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The effect of an mLearning application on nurses' and midwives' knowledge and skills for the management of postpartum hemorrhage and neonatal resuscitation: Pre-post intervention study

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Statement of the Problem: Globally, mobile learning (mLearning) tools have attracted considerable attention as a means of continuous training for healthcare workers. Rwanda like other low-resource settings with scarce in-service training opportunities requires innovative approaches that adapt technology to context to improve healthcare workers' knowledge and skills. One such innovation is the safe delivery application (SDA), a smartphone mLearning application for Basic Emergency Obstetric and Neonatal Care (BEmONC) content. This study assessed the effect of the SDA intervention on nurses' and midwives' knowledge and skills for the management of postpartum hemorrhage (PPH) and neonatal resuscitation (NR).

Methodology & Theoretical Orientation: The study used a pre-post-test design to compare knowledge and skills of nurses and midwives in the management of PPH and NR at two measurement points: immediately prior SDA intervention and after 6 months SDA intervention. The intervention took place in two district hospitals in Rwanda and included 54 participants. A paired-sample t-test was used to measure the pre-post intervention, mean knowledge and skills scores differences. Confidence intervals (CIs) and effect size were calculated. A t-test and a one-way Anova were used to test for potential confounders.

Findings: The analysis included 54 participants. Knowledge scores and skills scores on PPH management and NR increased significantly from baseline to end line measurements. The mean difference for PPH knowledge is 17.1 out of 100; 95% CI = 14.69 to 19.49 and 2.6% for PPH skills; 95% CI = 1.01 to 4.25. The mean difference for NR knowledge is 19.1 out of 100; 95% CI = 16.31 to 21,76 and 5.5% for NR skills; 95% CI = 3.66 to 7.41. Increases were unaffected by participants' attendance to in-service training six months prior and during SDA intervention and previous smartphone use. However, pre- and post-intervention skills scores were significantly different by years of experience in obstetric care.

Conclusion & Significance: The SDA intervention improved the knowledge and skills of nurses and midwives on the management of PPH and NR as long as 6 months after SDA introduction. The results are highly relevant in low-income countries like Rwanda, where quality of delivery care is challenged by a lack of in-service continuous training for healthcare providers.

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Biography

Aurore Nishimwe is currently a PhD candidate with WITS University-South Africa. She is also a lecturer in the department of Health Informatics, College of Medicine and Health Sciences at the University of Rwanda. Aurore holds a Master of Science in Health Informatics from the University of Rwanda. She is an active member of the international society for telemedicine and e-Health (ISfTeH) and she serves as the Vice-President of Rwanda Health Informatics organization (RIO). She is passionate about research on e-Health interventions implementation with a particular interest in maternal and child health, and non-communicable diseases in Sub-Saharan Africa.