Exploring the reproductive health education of health service professionals in Mogadishu, Somalia

Thesis

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Abstract

Somalia has recently come out of a two decade long civil war and is currently in a post-war and rebuilding phase. The national health system, largely crippled during years of conflict, is faced with a significant maternal mortality ratio and the debilitating effects of a high fertility rate. To combat these issues, the new Somali government is working toward creating a strong national health system that addresses some of these key indicators. With a lack of human resources in healthcare and the need for better reproductive health services, the need to invest in educating a new generation of health service professionals is evident. To address this gap in education, many educational institutions with health science faculties have opened in the last decade but the quality and accuracy of their curricula has yet to be examined. My thesis addresses this gap in knowledge. Through a multi-methods study that included reviewing curricula and curricular materials, conducting key informant interviews, and facilitating focus group discussions, I was able to learn about the quality and comprehensiveness of reproductive health topics in health service professionals' education and training. Religion, culture, logistical issues, and lack of oversight shape the way reproductive health is taught to health students. This study provides an important foundation to help inform key stakeholders working to improve the Somali health system.

Résumé

La Somalie a récemment sortie d'une guerre civile de deux décennies et se trouve actuellement dans une phase poste-guerre et de reconstruction. Le système national de santé, largement paralysé pendant les années de conflit, est maintenant confronté par un taux de mortalité maternelle important ainsi qu'un taux de fécondité élevé débilitant. Pour lutter contre ces problèmes, le nouveau gouvernement est en train de créer un système de santé national qui est efficace en traitant ces indicateurs clés de santé. Du à un manque de ressources humaines dans le système de santé et d'un besoin d'améliorer les services dans le domaine de la santé sexuelle et reproductive, il semble nécessaire d'investir dans l'éducation d'une nouvelle génération de fournisseurs de soins de santé. Pour combler ce manque d'éducation, plusieurs institutions éducationnelles, comportant de facultés de sciences de la santé, ont ouvert au cours de la dernière décennie. Par contre, la qualité et l'exactitude de leurs programmes n'a pas encore été examiné. Ma thèse s'adresse à ce manque de connaissance. Grâce à une étude multi-méthodes qui comprenait l'examen des programmes éducatifs ainsi que leurs matériaux scolaires, des d'entrevues avec des agents clés, et des groupes de discussion, j'ai pu faire connaissance de la qualité et l'intégralité du contenu de l'éducation ainsi que la formation des fournisseurs de soins de santé en santé sexuelle et reproductive. La religion, la culture, les problèmes logistiques et le manque de supervision réglementaire, financière et judicaire déterminent la manière dont la santé reproductive est enseignée aux étudiants en santé. Cette étude fournit une base importante pour aider les responsables de la santé à améliorer le système de santé somalien.

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Abbreviations & acronyms

The African Union Mission in Somalia	AMISOM
Focus group discussion	FGD
Infant mortality rate	IMR
Maternal mortality ratio	MMR
Non-governmental organization	NGO
Obstetrician/gynaecologist	Ob/Gyn
Research assistant	RA
Reproductive health worker	RHW
Teaching and learning services	TLSS
Total fertility rate	TFR
Women and Health Alliance International	WAHA
World Health Organization	WHO

Chapter 1: Introduction

Background & literature review

Overview of the political context

Somalia is an East African nation infamous for its lack of a central government for more than two decades as seen in **Appendix A**. After overthrowing the dictator Siad Barre in 1991, the country fell into an armed inter- and intra-clan conflict (1-5). The civil war continued for nearly two decades during which time different groups, ranging from clans, warlords, and the Islamic Courts Union, were in armed conflict for the upper hand. Most recently, instability has been exacerbated by the terrorist group Al-Shabab who have been utilizing brutal guerrilla warfare and targeting civilians and government officials alike (1).

The government preceding the civil war was notorious for directing all foreign aid toward military spending and for having a weak public sector, including a weak health system (6).The collapse of the government in 1991 resulted in chaos, civil conflict, the crumbling of local infrastructure, and a lack of regulation (7, 8). During the civil war years, the public sector and public institutions, including formal educational institutions, police centers, and hospitals, were virtually non-existent (9).

The global community's concerted efforts to end the conflict in 1993 were unsuccessful and the American-led mission "operation restore hope" resulted in the withdrawal of all foreign peace-keeping soldiers (10). After nearly a decade of chaos, the first transitional government was created in 2004. Unfortunately this did not create the intended stability; Baido, a small city in south-western Somalia eventually held the Parliament rather than the capital, Mogadishu (11). The basis for creating multiple transitional governments was to create a long-lasting political solution to the conflict, in the interests of both Somalia and the global community.

The period following the transitional governments saw increased foreign intervention with the Ethiopian and Kenyan interventions between 2006 and 2011. The United Nations also commissioned the African Union Mission in Somalia, better known as AMISOM, to uphold peace and create stability. This mission was strife with problems including allegations of rape and murder, and lost the confidence of the people, which lead to the rhetoric behind the resistance of Al-Shabab, the Islamist terrorist group (12).

The creation of a federal government in 2012 saw the end of transitional governments and the move toward a permanent, globally-recognized central government. In the past four years, Somalia has focused on rebuilding the country, creating a constitution, and setting up democratic institutions (13). There is still much work to be done in the areas of infrastructural development, poverty alleviation, and education, which have all taken a back seat to security but are paramount to the rebuilding phase. The global community is cautiously optimistic (14).

In February 2017, there was the first transition of power from outgoing president Hassan Shiek Mahamoud to the new President Mahamed Abdullahi Farmajo (15). After delays and setbacks in the capacity building of the electoral system, the parliament elected a new president. A champion of the people and previous Prime Minister, President Farmajo has inspired hope in the abilities of the new government and its commitment to improving the lives of people. Running on a campaign to rebuild the country and bring back stability, President Farmajo has engendered immense support for the new direction of the country (15).

Reproductive health and the Somali health system

The health indicators of Somalia are among the worst in the world; Somalia has the third highest maternal mortality ratio at over 1,000 deaths per 100,000 live births and one of the

highest infant mortality rates at just under 100 deaths per 1,000 live births (16-19). With a total fertility rate of just under six children per woman and a contraceptive prevalence rate of only 1% (4, 20), Somalia's reproductive health indicators reflect the lack of available pregnancy, childbirth, and family planning services.

Unsafe abortion, delivery complications, and the lack of access to services account for the majority of reproductive health-related deaths in Somalia (21). Abortion is legally permissible in Somalia only to save the life of the woman, and not in cases of rape or incest (22, 23). With severely limited options when faced with an unwanted pregnancy, women resort to unsafe abortion practices (19, 20, 24).

Despite the government spending a majority of the federal budget on safety and security, different types of violence are still rampant, including rape, sexual assault, and intimate partner violence. Indeed, nearly 3,000 attacks of sexual violence occurred in the capital region of Mogadishu between January and August 2014; these represent the reported cases and are most likely an underestimate of sexual violence during this period (25). In a study conducted in Mogadishu in 2014, both married and unmarried women expressed the benefits of post-coital contraception to women who were raped (26)

In a low resource and post-conflict region such as Somalia, emergency contraception is a viable option to avoid unwanted pregnancies or to space out pregnancies. With the unmet need for contraception placed at 26% and with only 1% of women estimated to be using modern contraceptive methods, the need for modern family planning is evident (3, 4). As demonstrated in the study by Gure et al (2015), the need for expanding efforts to improve reproductive health systems, service delivery and education is a priority. A recent campaign as part of the Health Sector Strategic plan in Somalia focused on traditional contraceptive methods of breastfeeding.

Nearly half of the Somali population is under 15 years old, and grew up in the civil war as seen in the population pyramid in **Appendix B**. Safety concerns which led to displacement, coupled with a lack of educational institutions, left children born during this period without education. Only 30% of children attend school, as seen by the literacy rates of approximately 37.8% nationally and only 20% for women (13, 27). Public health strategies such as educational flyers are therefore not very effective. This issue of education coupled with social norms of women having traditional roles, create an environment for low health literacy including low reproductive health literacy. Reproductive health workers (RHWs) need to take these underlying issues into account when providing services to this vulnerable population.

The Somali health system currently has three different methods of health care delivery: 1. Public sector care; 2. Private sector care; and 3. Voluntary sector care (non-governmental organizations (NGOs)) (16, 28). The bulk of care is provided by the public sector with 58% of all staff and 53% of practitioners working in government-funded hospitals and facilities, followed by private care and lastly voluntary care many have grown to place their trust in private sector care, as this was the primary care accessed while there was no government in place (29). NGOs have been specifically targeted for their foreign workers and have often been singled out by Al-Shabab. As NGOs pull out of the country for security concerns, a larger burden has been placed on both the public and private sectors. The largest impact was seen with the withdrawal of Médicins Sans Frontières in 2012, creating a considerable gap in services (30).

The private health system, similar to many other sectors, developed following the collapse of the central government and has provided urgently needed care and services to the Somali people in the absence of public health services. The few public health services that are available are severely under resourced and funded, leading to over-worked staff with out-dated

equipment housed in crumbling buildings (29). Without clear regulations, the private health sector has become the standard of care in Somalia, winning over the confidence of the public.

There are a number of maternal-child hospitals aiming to fill a gap in women's health, specifically for urgent care and post-abortion complications. Unfortunately these hospitals are usually located in large cities, forcing rural populations to walk or travel long distances to access care. Furthermore, the lack of qualified health care professionals to perform specialized procedures highlights the unmet need for services in these hospitals. A 2009 study that examined human resources in healthcare in Somalia found there were 11 doctors and 161 nurses per 600,000 members of the population (31).This is reflective of World Health Organization (WHO) data suggesting that the density of physicians per 1,000 people is 0.035 (29).

Reproductive health workforce

With such dire health indices, the need for reproductive health expertise in Somalia is evident. Trained obstetrician/gynaecologists (Ob/Gyns), nurses and midwives are few and far between. This is due to the lack of operational formal educational institutions; ultimately, the training of a generation of healthcare workers did not occur. Out-dated medical procedures, practices based on tradition, and a lack of best practice protocols led to the decay of the health system during the civil war. Without operational educational institutions, discontinuity in education between those who were trained before and after the conflict emerged. Continued education, licencing exams and oversight boards were not possible without the central government and have contributed to the decay of evidence based practice.

The Somali government has prioritized replacing the aging cohort who will soon be leaving the healthcare profession. As part of their plan, they have implemented a number of

strategies including educating and employing more young people in health care and training more midwives, as they are preferred by the female population and require less time to train (32).

The education of reproductive health services professionals in Somalia has taken three forms: those who are educated in Somali universities, those who are educated in non-accredited institutions in Somalia, and those who take advantage of bilateral agreements and receive their education abroad. The different locations abroad that students train in health services range from Sudan and Kenya to Turkey.

The formal education sector in Somalia has changed drastically in the last five years to address the gap in training health workers. In 2013, there were 20 universities in Mogadishu, of which more than half housed health sciences or medical facilities (33). These schools train doctors and surgeons along with nurses and midwives. Without the capacity for oversight from the government, private universities have become an area of business. Although the original intent of providing services to the public was well meaning, the current trajectory of higher education in Mogadishu and Somalia as a whole have called into question the quality of the education of students (32).

Education of physicians in Somalia is similar to many regions of Africa in that it is based on a Bachelor of Medicine and Bachelor of Surgery program. By way of example, the degree, as offered in Benadir University, is a six-year program divided into three core phases: 1) Premedical course work; 2) Preclinical and Clinical Integrated Medical Sciences and; 3) Clinical and Clinical Clerkship (34). Students learn basic sciences and core medical skills before they start clinical clerkships. The program costs students nearly 2,000 USD yearly (35). Recently the medical faculty of Benadir University has started general surgery and trauma residency programmes, creating an avenue for developing specialized skills. With foreign aid from Saudi

Arabia and Turkey providing medical teaching aids and equipment, training of physicians in Somalia is progressing (36).

Nursing education in Somalia is a four-year bachelor program usually housed in a Faculty of Health Sciences. Benadir University is one educational institution that recently started to offer the program in Mogadishu and costs nearly 500 USD yearly (34). Although they do not share the contents of their nursing curricula online, they state their program employs an advanced curriculum taught by highly qualified professors (34).

Somali women tend to receive reproductive services from female health workers, mainly midwives. Midwifery training in Somalia was traditionally achieved when senior midwives trained their new apprentices. Unfortunately there is a large gap in the care that women receive, as there were only 429 registered midwives in the country in 2012. This translates to one midwife for every 1,000 births in Somalia (37).The education of more midwives is paramount to the access of care for many women. Formal midwifery training is conducted in universities through a four year bachelors of midwifery program. Benadir University is one of the institutions that offer this program in their Faculty of Health Sciences. By way of example, the Benadir University program costs nearly 500 USD yearly and employs an advanced curriculum taught by highly qualified professors (34).

Although all universities are situated in urban centers, midwifery training has expanded to women living in rural areas, teaching them different life saving skills. Women and Health Alliance International (WAHA), an NGO, has taken a lead in developing a “train the trainer” program, where experienced midwives are taught how to relay reproductive health techniques to laywomen in the community (37). Although not a formal educational endeavour, WAHA has helped fill a gap in training midwives in rural areas.

Another local NGO embarking in health service education is SOS. The SOS Vocational Training Centre, located in Mogadishu, offers a three-year state-approved training program for nurses or midwives. SOS provides programs such a nursing class, which trains 20 student nurses in surgery, orthopedics, trauma, midwifery, and HIV/AIDS prevention education (38). Although it is not from a formal educational institution, this is another example of how NGOs are attempting to fill the gaps in reproductive health education.

The federal government also does not have their educational policies publicly available. The government requires licences for practicing in Somalia as a doctor or nurse, but it is unclear how these licences are obtained or how long they remain valid. There are also no written policies available on continuing medical education, which is important for staying up-to-date on current practices. It is difficult to address the quality of the education that physicians receive, because little information is publicly available. However, the increase in educational institutions in the last half decade raises concerns about the consistency, quality, and comprehensiveness of education and training.

With the first federal government in over two decades and therefore a more stabilized security situation, there is currently a window of opportunity to improve reproductive health education, training, and service delivery in Somalia. Every effort should be made to push the agenda to improve access to and the quality of reproductive health services. The country is in a post-conflict rebuilding phase with a government that has created a strategic plan for health care. Some of the tenants in the plan include the creation a national healthcare system which aspires to provide universal access to the population and quality reproductive health care (39). It is a critical time to collaborate with the government to prioritize women's reproductive health, specifically by investing in high quality reproductive health education and training.

Rationale

Reproductive health indicators are dire in Somalia but there is interest among stakeholders, including the federal government, to improve services and systems. Implementing and expanding access to high quality reproductive health services can only occur with trained professionals to provide these services. Local stakeholders cannot work toward improving reproductive health service delivery without first understanding the current reproductive health curricular content of existing educational and training programs. My thesis aims to understand and document the current state of reproductive health education in Somalia, serving as a stepping stone to inform future priority activities and ultimately improvement care.

Research question

My thesis aims to explore the reproductive health education and training of health service professionals in Somalia. Although reproductive health is a broad term, my project will specifically focus on pregnancy and childbirth, contraception, abortion, and sexual and gender-based violence. Through a multi-methods study with stakeholders, my thesis will address the following research question: What is the state of reproductive health education and training of health service professionals in Somalia and how might education and training be improved?

Study objectives

This multi-methods study combines document review with interviews and focus group discussions (FGDs) in order to address the following specific aims:

1. Evaluate the coverage of reproductive health issues in educational and training programs for physicians, nurses, and midwives;

2. Identify strengths and weaknesses in existing programs; and

3. Explore different avenues for expanding and/or improving reproductive health education and training with different stakeholders.

Outline of thesis

I have chosen to write the thesis using the thesis-by-articles model, which consists of five chapters.

1. Chapter one: Introduction. This chapter focuses on the background of the project and provides relevant context. The introduction dives into the current situation in Somalia, the historical context of the country, and provides the study rational and objectives.
2. Chapter two: Methods. This chapter focuses on the methodological approach employed for this project and the analytic plan. This chapter also includes a statement of contribution.
3. Chapter three: Article #1. This article focuses on the reproductive health education of medical, nursing, and midwifery students in Mogadishu and concentrates on four reproductive health topics. We submitted this article to *Reproductive Health Matters* in May 2017.
4. Chapter four: Article #2. This article focuses specifically on the coverage of abortion in medical, nursing, and midwifery education and training in Mogadishu. I have formatted this article for submission to *Contraception*. We intend to submit this article once we have receive reviews on Article #1.
5. Chapter five: Discussion. The final chapter brings together both articles and provides context in the post conflict setting and the trajectory of higher education in Somalia with

insights from the published literature. This chapter also includes a discussion of limitations, the significance of the findings, and future directions. I finish with an examination of the issues of positionality and reflexivity.

Chapter 2: Methods

This study was grounded in action research. Action research is described by Williamson as, "A process by which change is achieved and new knowledge about a situation is generated" (40). By understanding the current state of the reproductive health education of RHWs in Somalia, this thesis aims to generate knowledge and identify strategies by which education and training could be improved.

This multi-methods study involved primary data collection in Mogadishu, Somalia and comprised three distinct components: 1) A review of curricular materials; 2) Key informant interviews; and 3) Focus group discussions. By reviewing curricula and curricular materials (syllabi, textbooks, lecture materials, notes) of formal educational institutions that train RHWs, and combining these data with the lived experiences of the decision-makers, educators, and students in these programs, I expected to provide an accurate representation of the status of reproductive health education in Somalia. Below I outline each component in more detail.

This project was a multi-methods qualitative research project. We decided that a qualitative approach was appropriate in order to explore the context and gain insight regarding lived experiences. This is especially important when it comes to this context as there is little information on the reproductive health sector in Somalia and there is also a dearth of information about higher education.

Curricula review

In this first component of the project, we conducted a structured curricular review using multiple methods including employing two curriculum review tools developed by the teaching and learning services (TLSS) at uOttawa, and reviewing documents. I used the curriculum

analysis tool to assess the specific reproductive health courses offered by two universities in Mogadishu. This tool was designed as a self-assessment tool provided to the instructors of courses to assess different aspects of the course they taught. The assessment focused on determining how certain courses contribute to the program learning objectives, whether there are any gaps, inconsistencies or redundancies and how well the outcomes were achieved by the students (41).

I was able to review the curricula of the nursing and medical programs at our two local university partners using this program outcome tool. I began by engaging with the lectures to determine the relevant courses focusing on the four reproductive health areas of concentration for this project. Unfortunately, we were unable to assess the curricula for the two midwifery programs in Mogadishu.

The second tool I used to assess the curricula was a strengths, weaknesses, opportunities, and challenges tool. This tool was also developed by the TLSS to better understand programs based on these four attributes. I focused on the professors' perspectives about the programs with a specific focus on our four chosen reproductive health topics. Similar to the first assessment tool, this was completed with our two university partners but we were unable to conduct it with the two midwifery programs in Mogadishu. This tool took between 20 and 30 minutes to complete and was conducted in English as the language of instruction is English.

The third component of this portion of the project consisted of a document review of the medical, nursing, and midwifery programs' reproductive health courses. This included a review of the program structure, course sequence, course and program objectives, syllabi for the reproductive health courses, and lecture notes for the specific reproductive health courses. I conducted the document review at the two host universities, and with a midwifery program at a

University of Mogadishu. I formally memoed after each program review to document the findings and record my initial thoughts and, later, my interpretations.

Key informant interviews

In this second component of the study, we conducted formal, semi-structured key informant interviews with stakeholders in Mogadishu. We employed purposive sampling and relied on already established local connections. Ultimately, we recruited 20 key informants to participate in the interviews. We identified participants who were involved with health education and training, reproductive health service delivery, and health systems and health systems reform. I conducted the interviews to assess key informants' attitudes toward and knowledge about various reproductive health topics ranging from pregnancy and childbirth, contraception, abortion, and sexual and gender-based violence. Key informants included representatives from the federal government (Ministry of Health, Ministry of Higher Education), Deans, Program Directors, and Professors in medical and health services faculties, practicing Ob/Gyns, nurses, and midwives in different sectors of the health system, hospital administrators, and representatives from local NGOs who deal with reproductive health.

Using a semi-structured format, I created a general interview guide, which I then tailored for different types of respondents based on expertise and position. However, key domains of inquiry included: participant demographics, regulations and standards for reproductive health workers, the process by which educational objectives, standards, and curricular materials are developed, individual experiences with training and education, the degree to which recent graduates are prepared to meet reproductive health needs of the Somali populations, strengths and weaknesses in current education and training, and avenues for improving and expanding

reproductive health education in Somalia. I administered the interviews in the language of choice of the interviewee (Somali or English). I audio-recorded the interviews with the consent of the participants. I took notes during the interviews and engaged in a formal memoing process after each interview; formal memos allowed me to begin the analytic process as well as reflect on the interviewer-participant interaction. I then transcribed and translated the interviews to English and managed all data with ATLAS.ti software.

Focus group discussions with health professionals and students

The third component of this project was focus groups discussions with health professionals and students. These FGDs focused on participants' knowledge of, opinions toward, and experiences with reproductive health education in Mogadishu. This portion of the project consisted of seven FGDs comprised of reproductive health professionals and students. Five of the focus group discussions were with health professionals and two were with students. Each FGD consisted of between five and nine participants. The groups were also gender segregated; four groups consisted of women while the remaining three were with men only (Table 1) According to Morgan (42), segmented samples are more homogeneous allowing for more free-flowing conversations amongst participants. This also allows for establishing social norms as well as understanding outliers. For a topic such as reproductive health education, sex segmentation may help foster a safe environment to exchange ideas. There was a female research assistant (RA) that worked with me in the field in Mogadishu; she took the lead in facilitating the discussion groups with women.

With the assistance of both of our university partners, we were able to secure two spaces to conduct these FGDs. Our partners also reached out to their networks and I asked participants

of the key informant interviews to share the information about the upcoming FGDs with their networks. I also posted flyers at hospitals and clinics as well as at universities and made announcements in both medical and nursing classes. Participants were eligible to participate if they held the right educational qualifications (currently studying or having graduated from registered medical, nursing or midwifery programs) or were a registered practitioner (having registered with the Ministry of Health in the areas of medicine, nursing, and midwifery) and spoke sufficient Somali.

I facilitated the male FGDs while Mariam Hassan, my research assistant led all the female FGDs. I was the notetaker for all the FGDs I did not facilitate and vice versa and all discussions were in Somali lasting between 75 and 100 minutes. All FGDs were audio-recorded with the consent of the participants. Discussions began with introductions, followed by general opinions of higher education in Mogadishu, followed by general opinions of reproductive health education. This led to our main discussion surrounding reproductive health education and the importance of the four reproductive health topics: pregnancy and childbirth, contraception, abortion, and sexual and gender based violence. We concluded the discussion with future directions in higher education and reproductive health from the participants. As a thank you to the participants and to cover their opportunity or travel costs, we gave them USD10.

Analysis

In order to effectively address my research question, I employed a structured method of analysis for each component of data collection. The first component began with the review of curricula and curricular materials. Analysis included looking for agreement between the curricular objectives and the curricular materials, and assessing the accuracy, timeline of topic

delivery, and methods of content delivery. This approach allowed me to assess the quality and comprehensiveness of the information against current educational standards of the topics in reproductive health education outlined by the WHO (43, 44).

The analysis of the second and third components of data collection also followed a structured plan of analysis. All the interviews and FGDs were translated to English (as necessary) and transcribed in the field and completed upon my return to Ottawa. Using the transcripts, memos, and field notes, I analyzed the data for content and themes. I used both *a priori* (predetermined) and inductive codes and categories and ATLAS.ti to manage my data. I then worked with my coded data to identify themes after which I began the interpretation process, in which I identified relationships between themes and concepts. I first analyzed each component separately and then combined the components, looking for concordant and discordant themes. With my analysis plan, I believe to have a nuanced view of reproductive health education in Somalia.

Ethics clearance

We received ethical clearance from the Social Sciences and Humanities Research Ethics Board at the University of Ottawa (File# 03-16-20) which is included as **Appendix C**. In addition, researchers in medicine at the University of Somalia reviewed our study protocol and all instruments and determined that our approach met local research standards.

Statement of contribution

I was the principal investigator for this project and my role included: designing the project, developing the study instruments, conducting the field research, translating, transcribing,

analysing, coding, and interpreting the data collected, and finally writing two articles with some of the key findings.

Dr. Angel Foster, my supervisor for this project, played a significant role in the project through her guidance through every step of the project I conducted. She guided me through the inception of the project, the proposal writing process, developing the research materials, preparing the ethics files, to finally writing the articles. She also held a two-day workshop to better train me in conducting interviews, FGDs, and using ATLAS.ti qualitative software to manage my data.

Mariam Hassan, my research assistant played an important role in the FGD portion of the project. She helped with recruitment of students and professionals and facilitated the FGDs with women and served as the notetaker in FGDs with men. She also participated in the debriefing and memoing following each FGD.

Chapter 3: Article #1

We submitted this article to *Reproductive Health Matters* in May 2017 for a themed issue on sexual and reproductive health in humanitarian settings. Consequently, this article is formatted for the requirements of that peer reviewed journal.

Training reproductive health professionals in a post-conflict environment: Exploring medical, nursing, and midwifery education in Mogadishu, Somalia

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Training reproductive health professionals in a post-conflict environment: Exploring medical, nursing, and midwifery education in Mogadishu, Somalia

Abstract

Following two decades of civil war, Somalia recently entered the post-conflict rebuilding phase that has resulted in the rapid proliferation of higher education institutions. Given the high maternal mortality ratio, the federal government has identified the reproductive health education of health service professionals as a priority. Yet little is known about the coverage of contraception, abortion, pregnancy childbirth, and sexual and gender-based violence in medicine, nursing, or midwifery. In 2016, we conducted a multi-methods study to understand the reproductive health education and training landscape and identify avenues by which development of the next generation of health service professionals could be improved. Our study comprised two components: interviews with 20 key informants and seven focus group discussions (FGDs) with 48 physicians, nurses, midwives, and medical students. Using the transcripts, memos, and field notes, we employed a multi-phased approach to analyze our data for content and themes. Our findings show that reproductive health education for medical and nursing students is inconsistent and significant content gaps, particularly in abortion and sexual and gender-based violence, exist. Students have few clinical training opportunities and the overarching challenges plaguing higher education in Somalia also impact health professions programs in Mogadishu. There is currently a window of opportunity to develop creative strategies to improve the breadth and depth of evidence-based education and training and multi-stakeholder engagement and the promotion of South-South exchanges appear warranted.

Introduction

Somalia recently emerged from a two decade-long civil war during which period already fragile systems effectively collapsed [1,2]. Prior to the civil war, Somalia's health system was widely recognized as weak and the government directed the majority of foreign aid toward military spending [1]. The collapse of this government in 1991 resulted in chaos, civil conflict, the destruction of local infrastructure, and a lack of regulation [3]. During the civil war years, public sector institutions, including formal educational institutions and hospitals, were sparse, leaving 80% of the population without access to basic health care [4,5].

Somalia's reproductive health indicators reflect these dynamics. At over 1,000 deaths per 100,000 live births, Somalia has the third highest maternal mortality ratio in the world as well as one of the highest infant mortality rates at just under 100 deaths per 1,000 live births [6,7]. With a total fertility rate of just under six children per woman and a contraceptive prevalence rate of only 1% [8], Somalia's reproductive health indicators evince the lack of available pregnancy, childbirth, and family planning services. Indeed, abortion is only legally permissible in Somalia to save the life of the woman [9]. Unsafe abortion, delivery complications, and the lack of access to services account for the majority of reproductive health-related deaths in Somalia [10]. Recent qualitative research with both key stakeholders and women in Somalia has showcased these pronounced reproductive health needs [11,12].

The reproductive health challenges facing Somalia are exacerbated by a dearth of health service professionals; obstetrician/gynaecologists (Ob/Gyns), nurses, and midwives are few and far between [8,13]. The lack of functioning formal educational institutions during the civil war meant that the training of a generation of healthcare workers did not occur. Out-dated medical procedures, practices based on tradition rather than evidence, and an absence of best practice protocols further aggravated the decay of the health system during the conflict period [8]. For those trained before the civil war, continuing education and training stagnated and licensing exams and oversight boards lapsed as the central government crumbled.

The new federal government in Somalia has prioritized developing the health workforce and replacing the aging cohort that will soon be leaving the profession. The overarching plan includes a number of strategies from educating and employing more young people in health care to minting more midwives, as they require less time to train and are generally preferred by women [2]. Consequently, over the last 10 years, the formal education sector has changed drastically; in 2013, 22 universities were operational in Mogadishu, of which nearly half housed public health or medical sciences faculties, and accounted for about 20% of the 25,000 higher education students in Somalia's capital [14]. The number of functioning post-secondary institutions nearly doubled by 2016 [13] and the private sector has been a major driver of this proliferation [14,15].

After the installation of the first federal government in over 20 years and the emergence of a relatively stable security situation, a window of opportunity arose to explore the current state of reproductive health education and training. In an effort to inform reproductive health policies and programming in Somalia, we conducted a multi-methods study to understand the reproductive health education and training landscape and identify avenues by which development of the next generation of health service professionals could be improved.

Methods

In April-June 2016, our research team conducted a multi-methods study dedicated to reproductive health education in Somalia. Our overarching project included a review of existing curricular materials, key informant interviews with stakeholders in the health and education sectors, and focus group discussions (FGDs) with health professionals in medicine, nursing, and midwifery and medical students in Mogadishu, Somalia. Although reproductive health encompasses a range of topics and issues, in this study we focused on contraception, abortion, pregnancy and delivery, and sexual and gender-based violence. In this paper, we focus specifically on the results from the key informant interviews and the FGDs.

Data collection: Key informant interviews

We conducted 20 key informant interviews with leaders and decision-makers in a range of positions, including representatives from the Ministries of Health and Education, Deans of and professors at public and private universities, representatives from local and international non-governmental organizations (NGOs), hospital staff and administrators, and practicing health care professionals. To obtain a range of perspectives, we purposively contacted individuals in specific organizations and institutions, using publicly available information, the personal networks of the study team, and early participant referrals.

AY, a Somali-Canadian completing his master's degree in the Interdisciplinary Health Sciences program at the University of Ottawa, interviewed all key informants in English and/or Somali, after receiving training from AMF, a medical anthropologist and medical doctor with extensive experience conducting reproductive health research in conflict-affected settings. Using an interview guide developed specifically for this study, our domains of inquiry included participants' demographic characteristics, knowledge and experiences related to reproductive health services and higher education, insights into curricular development and the incorporation of reproductive health topics into training programs, perspectives on the challenges facing health professions education, and ideas for improving and expanding reproductive health education in Somalia. Our interviews averaged 50 minutes and took place at the key informant's place of business or in offices provided by local partners. With the consent of participants, we audio-recorded all interviews, which we later transcribed and translated (as necessary) into English. Immediately after each interview AY formally memoed, a reflexive process that also served as a critical analytic step.

Data collection: Focus group discussions

We conducted seven FGDs with health service professionals and medical students. In order to create a degree of homogeneity, we organized two FGDs each with physicians, nurses, and medical students and one FGD with midwives. Given prevailing social norms and our topic of inquiry, we gender-segregated all of the FGDs; because midwifery is a woman-dominated field we conducted only one FGD. Representatives of our local university partners, the University of Mogadishu and Al-Imra International University, helped recruit participants from several hospitals, clinics, and universities in the city. Recruitment took place through announcements, word-of-mouth, and personal networks.

Each group comprised five to ten participants. We held all of our FGDs in a private meeting space provided by our local university partners. AY facilitated all discussions with men and MH, a Somali national with a medical and research background, co-facilitated and took notes throughout. After receiving training from AY, MH led the discussions with women and AY served as co-facilitator. We used a discussion guide created specifically for this study and led all discussions in Somali.

The discussions began with participants introducing themselves and providing basic demographic information. We then explored participants' knowledge of, attitudes toward, and experiences with

reproductive health care and service provision in Somalia. Our next domain of inquiry centered on participants' knowledge about and opinions of reproductive health curricula and curricular materials. We then explored the participants' knowledge of and opinions about contraception, abortion, pregnancy and delivery care, and sexual and gender-based violence. We concluded with a discussion on priority areas and avenues for improving and expanding reproductive health education and service delivery in Mogadishu. We obtained verbal consent from all participants prior to the start of the FGDs and audio-recorded the discussions. Each discussion lasted an average of 90 minutes. To thank participants for contributing to the study and to cover costs associated with travel, we gave participants USD10. Immediately after each discussion, AY and MH debriefed on the process, content, verbal and non-verbal dynamics, and facilitation. In addition, AY formally memoed after each FGD in order to reflect further on the overarching dynamics and begin the analytic process. We later transcribed and translated to English all discussions.

Data analysis

Our analytic plan centered on content and themes. We used ATLAS.ti qualitative data management software to organize our data, comprised of English-language transcripts, memos, and field notes. Content and thematic analysis is an iterative, ongoing process that begins with data collection. Based on our study questions and the interview and discussion guides we developed *a priori* (predetermined) codes and categories and as we familiarized ourselves with the data we created additional codes to capture emergent ideas; this process thus involved both deductive and inductive techniques [16,17]. For the FGDs we used a modified constant comparative analytic approach to explore similarities and differences between the groups based on field, gender, and professional/student status. Initially, we analysed the two components of the project separately. In the final phase of the analytic plan, we combined the findings from the key informant interviews and the FGDs, paying particular attention to discordance. Regular study team meetings throughout the process guided our overall interpretation.

Ethical considerations

The Social Sciences and Humanities Research Ethics Board at the University of Ottawa approved the project. In addition, researchers in medicine at the University of Somalia reviewed our study protocol and all instruments and determined that our approach met local research standards. In the results section we present key themes that emerged during our discussions and include illustrative quotes to support our interpretation. We have masked or redacted all personally identifying information and use pseudonyms throughout.

Results

Participant characteristics

We interviewed 20 key informants, 11 men and nine Women. Our key informants worked for a range of institutions and organizations, including government agencies, universities, hospitals/clinics and NGOs. On average, our key informants had worked in the field of reproductive health for 15 years. With respect to our FGDs, 48 people participated, 18 men and 30 women. Our health service professional participants ranged in age from 22 to 34; on average they had worked in their respective fields for eight years. Our 14 medical student participants attended three different medical schools in Somalia. We provide more information about the characteristics of our FGD participants on Table 1.

Coverage of reproductive health is inconsistent and significant content gaps exist in medicine and nursing

"Each university creates its own curriculum…[Universities] try to follow the international standards but there are no curricula that the Ministry brings out." (Ali, lecturer in medicine)

Both key informants and FGD participants repeatedly emphasized that the coverage of reproductive health varies tremendously in different medical and nursing programs. A number of key informants noted that the absence of national curricular guidelines contributed to this dynamic. As Abdirahman noted, *"I teach [medicine] at multiple universities, but it is not the same. Each university places its credit hours [differently] per topic."* As a consequence, reproductive health coverage is influenced by the priorities of leaders and decision-makers at individual programs as well as the medical and nursing curricula in other countries; many individual schools are funded by or directly tied to programs in Turkey, the Arab world (and the Gulf states in particular), and East Africa.

Despite the variability between institutions, some reproductive health topics are consistently prioritized over others. Students in all medical and nursing programs receive didactic information about pregnancy and childbirth. A Dean at a private university in Mogadishu explained, *"[Perinatal education is] very important…from how to deliver, [manage] the pregnancy, after the delivery, everything's important."* Key informants and FGD participants described this component of reproductive health as routinely incorporated into both maternal health and family health courses. Birth spacing and contraception are also included in most medical and nursing curricula. However, in both medicine and nursing there appears to be a focus on traditional rather than modern methods. Fatima, a nurse who participated in an FGD, explained, *"We learned about contraception, but we believe the traditional methods are the best."* Our discussions with both key informants and health professionals in the FGDs suggest that misinformation about modern contraceptive methods abounds and is reinforced by didactic instruction in medical and nursing programs. As another nurse in our FGDs explained, "*If I use an injection [Depo-Provera] I might pick up a disease. Now there's a ring, [What] if I lose it?...The effects are too adverse.*" Aisha, a medical student, echoed this sentiment, *"We have been using them [traditional methods] for a very long time. Why should we use these things [modern contraceptives] when they bring side effects? And what if we can't have kids anymore? Who's going to fix that?"*

In contrast with pregnancy and contraception, induced abortion care and sexual and gender-based violence (SGBV) receive scant didactic coverage. Medical students and recent medical school graduates reported receiving some exposure to post-abortion care and miscarriage management and generally felt that responding to pregnancy loss was an essential part of maternal health. However, both induced abortion and SGBV issues appear to be conceptualized as familial and social issues, not medical issues. In response to questions about the coverage of SGBV, one key informant expressed sentiments that were widely held by others, *"We have procedures in place to deal with issues within the family; you go to the elders, so it's not very important in medical education*."

Finally, although didactic coverage varies by topic and institution, participants in both study components reported that medical and nursing students receive very little practical training in reproductive health. Key informants identified the lack of clinical training opportunities, in general, as the biggest challenge facing medical and nursing programs in Mogadishu. Fathiya, a government worker, stated "*They don't have [clinical training]…because you need hospitals that are equipped and you need them to take part and to have good doctors in place to be able to teach [students]."*

<u>Enhancing pregnancy and childbirth education and training priorities in medicine and nursing</u>

"*Pregnancy and child birth are very important areas; it's saving the life of two people!*" (Fathiya, government worker)

Key informants repeatedly and consistently identified comprehensive perinatal care as a top priority for both medicine and nursing. Our interviewees and FGD participants recognized the high maternal mortality ratio and infant mortality rate as critical for the country and asserted that all health professionals – not just women – should be comprehensively trained. Asli was met with agreement by other participants in the midwifery FGD when she said, "*Men should learn [childbirth care] too; it's important for everyone to be able to save a life.*" Participants in both components of the project emphasized the need for didactic instruction, clinical training, and public awareness raising campaigns about the importance of institutional deliveries as ways of addressing a significant public health problem in Somalia.

In contrast, most key informants expressed minimal interest in prioritizing comprehensive contraceptive coverage in medicine and nursing education and training. Participants in both components indicated that a lack of overall demand, concerns about side effects, and mistrust of the Global North's motives in promoting family planning shaped their reservations. A physician in one of the FGDs commented on contraception, *"That's a Western thing that, you know, they [Somali women] reject, so it's unimportant.*" Key informants and FGD participants often referenced socio-cultural norms and dominant local interpretations of Sunni Islam. When nursing professionals in the FGDs discussed the challenges in improving contraceptive education among health service professionals, one participant expressed the view of the group, "*Somalis are ready to have children, we are not at a stage where we need to stop pregnancies yet.*"

Similarly, when discussing the role of comprehensive abortion care in medicine and nursing education participants frequently referenced their perceptions of the socio-cultural and religious permissibility of induced abortion. Participants generally believed that an abortion was justified to save the life of the woman but otherwise ended a life and interfered with God's will. As Saida, a midwife, explained, "*God entrusted us with this knowledge; we must use it to please him [by saving lives] and not disobey him [by inducing abortions].*" However, key informants and some FGD participants acknowledged that abortions occur and thus health professionals should receive didactic education on the topic. The director of an NGO in Mogadishu, Zaynab, commented, "*Abortion as knowledge is fine to learn about. But if people learn about [doing it], they will perform abortions on anyone, and that's not good for our society."*

The conceptualization of SGBV as a social rather than a medical issue meant that participants in both components of the project did not feel that training in screening, documenting, managing, or treating SGBV cases was a priority. Key informants were especially emphatic that SGBV should be addressed through familial and community processes. As expressed by a representative of an international NGO, "*We have procedures in place to deal with issues within the family – you go to the elders, so it's not very important in medical education*." Students echoed this opinion; as expressed by one FGD participant, *"It's not important for us to learn if we aren't going to use it. [There's] things that are more important for us to deal with."*

<u>Midwifery programs consistently include a range of reproductive health issues</u>
"We receive midwives year round and we train them on how to do deliveries until they are comfortable [doing them] alone." (Faisa, midwifery instructor at a teaching hospital)

Key informants and FGD participants repeatedly sang the praises of the midwifery programs in Somalia, describing these programs as the "gold standard" for reproductive health education and training. Key informants explained that, unlike medicine and nursing, the Somali government plays a significant role in midwifery education and influences the curriculum, which is standardized. The expansion of

midwifery programs in the post-conflict period resulted from a government initiative to build local capacity and strength perinatal services.

Drawing from international guidelines, both key informants and midwives in our FGD reported that programs in Mogadishu include a range of reproductive health issues and prioritize clinical training opportunities. Somali midwifery programs focus on training a cadre of women to perform safe deliveries in the community and to recognize when to refer a pregnancy or laboring woman to a hospital for an institutional delivery. Placements in maternity hospitals and with NGOs help ensure that midwives develop appropriate clinical skills.

Midwifery students are also introduced to a range of contraceptive technologies, particularly for use in the post-partum period. As Asli explained, "*We are taught about the different modalities [of contraception] and their efficacy as well as how to recommend it to women."* The programs also routinely incorporate information about abortion and SGBV. According to Asli, "*We don't really learn about how to perform abortions, but to recognize when to refer people, and [it's the] same for sexual and gender based violence*." Thus midwifery programs appear to incorporate a wider range of reproductive health issues into routine education and training than medical or nursing programs.

<u>Broader challenges facing higher education influence reproductive health coverage</u>
"*Our biggest problem is the lack of the government*." (Muna, nursing FGD participant)

According to our key informants, higher education in Somalia faces a number of challenges. The proliferation of privately run higher education institutions is rapidly expanding post-secondary opportunities. However, the lack of government oversight has resulted in a lack of unified standards and private institutions. Abukar, a lecturer, explained, *"There are too many universities and they all are competing for students, so their standards aren't kept."* Key informants also reported that due to the fear of losing students to their competitors, universities often have to streamline programs and get students out quickly; this has implications for how robust the curricula are.

Participants in the medicine and nursing FGDs also repeatedly expressed concern about the quality of health professions training. Lack of clinical placement opportunities, lack of consistency in the curricula, and the absence of national standards plague medicine and nursing programs in general, not just in the area of reproductive health. Consequently, both key informants and FGD participants expressed the need for the Somali government to assert control over all health professions, not just midwifery, and facilitate the development of national standards and curricular priorities.

Discussion
Over the last decade, the higher education sector in Somalia has grown significantly; most of this growth has been concentrated in the capital of Mogadishu [14,15]. These institutions, the majority of which are private, have become a symbol of progress in the post-conflict era of enhanced stability and security. In 2013, more than 50,000 students attended over 40 institutes of higher learning, a number that continues to increase with each passing year [14]. Yet the proliferation of private institutions has resulted in fierce competition for limited resources and qualified personnel; just over 60% of lecturers hold a PhD or its equivalent (11%) or a master's degree (50%) [14]. The majority of these institutions lack libraries, information technology facilities, and science laboratories, dynamics which compromise the quality of education and the ability of students in a variety of fields to train to competence [1,14].

The overarching dynamics are influencing the comprehensiveness and quality of reproductive health in medicine and nursing. Somali stakeholders, including the federal government, have identified reproductive health education as necessary for improving the current status of women in Somalia [2]. However, our findings show that health service professionals lack comprehensive reproductive health information and training and there is tremendous inconsistency in what is offered. Midwifery stands out as an exception; this field has a unified curriculum that is informed by the global educational standards of the International Confederation of Midwives [18]. Midwifery programs have benefited from logistical support from the United Nations Population Fund (UNFPA) and oversight by the Somali government and have been recognized for the quality and comprehensiveness of training and education. The trajectory of midwifery in Somalia may offer lessons for those engaged in ongoing efforts to improve education and training, in general and in reproductive health, in both medicine and nursing.

With a lack of standardization in reproductive health curricula in medicine and nursing, decisions regarding what to include become discretionary. As a result, content and coverage appears heavily influenced by socio-cultural and religious beliefs about what is permissible, acceptable, and constitutes a health issue. Theological positioning within Sunni Islam generally deems the use of non-permanent methods of contraception in the marital relationship and induced abortion prior to ensoulment a religiously permissible [19-21]. However, participants in this study did not routinely engage with these dominant interpretations a finding that is consistent with previous research in Somalia [11]. Promoting the exchange of ideas and information between representatives of programs in Mogadishu and representatives of programs in other Sunni Muslim majority countries that have incorporated a more comprehensive range of reproductive health issues could prove valuable.

Identifying creative strategies to increase clinical training opportunities in comprehensive reproductive health issues for medical and nursing students appears warranted. In the absence of overarching changes in the higher education system resulting in increased government oversight, these efforts will likely take place through the NGO and private sectors. Supporting efforts by international NGOs to offer high quality, evidence-based training and clinical placement opportunity could fill a significant gap. Tapping into the vast Somali diaspora of health professionals might also be a mechanism for increasing culturally-resonate training capacity. Finally, facilitating efforts to create voluntary quality assurance boards or accreditation standards [22] could support the eventual development of national standards.

Limitations

Our study has a number of limitations. Although we are confident that the themes we identified have import beyond the immediate study population and reflect broader social norms, the qualitative nature of this study by definition means that our findings are not generalizable. Furthermore, for a number of pragmatic reasons, including the security situation at the time of data collection, we limited our project to Mogadishu. Although the majority of universities and students are located in the capital, future projects would benefit from including universities from other parts of the country. Positionality is important in qualitative research and we understand that the researchers influenced both the key informant interviews and the FGDs. We took multiple measures, including memoing debriefing, and holding regular team meetings, to understand these influences and increase the credibility and trustworthiness of the study.

Conclusion

Creating a comprehensively trained health workforce and incorporating a range of reproductive health issues into health professions programs are significant priorities in Somalia. However, reproductive health education continues to be fragmented. Midwifery education provides a model for what can be

achieved with multi-sectoral collaboration. The post-conflict rebuilding climate and the stated commitment of the federal government to reducing maternal death and disability offers a window of opportunity to develop creative strategies to improve the breadth and depth of evidence-based education and training.

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Table 1: Composition of our seven FGDs with 48 participants

FGD	Type	Sex	Number of Participants	Description
1	Nurses	F	8	Female nurses working in Mogadishu between the ages of 22 and 34
2	Nurses	M	8	Male nurses working in Mogadishu between the ages of 22 and 34
3	Physicians	M	5	Male medical doctors working in Mogadishu between the ages of 24 and 34
4	Physicians	F	5	Female medical doctors working in Mogadishu between the ages of 24 and 34
5	Medical students	F	9	Female medical students attending 3 different universities in Mogadishu between the ages of 18 and 34
6	Medical students	M	5	Male medical students attending 3 different universities in Mogadishu between the ages of 18 and 34
7	Midwives	F	8	Female midwives working in Mogadishu with some formal education between the ages of 18 and 34

Chapter 4 – Article # 2

This article has been formatted for submission to Contraception. We intend to submit the manuscript once we have received reviews on Article #1.

"If they learn about abortion then they will have to perform them on prostitutes": Challenges to incorporating abortion care into health professions training in Mogadishu, Somalia

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"If they learn about abortion they will have to perform them on prostitutes":

Challenges to incorporating abortion care into health professions training in Mogadishu, Somalia

Abstract

Introduction: The Somali national health system, crippled during two decades of conflict, is faced with a maternal mortality ratio of approximately 1,200 and a total fertility rate of 5.89. Abortion is severely legally restricted; unsafe abortion is a leading cause of maternal death and a major contributor to reproductive morbidity. However, little is known about how health professionals are trained to interpret the abortion law, provide safe and legal abortion care to eligible women, or treat abortion-related complications. Through this multi-methods qualitative study we aimed to assess the coverage of abortion in health professions education and training programs in Mogadishu, Somalia.

Methods: In May-June 2016, we conducted 20 key informant interviews and seven focus group discussions with 48 health professionals and students. We employed a multi-phase approach to analyze our data for content and themes.

Results: Although reproductive health instruction varies widely between institutions, coverage of comprehensive abortion care is minimal. Most stakeholders believed abortion to be an important topic, but had reservations about offering training in abortion care procedures and felt practical training was not a curricular priority. Students' opinions generally reflected those of their professors.

Discussion: Somalia has recently entered a post-conflict rebuilding phase and improving health systems and services is a national priority. Our findings suggest that despite the burden that unsafe abortion places on the health system, comprehensive abortion care is largely neglected in health professions

education and training. Supporting efforts to incorporate information and training on abortion and post-abortion care provision appears warranted.

Implications: Our study marks an important first step in understanding curricular content in an environment where the educational system has long been fragmented. This study sheds a light on the current state of abortion education in Somalia and identifies areas warranting immediate attention.

Keywords: Abortion, East Africa, humanitarian setting, Islam, medical education, nursing education, post-abortion care

1. Introduction

Somalia has recently emerged from two decades of civil war and is currently in a rebuilding and reconstruction phase [1-2]. The national health system, crippled during years of conflict, is faced with a maternal mortality ratio of approximately 1,200 deaths per 100,000 live births and a total fertility rate of 5.89 children per woman [3]. The contraceptive prevalence rate is one of the lowest in the world and the unmet need for contraception is estimated at over 30% [3-4]. Women in Somalia face a heightened risk of sexual and gender-based violence, which is strongly correlated with forced displacement. Indeed, in 2012 United Nations partners registered over 1,700 cases of rape in the capital city of Mogadishu alone [5]. A 2014 report entitled, "Here rape is normal" documented the pervasiveness of sexual and gender-based violence in Somalia, the toll it has taken on the country's most vulnerable women, and how the crimes are unpunished or left to customary laws [5].

These dynamics place Somali women at considerable risk of unintended pregnancy. However, women have limited options when faced with an unwanted pregnancy. Article 15-5 of the 2012 Federal Constitution reinforced longstanding legal restrictions on abortion, proclaiming abortion contrary to Shariah (Islamic law) and permissible only in cases of necessity, such as to save the life of the woman [3-4]. Consequently, almost all abortions that take place in Somalia are classified as unsafe; unsafe abortion is one of the leading causes of maternal death in the country and a major contributor to maternal disability [6]. Consistent with other settings where abortion is severely legally restricted, recent research in Somalia has documented that women use a variety of strategies to induce an abortion and seek the help of untrained providers or "sweepers" to do so [7].

Given the overarching context, there is dire need for trained reproductive health professionals in Somalia. However, physicians, nurses, and midwives are few and far between [8-9]. Because of the lack of operational formal educational institutions during the civil war the training of health care workers did not occur for a generation. However, recent years have witnessed a proliferation of private

post-secondary institutions; nearly half of all higher education institutions are now in Mogadishu [10]. However, little is known about the reproductive health content of health professions education and training. In 2016, we conducted a multi-methods qualitative study to assess the coverage of contraception, abortion, pregnancy and delivery, and gender-based violence in medical, nursing, and midwifery programs in Mogadishu [11]. In this article, we specifically report on the findings related to abortion care and focus on how health service professionals in Mogadishu are trained to interpret the abortion law, provide safe and legal abortion care to eligible women, and treat abortion-related complications.

2. Methods

Our multi-disciplinary project team conducted fieldwork in Somalia's capital in the summer of 2016; we have provided a detailed description of our methods elsewhere [11]. In brief, our assessment included a review of curricula at both public and private sector institutions, interviews with 20 key informants, and 7 focus group discussions (FGDs) with health care providers (n=5) and students (n=2). In this paper we draw from the interview and FGD components of the project.

2.1. Data collection: Key informant interviews

We identified key informants through our study team's networks and through recommendations from early participants. We aimed to obtain a range of perspectives and thus purposively recruited well-positioned individuals from the Ministries of Health and Education, Deans and Professors of public and private universities, representatives from local and international non-governmental organizations (NGOs), hospital staff and administrators, and practicing health care professionals. After receiving training from AMF, AY, a master's student in the Interdisciplinary Health Sciences program at the University Ottawa, conducted 20 key informant interviews in either English or

Somali, audio-recorded interviews with participant consent, took notes throughout, and wrote reflective memos immediately afterward. Interviews lasted just under an hour. We tailored our interview guide to each participant but after obtaining demographic and professional information about the participant we discussed curricular development and design, the coverage of reproductive health topics, including comprehensive abortion care, the relative importance of different reproductive health topics, and possible strategies for improving and expanding reproductive health education in Somalia.

2.2. Data collection: Focus group discussions

We held a series of FGDs with reproductive health professionals and students in Mogadishu. We recruited participants with the help of two local universities by tapping into their networks and posting flyers. AY and MH, a Somali medical doctor with facilitation experience, led all discussions in Somali. In total, we conducted 7 FGDs with 48 individuals. This included 2 FGDs with physicians (n=10), 2 FGDs with nurses (n=16), 1 FGD with midwives (n=8), and 2 FGDs with medical students (n= 17). We stratified our groups by sex, compensated participants for their time and travel with USD10, and provided light refreshments. We held all FGDs, which lasted 60-90 minutes, in office space provided by our local university partners. Our discussions explored participants' experiences with and opinions about reproductive health education, training, and service delivery, including comprehensive abortion care. We also explored participants' views on priorities for improving reproductive health education and care in Mogadishu. All FGD participants consented to be audio-recorded; AY and MH debriefed after each discussion and AY later wrote reflective memos.

2.3. Data analysis

We used ATLAS.ti software to organize and manage our data, comprised of translated (into English) transcripts, memos, and field notes, and conducted content and thematic analyses. Qualitative

data analysis is an iterative, ongoing process that begins with data collection. Based on our study questions and discussion guide we developed *a priori* (predetermined) codes and as we familiarized ourselves with the data we created additional codes and categories to capture emergent ideas, thus using both deductive and inductive techniques [12-13]. We first analyzed the two study components separately and then later combined them to further investigate the similarities and differences. Regular study team meetings guided our overall interpretation.

2.4. Ethical considerations

The Social Sciences and Humanities Research Ethics Board at the University of Ottawa approved the study. The University of Somalia also reviewed our study protocol and determined that our approach met local research standards. In our results section we present the key themes that emerged during our discussions and include illustrative quotes to support our interpretation. We have masked or redacted all personally identifying information and have used pseudonyms for our participants.

3. Results

3.1. Coverage of abortion in medical, nursing, and midwifery education and training is limited

"Learning about abortions isn't a priority, usually."(Alio, medical doctor, FGD)

Didactic training surrounding abortion for medical and nursing education varied based on the type of abortion (spontaneous vs. induced) and was minimal in midwifery training. Didactic training in the causes and management of spontaneous abortion appears to be covered in both medical and nursing training as expressed by a Mohamed, a medical student, "We learn about what causes [a spontaneous] abortion, the types, [how to] manage it." In comparison, didactic training in induced abortion was virtually nonexistent. Saida, a medical doctor, made the following statement which other participants in the FGD agreed with, "The topic of a woman wanting to terminate a pregnancy, we don't

see that [in our classes]." Post-abortion care receives some attention. As Ahmad, a professor who participated in the key informant interviews explained, "You need to be able to take care of your patients, so it's important for [students] to know when someone comes in after [a miscarriage]."

Similar to other reproductive health topics, clinical training in comprehensive abortion care was significantly lacking. Clinical training, when offered, generally focused on treating complications. As Alia, a key informant, explained, "Abortions are illegal, we don't promote the *haram* [forbidden], but we have to try to save [women's] lives." Both medical students and recent graduates from medicine and nursing programs shared that clinical training opportunities were not available. This FGD participant's statement resonated with other participants, "It's very hard to get training in the hospital for abortion care, so we have to try to volunteer to see how it is done."

3.2. Practicing clinicians had little experience providing abortion care or managing complications

> "We don't do abortions here, unless it's an emergency and we have to save the woman or child." (Farxiya, nurse, key informant)

Due to its legally restricted status, practicing clinicians in both components of the project made it clear that they do not provide induced abortion care unless the woman's life is at risk. As Hibo, a nurse who participated in the key informant interviews recalled, "I saw one case where the woman wanted to have an abortion because of her circumstances financially because they could not support the child, but we refused her the abortion because it's illegal." Because the exception appears to be narrowly interpreted and most clinicians had never provided an induced abortion but had, on occasion, provided life-saving post-abortion care. Khadra, another nurse we interviewed explained, "Women use all sorts of methods to induce abortions. We see them – traditionally they use honey and shortening to induce abortions and we have to manage the complications [typically infections] that happen afterward." Findings from both components of the study revealed a clear generational gap between recent

graduates and experienced clinicians in managing abortion-related complications. Those who had trained outside of Somalia or before the civil war had received more exposure to post-abortion care than those trained in the more recent educational era. As Ahmed, a gynecologist who participated in the key informant interviews stated, "We manage all the complications and emergencies [at the hospital] because [students and new health workers] can't at the clinics because they don't know how."

3.3. Religious, socio-cultural, and pronatalist values shape opinions about providing abortion care

> "Abortions are taking a life, and that is *haram* [forbidden], we don't practice that here." (Maxmuud, Professor, key informant)

Religious beliefs surrounding the permissibility of abortion heavily shaped the opinions of participants in both components of our project. Consistent with the Somali population in general, all of our participants identified as Muslim and repeatedly stated that Islam guided laws, policies, and societal activities. Participants explained that induced abortion constituted taking a life and health care providers did not want to partake in the practice because it was sinful. As, Abdullahi, a nurse in one of the FGDs succinctly stated, "It's against our religion to take a life, so we will not do so." Participants also consistently spoke about how knowledge is a gift from God and health care providers should not use this to disobey him. Discussions about both spontaneous and induced abortions were heavily influenced by local interpretations of Sunni Islam: providing an "emergency" abortion to save the life of the woman is a religious duty, healthy pregnancies are a part of God's plan, and suffering as a result of self-induced abortions is a form of punishment.

Socio-cultural and pronatalist values also influenced the opinions and practices of our participants. A number of key informants and several FGD participants spoke about how induced abortion was a "Western" invention and thus foreign to Somali culture and society. Consequently, women who have induced abortions are suspected of engaging in illicit and non-culturally sanctioned

activities. For health service providers, provision of abortion care is tantamount to condoning these behaviors. As Rahma, a director of a local NGO, put it, "If they learn about abortion then they will have to perform [them] on prostitutes." Participants also spoke about the discordance between induced abortion and the country's need to repopulate and grow after the civil war. When Fanax, a medical student, expressed this type of political pronatalism, his statement was met with enthusiastic agreement, "We are a country that is growing, we have 10 million people while our neighbors [Kenya and Ethiopia] are five and eight times that. We don't need to stop births, we need more." Key informants repeatedly echoed this sentiment.

3.4. There is an appetite for having health service providers learn about abortion

> "Health professionals should be able to manage whatever they face, so yes, they should learn about abortion comprehensively" (Hafsa, NGO representative)

There was general consensus that health service providers of all kinds should learn about comprehensive abortion care. Abdio, a professor of Nursing, stated, "[Abortion is] knowledge that is important for our students to do their jobs later, so they must learn." However, abortion was not viewed as a significant curricular priority, especially when compared to other aspects of sexual and reproductive health. One of our key informants, Muna, expressed a view of priorities shared by many of our key informants, "We should focus on contraception first, then there is no need for abortion." This was echoed by one of the students in our FGD who said, "We want all the training, but we have to be realistic, we need other training before abortions."

Given the concerns that provision would result in health service professionals tacitly condoning illicit behaviors and contributing to religiously forbidden practices, it is hardly surprising that there here was little enthusiasm for incorporating clinical training related to abortion into the curriculum. However, upon probing, there appeared to be some contradictions as key informants and practicing clinicians in

our FGDs did believe it was important for health service providers to be able to provide abortion care in "emergency" situations.

4. Discussion

Somalia has seen an increase in efforts to educate a new generation of health service professionals yet there are vast inconsistencies with the education and clinical training [1,11,14]. Higher education in Mogadishu is extremely fragmented as a result of influences from different funding sources [11]. All but one university in Mogadishu are private and their curricula are highly influenced by foreign donors, a dynamic that is exacerbated by the lack of oversight from the Ministry of Education [1,14]. In general, this has led to inconsistencies in the curricular coverage of reproductive health topics. However, in the case of abortion there is less variability – irrespective of the legal status of abortion in the donor country, comprehensive abortion care receives scant coverage. This contributes to the stigma surrounding abortions and the women that have them and allows for the continued propagation of myths about who seeks abortion care and why. Separating abortion from the health system only pushes women in Somalia to seek unsafe alternatives when denied abortion care [7]. Given the realities of women's lives and deaths, abortion is a critical public health issue and merits inclusion in health professions education.

According to the constitution [4], Somalia is officially a Muslim country and it is estimated that 99% of the population identifies as Sunni [16]. Positions on abortion within Sunni Islam vary and these differences are based on different interpretations in the four schools of jurisprudence [17]. Contemporary abortion policies in Muslim majority countries have been heavily influenced by these juridical positions; this has resulted in widely different laws on abortion throughout the Sunni Muslim world [17]. However, all four schools agree that abortion prior to ensoulment is permissible and that abortion after ensoulment can only occur for just cause. [17,18].

Somali'a dominant legal tradition is Shafi'I [16]. Within this legal tradition, abortion is generally considered *makrooh* (undesirable) but permissible up to 120 days after fertilization and only religiously permissible for just cause beyond four months [17]. However, the current religious interpretation in Somalia is more conservative, rendering abortion *haram* (forbidden) at any gestational age unless it is performed to save the life of the woman. Most other countries in the Muslim world where the Shafi'i juridical school is dominant have less restrictive abortion laws [19]. Thus promoting South-South exchanges that offer opportunities for decision-makers in Somalia to learn from those Muslim-majority countries that have less restrictive laws that are still grounded in the Shafi'I legal tradition could be valuable. However, what constitutes just cause, including what it means to save the life of the woman, is also open to interpretation. Engaging health service professionals and those in training in religious dialogue and encouraging the development and implementation of values clarification and transformation workshops appears warranted.

Opinions among our study participants were often influenced by a pronatalist ideology. Political pronatalism is common in post-conflict environments but can present a challenge to rebuilding a society and integrating women into all phases of the rebuilding process. However, even when political pronatalism is not directly tied to conflict and rebuilding, the ideology can have major ramifications for reproductive health policies and rhetoric [20]. Facilitating open discussions with decision-makers and health service professionals about how this ideology can undermine both public health interventions and efforts to improve the status and autonomy of women could prove valuable.

Finally, engaging champions within the Ministries of Health and Education, the growing number of professional societies, and local decision-makers, including religious leaders, to advocate for more comprehensive abortion training may encourage stakeholders and ultimately higher education institutions to view comprehensive abortion care as a necessary part of health service provider training. Even in the absence of legal reform, providers could provide more services, including induced and post-

abortion care by using a broader interpretation of “necessity” or “life of the woman.” A first step could be to offer more didactic information about abortion as well as discussions with students and trainees about the law and legal interpretations, religious permissibility, and public health impact.

4.1 Limitations

As is true of qualitative research in general, this study was not meant to be representative or generalizable. Rather, this study aimed to explore a particular phenomenon in depth from the perspective of a range of participants. As we only focused our study in Mogadishu, the dynamics in other regions of Somalia may not be reflected in our findings. Further, the positionalities of our study team members, including age, gender, nationality, ethnicity, and educational level, undoubtedly influenced our interactions with both key informants and FGD participants. Through debriefings, regular team meetings, and formal memos, we believe that we were able to understand these influences and enhance the credibility and trustworthiness of the study.

5. Conclusion

Somalia has recently entered a post-conflict rebuilding phase and improving health systems and services is a national priority. Our findings suggest that despite the burden that unsafe abortion places on the health system, comprehensive abortion care is largely neglected in health professions education and training. Supporting efforts to incorporate information and training on abortion and post-abortion care provision and engaging health service providers in discussions about the permissibility of abortion within Sunni Islam and values clarification and transformation workshops appears warranted.

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Chapter 5: Discussion

Integration of results

Our findings showcase the need for stronger support in reproductive health education for nursing and medical professions while also highlighting the successes of midwifery training in Mogadishu. Our first article, which explores the reproductive health education of health service professionals, highlights some specific challenges of reproductive health education while also pointing out some of the broader systems-level challenges. The second article, with the specific focus on abortion education for health service professionals, serves as a case study of a specific reproductive health topic. The current chapter contextualizes these findings within the current post-conflict and rebuilding setting of Somalia using the peer-reviewed literature surrounding reproductive health in Somalia and highlights the implications and significance of our findings for relevant stakeholders.

Reproductive health education

Both of the articles highlight the current state of reproductive health education for health service professionals and the lack of a comprehensive curriculum for nursing and medical students. This was highlighted by the discordance amongst relevant stakeholders in the education and health sectors surrounding the importance of specific reproductive health topics. While some stakeholders believed it was necessary to have comprehensive education in the four main areas of our study (pregnancy and childbirth, contraception, abortion, and sexual and gender-based violence), a large number had concerns surrounding whether these topics were necessary or fell into the category of health. This creates inconsistencies in the decision-making of key stakeholders who build curricula and are shaping the education of health service professionals.

This was evident in contraception and abortion education for both medical and nursing education, as key informants held reservations about the importance of these topics for future health professionals. This is a serious concern as education surrounding these topics greatly influences health service provider capacity and the quality of care health professionals can give to their patients. As discussed elsewhere in the literature, despite the restrictive policies in Somalia, women are undergoing unsafe and often self-induced abortion (22, 52). Comprehensive abortion education therefore becomes an important mechanism for improved both induced abortion services and post-abortion care for women.

Given the high fertility rates in Somalia, and the high prevalence of "rapid repeat" and unwanted pregnancies, the importance of contraceptive counselling is evident. Women in a 2015 study shared their desire to raise contraceptive awareness and expand counselling (52). With women's desire to space pregnancies and the government's strategic five year plan for reproductive health enshrining the need for stronger contraceptive care (4), it is alarming that stakeholders were not in agreement about the importance of contraceptive education.

Sexual and gender-based violence has increased in the past five years in Mogadishu largely due to the expansion of internally displaced persons resulting from the recent famine (25). Although accurate statistics are difficult to come by in Somalia in general, and acts of sexual assault and violence often go unreported, the increased prevalence and incidence have been concerning to local NGOs and the government alike. The need to expand the cadre of qualified personnel to deal with the physical and psycho-social impacts of violence and manage the consequences of assaults has been identified in the literature (53, 54). It is clear that there is a need for medical personnel's expertise in this area, yet stakeholders did not see it as a priority area.

FGD participants, both professionals and students, echoed the reservations of stakeholders. This may be a result of the education they received in their institutions. Often more experienced health professionals saw the clinical needs of the population and were in favour of expanding the education of students in medicine and nursing. In contrast, younger professionals expressed views that were more akin to those of students and stakeholders. There is a need to expand the qualitative data surrounding women's experiences and opinions of reproductive health topics to better inform stakeholders and influence the education of students with clear insights from women, a case can be made for reproductive health education to prioritize it in health professionals' education.

Midwifery education

Midwifery education has become the gold standard for reproductive health education in Mogadishu, as outlined in the first article. With the collaborative efforts of the state health ministries and technical support from global NGOs, midwifery education in Somalia has received recognition from the International Confederation of Midwifery. This is a testament to what can be accomplished if the relevant stakeholders collaborate rather than working in silos. This case study needs to serve as a framework to guide the unification of the nursing and medical curricula to meet minimal acceptable global standards, ultimately improving the quality of reproductive health education for all.

Traditional birth attendants (TBAs), often called lay midwives, play a large role in the reproductive health care in Somalia (55). TBAs are often older women who have clinical experience in preforming deliveries, but lack formal didactic and clinical training. This leads to many women suffering through delivery complications, often performed at home, because the

TBA lack the insight or know-how to manage complications or appropriately refer to specialists. Despite the challenges women face when they go to TBAs, these providers are still a trusted group, and often women's first choice in seeking deliveries. Efforts should be made to support and integrate TBAs in current midwifery training programs, raising their capacity and reducing delivery related complications and deaths (55, 56).

Infrastructure

Following two decades of a lack of maintenance and public expenditure, the current physical infrastructure is weak and unable to sustain or support the ever expanding number of students. Indeed, as explored in both articles, the lack of public hospitals to support practical training in reproductive health is a major concern for both stakeholders and professionals alike. With few public hospitals available to train health professionals, it is challenging to maintain a high level of clinical training for all graduates. This has only been exacerbated by the growth of hospitals and clinics, making the brightest and best doctors inaccessible to most students. Effective training and mentorship are necessary to develop the skills necessary to provide the best possible services.

The proliferation of private higher education institutions was in response to the vacuum left behind by the civil war. With only one public university under the communist government prior to its collapse, the need for establishing higher education in lieu of the federal government was warranted. As evident from our first article, many stakeholders questioned the quality of the numerous and ever growing higher education institutions. This has been expressed elsewhere in the literature which points out the lack of resources, the absence of qualified staff, and the disincentives associated with maintaining rigorous programs (27). This is a challenge for

maintaining quality and comprehensive reproductive health education for medical and nursing students as expressed in our first article.

Didactic training has long been fragmented in Mogadishu, and continues to drift apart due to the inconsistencies and influence of curricular development practices as seen in **Appendix D** (33). As expressed in our first article, curricula are often developed based on bilateral connection between two institutions, often south-south knowledge sharing, but this leads to considerably institutional variability. This produces students with different levels of education surrounding reproductive health among other topics. There is a need to unify and strengthen current curricula by engaging in curricular reviews; midwifery education can serve as a model.

Socio-cultural and religion issues

Socio-cultural and religious beliefs played an important role in the opinions and ultimately the decision-making of our key informants. It is estimated that about 99% of the Somali population adhere to Sunni Islam (1). Religious beliefs, as articulated by local religious leaders and cultural transitions, play an important part in the perceptions and actions of stakeholders, as evident in both of the articles (52). Religious positions surrounding non-permanent contraceptive methods have long been agreed upon by jurists to be acceptable, but conservative thinkers and theologians prohibit their use and frame political pronatlism as a religious duty (51). Discussions surrounding the acceptability and permissibility of contraception and abortion influence whether or not stakeholders place primacy on these topics for curricular inclusion in medical and nursing programs. Indeed many participants in our FGDs were even hesitant about the idea of promoting contraception to their patients due to their own religious and moral positions.

Similarly, and as discussed at length in our second article, abortion was also discussed through the lens of religious permissibility. Sunni Islamic positions depend upon the concept of ensoulment, which occurs between 40 and 120 days following fertilization, and represents the point at which the fetus becomes "infused with life". Consequently, abortion prior to ensoulment is permissible although different schools of jurisprudence place ensoulment at different periods (22, 24, 51). The majority of our participants held more conservative interpretations on the religious permissibility of abortion and expressed that induced abortion should be unavailable or very limited. Consequently, abortion is largely ignored in both medical and nursing programs. There is a need to change the narrative and promote more liberal religious interpretations to improve the quality of care presented to women.

Somalia is a nomadic and tribal society where tribal affiliations are often used as a social security net, as well as a mechanism to resolve conflicts (6). Sexual and gender-based violence were often spoken about through this lens as expressed in the first article. Somalia is also a patriarchal society where marriage is seen as an important milestone for women, so sexual and gender-based violence are often covered up and hidden. Education for health service professionals in this area is far from comprehensive, and there is considerable disagreement as to whether or not gender-based violence falls within the remit of the health sector. There are current efforts to expand access to comprehensive health care to victims of sexual and gender-based violence by NGOs and spearheaded by local groups. Efforts should be made to strengthen these efforts and encourage integration of these topics into the health curricula for nursing and medical students.

Weak government

The Federal Government of Somalia recently had a peaceful transfer of power and is improving its capacity in many areas, including health care (15). This is not to minimize the current situation facing the government; security across the country is still a major concern and terror is still rampant within Mogadishu. There is no oversight over higher education and the public hospitals still lack the support to bring their services into the 21st century. This is all exacerbated by the challenges surrounding the famine and the resulting internally displaced persons (57-59). Food and medical shortages are still the norm, and the health system is still trying to cope with basic health needs of the population (39).

Similarly the education system is facing serious challenges surrounding its lack of capacity. The Ministry of Education lacks the oversight needed to maintain the quality of education of elementary and secondary schools in Mogadishu, let alone the rest of the country. The Ministry of Education is currently working on strengthening elementary school education, making higher education a priority of the future. In both our articles, we discuss the lack of a strong government with capacity to maintain standards as a fundamental issue undergirding the challenges in reproductive health education and training. There is a clear lack of concrete and effective licencing of health professionals and no safeguards are in place to ensure quality of care physicians and nurses. Additionally key informants expressed the challenges exacerbated by the class of unskilled workers with false documentation, a dynamic that damages public trust and has also been documented in the literature (52).

The systemic issues facing the higher education sector are influenced by the increase of market share that private facilities, in education and health, are having in Mogadishu. Without proper public expenditure in raising the capacity of higher education institutions, private universities' dependence upon tuition fees and ultimately their reluctance in maintaining

standards will lead to poorly qualified graduates (27, 33). Similar to the improvements made to midwifery education spearheaded by the government, medical and nursing education need to prioritize strengthening the quality and rigor of their education.

Post-conflict Somalia

The new Somali government, similar to the last one, has gained ground in improving systems but is far from achieving its broader goals to improve quality of life. Pregnancy and childbirth are still a major concern for all, although investments are being made to improve quality and access to care. Women still choose to have children at home, and seek services from traditional birth attendants, often unskilled women who do not understand the signs and symptoms of when to refer the laboring woman to a facility. Maternal and infant mortality is still amongst the highest in the world, and unskilled workers contribute to these figures. Increasing the capacity of the current maternal-child hospitals and centers should be a priority for the new government, and can be achieved through significant efforts made in training lay health workers.

Contraception, although available to the public, is still rarely used and not a focus in medical and nursing education. The public along with their health service workers promote the use of traditional methods rather than more effective modern methods because of widespread misinformation. With Somalia's extremely high TFR, it is necessary to increase access to modern contraceptive methods. This needs to be prioritized by capable and qualified health workers, who not only know about the different methods and their mechanisms of action, but have the ability to dispel misinformation and mistrust of the technology.

Sexual and gender-based violence continues to be a challenge in Mogadishu yet health workers do not know what role they should play in this field. This is both challenging and

concerning. Sexual and gender-based violence centers have opened up in Mogadishu to provide much needed services to the public but are in need of more medical professionals with the proper training. As the government has recently declared itself in a state of war, which has been shown to increase instances of sexual and gender-based violence, survivors of any type of violence need the support of their government in the form of quality services. Training and equipping the next generation of health service workers to respond to sexual and gender-based violence should be a priority for the new government.

Significance of findings to stakeholders

The published literature pertaining to Somalia is limited and research has typically been conducted outside the country (60). The literature dedicated to reproductive health in Somalia is even more limited. Our project was conducted in Somalia and led by a Somali person. This project sheds a light upon the current situation facing higher education and reproductive health. This is not only needed but warranted as important decisions surrounding the healthcare of the country are bound to be made by the new government. Our findings can help foster discussion around the current state of women's reproductive health in Somalia.

This research project is important in several ways. First, the timing of this project is particularly important as the Somali government is currently working on amending and finalizing national and state constitutions, and these findings could help inform decision-making regarding health professions education and training. Women's health in Somalia has gained on some fronts with the previous government as it moved towards human rights and the rule of law. With a government that is aiming for improved evidence-based policies, the results of a study looking at

the reproductive health education of RHWs in Somalia fill a gap in knowledge and could help inform policy development.

Somalia has some of the world's worst development indices in terms of reproductive health. One way to address this problem is to improve the quality reproductive health education and training of RHWs as well as increase the number of highly trained professionals. The previous Somali government has pushed for rebuilding Somalia's health system and the education of new practitioners was an important part in this process. The new government seems to be following in the footsteps of its predecessor. Universities and local NGOs have devoted resources to training doctors, nurses, and midwives. However, without a national health curriculum, disparities in education between the different institutions arise. This project aims to inform efforts to standardize health education curriculum, ultimately improving the quality of training for the reproductive health workforce.

Apart from contributing to the peer-reviewed literature on reproductive health education and higher education in post conflict settings, we are also actively sharing the results with our local partners and key stakeholders who requested copies of our results, providing them with the tools to make more informed decisions.

Future directions

While our project serves as a first look at the current quality and comprehensiveness of reproductive health education in Mogadishu, it also highlights some of the core issues facing higher education and reproductive health in general. The role of the new federal government in these areas is seminal as the challenges are mostly systemic and requires systems-level changes.

Clinical training was a major concern for all stakeholders; efforts should be made to try to increase the quality and quantity of clinical training opportunities offered to students.

Oversight of the higher education sector and the need for quality control were major themes running throughout our project. This is an important area in which the government needs to take the lead in setting standards and maintaining quality. The proliferation of higher education institutions in the past decade presents opportunities and challenges but their quality has not been maintained. Higher education institutions can utilize this information to better develop their curricula.

Limitations

Although we accomplished the main objectives of the project, there were some limitations that occurred while conducting our research. Due to the security concerns at the time of my fieldwork, we were only able to collect data over a six week period, a timeframe which limited the reach of our efforts. Some of the logistical issues that affected the project include time, security, and connectivity (internet). Additionally, the last week of our fieldwork coincided with the beginning of Ramadan, in which the vast majority of the population was fasting and on holiday (away from work). This presented recruitment challenges as educational institutions were closed. To overcome this, I endeavored to complete as much data collection as possible prior to Ramadan.

Security in Somalia was an issue, as foreigners have been targeted by terrorist organizations and local militias. Heeding the advice of locals and members of the diaspora that have returned, I had to avoid government offices and hotels as they have often been targeted, making speaking with a broader range of government officials difficult.

The project solely focused on the reproductive health education of RHWs in Mogadishu, the capital of Somalia. I chose to focus on Mogadishu for pragmatic reasons as I only had the summer months to complete data collection. Mogadishu is the largest city in Somalia and is the seat of parliament, all of which were helpful in recruiting stakeholders. Mogadishu is also home to most of the educational institutions, hospitals and NGOs; as such participant recruitment will be easier. However, my findings are limited to this geographic location.

Positionality and reflexivity

Qualitative research is an interpretive process, where the researcher's lived experiences influence and impact the interpretation of the data (61). This can be ameliorated by the design of the project and through the integration of reflexivity. Reflexivity acknowledges the researcher's involvement with the research, including his/her own personal biases and beliefs, and provides a way to address them to better understand the research (62). Reflexivity also provides an avenue to contextualize to one's subjectivity.

As a Somali man passionate about both health and education, I feel I was well suited for conducting this research. I also came to this work with an insider-outsider perspective through my upbringing in the west and being ethnically Somali; in many ways this made me exceptional (a unicorn) (63). Along with my personal and professional contacts in Mogadishu, my inside-outsider status helped me recruit participants and fostered openness; many participants were eager to speak to me and learn about my experiences. My understanding of Somali culture and language also put me at an advantage in not relying solely on interpreters and translators during the data collection and analysis phases of my research.

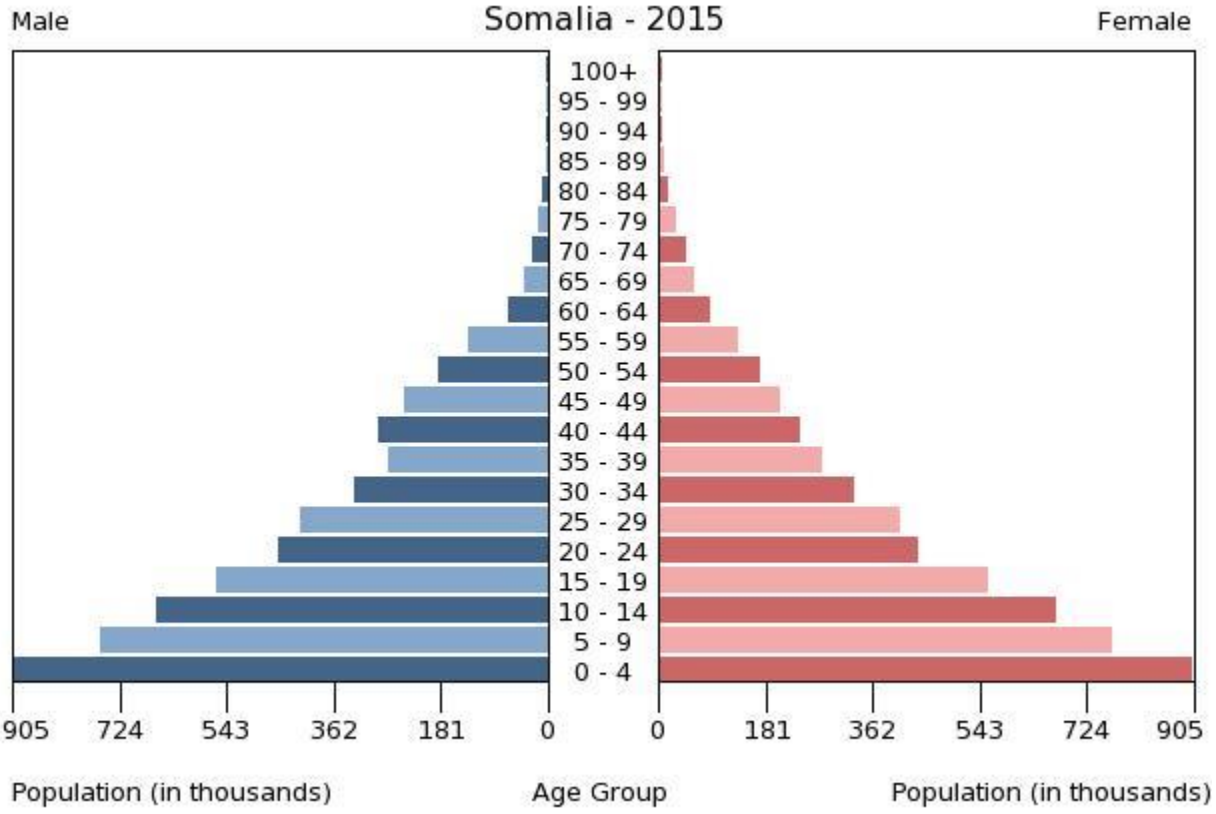
I engaged in memoing and note taking following each interview and focus group discussion, as well as during the curricular review. This aided me in understanding what I was hearing at the time, and allowed me to bring forth my thoughts to my research assistant following each session and minimize my personal bias. This was particularly apparent in my discussions surrounding contraception and the reactions I received. Through reflexive memoing and discussions with my research assistant, I was able to better understand the connotations contraception carried as something used outside of wedlock in illicit relationships. Moving forward, using the phrase "family planning" may have more resonance and the term contraception.

Conclusion

Somalia is rebuilding and making strides in the right direction. The new government was elected by the people and has received praise from those within and outside of Somalia. In this climate of hope and enthusiasm, reproductive health should not be forgotten. Every effort should be made to strengthen women's health and elevate the status of women by providing them with safe, affordable, and reliable reproductive health care from qualified health service professionals. This can only be done if investments are made to support and regulate the higher education sector of Somalia. It is no longer viable or sustainable to allow private universities without any regulation or subject to any enforcement mechanisms to spearhead the education of future doctors and nurses. Efforts of local and international stakeholders as well as government actions dedicated to creating educational and training could go a long way to improving the quality of reproductive health services available to women in Somalia.

Appendix A: Map of Somalia

Appendix B: Population pyramids



Appendix C: REB Approval notice

File Number: 03-16-20 **Date (mm/dd/yyyy):** 04/29/2016

Université d'Ottawa
Bureau d'éthique et d'intégrité de la recherche

University of Ottawa
Office of Research Ethics and Integrity

Ethics Approval Notice

Social Sciences and Humanities REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

First Name	Last Name	Affiliation	Role
Angel	Foster	Interdisciplinary School of Health Sciences	Supervisor
Abdiasis	Yalahow	Interdisciplinary School of Health Sciences	Student Researcher

File Number: 03-16-20

Type of Project: Master's Thesis

Title: Exploring the reproductive health education of health service professionals in Mogadishu, Somalia

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04/29/2016	04/28/2017	Approval

Special Conditions / Comments:
N/A

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Appendix D: University distributions by region in 2013

South-Central	Somaliland	Puntland
Indian Ocean University	Amoud University	East Africa University
Mogadishu University	University of Hargeisa	Puntland State University
Dar Al-ulum University	Burao University	Puntland University of Science & Technology
Hamar University	International Horn University	Galkayo International University
SIMAD University	Nugaal University	Garowe Teachers Education College
Islamic University	Gollis University	University of Bosaso
Benadir University	Admas University	University of Health Sciences
Kismayo University	Eelo University	Mogadishu University - Bosaso Campus
Plasma University for Science & Technology	Hope University	Maakhir University
University of Somalia	Alpha University	
University of Southern Somalia	New Generation University	
Hormuud University	Timacade University	
Jazeera University	Beder International University	
Salaam University		
Horn of Africa University		
Horseed International University		
Jamhuriya University of Science & Technology		
Hope University		
Job-Key University		
Modern University for Science & Technology		
Somali International University		
Darul Hikmah University		
Total: 22	**Total: 13**	**Total: 9**

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