looking to integrate simulation-based training into their healthcare education curricula.

Keywords: Simulation training, medical residents, healthcare providers, Catholic University of Health and Allied Sciences, Mwanza, Tanzania.

Experience of Simulation Based Education at Muni University Department of Nursing and Midwifery

Aleni Mary[1], Andru Monicah[1], Abbey Roepke[1]

[1]Muni University

Introduction: Simulation based education (SBE) supplements and enhances clinical education of medical students and therefore increases the opportunity for gaining clinical skills and knowledge. Though SBE has proven to be beneficial in medical education, it has not been fully embraced by many African countries, including Uganda.

Background of SBE in Muni University: The idea of SBE was introduced at Muni University (MU) Department of Nursing and Midwifery in 2019 with support from Simulation for Life program at Mbarara University of Science and Technology (MUST). Nursing faculty and administration embraced and strongly supported the idea. MU and Sim for Life developed a partnership to introduce SBE in the department of Nursing and Midwifery. A number of activities were implemented: Training of clinical faculty in SBE methodology, peer drills, mentorships and logistical support. Students had their first session of scenario execution in March 2021. Since September 2021, simulation sessions have been fixed on the semester timetable and are being conducted weekly.

Success, Challenges and Lessons Learned: SBE is being successfully conducted at Muni University owing to stakeholder buy-in and commitment, a willing training partner (Sim for Life) with expertise in SBE, partner support (Seed Global Health), faculty commitment and acceptance of the teaching methodology, engaged students, and full integration of simulation into the undergraduate nursing curriculum. Despite the successes, several challenges centered around material, financial and infrastructure support as well as staffing and personnel shortages have been identified. However, several lessons were learned which include the importance of longitudinal mentorship, offering students an orientation to simulation as a way of fostering engagement, eliciting feedback from students to motivate staff, and most importantly integrating simulation into the timetable for each semester.

Next Steps: Muni University and Sim for Life to continue partnership to expand SBE, developing a champion SBE train the trainer program, continuing to advocate for more funding, expanding the partnership to include Arua Regional Referral Hospital staff, improving SBE infrastructure, staffing and systematic program evaluation.

Benefits and Barriers of Clinical Simulation: Perceptions of Undergraduate Nursing Students' at Muni University

Ocen Moses[1], Andru Monica[1], Assusi Mildred Edna[1]

[1]Department of Nursing & Midwifery, Muni University,

Background: Nursing students globally continue to face challenges in translating theoretical knowledge into clinical practice. As a result, many have been found incompetent in clinical skills at their graduation. Over the years, many nursing institutions have adopted simulation as a teaching and learning methodology to support the acquisition of theoretical as well as clinical competence, while focusing on the promotion of the critical thinking of students. The available literature on pre-service use of simulation has mainly focused on the standards of care and educational practices in high-resourced countries, with little information available from the low-resourced countries. It was therefore necessary to explore the perceived enablers and barriers to implementation of clinical simulation (CS) at Muni University.

Methods: Explorative qualitative design was used to enable the researcher to obtain a deeper understanding of the perceptions of undergraduate student nurses regarding CS. A purposive sample of seventeen 4th and 3rd year Bachelor of Nursing Science students was used. Data was analyzed using thematic content analysis.

Results: Seven themes emerged describing the perceived benefits including; "allows friendly error reduction", "promotes culture of team-based care", "promotes learner-centered clinical teaching", "improves confidence", "builds learners' clinical competence", "facilitates clinical decision making" and "nurtures professional behaviours". Seven themes emerged describing the perceived barriers including; "time limitation", "limited realism", "resource limitation", "lack of teamwork", "limited instructor debriefing skills", "limited learner motivation" and "large learner group sizes".

Conclusion: Clinical simulation has been perceived to be beneficial to the learning of nursing students because it provides a safe, learner-centered environment that builds confidence, clinical decision-making skills and professional behavior.

Implication: Findings from this study can guide the design of learner-centered simulation teaching strategies.

Keywords: Clinical simulation, nursing clinical practice, nursing clinical skills and nursing students.

Nursing Students' Perception of Simulation Based Teaching and Learning Methodologies at Muni University

Twesigye Deus[1], Akao Mary Grace[1], Otim Daglous Tony[1], Dorothee Line Emebegwine[1,] Assusi Mildred Edna[1].

[1]Department of Nursing & Midwifery, Muni University,

Background: Simulation-based learning is a teaching methodology that substitutes real patient encounters with artificial models. Simulation-based learning is increasingly becoming popular in the teaching of nursing students in low-income countries like Uganda. Globally, nursing education faces many challenges which include patient safety issues, a shortage of clinical preceptors, big number of students and some policies that limit students to practice. This makes it hard for nursing students to connect theory with practice. Different studies have also shown that students who have undergone simulation before coming to their clinical area have developed confidence while in their clinical placements. Simulation has been used at the Department of Nursing, Muni University for at least 2 years now, but little is known about the nursing student's perceptions of simulation-based teaching and learning methodology.

Methods: A one-group pretest-posttest quasi-experimental design was used to evaluate the clinical year nursing students' perception of SBL methodologies. A convenience sample of 86 nursing students were included in the study. Data collection was done between January 2022 to May 2023. The pre-intervention data was collected in the first semester of the third year of the BNS program. This was followed by the introduction of the intervention which included simulation sessions conducted once weekly for 8 weeks period each semester for two semesters. The post-intervention data was collected at the end of the second semester. Descriptive data analysis was done using the SPSS version 23. The data analysis is ongoing.

Results: Majority (80.5%) of the students strongly agreed that SBL was a useful learning strategy. Similarly, 64% strongly agreed that SBL enabled them apply the theoretical knowledge in their clinical practice while 59.3% strongly agreed that SBL helped them retain the knowledge they had acquired. On the contrary, 22.4% noted that the models for use in simulation were not adequate.

Conclusion: In this study, the overall perception of SBL methodology was positive and students were interested in utilizing it for their learning. However, the implementation of SBL methodologies is still a challenge in resource-limited settings due to inadequate resources.

Keywords: Simulation-based learning and nursing students' perceptions

Effect of a Clinical Assessment Framework and Decision Support Tool on Neonatal Outcomes: A Cluster Randomized Controlled Trial in Rural Southwestern Uganda

Shifra Nankunda[1], Data Santorino[1], Albert Muhumuza[1], Joanita Tebulwa[1], Mukama Martin[1,2], Flavia Tumwebaze[1], Doreen Mlahagwa[1], Josephine Najjuma[1], Douglas McMillan[3], Nalini Singhal[4], Jennifer Brenner[4], Heather MacIntosh[4], Francis Bajunirwe[1]

[1]Medical Simulation Center, Mbarara University of Science and Technology, [2]Consortium for Affordable Medical Technologies in Uganda, [3]Department of Neonatology, Dalhousie University, Canada, [4]Cumming School of Medicine, University of Calgary, Canada

Background: Neonatal mortality has remained persistently high in many low and middle-income countries (LMICs). Neonatal clinical care in these LMICs is often provided by health providers such as medical officers, nurses and midwives who have limited training in neonatal care. These providers are often challenged with clinical decision-making in neonatal care. Clinical decision tools may provide support to improve neonatal outcomes, however, their efficacy is under-investigated. Therefore, we evaluated the effect of the clinical assessment framework and decision support tool, PRISMs (Protecting Infants Remotely by SMS), on in-facility neonatal care outcomes in Uganda.

Methods: We conducted a randomized controlled cluster trial at 36 health facilities in southwestern Uganda. The intervention arm received PRISMS for use in neonatal assessment and management (intervention) or no PRISMS use (control). Healthcare providers in both intervention and control arms received training in Helping Mothers Survive (HMS), Helping Babies Survive (HBS), and peer-to-peer learning. Both arms received onsite mentorship post-training. The primary outcome was in-facility neonatal mortality, and secondary outcome was referral rate after 12 months.

Results: We randomized 18 health facilities to the control arm and 18 to the control arm. PRISMS average monthly utilization rate was 30% (range: 22-100%) for the regional referral hospital, 12.5% (range: 8-17%) for district hospitals and 21% (range: 3-66%) for health center IV facilities over the 12 months. Overall, 14.6% (1,579/10,839) of neonates had no documented treatment outcome. The degree of missingness was comparable in the intervention and control arms (14.7% (512/3495) in intervention and 14.5% or 1067/7344 in control with p=0.868). In the intervention arm, the risk of death was about 20% lower compared to the control arm with an odds ratio of 0.81 (95% Cl:[0.68-0.949]). The likelihood of referral was nearly twice in the intervention compared to control facilities with an odds ratio of 1.845 (95% Cl:[1.55-2.19]).

Conclusion: The use of PRISMS for neonatal clinical assessment and management is associated with a higher referral rate and lower in-facility mortality. A novel management decision support tool may have the potential to reduce neonatal mortality in health facilities in rural low-income settings.

Milestone Assessment of Knowledge of Medical Simulation Following Training of Trainers at the University of Jos

Henry Y. Embu[1], Bose O.Toma[2], Grace O. Daniel[3], Tolulope O. Afolaranmi[4], Esther A. Envuladu[4], Amaka N. Ocheke[5], Simon J. Yiltok[6]

[1]Department of Anaesthesiology, [2]Department of Paediatrics, [3]Department of Nursing Science, [4]Department of Community Health, [5]Department of Obstetrics and Gynaecology, [6]Department of Surgery, College of Health Sciences, University of Jos, Nigeria

Background: Simulation in health care is a learning method that mimics an aspect of clinical care and is becoming an accepted part of health education. Providing high-quality simulation-based education depends more on skilled facilitators than on elaborate simulator equipment. However, the specialty of a simulation facilitator is relatively new for health educators and facilitators' knowledge and skill relating to the use of SBL vary substantially in our environment. The College of Health Sciences, University of Jos (Unijos), Nigeria in partnership with *Sim for Life* Mbarara University of Sciences and Technology (MUST), Uganda is in the process of developing and introducing medical simulation into its undergraduate curriculum for training medical and nursing students. Facilitators have been trained at Unijos but full implementation has been hampered by unforeseen circumstances.

Aim: To assess the level of retention or otherwise of knowledge by facilitators in readiness for implementation of medical simulation after initial training and refresher at Unijos.

Methods: We held training and refresher courses for facilitators in the past two years. The participants were from nursing and medical sciences. Questionnaires were developed and administered to participants during training workshops. A Google form format was administered 6 months after the last refresher as follow-up. The responses were then analysed and compared with the results of pre and post-tests administered during the initial training.

Results: Participants were lecturers from clinical sciences, nursing science, and senior resident doctors. The departments included anaesthesiology, internal medicine, nursing sciences, obstetrics and gynaecology, paediatrics and surgery.

Forty-seven participants took part in the post-test while 51 completed and submitted the online questionnaire. There was generally an improvement in scores for the participants in almost all areas between the post-test and the follow-up responses: Definition of medical simulation improved from 38(80.9%) to 45(88.4%); advantages of medical simulation from 4(8.5%) to 22(43.1%); critical elements of medical simulation from 7(14.9%) to 40(78.4%); sources of debriefing topics from 11(23.4%) to 25(49.0%).

Conclusion: There was generally an improvement in knowledge of medical simulation among facilitators at the University of Jos months after initial training.

Perception of Simulation in Medical Education: University of Jos Medical Students' Experience

Tolulope O.Afolaranmi[1], Esther A. Envuladu[1], Grace O. Daniel[2], Bose O.Toma[3], Henry Y. Embu[4], Amaka N. Ocheke[5], Simon J. Yiltok[6]

[1]Department of Community Medicine, [2]Department of Nursing Science, [3]Department of Paediatrics, [4]Department of Anaesthesiology, [5]Department of Obstetrics and Gynaecology, [6]Department of Surgery, College of Health Sciences, University of Jos, Nigeria

Background: Medical simulation plays a central role in the training of learners, medical students and health professionals as well as in the sustainability of team-based communication, cognitive thinking, and critical lifesaving skills. Although the benefits of simulation training in medical education are known, this teaching and learning methodology has just been introduced to the University of Jos, Nigeria. It was against this backdrop that the perception and experience of medical students in simulation sessions during clinical rotations were assessed

Methods: Qualitative approach to data collection was employed using Focus Group Discussions (FGDs) conducted in 3 sessions among students who have had simulation sessions in the course of their clinical rotations. Verbatim transcription of the audio recordings and analysis were carried out using Nvivo software (version 12). Content analysis was done with apriori and emergent codes brought out, recurrent themes identified and a summary produced.

Results: A total of 32 students participated in the 3 FGDs with a mean age of 26.6 ± 2.6 years, 13 (40.6%) of them being female and 19 (59.4%) males. Findings revealed major themes regarding the positive perception of simulation sessions as being an engaging experience, a pathway to the practical application of knowledge, a veritable channel for learning and skill development as well as an opportunity for confidence building among others. Others perceived it as sessions ridden with initial confusion, lack of adequate resources and equipment, insufficient training and orientation were expressed as concerns. Some experiences were that of poor coordination and preparedness, and lack of clarity on what to do were identified. Students also alluded to the fact that the simulation sessions would improve the practicality and real-life application of case management as well as promotion of effective learning and confidence building. Recommendations on ways to improve implementation of simulation in medical education included, integration into the curriculum and teaching schedule, increased frequency and regularity of simulation sessions, provision of adequate facilities, equipment and resources for simulation.

Conclusion: This study has demonstrated that simulation in medical education among the University of Jos students is still in its early phase receiving mixed perception and experiential expressions. However, the outlook of its sustained implementation is promising if identified challenges are addressed and recommendations implemented

Hurdles on the Path to Gender Equity at Mbarara University of Science and Technology: A Qualitative Study

Primrose Nakazibwe[1,2], Cecilia Akatukwasa[1], Joanita Tebulwa[1], Josephine Najjuma[1], Albert Muhumuza[1], Shifra Nankunda[1], Flavia Tumwebaze[1], Francis Bajunirwe[1,2], Heather MacIntosh[3], Jennifer Hatfield[3], Ana Rame[3], Dianne Mosher[3], Mirette Dube[3], Alyshah Kaba[3], Ian Wishart[3], Suzette Cooke[3], Data Santorino[1,2]

[1]Medical Simulation Center, Mbarara University of Science and Technology, [2]Mbarara University of Science and Technology, [3]Cumming School of Medicine, University of Calgary, Canada

Abstract: Sex and gender differences are increasingly recognized as a contributing factor to health disparities. There is a dearth of research on gender related issues in higher educational institutions in sub-Saharan Africa. In this study, we sought to gain insight into the current practices of integrating gender into the medical training program at Mbarara University of Science and Technology (MUST). An exploratory qualitative data collection approach using semi-structured in-depth interviews with members of faculty of medicine was used to explore the prevailing situation of gender equality and equity on medical education and perspectives on the integration of gender equality and equity into medical simulation. Data was coded and analyzed using thematic analysis. The findings are organized into the following thematic areas; organizational culture, institutional-level policies and guidelines on gender equity and equality. These include 1) understanding and interpretation of gender, gender equality and equity 2) gender equity and equality in the context of a teaching hospital. In this section we include, current initiatives of gender equity and equality in the teaching hospital, manifestations of gender inequality and inequity in a teaching hospital and barriers to attaining gender equality and equity. Finally, 3) simulation as an opportunity to promote gender transformative norms. Altogether, the findings of this study indicate gender inequity to be at a higher magnitude. This calls for the need to develop strategies for integrating gender into the medical training curriculum for higher institutions.

Keywords: Gender, medical education, equity

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