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Original Article

Evaluation of an Afrocentric Sexual Health Education Curriculum for Medical, Nursing and Midwifery Students in Tanzania

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ABSTRACT

Background: Africa has the world's highest rates of sexual health concerns, yet training programs to teach clinicians how to address sexual health concerns are rare. To address this gap, we developed a comprehensive sexual health curriculum tailored to Tanzania's most common sexual health concerns. We use the curriculum to train sexual health education (SHE) to Tanzanian medical, nursing, and midwifery students**. Aim:** To evaluate training in sexual health in terms of structure, content, delivery, and cultural acceptability for medical, nursing, and midwifery professionals. Methods: First, we conducted a two-year formative research phase involving 18 Focused Group Discussions (FGD) with healthcare providers and students and 12 In-depth Interviews (IDIs) with sexual health stakeholders. The FGDs were stratified by discipline and working experience in years. The formative research phase was used to inform curriculum content and to tailor the SHE curriculum to the Tanzanian clinical context. Next, we developed a comprehensive sexual health curriculum tailored to Tanzania's most common sexual health concerns. Given the lack of sex education that most students reported, we dedicated a day to normal sexual development and one to understanding the common sexual concerns of patients in Tanzania. We also had a strong emphasis on skills development by devoting one day for participants to practice skills. In addition, we ensured content to address cultural myths and taboos surrounding sexual health. We then trained a total of 206 students: the training was conducted in 2021. Immediately following the training evaluation was conducted as an online survey and qualitative responses were saved automatically in the Qualtrics database upon participants' completion. **Results:** Most participants (76.6%), evaluated the curriculum as culturally appropriate for Africa, personally valuable (96.1%) and would recommend it to a fellow student (98.5%). Furthermore, the curriculum was perceived as feasible, personally and culturally acceptable with endorsement of the training techniques employed, and suggestions on how to further improve the curriculum. **Conclusion:** Training the SHE curriculum is crucial to impact the core competencies of health professionals for addressing the sexual health concerns of

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their future clients. This study provides evidence that a sexual health curriculum tailored to the African context is highly needed, acceptable, and feasible.

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INTRODUCTION

Sexual and reproductive health (SRH) challenges in Sub-Saharan Africa (SSA) are complex and multifaceted, influenced by a variety of socio-cultural, religious, economic, and political factors. In addition to bearing most of the burden of the global HIV/AIDS epidemic, the region continues to face several SRH challenges that contribute highly to the poor health and well-being of many people (Chandra-Mouli et al., 2021). Teenage pregnancy, female genital mutilation/cutting (FGM), and child and teenage marriage are significant SRH issues that lead to serious health problems in young women, including childbirth complications, sexual dysfunction, psychological trauma and maternal HIV acquisition and potential mother-to-child HIV transmission (Chandra-Mouli et al., 2021; Melesse et al., 2020). Gender-based violence (GBV), including sexual violence and intimate partner violence, is common across SSA with detrimental effects on the SRH of all women, including many of young reproductive age (Iyanda et al., 2021; Kassa et al., 2023; Tarekegn et al., 2017). Limited access to comprehensive sexual and reproductive health services contributes further to existing high maternal invisibility, disability and death in SSA (Shaw, 2009a).

Addressing SRH issues requires a comprehensive approach that takes into consideration all aspects, including policy development, SRH program implementation, evidence-based generation and training (Colarossi et al., 2019; Colarossi et al., 2017; Ford et al., 2013; Shaw, 2009a). Capacity building for health care providers to address SRH could be an effective intervention to enable the provision of quality, comprehensive sexual and reproductive care.

Healthcare providers are expected to be able to address the broad range of SRH challenges that their patients face. Despite their role, the lack of comprehensive and organised training for healthcare providers on sexual and reproductive health poses a significant challenge in addressing clients' sexual healthcare needs effectively (Gott

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et al., 2004; Prize, Kanat & Wruble,2023). In Tanzania, for example, sexual health topics are not comprehensively integrated into the university education of nursing, midwifery or medical students. As a result, little attention is paid to teaching competencies related to SRH care, leaving graduates unprepared and incompetent to address the SRH of their patients. Without appropriate healthcare training, providers are forced to rely on inaccurate assumptions, myths and misconceptions about SRH that are common in the community (Lukumay et al., 2023).

Lack of training in SRH can result in uninformed and unprofessional behaviour and, at times, malpractice. In 2020, we conducted 18 focus groups of 60 experienced healthcare providers and 61 students in Tanzania, stratified by experience and discipline (medicine, nursing, midwifery). Participants were presented with 7 sexually related clinical cases and asked how such a patient would be treated at their facility. Results showed that healthcare providers currently provide inaccurate information (e.g., that masturbation causes sexual dysfunction, that some women and children sometimes want to be raped or deserve to be beaten and that STIs can be a natural result of immoral behaviour). They hold negative attitudes toward SRH cases, especially discomfort in talking with patients who have these issues. Thus, it is not surprising that some report engaging (at least at times) in treatments that have been debunked or are considered unprofessional, unethical, and even illegal in Tanzania. Clinicians admitted sometimes not reporting sexual abuse of minors (as mandated by law), wondered if they should violate patient confidentiality to report LGBT persons and sex workers to the police, in cases of marital GBV calling the abuser and asking them to come so they can reconcile with the victim, or in the case of a 14-year-old girl requesting contraception, advising them not to have sex until they are 20 years of age (Mgopa, Rosser, Ross, Lukumay, et al., 2021, 2021; Mgopa, Rosser, Ross, Mohammed, et al., 2021; Mkonyi et al., 2021a, 2024; Mushy et al., 2021; Mwakawanga et al., 2021) age. Across cases, some also reported that a strong moral response was common in Tanzania (e.g., informing the patient that they should be ashamed; that they should simply stop the behaviour, and with minors, threatening to tell their parents or their headmaster). They also report a common response when SRH issues are suspected is to not ask about them, setting up a "don't ask, don't tell" collusion with the patient.

Access to quality sexual and reproductive health care is considered a fundamental aspect of overall health and well-being (Shaw, 2009b). The World Health Organization (WHO) has been collaborating with African countries, including Tanzania, in addressing health inequalities related to SRH. In addition to policy development, WHO and others advocate for health worker capacity-building support as instrumental for strengthening the country's healthcare systems to address SRH challenges effectively (Colarossi et al., 2017; WHO, 2002; WHO, 2023**).** Empowering health professionals with proper sexual and reproductive health training would contribute to WHO's effort to ensure universal access to comprehensive and rights-based sexual and reproductive health care services (Shaw, 2009a).

Tanzania recognises the critical importance of SRH in promoting overall well-being and development. The country has implemented policies and programs to address various aspects of SRH. For example, all of its health policies and strategic plans advocate for the integration of SRH services into broader healthcare systems (MOHSW, 2015; MoH, 2021; MOHSW, 2015; Shaw, 2009a; MoH, 2021). Achievement of these strategies requires building competencies of the healthcare workforce who are capable of providing sexual and reproductive healthcare services comprehensively.

Current research and health policy documents across Africa and in Tanzania recognise a need for competent health professionals to address SRH care issues, yet there has been no formalised SRH training tailored to the African context. The Muhimbili University of Health and Allied Sciences (MUHAS) is a major government-owned Medical University in Tanzania. In

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collaboration with the University of Minnesota, USA, we developed an SRH curriculum for training health professional students in the knowledge, attitudes, and clinical skills to provide SRH care (Rosser et al., 2025). The curriculum developed from the need assessment that involved a scoping review of the literature, and interviews with clinicians and community leaders and was tailored to take into account the African socio-cultural and religious context. Despite the effective implementation of the developed curriculum, its feasibility, acceptability and appropriateness are required to be established for adoption and scaling up in other similar contexts. Therefore, this paper sets out to report an evaluation of this Afrocentric SRH curriculum for health professionals in Tanzania. Specifically, the paper aimed to answer the following questions: How was the curriculum developed? What are the contents, structure and methods of teaching employed?; How the SHE curriculum was perceived by students with regard to its acceptability, feasibility and appropriateness in an African context?

METHODS

Study Setting

This study was conducted at Muhimbili University of Health and Allied Sciences (MUHAS) which has five Schools; Medicine, Pharmacy, Dentistry, Nursing and Public Health and Social Sciences that train various undergraduate programs including Bachelor of Sciences Nursing (BScN); Bachelor of Sciences Midwifery (BScN) and Bachelor of Medicine commonly known as Doctor of Medicine (MD). This is a government-owned university situated in Dar es Salaam, the largest city and financial hub of Tanzania.

The Intervention

The intervention was a 4-day training in Afrocentric, comprehensive sexual health education curriculum. The pilot curriculum was based on one developed by SR for the Pan American Health Organization/World Health Organization. To deeply embed it in the African context, we reviewed the sexual health literature and epidemiology from Africa and used local statistics (e.g., HIV and STIs in Tanzania) wherever available. In addition, we conducted 18 focus groups with clinicians and students in Tanzania to identify local sexual health concerns (Rosser et al., 2022) and clinical practices ((Mgopa, Rosser, Ross, Lukumay, et al., 2021, 2021; Mgopa, Rosser, Ross, Mohammed, et al., 2021; Mkonyi et al., 2021a, 2021b; Mushy et al., 2021; Mwakawanga et al., 2021) and interviewed 11 community leaders to identify barriers, common myths, and misconceptions related to sexual behaviours (Lukumay et al., 2023). Then, we rewrote the curriculum to focus on the most common sexual health challenges clinicians experience in Tanzania. To further tailor it, all materials and exercises were translated to make the curriculum fully bilingual (in English and Kiswahili), and all modules were written and delivered by Tanzanian faculty. We knew from our formative research that 81% of midwifery, 89% of nursing, and 73% of medical students stated they would prefer to learn together, so we developed one curriculum deliverable across the three disciplines rather than separate curricula tailored to each discipline (Rosser et al., 2022). Table 1 below shows a detailed timetable with various teaching methods employed. A full randomised controlled trial of the curriculum is reported by Rosser et al., 2025.

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Table 1: Detailed Timetable with Teaching Methods Employed

Topic	Methods of Teaching
Day 1: Sexual Health Across the Lifespan • Welcome/introduction session • Child & adolescent sexual health • Female sexual health & dysfunctions • Sexual health in midlife and older age • Male sexual health & dysfunctions	Lecture, questions and answers, discussion
Day 2: Special population • Sexual orientation & gender identity • Sex health of the key population (LGBT) • Sexual violence in Tanzania (GBV)	• Lecture • Small group discussion on LGBT; LGBT panel discussion • Small group discussion case study: How to treat a pregnant rape victim
Day 3: Skills Practice Boot Camp • Writing a sexual health policy • Taking sexual health history • Doing sexual counselling using the PLISSIT model • Basic clinical communication skills (open-ended questions, empathy, permission) • Clinical ethics and what to write in patient files	• Lecture • Skills-building exercises on how to talk about sex • Break out session to write a sexual health policy • Videotaped role-play counselling & watch back • Practical sessions: history taking, counselling, ethical decision making and policy writing
Day 4: Culture and Referrals • Caring for Sexual assault survivors • Community resources and cultural considerations	• Video: Sexual assault survivors • A panel of violence experts and services for assault victims • Small group discussion on sexual assault

As shown in Table 1 above, the training used a mix of teaching modalities carefully designed to optimise the learning experience for students. For example, didactic lectures were used to efficiently review basic information; panels of community members to personalise stigmatised topics (e.g., LGBT persons, GBV), small group discussions to help students process attitude change, and role-plays and case studies to promote clinical skills. Institutional support was conveyed to students by having the Vice-Chancellor of the University officially welcome the participants to the training.

Training Evaluation

Immediately following the training, participants were asked to evaluate each module of the curriculum as helpful to unhelpful (37 items), to assess personal and cultural acceptability (20 items), and to suggest ways to further improve the training (3 items). *A priori*, we set 70 percent or more of students evaluating a session positively as evidence of good acceptability. The evaluation was conducted as an online survey, and responses were saved automatically in the Qualtrics database upon participants' completion. Two research staff monitored the database and ensured that all survey data had been recorded and completed. The study was undertaken with students at the Muhimbili University of Health and Allied Sciences (MUHAS) in Dar es Salaam, Tanzania.

We conducted a mixed methods study to evaluate the effectiveness of this intervention, employing a cluster randomised trial as well as post-intervention qualitative interviews and focus group discussions among study participants in the intervention arm. The study assessed changes in sexual health knowledge, sexual behaviour, body image, self-esteem and gender equitable norms over a period of 1 year. The study adhered to CONSORT guidelines for reporting clinical trials (Butcher et al., 2022).

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Quantitative

The study protocol was approved by the University of Minnesota Institutional Review Board (protocol number STUDY00006904), the Institutional Review Board of MUHAS (study number DA.282/298/01.C) and the [Tanzanian] National Institute for Medical Research (protocol number NIMR/HQ/R.8a/Vol.IX/3020). Given the study occurred in 2021 during the COVID pandemic, all participant procedures were conducted with a COVID prevention protocol approved by the University of Minnesota, the Vice President for Research. The study protocol is available upon request from the corresponding author.

Participants

Eligibility criteria for this study were: (a) Current student at MUHAS in midwifery, nursing, or medicine; (b) in their 3rd or 4th year (for medical students) or 2nd or 3rd year (nursing and midwifery students) so they would have sustained patient contact in the 3 months following the training and be on campus for the follow-up; (c) able to attend the full 4-day training during the first week of student vacation; (d) fluent in English (the language of instruction at MUHAS) and Kiswahili (the official language in Tanzania); and (e) willing to volunteer and complete all evaluation procedures. Students were recruited using flyers on campus noticeboards and from announcements in class. Students were randomly assigned to intervention or waiting list control groups. For COVID prevention, on each day of study procedures, all participants and staff had their temperature checked, masks were obligatory and they were assigned seats with spacing in the lecture theatre. Anyone with a high temperature was excluded from participation. All participants provided written informed consent prior to commencing baseline study activities.

Between May 1, 2021, and July 31, 2021, participants were recruited for the current study until the target recruitment was reached. Of 563 students who were considered eligible, 412 participants (73.2%) were recruited to attend the SRH training, with 206 students participating in the course and completing baseline data collection. Participants who completed all baseline procedures were compensated TZS 110,000 (about US$ 50). Table 1 presents the demographic information of the two groups. This report focuses on the curriculum evaluation by the first group of nursing, medical and midwifery students (N = 206).

Randomisation and Masking

Project staff kept three envelopes titled “midwifery”, “nursing”, and “medical” students. Inside each envelope were 10 pieces of paper, five labelled “2021”, and five labelled “2022.” If a participant drew a piece of paper with “2021” on it, they were informed they would attend the training in 2021 (intervention group). Alternatively, those who drew a piece of paper with “2022” on it were informed they would attend the training in 2022 (waitlist control group). Allocation was supervised by two senior faculty members from different Schools.

Once a piece of paper was drawn, it was not returned to the envelope but instead put in the “used envelope” for reuse later. Thus, the first medical student drew from an envelope with ten pieces of paper in it, the second with nine, and so on. Once the envelope was empty, it was refilled. Study staff recorded the randomisation (to prevent participants from changing their assignment). To minimise expectation effects, staff were trained to only refer to the assignment by year and not to use the terms “intervention” or “control.”

The study coordinator gave the participants assigned to the 2021 training a one-page flyer providing the participant with all the information about the training, including that the participant was expected to attend all days. Participants assigned to 2022 were given a different one-page flyer that thanked them for completing the baseline assessment survey and SP interviews, informed them they would be asked to complete another follow-up assessment in three to four months’ time, and told they could attend the training in September 2022. Both flyers had a sentence noting that participation in the research

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study was voluntary and that the participant could withdraw from the study at any time.

Procedures

All participants were required to complete the online Qualtrics baseline survey on tablets at the study office. The survey took about 60 minutes to complete and covered demographic information, educational background, sexual health knowledge, and attitudes toward sexual health topics. Responses were anonymised to all data analysts. Participants who completed all baseline procedures were compensated TzSh110,000 (~$US50).

Outcomes and Analysis

Primary outcomes for this evaluation study were three-fold: Overall evaluation of the curriculum (both in total and in each aspect), acceptability of the training (both personal and cultural), and qualitative evaluation of what students liked and disliked or might suggest as further improvements. For curriculum evaluation, simple statistics using percentages means, and standard deviations were computed using the R package.

Of the 412 recruited, one participant did not complete the post-intervention survey, and three participants did not complete the three-month follow-up. Given this was considered a "not beyond everyday risk" study by our IRBs, a data monitoring committee was deemed unnecessary. The trial was registered in the US at ClinicalTrials.gov, study number: NCT03923582.

RESULTS

The demographic characteristics of the participants are reported in Table 1. To summarise, about two-thirds of the sample were medical students and one-third, were nursing or midwifery students, and about evenly split between students in their final year or penultimate year. Two-thirds (67.0%) of the students were male and aged 22-24 years. Almost all (92.7%) were single, non-cohabiting. Sexually, most identified as either heterosexual (74.3%) or asexual (11.9%). Religiously, most identified as Christian (84.2%) or Muslim (14.3%), and most (92.0%) evaluated themselves as moderately to very religious. About a third reported no sexual health training prior to starting medical or nursing school. Sources of prior sexual health information included the Internet (85.2%), peers (75.2%) parents/relatives (50.2%), clinical rotations (47.6%), patients (38.8%), a workshop (34.7%), and other (29.6%) with the most common write-in being religious gatherings/teachings.

Table 1. Baseline Demographic Characteristics of the Training Course

	(N = 206)	%
Discipline		
Midwifery	4	1.9
Nursing	63	30.6
Medicine	139	67.5
Year of Study		
Penultimate	104	50.5
Final	102	49.5
Gender		
Male	139	67.5
Female	62	30.1
Other/PNTA	5	2.4
Age (M, SD)	24·05	· 2·56
Relationship Status		
Single	188	91.3
Married (monogamously)	10	4·9
Cohabitating	5	2·4
Other/PNTA	3	1·5
Sexual Orientation		
Heterosexual	156	75·7

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	(N = 206)	%
Asexual	19	9·2
Bisexual	15	7·3
Transgender	2	1·0
Unsure	7	3·4
PNTA	7	3·4
Religious Affiliation		
Christian	174	84·5
Muslim	29	14.1
Other/PNTA	3	1·5
Religiosity		
Not at all religious	2	1·0
Slightly religious	6	2·9
Moderately religious	125	60·7
Very religious	51	24·8
Extremely religious	10	4·9
PNTA	12	5.8
Did you receive sexual health education prior to attending MUHAS?		
Yes	121	58·7
No	64	31·1
Unsure/Don't Remember	21	10·2

How Helpful Are the Topics Covered in this Sexual Health Curriculum?

Students were asked to evaluate the topics covered during the training and indicate whether they have been helpful in imparting knowledge, skills and attitudes on sexual health. During post-training evaluation, almost all students rated all sessions as helpful to very helpful (Table 2). This included the most culturally sensitive topics, which were masturbation (covered in the session on adolescence), sexual orientation and gender diversity, and sexuality in older age. These sessions were evaluated as very helpful to helpful by 99.5%, 96.6%, and 98.5% of students, respectively. Importantly, all sessions related to skill practices were rated as helpful including sessions on; how to do sexual counselling using the PLISSIT model (99.5%); how to take sexual health history (99.5%); how to talk about sex (99.5%) and how to communicate with clients on sexual related issues (100%) as indicated in Table 2 below.

Table 2: Evaluation of the Sexual Health Curriculum by Topic

	Helpful to Very Helpful		Neutral		Unhelpful to Very Unhelpful	
Topic	**N**	**%**	**N**	**%**	**N**	**%**
Day 1: Sexual Health Across the Lifespan						
Welcome/introduction session	201	98·0	4	2·0	0	-
Child & adolescent sexual health	204	99·5	1	0·5	0	-
Female sexual health & dysfunctions	205	100·0	0	-	0	-
Sexual health in midlife and older age	203	98·5	2	1·0	1	0·5
Male sexual health & dysfunctions	203	99·0	1	0·5	1	0·5
Day 2: Special Populations						
Lecture on sexual orientation & gender identity	198	96·6	4	2·0	3	1·5
LGB panel	198	96·6	5	2·4	2	1·0
Small group discussion on LGBT	198	96·6	6	2·9	1	0·5
Sexual violence in Tanzania	204	99·5	1	0·5	0	-

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	Helpful to Very Helpful		Neutral		Unhelpful to Very Unhelpful	
Small group discussion case study: How to treat a pregnant rape victim	202	98·5	2	1·0	1	0·5
Day 3: Skills Practice Boot Camp						
Lecture on how to write a sexual health policy	192	93·7	11	5·4	2	1·0
Lecture on how to take a sexual health history	204	99·5	1	0·5	0	-
Skills-building exercises on how to talk about sex	204	99·5	1	0·5	0	-
Lecture on how to do sexual counselling (PLISSIT model)	204	99·5	1	0·5	0	-
Basic clinical communication skills (open-ended questions, empathy, permission)	205	100·0	0	-	0	-
Break out session to write a sexual health policy	197	96·1	6	2·9	2	1·0
Videotaped role-play counselling & watch back	204	99·5	1	0·5	0	-
Clinical ethics and what to write in patient files	193	99·0	1	0·5	1	0·5
Day 4: Culture and Referrals						
Video: Sexual assault survivors	198	96·6	6	2·9	1	0·5
A panel of violence experts and services for assault victims	202	98·5	2	1·0	1	0·5
Small group discussion on sexual assault	190	92·6	15	7·3	0	-
Closing ceremony	168	83·2	33	16·1	1	0·5

* Scoring 4-5 on Likert scale: 1 = Very unhelpful; 5 = Very helpful

Overall, 100% of participants stated the training taught them a lot of new information, and 99.5% stated it helped them become a better clinician. On process measures, 93.7% described the workshop as fun, 98.5% as interesting, 98.0% as realistic, and 96.1% as helpful to them personally (Table 3).

Table 3: Overall Evaluation of Sexual Health Education Training for Medical, Nursing and Midwifery Students in Tanzania
N=205 participants in immediate post-test training

	Strongly Agree to Agree		Neutral		Disagree to Strongly disagree	
	N	**%**	**N**	**%**	**N**	**%**
Overall evaluation of This training…						
Was fun	**192**	**93·7**	**4**	**2·0**	**9**	**4·4**
Was interesting	**202**	**98·5**	**3**	**1·4**	**0**	**-**
Taught me a lot of new information	**205**	**100·0**	**0**	**-**	**0**	**-**
Used realistic examples I could relate to	**201**	**98·0**	**2**	**1·0**	**2**	**1·0**
Will help me be a better clinician	**204**	**99·5**	**1**	**0·5**	**0**	**-**
It was a waste of my time	**2**	**1·0**	**1**	**0·5**	**202**	**98·5**
It was helpful to me personally	**197**	**96·1**	**3**	**1·5**	**5**	**2·4**

* Scoring 4-5 on Likert scale: 1 = Strongly disagree; 5 = Very Strongly agree

What Did You Like Most in this Sexual Health Education Training?

Students were asked to evaluate what they liked most and least about the training. There were 842 write-in responses for the most liked aspects. Students indicated to liked most the teaching methods which were employed (36%) and the material that was covered (26%) during the training. Several students identified additional topics (10%) they would like to see included (See Table 4).

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Table 4: What Three Things Did You Like Most About this SRH Training?	N	%
Training logistics, scheduling and compensation	**47**	**5.6**
Introduction/orientation/hospitality	5	0.6
Compensation	7	0.8
Time management/logistics/session organisation	35	4.2
Teaching style	**302**	**35.8**
Transparency & respect	29	3.4
Participatory approach/interactions/engagement	55	6.5
Teachers' commitment/competence (e.g. use of simple words, well organised)	31	3.7
Panel discussion	63	7.5
Use creativity & innovation techniques (video/ideal examples/cases/group discussion/role play/Q/A)	124	14.7
Materials covered	**222**	**26.4**
Lecture (mostly mentioned LGBTQ, GBV, and sexual orientation)	177	21.0
Counselling (PLISSIT)	15	1.8
Policy writing	30	3.6
Other	**68**	**8.1**
Training outcome (knowledge gain)	35	4.2
Adherence to Covid-19 Measures	16	1.9
Acceptability of the materials	17	2.0
Are there other topics that would make this training more helpful for you?	**203**	**24.1**
No other topics/improve the existing ones	112	13.3
Yes, including the following • Handling LGBT clients with sexual health problems in clinical settings • Assessment of sexual dysfunctions • Laboratory investigations of STIs • Clinical management of sexual health disorders • Clinical management of rape clients	91	10.8
Total frequency of responses (Responses, not sample size)	**842**	**100**

What Did You Like the Least in this Sexual Health Education Training?

There were fewer responses for the least liked items (*n*=447), and most (59%) expressed dissatisfaction with the time and training schedule (Table 4). Specifically, students indicated that the training schedule felt tight and the sessions were compacted (23%) with insufficient time dedicated to skill practice (14%). At least 2% of the responses indicated that the training missed topics specifically concerning sexual orientation, management of sexual health problems and laboratory investigations. With regards to teaching style, 17 responses (3.8%) indicated that the training missed training materials (handbook, illustrations) and that more time was dedicated to theories than to practice. Twenty-eight out of 447 (6.2%) responses indicated that students did not like discussions on LGBTQ topics, and 2% of responses showed that, although LGBTQ and masturbation were covered as normal topics, however, they should not be considered normal (Table 4)

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Table 5: What Three Things Did You Like Least About This Training?	N	%
Time management and logistics, training schedule	**265**	**59.3**
Time not followed	39	8.7
Short breaks/long queues during lunch time, registration, and compensation/no games	40	8.9
Learning environment (cold room, sound was not good)	7	1.6
Missing food	13	2.9
Training Schedule		
Tight schedules/sessions are too compacted	103	23.0
Short time for practice	63	14.1
Teaching style	**69**	**15.4**
Panel		
Few panels/no panels for GBV	11	2.5
LGBTQ	13	2.9
Fewer facilitators/trainers	9	2.0
Poor students' engagement	11	2.5
No handbooks or materials/illustrations, some sessions lack creativity/more theories than practice	17	3.8
Appointing people to respond was a little stressful	8	1.8
Topics covered	**73**	**16.3**
Lecture on sexual orientation	28	6.3
Discussion on LGBTQ	28	6.3
The policy writing session was not clear	17	3.8
Topics that are considered normal "but are not normal"	**19**	**4.3**
LGBTQ and Masturbation	19	4.3
Topics that are missing/not covered well	**9**	**2.0**
Clinical management of SH problems and Diagnostic investigation of sexual health problems	9	2.0
Others	**12**	**2.7**
Total frequency (response)	**447**	**100**

How Acceptable and Culturally Appropriate is the Sexual Health Curriculum?

Almost all participants rated the curriculum as personally acceptable, as appropriate as a sexual health curriculum, as appropriate training for future health professionals, and as culturally respectful in an African context (see Table 5). Similarly, most participants evaluated the training as culturally responsive for gender, race, tribal background, and personal sexual values and traditions. While most students (71.1%) also agreed that it was respectful of their religion and religious background.

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Table 6: Acceptability and Cultural Appropriateness of Sexual Health Education for Medical, Nursing and Midwifery Students in Tanzania
(N=205 Participants in immediate post-test surveys)

	Strongly Agree to Agree		Neutral		Disagree to Strongly disagree	
	N	%	N	%	N	%
Acceptability as a Sexual Health Curriculum						
Communicated clearly about sex and sexual health	205	100·0	0	-	0	-
Used a comprehensive approach to sexual health	202	98·5	3	1·5	0	-
Taught medically accurate information	203	99·0	2	1·0	0	-
Was innovative	198	96·6	5	2·4	2	1·0
Acceptability as Medical/Nursing Training						
I would recommend this to my fellow students	202	98·5	3	1·5		
All health students should have access to this training	202	98·5	1	0·5	2	1·0
This workshop was appropriate for training health professionals	201	98·0	3	1·5	1	0·5
Cultural Acceptability						
This workshop was respectful of my …						
Gender	200	97·6	3	1·5	2	1·0
race and tribal background	179	87·3	17	92·9	9	4·4
religion and religious background	146	71·2	30	14·6	29	14·1
sexual values and tradition	174	84·9	14	6·8	17	8·3
This workshop was appropriate for Africa	157	76·6	31	15·1	17	8·3

Moreover, students provided their suggestions on how the SRH training could be further improved. About 37% of students indicated the need for expanding the scope of sexual health education training to cover topics such as sexual and reproductive health rights and Gender Based Violence (table 6). Furthermore, students pointed out that the sexual health education training should be more student-cultural and health professional ethics-centred (17%) and should involve all students from all disciplines (17.5%). Participants also proposed the use of more innovative approaches during training, such as using music and videos to deliver SRH training. They further suggested the need for more time set for skill practice and the provision of SRH learning materials to facilitate learning during training.

Table 7: What Suggestions Do You Have to Make This Training More Improved and Acceptable?

	N	%
Nothing	**29**	**14.1**
Increase the number of participants from all health fields	**36**	**17.5**
Teaching schedule and style	**20**	**9.7**
More time for a panel discussion		
Increase practice time for sexual health-related skills.		
Use of creativity in delivering SRH training (e.g. Use of a musician)		
Use of locally made video for demonstration		
Provision of learning materials during sessions		
Expansive and inclusive curriculum on other aspects of sexual health	**77**	**37.4**
Sexual and reproductive health rights		
Gender-Based Violence		
Training should be cultural, student and health professional ethics-centred	**35**	**17.0**
Other suggestions	**9**	**4.4**
Total frequency	**206**	**100**

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Students were also requested to provide specific suggestions on how the sexual health curriculum could be designed in a way that would be culturally acceptable for the African context. Table 7 below summarises responses from the students

Table 8: Suggestions to Make SRH Training Most Acceptable for Health Students Across Sub-Saharan Africa

1	Lectures should be taught with consideration of African culture, values and religious background.
2	Topic content should be prepared and covered in a way that respects traditions and culture, and the region at large.
3	Topics on sexuality and gender, sexual and reproductive health rights in the context of African culture and values need to be included
4	Training should have an introductory session that describes the aim of the training in connection to the sexual health clinical competencies required for healthcare providers.
5	Sensitive topics such as sex and reproductive health care for LGBTQ should be preceded with an overview which links students' knowledge and skills acquired for clinical application.
6	The curriculum should be implemented in a way that stresses more the separation of personal beliefs and attitudes from providing health services, and also adhering to legal and medical or nursing ethics in the African context.
7	Discussion on LGBTQ should aim at orienting students on sexual and reproductive health issues rather than preparing healthcare workers to be activists against LGBTQ or pro-LGBTQ activists.
8	Trainers should use scientific evidence to clarify existing myths that are there in society in relation to sensitive sexual health issues, such as the normality of masturbation.
9	Should include training about the socio-cultural norms of Africa and medical-legal implications of sexual-related issues such as LGBTQ, rape and GBV

DISCUSSION

This paper provides the first in-depth evaluation of an SRH curriculum tailored for the African continent. Key results are that the 4-day training was evaluated by health students as personally and culturally acceptable for their African context, that participants learned new information that in their opinion would help them become better clinicians, that all the topics in this comprehensive curriculum including the most culturally sensitive ones were deemed helpful, and that the approach to teaching and materials covered were particularly helpful. The main weakness identified was in time management (e.g., sufficient time for breaks, to get lunch, and time for practising skills). Importantly, this evaluation refutes opinions that SRH training is culturally unacceptable or too difficult to be undertaken in very conservative countries and with religious to highly religious students. Tanzania is among the more socially conservative countries in Africa, and most students self-identified as religious to highly religious. This suggests the curriculum can be implemented across similar countries.

The study is the first in Sub-Saharan Africa to evaluate the SHE curriculum with regard to its structure, contents, teaching methods and acceptability for African contexts in such depth. Given the major sexual and reproductive health issues in SSA (Chandra-Mouli et al., 2021), the study addresses an important gap: how to teach SRH across the continent. Furthermore, it provides useful information regarding the training of African health professionals on core competencies needed for providing SRH care in their communities. Many curricula for undergraduate health professionals report gaps in comprehensive sexual and reproductive health competencies (Chandra-Mouli et al., 2021; Haslegrave & Olatunbosun, 2003; Shindel et al., 2016; Beebe et al, 2021). Findings in this study demonstrated possibilities of impacting such important SRH skills and knowledge within existing curricula for health professionals.

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Feasibility of SRH Training in African Health Professionals

Positive comments of participants on structure, contents and modes of teaching indicate the feasibility of SRH training in African health professionals' education curriculum. As it was found in this study, the SRH training was successfully implemented and its creativity in teaching methods, including innovative teaching methods, was positively evaluated by the participants. Methods like the use of panels along with lectures were found to be useful, particularly on controversial topics like sexual and gender minorities and other key populations and sexual orientation. The participatory style, openness and engagement with the students were also commented on by many participants as strengths. The variety of methods, including video, ideal examples, case histories, group discussions, role-play and question-and-answer sessions, were very favourably mentioned. Such modes of teaching were recommended in other studies to be relevant in imparting knowledge and skills for sexual health in undergraduate medical and other health professional education (Coleman et al., 2013; Gordon, 2021; Shindel et al., 2016)**.**

Despite the comprehensiveness of the SRH training, diagnostic investigations and clinical management of sexual health disorders were pointed out as missing or not sufficiently covered topics. Inclusion of such topics would further broaden confidence in SRH which is considered to be low among health professionals (Goddard & Brucker, 2023; Olímpio et al., 2020; Verrastro et al., 2020). Furthermore, participants suggested additional sessions on gender-based violence and sexual and reproductive health rights. SRH training should cover these, emphasising its impact on sexual and reproductive health care. Moreover, the study found a small minority who raised concerns about how topics such as homosexuality, masturbation and prostitution were introduced and discussed during the training. These are culturally sensitive topics and concerns could be on how such topics conflicted with their religious teachings and perspectives. While it may be normal for these to occur in sexual and reproductive health training, especially in socially conservative countries or with religiously conservative students (Goldstein et al., 2021), extra time and possibly extra exercises may be needed to assist the students in recognising and process this dissonance. Furthermore, facilitators of such topics should ensure that content covers both medically and scientifically accurate knowledge and the appropriate clinical care of such patients, as was done in this training. Adding videos of religious leaders discussing SRH from their various perspectives, or perhaps ones of health care professionals discussing how they handle patients or SRH concerns that conflict with their personal, religious, cultural, moral or other values could further address this dilemma. Others have argued that the dissonance could perhaps be dealt with by acknowledging the presence of cultural, religious and moral positions, without the need to change personal opinions in order to deal with issues professionally (Coleman et al., 2013; Gordon, 2021, 2021; Shindel et al., 2016).

Historically, sexual health education curricula for professionals were embedded in theories of attitude change. For example, the Sexual Attitude Reassessment (SAR) seminars relied on a mix of emotional flooding techniques to overwhelm the participants, thereby causing them to talk about what they saw, and through adopting more permissive attitudes to be more open to discussing SRH with patients (Haslegrave & Olatunbosun, 2003). We rejected this approach as outdated and unlikely to work in a conservative context. Instead, we prioritised lectures to impact the scientific and medically accurate information, including on controversial topics, and combined this with a strong focus on clinical skills development. According to both approaches, providers need to have medically and scientifically accurate information. However, in the older approach, healthcare professionals need to adopt open and non-judgmental attitudes in order to develop skills in treating SRH concerns. Recent US longitudinal data suggest that personal attitude change is not essential for teaching medical students to learn about sexual health and sexual function and dysfunction, and comfortably

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take a comprehensive sexual history (Ross et al., 2021). Our approach emphasises teaching clinical skills so the provider becomes more comfortable addressing their patients' SRH concerns.

Acceptability and Appropriateness of the SRH Training as Afrocentric

This study found SRH training as appropriate, personally and culturally acceptable for health professionals in Tanzania. Provision of medically accurate information regarding sexual health that was communicated clearly and innovatively could contribute to the high acceptability of the training by participants, as was found in other studies (Chirwa-Kambole et al., 2020; Graneheim & Lundman, 2004; Olmsted et al., 2022; Singh et al., 2017; Wilkie et al., 2010; Yoost et al., 2021). Cultural acceptability was attributed to the training being respectful to trainers' gender, race, tribal and religious background, as well as their sexual and traditional values. Additionally, most participants accepted the SRH training as suitable and appropriate for nurses and doctors, but also for all health disciplines. Training SRH for all health professionals is highly recommended to promote a multidisciplinary approach to SRH care in clinical and community settings (Verrastro et al., 2020).

Moreover, participants rated the training to be appropriate in an African context. However, they emphasised the inclusion of African cultural values and religious viewpoints to make SRH training more Afrocentric. Ensuring the adaption of cultural context in SRH training promotes acceptability as reported in other studies (Mukanga et al., 2024; Mukonka et al., 2023).

As it was reported earlier, some participants were uncomfortable with some SRH topics covered. This might be the same in many African settings where religious belief and culture contribute to discomfort and some myths and misconceptions regarding sexual and reproductive issues, making SRH discussion challenging even among professionals (Lukumay et al., 2023; Mukonka et al., 2023). To handle this, participants in this study suggested having an introductory session that provides relevance to the SRH skills and their applications in their future clinical roles. Handling discomfort and differing views is not unusual in SRH training. As suggested in this study, trainers should always acknowledge, debrief and discuss into clinical implications of SRH knowledge using scientific evidence to clarify any existing myths on culturally sensitive topics. Such an approach demonstrates respect for one's morals, beliefs and cultural stance as documented by Shindel and his colleagues (Shindel et al., 2016; Haslegrave & Olatunbosun, 2003). Furthermore, it is advised that the SRH training be conducted in a way that equips future health professionals in Africa with skills to identify and treat clients with SRH problems nonjudgmentally while being aware of cultural, legal, ethical and religious stances related to sexuality (Description et al., 2022; Gordon, 2021; Warner et al., 2018). Additionally, the use of the PLISSIT model, a tool used in this study to teach clinical skills for addressing SRH problems, can also help to reduce or prevent cognitive dissonance between personal attitudes and beliefs about the patient's behaviour and professional behaviour. However, this requires more practical time as suggested in this study, using case-based scenarios or simulated standardised patients presenting SRH commonly found in Africa. Role play and standardised patients are considered useful for increasing comfort in addressing sensitive SRH issues in the clinical context (Gordon, 2021).

Dealing with some of SRH's concerns such as rape and GBV has socio-cultural norms as well as legal implications. Participants in this study suggest the inclusion of medical-legal issues for addressing SRH concerns. The inclusion of sessions regarding awareness of the country's norms and legal framework for guiding healthcare professionals' decisions in clinical settings is highly recommended. This should go hand in hand with an awareness of the availability of services or reporting systems to assist the victims in case the need arises (Gordon, 2021; Haslegrave & Olatunbosun, 2003)

Study Limitations

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This study has five main limitations. First, these results are specific to one SRH training, so generalizability is unknown, and we caution the reader against making broad generalisations about other training. Second, the evaluation was predominantly qualitative in nature and completed on tablets or smartphones. Students likely varied in how much they might want to write in response to the open-ended questions. Third, the study was undertaken during COVID-19 and with a strong COVID-19 prevention protocol. Some students may have minimised responses as a result. Fourth, this evaluation has focused on student participants' evaluation of the training. In a separate paper, we present the results of the randomised controlled trial on participants' knowledge, attitudes and clinical skills (Rosser et al., 2025). Fifth, at selection, students had the chance to opt-out by not applying to take the course, and this may have introduced some bias into including students who may have been more enthusiastic about sexual and reproductive health. Finally, if the incentive added a bias, it was possibly towards recruiting students who had a broader range of views.

CONCLUSION

The provision of SRH education is crucial in equipping health professional students with the necessary competencies for addressing the SRH concerns of their patients. Against notions that SRH is difficult to teach in a conservative country or that SRH training cannot be tailored to the African context, the students evaluated this training as personally and culturally acceptable and relevant for Africa. Further, they stated they had to learn a lot of new information that was both personally helpful and would equip them to be better clinicians. The key criticism was not about acceptability, but rather feasibility around time management and logistics. Students wanted more time for breaks, lunch, and practising clinical skills. Students rated the structure, content, modes of teaching and duration of the workshop at 4 days as appropriate, although again some wanted even more time. Sensitive topics such as masturbation, LGBTQ, GBV and the sexual lives of older patients were included, however, some students appeared to need more help to process perceived differences between the medical information that was presented and what they knew from their cultural or religious backgrounds. The use of religious leaders or experienced healthcare providers discussing SRH from their various perspectives could further address this dilemma. Panel presentations, small group discussions, role plays, videos, modelling questions and case scenarios using simulated patients were all evaluated as appropriate and many as innovative teaching methods. More content addressing African socio-cultural norms and the ethical-legal implications of sexually related issues, as well as SHR rights, may further improve the training's evaluation as appropriate and acceptable for African contexts.

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