'Others Will Even Call us Terminators': Barriers and Facilitators to Provision of Comprehensive Abortion Care (Cac) in Zambia – A Qualitative Study

CHRISTABEL CHIGWE PHIRI

Levy Mwanawasa University Teaching Hospital <https://orcid.org/0000-0001-8881-6466>

CHOOLOWE JACOBS

University of Zambia Ridgeway Campus <https://orcid.org/0000-0002-7741-1962>

VICTOR SICHONE

Kitwe Central Hospital

PATRICK KAONGA

Johns Hopkins University Berman Institute of Bioethics

MUSONDA MAKASA

University of Zambia University Teaching Hospital

BELLINGTON VWALIKA

University of Zambia University Teaching Hospital

ANDREW KUMWENDA

University of Zambia University Teaching Hospital

MOSES MUKOSHA

University of Zambia - Ridgeway Campus

THERESA NKOLE

Levy Mwanawasa University teaching hospital

JANE MUMBA

Ndola Teaching Hospital

MARGARATE NZALA MUNAKAMPE

University of Zambia - Ridgeway Campus <https://orcid.org/0000-0001-9279-241X>

BENEDICTUS MANGALA

Zambia association of Obstetrics and gynecology

MEEK MWILA

University of Zambia Ridgeway Campus

MWANSA KETTY LUBEYA (✉ ketty.lubeya@unza.zm)

Young Emerging Scientists Zambia <https://orcid.org/0000-0002-8526-3410>

Research

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Abstract

Background:

It is estimated that one in every five pregnancies globally ends up as abortion, with about 40% being unsafe. Abortions account for approximately 5.9% of all maternal mortalities and 50% of gynaecological admissions in Zambia. Despite implementing Comprehensive Abortion Care (CAC), which aims to provide high quality, safe and affordable services to women, unsafe abortions rates remain high. In this study, we explored the barriers and facilitators to CAC provision in selected health facilities of Lusaka and Copperbelt provinces in Zambia.

Materials and methods:

A qualitative case study using in-depth interviews with health care providers was conducted between July – August, 2021 in nine selected public health facilities of Zambia. A total of 17 interviews were conducted with participants purposively sampled. The interviews were digitally recorded and transcribed verbatim. Data analysis was done using content analysis.

Results: The study revealed a number of barriers and facilitators most of which are health system related. The health system related barriers included inadequate CAC providers, healthcare provider perception that provision of CAC was optional, lack of CAC dedicated space and privacy, frequent shortages of medical supplies and lack of incentives, while individual related barriers included stigma surrounding CAC provision, religious and moral dilemmas. Facilitators to CAC provision included having providers trained and mentored in CAC, availability of a liberal legal framework, accessible services, task shifting and external financial support.

Conclusions: The findings of this study on the several barriers of CAC reinforces the idea that despite having appropriate legal provisions to CAC provision in Zambia, challenges in the implementation of the law and related service provision continue to persist. The identified barriers suggests to consider incorporating CAC services into the pre-service training to ensure more trained and skilled providers are available in the public facilities.

Plain English Summary

About one in every five pregnancies ends up as abortion, with about two in every five of these abortions done by a non skilled person or a non conducive environment or both hence considered as unsafe abortions. In Zambia, unsafe abortions contribute about one in every 20 maternal deaths and one in every two admissions to the emergency Gynaecological ward of a tertiary hospital. Comprehensive Abortion Care (CAC), has been implemented which aims to provide high quality, safe and affordable services to women. We explored the barriers and facilitators to CAC provision in Lusaka and Copperbelt provinces of Zambia. Seventeen health care workers were interviewed to get an indepth insight into barriers and facilitators during provision of CAC.

The identified barriers were related to the health system and individual level. The health system related barriers included inadequate CAC providers, healthcare provider perception that provision of CAC was

optional, lack of CAC dedicated space and privacy, frequent shortages of medical supplies and lack of incentives. Individual level related barriers included stigma surrounding CAC provision, religious and moral beliefs. Facilitators to CAC provision included having providers trained and mentored in CAC, availability of a liberal legal framework, accessible services, task shifting and external financial support.

Conclusion: Despite having appropriate legal provisions to CAC provision in Zambia, service provision challenges continue to persist due to other barriers. Women continue to die due to Unsafe abortions. Strategies to mitigate these barriers such as CAC preservice training of health care workers is key.

Background

An estimated three in every ten pregnancies (29%) worldwide ends up as an induced abortion, of which approximately 40% are carried out under unsafe conditions(1). According to the World Health Organisation, unsafe abortion is the termination of pregnancy(TOP) carried out by either an unskilled individual or in an environment that does not meet the minimum medical standards or both (2). Unsafe abortion rates have been reported to be high in low-income settings such as sub-Saharan Africa (SSA) due to several factors, including poor health-seeking behaviours, stigma and poor knowledge regarding laws on abortion (3). Although there is no aggregated data on the incidence of abortions in Zambia (4), unsafe abortions have been estimated to account for 30% of maternal mortalities and 50% of gynaecological admissions in earlier studies (5). A study by Owolabi and others found the abortion-related near-miss rate of 72 per 100,000 women, and the near-miss ratio was 450 per 100,000 live births in selected provinces of Zambia (6).

Despite liberal abortion laws in Southern Africa, including Zambia, there seems to be a challenge in implementing the law and related service provision. Zambia's termination of pregnancy act was passed in 1972 and allows for a woman to access TOP in a prescribed facility by a trained provider given the right circumstances (7). Over the years, several amendments have been made to the law paving the way for mid-level health workers to provide the service without a medical doctor enhancing service provision and increased the workforce (8). Partnering organisations working in tandem with Zambia's Ministry of Health have been instrumental to service provision in terms of helping with the supply of consumables, surgical kits, and training including refresher courses for the health care. These factors have been noted as enablers to the provision of service.

Despite the efforts being made to provide laws and other strategies to ensure that abortions are safe, many barriers to service provision still exist in most developing countries (9). One of the effective strategies introduced in most countries, including Zambia, is Comprehensive abortion Care (CAC), which aims to provide high quality, safe, affordable services to women, close to their homes to reduce unplanned pregnancies and abortions. However, despite the training of providers with CAC, some barriers to service provision have been reported. For instance a study done by Freeman and Coast in Zambia showed that conscientious objection to abortion has huge bearing on whether women receive safe abortion care services or not (10). As such health care workers can refuse to offer service based on personal and religious beliefs consequently reducing the already small number of providers (10).

Additionally, anonymity of health care providers due to the continued stigma surrounding the provision of abortion services and moral conflicts is another significant barrier. At service delivery level, erratic supply of surgical kits and medication has continued to be of concern. These factors put together limit the effectiveness of service delivery (9).

Although evidence of barriers and facilitators to the provision of CAC have been demonstrated in other settings, unsafe abortions continue to be an avoidable cause of morbidity and mortality. Further, available data in Zambia is outdated (5) and it is important to understand the barriers to safe service provision in our setting. Therefore, we aimed to highlight the barriers and facilitators to the provision of CAC and explore the perspectives of health care providers.

Methods

Study Design

This was a qualitative case study among health care workers using in-depth interviews conducted between July – August 2021 at nine selected sites in two provinces of Zambia i.e. Copperbelt and Lusaka. This design was deemed appropriate because it was critical to understand the healthcare workers' perspectives on barriers and facilitators to their provision of CAC services (11).

Study Setting

The study was carried out in two provinces of Zambia: Copperbelt and Lusaka which account for the largest distribution of the country's population. The two provinces boast of the biggest health facilities in the country and constitute the largest representative population. We conducted the study at nine public health facilities of which four are tertiary institutions and the other five were secondary level institutions in Lusaka province. The selected facilities offered a range of reproductive health care services including family planning services, abortion and post-abortion care. Abortions are offered by a variety of medical cadres including medical licentiates, nurses and midwives, clinical officers and medical doctors. Medical doctors were previously the only cadres allowed by law to provide CAC until the policy was revised in 2009. Participating facilities offered both medical and surgical terminations using a combination of Misoprostol and Mifepristone for the former and manual vacuum aspiration (MVA) for the latter.

Study participants

This study included health care providers working in government institutions and providing CAC. Health care providers in this study included Medical Doctors, Nurses, Midwives and Clinical Officers. We excluded anyone who was trained but was not providing the service.

Sample size and sampling

A total of 20 interviews were conducted. The sample size was determined after achieving saturation. The study participants were selected using purposive sampling. This was achieved with the help of Heads of departments (Obstetrics and Gynecology) at study sites who gave a list of CAC providers at each facility.

Data collection and analysis

A pretested interview guide with probe points was used to conduct In-depth interviews. It covered questions on duration in service, understanding of the legal framework, perspectives on provision of service, enablers and challengers to service provision and recommendations for better service delivery. The interviews were recorded using tablets as the participants shared their experiences, views and understandings of the CAC services at their facilities, interviews were then transcribed verbatim. Data was analysed using content approach where the transcribed texts were read through several times, systematically coded, categorized and merged into categories after being further interpreted and analysed.

Ethical Considerations

Ethical approval was obtained from the University of Zambia Biomedical Research Ethics Committee (UNZABREC - REF. No. 1852-2021) and the National Health Research Authority and permission to carry out the research was obtained from the Provincial health offices, District health Offices and Senior Medical Superintendents at all participating facilities. All participants provided verbal consent, anonymity and confidentiality were ensured.

Results

A total of 20 providers were interviewed. Majority were males (12/20). One was a Clinical officer, two were Midwives, seven medical doctors and ten were registered nurses. Years in Practice varied from 2 months to 10 years.

Two main categories emerged from the data analysis: (1) health system-related factors and (2) individual moral factors. The categories on barriers and facilitators in the provision of CAC are presented in Table 1.

Table 1
Summary of barriers and facilitators of CAC service provision

Category	Barriers	Facilitators
Health system Factors	Shortage of staff	Mentorship
	Provision of service optional	Trainings
	Lack of privacy in the rooms	Partner support - IPAS
	Inadequate Space	Accessible services
	Constant Shortages of supplies and medication	Legal framework
		Task shifting
	Lack of equipment	No impact from covid
		Task shifting
	Medical Supplies and equipment	
	Constant Shortages of supplies and medication	
	Lack of equipment	
	Service delivery	
	Preference of being anonymous	
Individual moral factors	Moral conflicts - Religious beliefs	
	Stigma	
	Fear of being Labelled	
	Fear of recognition	

Barriers to provision of CAC

1. Health system related factors

1.1. Staff shortage

Discussions around the number of CAC providers in the facilities revealed that health care providers of CAC were inadequate, and not many were trained in CAC service provision. This poor number of trained providers was cited as a contributor to staff shortages. Respondents in some facilities narrated how overwhelming it was for them to provide the service as they had other competing duties besides provision of CAC services. *"...Uhh we are few, and looking at the number of patients we receive I can say it's overwhelming, because in our department we are just the three of us. And most times we sacrifice our own off days just to cover."* (Registered nurse, 2 years in service)

"... There are few people that offer the service. So, it is a challenge. That's why others have to wait for days before they could meet you. Okay, and others [HCPs] they'll call you as I mentioned, the people in our

emergency gynae, they will call the lines of the service for those ones that provide the service.” (Doctor, 6 years in service)

Although there are a number of health care workers who are willing to offer CAC services, it was reported that, lack of training limited service provision. Some partners that support training were mentioned as being Ipas and Mari-stopos. These are the same partners that offer refresher courses to CAC providers.

1.2. Optional CAC service provision

HCPs stated that they were readily available to provide CAC services. However, service provision for CAC was reported to be optional as some HCPs who found the service immoral had an option to provide the service or not which overwhelmed the few who were unconditionally willing to provide the service.

“So here, it's difficult to know the actual number because there are some that are providers but don't want to be... they don't want to come out as providers because of the stigma that comes with us providers of termination of pregnancy services.” (Registered Nurse, 8 years in service)

1.3. Infrastructure

Spaces for service provision were reported to be a challenge. Some respondents stated that the spaces were limited hence used for many other services. Some respondents who were concerned with space for counselling and privacy had this to say,

“...Okay, [uh] the challenges to say, [ok, yeah]what happens is [uh] we don't have a proper room for counselling, you know it's a comprehensive abortion care, that means, it includes counselling, we need to take time to explain to the patient until she's ready to undergo the procedure. So we don't have a room for counselling and that's the main challenge because most of the time we have to do it in the open place and the people are able to hear. And some can start, you know [uh] saying all sorts of things which is not correct.” (Midwife, 8 years in service)

“...It's the issue of privacy. If you've seen our arrangement in our emergency gynae, patients sit back-to-back, one this side, one this side. Now imagine the other side, you've got someone who has infertility, for example, they are looking for a child and then another one on the other side is looking to terminate a pregnancy. So, it's important to have separate rooms, for confidential consultations and privacy. A room dedicated only to such services [CAC], would have been good.” (Medical doctor, 4years in service)

1.4. Medical supplies and equipment

Frequent shortages of medical supplies were reported as another significant challenge for the provision of CAC services. For instance, some respondents reported that some sites would receive surgical abortion kits and medications through hospital funding, including from partnering organizations, but the frequent pattern was no longer there due to reduced funding.

“We haven't had the supply of combi pack. Okay, the medication that we use for termination of pregnancy that is as a hospital. Okay, I think last time we received those supplies from IPAS. It's been, I think it was last year.

Okay. And then the MVA kits, at least we got some, I think about two weeks ago about 10 of them that are new now because even them they're not working properly. So at least we got a new stock, but we have been limping in terms of supplies.” (Medical doctor, 9 years in service)

It was also reported that some of the kits available for surgical procedures were old, and one has to manoeuvre around to make it work. Providers further described situations where they have to prescribe medication for the patients to purchase or return on another day, hoping that the medicine would have been supplied to the facility.

“So many times we actually write prescriptions for like combi pack so they can go and buy before you offer the service and it's expensive.” (Registered Nurse, 3 years in service)

1.5. Lack of incentives

On addressing the question of whether providing the service comes with an incentive, the general answer was that, this was not the case as the service was regarded as part of the usual work. This was noted as a barrier to service provision as some health workers would be motivated and others more willing to provide the service if an incentive outside the salary was provided.

“There is nothing, and that's another hindrance because sometimes you have to come from home sometimes just to feel for someone, people negotiate. No, this one has been coming here for three, four or five days. Okay, so you end up coming here [health facility], there are no incentives my dear.” (Medical doctor, 4 years in service)

Provision of CAC was reported as taxing and that most times providers had to go out of their way to see a patient.

“It would be good if there is an incentive for the service providers cause maybe that's why people are not willing cause usually when I admit a patient as long as it's written TOP, when that patient expels even if I have knocked off I will be called and I get to use my own transport. so an incentive would be better.” (Medical doctor, 4 years in service)

2. Individual moral factors

2.1. Religious affiliation and personal beliefs

The belief that TOP is immoral was reported as one of the reasons most HCPs do not provide CAC services. Being a Christian and wanting to maintain good standing in their faith was cited as reason to only attend to patients who reported to the facility with spontaneous abortions.

“Okay, so it's mixed feelings. Others attach religious affiliation to it. others, It's just on an individual basis.” (Medical doctor, 4 years in service)

“...there's some who don't actually believe in the whole thing due to conserving their Christianity values.” (Midwife, 8 years in service)

“some staff would be like no, in as much as I was trained I can’t do a termination because of my personal beliefs or religion.” (Registered nurse, 3 years in service)

2.2. Stigma and anonymity

CAC providers preferred to remain anonymous due to the stigma surrounding service provision. Abortion is broadly considered evil by society, and those associated with it are promoters of immorality. This attitude was from fellow healthcare providers. The respondents reported that this attitude led to some providers preferring to be incognito when providing the service. One respondent explained:

“There’s stigma amongst health personnel so that they negate those that provide the service. They will look at them as you know, the evil ones. So others don’t want that stigma and they prefer to remain incognito. They don’t want to be known for providing the service except for a few that will come out.” (Medical doctor, 6 years in service)

2.3. Fear of being Labelled as murderer

The other individual factor cited was that CAC providers opt to remain anonymous despite being trained due to various reasons including moral conflicts, fear of being labelled as ‘killers’, ‘murderers’, ‘terminators’ stigmatization by fellow health workers or the community.

When asked why they would not want to be known, a respondent said,

“... So, there’s usually that stigma that people will put on your head saying these are people that are murdering unborn babies. Others will even call you [a] terminator.” (Clinical officer, 6 years in service)

“... Yeah, okay quiet alright we’ve had some challenges whereby some staff would be like no, in as much as I was trained I can’t do a termination because of my personal beliefs or religion.” (Registered nurse, 4 years in service)

Facilitators to the provision of Comprehensive Abortion Services

1. Trainings and mentorship

The informants described how the training in CAC made it easier for them to provide the services. They indicated that almost all the providers working in the departments were trained in CAC through external support. CAC providers felt confident with the skills to provide quality services and counselling to establish trust and confidence in the clients. However, they also felt that refresher courses were sparsely provided. When asked whether a provider was trained, the response was;

“uhmm, it was sometime back, (...), though it was in my early, early stages of my career of when I started.” (Midwife, 8 years in service)

2. Legal framework

The HCPs perceived the existence/availability of a legal framework providing guidelines on service provision of CAC provided a favourable legal environment for them to provide the service. Some thought that the legal framework was user-friendly and protective.

"I think the legal framework is very clear and protective. Okay. Yeah, it is clearly stipulated the conditions under which an abortion can be offered. And even as you're counselling for these services, it doesn't mean that you ever come straight away, you offer the service, we counsel them [women] Okay On the indications of abortion." (Clinical officer, 6 years in service)

However, although it was indicated that a legal framework was in place with general guidance on the provision of care, it was felt that not all the providers agreed with the guidelines due to some moral aspects. This was the same for the user of the services as the HCPs felt that there was a need to create awareness about the services.

"So once people are sensitized, they know that this service is offered in these facilities, I think we've even reduced the unsafe miscarriages to zero. So that's what we need its publication there [community]. The other factor is that now, it's those ones [women] that received the service that are able to tell their colleagues, but then they are few, so meaning that the majority of them [women] are still in the society not knowing what to do, should there be an impetus for them to discontinue their pregnancy." (Registered nurse, 3years in service)

Respondents were conversant with the legal framework on abortion and were agreeable to service provision because they believe every patient has the right to be attended. The general feeling was that the legalization has made it possible for women to have a service provided to them in a safe environment which will help reduce the complications of unsafe abortions. Furthermore, some of the clients that come through are young and still in school hence the service would enable them to remain in school.

"The law has already been passed that it can be done in a safe setting and if the client comes to seek the stuff and all the issues surrounding the pregnancy was discussed, and the conclusion is reached, and everything is done properly, uhmm for me it is safe, unlike it is done outside and then patient comes with complications." (Registered nurse, 4 years in service)

3. Task shifting

The task-shifting strategy was reported to be a good strategy that enabled the provision of services by HCP easier. Through task shifting, some specific tasks conducted by a medical doctor, such as pre abortal counselling, administration of medical abortion drugs, manual vacuum aspiration, and family planning services, were moved to nurses and midwives where appropriate.

"Maybe it can be improved by maybe training more providers, like maybe where the nurses, the midwives are also trained because they are always there on the ground and if more are trained maybe the service can be boosted somehow." (Midwife, 8 years in service)

4. External support (Cooperating partners)

Financial support from external funders was reported to have been beneficial in some facilities which received the support. In addition, CAC providers narrated how their support through refresher courses, medical supplies and equipment contributed to providing services. For instance, one provider reported how previous support through incentives motivated the providers.

"I think also having materials available, cause usually CAC, IPAS [partner] used to provide us with the the the the the syringes, as well as the vacuums as well as the cannulas as so forth (...) so with them not giving us, I think work is being compromised, yeah because we do not have enough of those." (Clinical officer, 6 years in service).

Discussion

This study aimed to explore barriers and facilitators to the provision of CAC services among CAC providers in some selected health facilities of Lusaka and Copperbelt provinces of Zambia. Our findings show that significant barriers to service provision of CAC services include; inadequate staffing, optional service provision, inadequate space and privacy, stigma, religious and moral dilemmas, frequent shortages of medical supplies and equipment and lack of motivation by health care providers. Some enablers to provision of CAC found in this study such as; having a liberal legal framework, mentorship and training, partner support, accessible services and task shifting, are also consistent with findings from previous studies (12, 13)

The barriers found in this study are mainly health system-related. For instance, in this study, informants reported the challenge of staff shortage because lack of trained personnel and optional service provision among health providers. This finding is consistent with a study in South Africa by Harries and others which found that barriers to women accessing abortion services still exist due to provider opposition to abortions, contributing to a shortage of trained and willing abortion care providers (13).

Finding that health care providers working within a department providing CAC have an option on whether to provide a CAC service or not is a challenge to those willing because of the stigma it may create among fellow providers and even on the demand side. This finding suggests the need to ensure that only health care providers willing to provide the services are assigned in the CAC service delivery.

Further, we think that one of the major reasons for healthcare providers' optional service provision is related to the negative perceptions, stigma and labelling such as 'evil', 'terminators' or 'murderers' by health workers and the community for offering the service. This finding is similar to other studies (14, 15) which stated that many abortion providers were regarded as "murderers" and "baby killers" who were expected to "preserve and not take life".

We also noted that some HCPs were unwilling to provide CAC services because of religious beliefs and moral issues that led to widespread use of conscientious objection. Finding that some health care providers used conscientious objection not to refer patients to trained and willing service providers in an attempt to dissuade them from undergoing an abortion limited access to the services to women. The issue of conscientious objection causing staff shortage was also noted in the study by Harries and others in South Africa (13), in some situations it appeared as if a conscientious objection was being used as a means to oppose abortion on

very broad grounds. Therefore, such findings or concerns suggests the need to ensure having dedicated, trained, willing and skilled providers working in a more accessible, safe and supportive environments.

Lack of training in CAC service, especially for mid-level health care workers also contributed to shortages of CAC service providers. This finding is similar to what was reported by Persson and others in Bangladesh that Menstrual Regulation (MR) and post abortal care (PAC) are not fully covered during medical training and that NGOs had filled this gap in training (16). In this study, almost all the informants mentioned that they were trained in CAC services by a non-governmental and that once an NGO stopped supporting the facility, no new CAC providers are trained causing an overwhelming workload on the few trained ones. This lack of training also results in frustrations among the few providers, as was described in study conducted in Uganda (12) and by another study in Bangladesh which demonstrated that a lack of providers trained in menstrual regulation and PAC, limited the access to and availability of menstrual regulation and PAC, even in facilities with adequate supplies and equipment (16). This finding of inadequate trained CAC providers suggests the health systems need to ensure that in-service training is ongoing and incorporate CAC services into the pre-service training to ensure more trained and skilled providers.

In this study, some providers mentioned that space to offer CAC services and privacy were inadequate within the health facilities. This lack of space and privacy compromised effective and quality service provision, counselling and confidentiality, thereby discouraging both the providers and patients who would not want to be seen accessing or offering the service for fear of being labelled or stigmatized. This finding was similar to a study in Bangladesh which stated that health care providers described lack of space as a major challenge and a barrier to service provision (16).

Despite the barriers found in this study, we highlight the importance of training HCPs in CAC provision as critical to building confidence in counselling and general procedures. Our finding is consistent with a study done by Freeman and others in the United states of Ameriaca who found that professional training and continued education may facilitate implementation of CAC despite having many obstacles (17). A lack of refresher courses was a notable barrier as most courses were offered through external partnerships. In addition, constant support and mentorship from the seniors gave providers a protective umbrella, further enhancing service provision.

Most providers were conversant with the tenants of the legal framework around abortions. Which allowed for ease of service delivery without fear of being sued or persecuted by health care providers that were unwilling to provide the service. However, although a liberal law has been in place since 1972, the abortion act still remains largely misunderstood and unknown to most HCPs especially those not actively offering CAC services (18). Furthermore, the legalization of abortion although essential to promoting a safe environment for termination of pregnancy is also insufficient to service delivery (9).

Our study showed that most providers were not doctors. This is an indication that the recommendation by WHO for task shifting is in effect, and it is therefore guaranteed that women are receiving safe services in places where a medical doctor may not be available. This is further evidenced by a study conducted in Carlifornia which had shown good outcomes in the sampled facilities where diverse providers had been trained to provide abortion services (19).

While most providers associated their willingness to provide the service with wanting to see every woman have access to safe abortion and reduce the complications thereof, it was noted that provision of incentives was also a motivating factor. Through external partnerships, incentives in the form of lunch and transport refunds were being provided at some facilities, which helped keep the workforce motivated. This finding is consistent with other studies that conclude that workers perform tasks that are rewarding willingly (20). In addition, support from partners through the provision of medical supplies and equipment made the service flow smooth.

Study limitation:

One limitation of this study is that these findings are based on conversations with healthcare providers providing CAC services. Voices of providers not providing the services were not taken but would have possibly provided additional perspectives from those unwilling to provide the services. Nevertheless, the findings on this study remain crucial to informing practice and policy on the barrier to provision of CAC despite the fact that a liberal law has been in place since 1972. Further, all the providers were from public facilities and none came from the private sector.

Conclusion

Several barriers and enablers of CAC provision were noted through this study. This reinforces the idea that despite having appropriate legal provisions to CAC provision in Zambia, challenges in the implementation of the law and related service provision continue to persist. The identified factors need to be addressed. We recommend considering incorporating CAC services into the pre-service training to ensure more trained and skilled providers are available in the public facilities. Future research should consider including health care providers not conducting CAC and private facilities.

Abbreviations

CAC - Comprehensive Abortion Care

HCP - Health Care Provider

PAC - Post Abortion Care

FP - Family Planning

TOP -Termination Of Preganancy

NHRA - National Health Research Authority

MVA - Manual Vacuum Evacuation

WHO - World Health Organisation

UNZABREC - University of Zambia Biomedical Research Ethics Committee

Declarations

Ethical Considerations

Ethical approval was obtained from the University of Zambia Biomedical Research Ethics Committee (UNZABREC - REF. No. 1852-2021) and the National Health Research Authority (NHRA – REF NO: NHRA00003/13/07/2021) and permission to carry out the research was obtained from the Provincial health offices, District health Offices and Senior Medical Superintendents at all participating facilities. All participants provided verbal consent, anonymity and confidentiality were ensured.

Availability of data and materials

All data available at request from authors due to privacy considerations.

Consent for publication

Not applicable

Conflicts of interest

Authors declare no competing interest

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Author Contributions

CCP: Substantial contribution to conception and study design, acquisition of data and analysis and drafting of manuscript. CJ: Data analysis and manuscript writing, VS: study design, data acquisition and manuscript writing. PK: conceptualization of the study, study design, acquisition of data and proof reading. AK: development of data collection tools and proof reading of manuscript. MM: development of the data collection tools, study design, data collection and manuscript writing. TN: data collection tool development and manuscript writing. MM: conceptualization of the study, study design, development of the data collection tools, monitoring data collection and manuscript writing. JM: Development of data collection tool and manuscript writing. MM: Data analysis and manuscript writing. BM: Monitoring of data collection process and proof reading of Manuscript. MLK: Study Conceptualization and design, monitoring of data collection process, data analysis and development of manuscript. All authors have read and approved the manuscript.

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