Effect of clinicians training on their knowledge of abortion and post abortion care in six hospitals in Rwanda

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Abstract

Introduction: Complications of unsafe abortion are public health issue and account for 13% of maternal mortalities globally. Maternal mortality in Rwanda remains high at 203/100,000 live births. Prevalence of unintended pregnancy in Rwanda is estimated at 12% ,abortion related complications are estimated at 10.7 per 1,000 and abortion related maternal mortality remains high (8%). Clinicians need to be empowered (through in-service training among other interventions) so as to deliver reproductive health services including abortion and post abortion care with confidence. To the best of our knowledge, no study has been conducted in Rwanda about effect of clinicians training on their knowledge of abortion and post abortion care services, including current Rwandan law

Objective: This study aimed to assess the effect of training medical doctors on their knowledge of abortion and post-abortion care in Rwanda.

Methodology: A quasi- experimental design was used. Investigators trained clinicians from six hospitals in Rwanda on abortion and post abortion care using updated national guidelines and the WHO Safe Abortion Care Guideline. Clinicians were trained in three hour-long sessions over three months including lecture and self-learning using shared guidelines books during this period. A pre- and post-test was implemented. Training sessions were conducted online and every participant attended using shared Google meet link. Online trainings were conducted in evening hours after work to maximize attendance. In total 4 training sessions were held. Training sessions were conducted by national trainers, obstetricians, gynecologist and consultants in forensic medicine with experience in training on abortion law in Rwanda, safe abortion and post abortion care. Training was theoretical only. All participants completed a pre- and 3 months post-test assessment of knowledge of abortion and post abortion care. Marks below 60% were considered low, 61% to 79% were considered good and 80% and above were considered excellent. We compared pretest and post-test scores using paired t-test, P-value < 0.05 was considered statistically significant.

Results: Thirty medical doctors from district and referral hospitals were trained. There was an increase in marks between pre- and post- test. This increase was statistically significant among trainees from three district hospitals with p values 0.046 and p value <0.001, p<0.001 respectively. This increase was statistically significant among both gender groups of participants with p value of 0.005 and 0.001 for male and female trainees respectively. There was no statistically increase in marks for trainees in teaching hospitals (p value=0.168).

Conclusion and recommendations: We found a statistical increase in marks comparing pre and post-test scores for clinicians attending district hospitals. This increase was observed in both male and female trainees. Future training should target primarily district hospitals. To ensure patient outcomes, the Ministry of Health needs to keep providing continuous training on abortion and post abortion care to clinicians attending non-teaching district hospitals. More studies are also needed to assess practical skills among medical doctors attending teaching and non-teaching district hospitals for management of patient with abortion and post abortion care provision.

Introduction

Worldwide there is a strategic goal to reduce maternal morbidity and mortality. Complications of unsafe abortion are a public health issue and account for 13% of maternal mortalities globally(1). Referring to the most current estimates, unsafe abortion accounts for half of abortions globally. Most abortion related complications and deaths occur in Africa(2).

Between 2015 and 2019, around 73.3 million abortions occurred each year worldwide with around 8 million abortions reported in sub Saharan Africa(2). Globally, 45.1% (95%CI 40 T0 50.1) of abortions performed are considered unsafe, and 75.6% (95 CI 66.4 to 81.4) of abortions performed in Africa are classified as unsafe(2). Abortion related complications contribute to maternal morbidity and mortality in sub-Saharan African countries(2).

In a review of 15,671 cases of women who had abortion from 11 sub- Saharan Africa countries, in 210 participating facilities, 13,657 women presented with abortion related complications. A multi-country survey published by WHO found 58.2% resulted in moderate complications,8.9% had near miss or life threatening complications, and 2.3% had severe maternal outcomes including death(2). One of five women in this study felt that their choice and preferences were not followed during care and that they were not informed about their care(2). The study also found that healthcare provider perceptions and understanding on abortion and provider workload can negatively interaction between the provider and patient. Moreover, timely care delivery, quality of life as well as mistreatment during childbirth may be a barrier to women's decision to seek care(2).

The prevalence of unintended pregnancy in Rwanda is estimated at 12%, abortion related complications are estimated at 10.7 per 1,000, and abortion related maternal mortality remains high (8%) (3)(4). Moreover, the maternal mortality rate in Rwanda is 203/100,000 live births(3), almost triple the SDG 3.1 target for global maternal mortality rate by 2030 of less than 70 per 100,000 live births(3). Unsafe abortion not only contributes to maternal morbidity and mortality but also leads to domestic violence, child abuse, family conflicts and psychological trauma(5).

In a study by Musabwasoni M.G.S et al on the lived experience of healthcare professionals providing safe abortion in Rwanda, healthcare providers revealed that they are humiliated and stigmatized while providing safe abortion care services(6). Some of healthcare providers feel guilt of committing crime or helping to kill(6).They observed that healthcare providers' willingness to provide safe abortion services to those in need hinged on the individual's beliefs about abortion. The authors conclude that this limitation may impact the quality of care and timely service delivery for the patients seeking safe abortion care services. Some providers revealed that many of their colleagues do not know how to perform a safe abortion and others reported a lack of available trainings in their institutions. Regular and continuous training may impact the quality of care delivery to those in need of abortion and post abortion care(6).

Good quality abortion and post abortion care are needed to address the hazards of unsafe abortion(7)(8). Standards exist for abortion care. Established in 1993, the Post Abortion Care Consortium comprises five

interrelated elements: partnership between communities and service providers, client-centered counseling at appropriate times during service delivery, treatment with emphasis on pain management, family planning, and links to reproductive and other health services(7). Providers may now refer to WHO and national guidelines for safe abortion when providing comprehensive abortion care services. The abortion law in Rwanda was recently revised to allow registered medical doctors to provide abortion services under the following circumstances: Pregnant individual is a minor / under age, in case of rape or incest up to second degree, in case of forced marriage, or if medically indicated(9). Yet, studies show that there is a need to have clarity and common understanding about the abortion law and its implementation among clinicians. As long as clinicians do not have a common understanding and updates about abortion law in Rwanda, and in some circumstances, if clinicians are not aware, not trained or even not compliant due to their moral values or religious beliefs, they may impede safe abortion and post abortion service delivery (10)(6).

Continuous training on abortion and post abortion care is needed among healthcare professionals to impact the level of knowledge and quality of abortion and post abortion care in Rwanda. Providers may now refer to WHO and national guidelines for safe abortion when providing comprehensive abortion care services. Clinicians are key actors for implementation of abortion law as well as delivering abortion and post abortion care. Clinicians need to be empowered (through in service training among other interventions) so to deliver reproductive health services including abortion and post abortion care with confidence(8).

Studies have shown that those with adequate knowledge on abortion are more likely to practice safe abortion, Yet Gaps in abortion and post abortion care knowledge, attitudes and practice have been identified among some healthcare professionals.(11)(6).

To the best of our knowledge, no study has been conducted in Rwanda looking at the effect of clinician training on abortion and post abortion care services. There is also a need to explore the level of clinician's knowledge of abortion and post abortion care in Rwanda.

This study aims to assess the effect of training for clinicians who practice in six hospitals in Rwanda, on knowledge of abortion and post-abortion care in Rwanda. This study is needed to understand adherence to national guidelines with implications for improved abortion care and patient outcomes.

Methodology

Study design, population and setting

We conducted a quasi-experimental study across six hospitals, teaching and non-teaching in Rwanda: Kibagabaga, Masaka, Kabutare, Muhima district hospitals (DHs), Rwamagana Provincial hospital, and Kigali University teaching hospital (CHUK). These hospitals are located in both urban and rural areas and all provide abortion and post abortion care services. CHUK, the largest tertiary teaching hospital located in Kigali, the capital of Rwanda, in the center of the country, receives referred cases from district hospitals

and has outpatient consultation. Being a teaching hospital, it remains an academic setting: specialists, residents, general practitioners and paramedics staff exchange knowledge on daily basis. District hospitals are Rwanda's secondary level of health facilities, receiving patients from heath centers. General medical doctors provide health care services. District hospitals, being non-teaching hospitals, do not receive medical or postgraduate students in training and lack a detailed teaching plan on a daily basis among hospital staff. All six hospitals have busy maternity and provide abortion and post-abortion care services.

For this study we used Taro Yamane's formula for sample size calculation to determine the number of medical doctors we needed to recruit. Thirty medical doctors (male and female) across these six hospitals, who have never been trained on abortion law and who deliver abortion and post abortion care services, were asked to participate in this training.

Training:

We trained thirty medical doctors from above mentioned hospitals on abortion and post-abortion care between April 2022 and June 2022 using most updated WHO(12)(13) and Rwandan national guidelines on safe abortion(14). Four training sessions were conducted each lasting 3 hours. They covered different topics (see appendix II), and included self-directed learning by participants using shared training materials. Training sessions were scheduled during evening after work where we could get maximum attendance of participants. All participants attended all training sessions. Training sessions were led by selected national recognized trainers, obstetricians, gynecologists and consultants in forensic medicine with substantial experience with training physicians on abortion law in Rwanda, safe abortion, and post abortion care. Training was knowledge based delivered by lecture only. A pretest was conducted to assess participant knowledge on abortion and post abortion care before training and follow up post-test evaluation was conducted three months after the last training session. Marks below 60% were considered low, 61% to 79% were considered good, and 80% and above were considered excellent.

Data collection and management:

A form with survey questions was created by investigator, and participants were provided a Google link to respond to the survey questions (see appendix 1). Data were extracted from participants' answer spreadsheets by trained research assistants and submitted to the principal investigator to manage and analyze. Participants' gender, affiliated hospital names and location, hospital status (teaching or non-teaching), pre-test marks, and; post-test marks were collected. This information was kept in a secured folder only accessible by research team members.

Data analysis

Pre-and post-test marks were calculated as score for each participant. Descriptive statistics were reported as percentage. Paired T test was used to compare means of the score before and after intervention (training of clinicians) for participants using SPSS version 26.

Ethical approval:

This study protocol was submitted and approved by the ethical committees of University of Rwanda-College of Medicine and Health Sciences (UR-CMHS), Approval no: 316/CMHS IRB/ 2022 and was approved by the respective hospitals (KIBAGABAGA, MASAKA, CHUK, RWAMAGANA, KABUTARE and MUHIMA). Again, no identifiers of the participating clinicians were shared.

The main objective of this study and content of a training to be conducted were explained to participants clinicians. There was no introduction of new procedures, no harm was expected. Clinicians were given consent forms at their respective hospitals and were asked to sign to participate in this study voluntarily. Each participant could stop participation at any time he/she wished. No salary for participants was provided, however participants were provided with internet fees to attend training sessions.

Results

A total of 30 clinicians from six hospitals completed the study, 21 males (70%), and 9 females (30%), with mean age of 30.86+/-5.79. Overall, after the training, the mean score of marks improved from 69.54 to 77.7 with p value < 0.001.

Table 1. Pre and post-test knowledge (mean score) by hospital affiliation

	n	Mean score(pretest)	Mean score (post-test)	t	p-value
Teaching hospital	5	72.8	76.3	-1.68(-9.3, 2.3)	0.168
Provincial/ district hospitals	25	68.82	78.01	-4.13(-13.92, -4.62)	<0.001
Total	30	69.54	77.7	-4.31 (-12.17,4.32)	<0.001

There was a statistically significant increase in marks in non-teaching hospitals from 68.8 to 78.01 (P-value < 0.001). No statistically significant increase in marks were found for clinicians attending the teaching hospital (p value 0.168).

Table 2. Pre-and post-test knowledge (mean score) by gender of trainees

	n	Mean score(pretest)	Mean score (post-test)	t	p-value
Male clinician	21	70.38	77.57	-3.218(-11.87;-2.47)	0.005
Female clinician	9	66.88	79.94	-5.32(-18.71;-7 ,39)	0.001
Total	30	69.54	77.7	-4.31 (-12.17,4.32)	<0.001

Both genders, male and female showed a statistically significant increase in marks from 70.38 to 77.57 (p value 0.005) and 66.88 to79.94 (p-value 0.001) respectively.

Table 3. Pre-and post-test knowledge (mean score) by hospital affiliation of trainees

	n	Mean score(pretest)	Mean score (post-test)	t	P value
CHUK	5	72.80	76.30	-1.68(-9.3, 2.3)	0.168
Kibagabaga	5	66.75	74.61	-3.28(-15.6,-0.25)	0.046
Rwamagana	5	70.80	81.23	-1.73 (-27.1,6.2)	0.158
Kabutare	5	65.10	79.31	-5.5(-20.1,-8.4)	<0.001
Muhima	5	65	79	-4.0(-19,7)	<0.01
Masaka	5	77.75	74.35	0.75(-10.8,17.5)	0.506
Total	30	69.54	77.78	-4.31 (-12.17,4.32)	<0.001

We found a statistically significant increase in marks between pre and post-test. Among trainees from three hospitals, Kibagabaga, Kabutare, and Muhima with p value 0.046, <0.001 and <0.001 respectively.

Discussion

Our study aimed to assess the effect of training clinicians (medical doctors) in six hospitals in Rwanda on their knowledge of abortion and post abortion care in Rwanda. Overall, we found a statistically significant increase in marks between pretest and post- test, p value 0.001. This increase was statistically significant among trainees from hospitals (district and provincial hospitals) other than the teaching hospital(see Table 1). In general, district and provincial hospitals have a lower level of knowledge about abortion than teaching hospital. Therefore, they have greater room for improvement. Also, the teaching hospital has a bigger number of experts (especially clinical lecturers), including, obstetrics and gynecology residents, who regularly spread knowledge to the clinical team who work in the same settings.

We found an increase in marks between pre- and post- test. This increase was statistically significant among trainees from three hospitals Kibagabaga, Muhima and Kabutare (p value 0.046, p value< 0.01, and p value<0.001 respectively)(see Table 3). These three hospitals had low mean pre-test scores and it may have been easier for them to improve significantly in marks compared to those with a higher baseline mean pre-test score. This improvement in knowledge has been observed in other settings.

Studies in the US and in Thailand have shown that training providers results in improved abortion knowledge after training(15)(16). One Study done in Ethiopia evaluated knowledge, attitude and practice

of healthcare providers toward safe abortion provision in Addis Ababa health centers. Among 405 mid-level providers, 71.9% knew the definition of abortion in the Ethiopia context, but only 53.1% of respondents had adequate knowledge of safe abortion care(11). 20.5 % of these providers were trained on safe abortion and among them 81.9 % were practicing / used to practice safe abortion services(11). Half of the participating clinicians provided post abortion family planning, but only 54.1 % of respondents had positive attitudes towards safe abortion. Having adequate knowledge on safe abortion impacted abortion and post abortion care services provision(11).

An increase in marks was also observed in Nigeria, Uganda, and Democratic Republic of Congo trainees following a workshop that piloted the uterine evacuation module, and this contributed to increasing participants' theoretical knowledge and possibly technical and counselling skills. Moreover, participants reported improvement in their knowledge, practice, and improved confidence for safe abortion and post abortion care delivery after training(17).

In a systematic review of pre and post workshop surveys from 43 abortion values clarification and attitude transformation (VCAT)- workshops, conducted in 12 countries in Asia, Africa and Latin America between 2006 and 2011, the overall mean knowledge score increased from 49.0 to 67.1($p < 0.001$), out of a total score of 100. Attitudes and behavioral intentions scores showed more modest, but still showed statistically significant improvement between the pre- and post-workshop survey(18).

Findings from the same VCAT study found that in-service training improved knowledge and skills on abortion(18).

In our study, both male and female providers showed improvement in knowledge after the training (see Table 2). Studies using a sex/gender-sensitive model of training have highlighted that all elements of training, including trainee characteristics, the work environment, the training design, and training outcome are gendered. This means that being a female, male, or arguably, non-binary training participant, may impact the training experience and therefore training outcomes(19). The results from our study show that safe abortion training impact both gender and should target both female and male clinicians. Improvement in knowledge and possibly performance may be achieved when training program address systemic barriers in providing abortion care, provide up to date clinical practice guidelines, and teach current laws governing abortion care and how they affect practice(20).

Access to abortion training has consequences for access to health care. One large study that collected an anonymous online survey about residency training and current provision of sexual and reproductive health services from 1,949 family physicians who completed residency training between 2010 and 2018, show that whether or not clinicians receive training on safe abortion and post abortion care impacts whether or not a clinician goes on to provide abortion services and the level of care they provide(21).

Conclusion and recommendation

The findings from this study show that, compared to pre-test, abortion providers at district and provincial hospitals in Rwanda improved their knowledge score about abortion care in Rwanda and that this increase was statistically significant at three hospitals. Moreover, the statistically significant improvement was found among both male and female participating providers.

To ensure quality safe abortion care throughout the healthcare system, these findings suggest targeting primarily district hospitals with training. Moreover, to see the greatest benefit, the Rwandan Ministry of Health should direct limited resources for providing continuous training on abortion and post abortion care to clinicians attending non-teaching district hospitals.

Our study focused on knowledge of abortion and post-abortion care only. To ensure positive health outcomes for patients, more research is needed to assess clinical competency and the practical skill level among clinicians who manage patients with abortion and post abortion care at teaching and non-teaching hospitals in Rwanda

Limitations

Our study did not ask about the training background of our participants (universities attended or prior in-service training). Our study's findings are not generalizable to the rest of Rwanda or other in-service trainings. A strong point for our study is that we collected data from both male and female providers, and all received the same training, and, pre- and post- test evaluation.

Declarations

Availability of data and materials

The dataset supporting the conclusions of this article is available in our computer and we are ready to share it any time when requested for verification.

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Author Contribution

- B.J.P and H.S: participated for proposal writting, manuscript writting and Data Analysis- B.G.P and N.D participated for manuscript review and editing - I.Z , I.A , N.C and U.S: Participated for tables editig and pre, Post test correction for participants.- B.M.L and K.G participated for manuscript review and editing

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Supplementary Files

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- Annexes.docx