RESEARCH ARTICLE

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Access to assisted reproductive technologies in sub-Saharan Africa: fertility professionals' views

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Abstract: *Across sub-Saharan Africa, there remains disagreement among local expert providers over the best ways to improve access to assisted reproduction in low-income contexts. Semi-structured qualitative interviews were conducted between 2021 and 2023 with 19 fertility specialists and 11 embryologists and one clinic manager from South Africa, Zimbabwe, Namibia, Kenya, Ethiopia and Uganda to explore issues surrounding access and potential low-cost IVF options. Lack of access to ART was variously conceptualised as a problem of high cost of treatment; lack of public funding for medical services and medication; poor policy awareness and prioritisation of fertility problems; a shortage of ART clinics and well-trained expert staff; the need for patients to travel long distances; and over-servicing within the largely privatised sector. All fertility specialists agreed that government funding for public sector assisted reproduction services was necessary to address access in the region. Other suggestions included: reduced medication costs by using mild stimulation protocols and oocyte retrievals under sedation instead of general anaesthetics. Insufficient data on low-cost interventions was cited as a barrier to their implementation. The lack of skilled embryologists on the continent was considered a major limitation to expanding ART services and the success of low-cost IVF systems. Very few specialists suggested that profits of pharmaceutical companies or ART clinics might be reduced to lessen the costs of treatments.* DOI: 10.1080/26410397.2024.2355790

Plain Language Summary: *This is a qualitative study involving interviews conducted between 2021 and 2023 with 19 fertility specialists and 11 embryologists and one clinic manager from South Africa, Zimbabwe, Namibia, Kenya, Ethiopia and Uganda to explore issues surrounding access and potential low-cost IVF options. The study found that across sub-Saharan Africa, clinical providers disagree over the best ways to provide assisted reproduction to improve access and affordability while maintaining high standards of care in low-income contexts. The lack of political, human resource and professional support to succeed in sub-Saharan Africa inhibits the implementation of low-cost initiatives to improve access and affordability. The study affirms the importance of giving more attention to infertility care in sub-Saharan Africa and increasing access and affordability of ARTs in the public health sector; the further development of national policies and professional guidelines; the need for more studies to evaluate low-cost initiatives; clarification of existing controversies about these initiatives; and the need for more training for embryologists in SSA.* DOI: 10.1080/26410397.2024.2355790

Keywords: assisted reproductive technologies, access, low-cost IVF, affordability

Introduction

Since 2001, the World Health Organization (WHO) has recommended that infertility be considered a global health problem and that assisted reproductive technologies (ART) be adapted to low-resource settings; it emphasises the role of national governments in diminishing the many inequities in access to safe and effective fertility care.[1–3]

The integration of basic infertility investigations and timely, simple forms of treatment (such as ovulation induction and artificial insemination) into existing reproductive health settings is suggested to improve access to fertility treatments for poorer patients in low- and middle-income countries (LMIC).[4] The use of mild stimulation protocols and simplified laboratory procedures may also reduce the cost of ART.[5–7] However, few studies have been conducted from LMIC on the implementation of effective, accessible and affordable ART,[8,9] and until the publication of the Global Report in 2023,[3] very little prevalence data had been available that might convince local policy makers and international stakeholders of infertility as an important reproductive health issue.

Causes of infertility in LMIC settings include "age, fallopian tube occlusion, and genetic, lifestyle, or environmental factors".[10] These could partly be prevented by improved access to quality reproductive health care, such as safe delivery and safe abortion care; contraceptive options to prevent unintended pregnancy; and the prevention, detection and treatment of infections.[10] However, fallopian tube infections and consequent occlusion, largely due to sexually transmitted infections, post-partum infections, or infections after pregnancy loss (primarily due to unsafe abortion) are often only detected when women experience difficulties becoming pregnant.[11]

Across sub-Saharan Africa (SSA), access to quality ART services remains problematic; even where services are available, the cost of treatment is usually prohibitive for most people.[12–15] An estimated 413 million people in 2015 live below the poverty line (on less than GBP 1.55 a day) on the continent, and most SSA middle-income countries are characterised by sharp inequality.[16,17] A systematic review of relative costs of assisted reproduction treatments found that costs in Africa are on average up to 200% of the GDP per capita.[14] Little priority is given to the prevention of infertility and access to ARTs by governments in most SSA countries.[12]

The social consequences of infertility are severe. Children are highly valued and motherhood is considered essential for a woman's social status.[18–21] Women may endure stigmatisation, social exclusion, witchcraft accusations,[22] verbal abuse, and loss of social status.[23–26] Other studies in various African contexts have shown that childless men also may be stigmatised, feel emasculated and suffer from loss of social status.[23,27,28]

Few SSA countries include fertility care within their reproductive health policies.[12] The quality of ART varies, and multiple structural barriers limit access to ART. An estimated 1,500 assisted reproduction cycles per million infertile people are required in SSA to meet need, but in 2020 only 87 cycles per million took place.[12] South Africa (40 clinics), Ghana (18 clinics), Kenya (11 clinics) and Nigeria (96 clinics) have the largest numbers of clinics[29]; many of these also cater for an international clientele.[30,31]

Women and couples often experience catastrophic financial hardship in order to pay for assisted reproductive treatment.[14,32] No SSA government provides full financial support for ART, although in the most recent International Federation of Fertility Societies Report, South Africa and Uganda report partial coverage or reimbursement through private insurance,[29] and Tanzania reported partial coverage through its National Health Plan. Within South Africa only a few academic centres provide publicly funded treatments. Hence access is stratified by economic status.[33] Across SSA the majority of ART clinics are private, and patients pay out-of-pocket for their care. A two-tiered system operates. Those able to pay either from their own resources or through loans can access care in a private clinic; those dependent upon state resources have lengthy waits for care, if public ART is available at all in their own country. Delays in accumulating the money to pay for ART increase the delays before treatment begins, so reducing the chances of success.[34]

There are considerable challenges in increasing access to high-quality fertility care and the provision of ARTs in LMICs.[8,12] Our aim is to contribute to the debate on increasing access to ARTs in LMICs, by presenting the views of fertility specialists and embryologists from SSA on how costs might be reduced and access to ARTs improved. We conducted this research with several

objectives: first, to understand why efforts for low-cost IVF have not been successfully implemented in SSA; to garner the local understandings and definitions of the problem of access and affordability from those working in the field; and finally, to highlight an area that is in need of greater research attention. We believe it is important to understand how fertility professionals view the issues, as the leaders and opinion makers responsible for the implementation of IVF.

Methods

In this article we draw on qualitative fieldwork and interviews conducted as part of a large ethnographic study on travel for assisted reproduction and ova donation in SSA, for which we interviewed 100 informants (including patients, nurses, donors, translators, clinical coordinators, embryologists) from January 2022 to February 2023. This included key informants from across SSA (mainly South Africa, but including Uganda, Mozambique, Namibia, Tanzania, Ethiopia, Cameroon, Zambia and Ghana) and observations during visits to three public and six private clinics in Pretoria, Johannesburg, Mombela and Cape Town (in September and October 2022).

Below, we report findings from semi-structured interviews with 19 fertility specialists, mostly from South Africa, but also those working in Zimbabwe, Namibia and Kenya, a clinic manager from Uganda, and 11 embryologists who work or previously worked in fertility clinics in South Africa, Namibia, Ethiopia and Uganda. Interviewees were recruited through direct approaches to fertility clinics, and personal networks of the study team, and interviewed on average for approximately one hour in person during visits to clinics or via Zoom throughout 2022 and 2023 (Table 1). Interviews were transcribed or notes were taken and later thematically coded, then compared across the sample to note similar and contrasting opinions. Full details of methods according to the COREQ reporting checklist[35] are supplied in Appendix 1. In this article, we focus on content which was coded as either "low-cost IVF" or "access" in the interview transcripts, and later grouped by the sub-themes identified in the paper. Since the community of specialists is very small, all names are pseudonyms and were chosen to ensure anonymity.

Ethics and consent

Ethical clearance was granted by Monash University (MUHREC 27166, 24 February 2021) the University of the Witwatersrand (M210546, 30 June 2021) and participating clinics.

Findings

Lack of access to ART: "I sometimes feel guilty"

The knowledge that people face considerable difficulty accessing appropriate timely treatments for infertility motivated many specialists to train or practie in this field. Dr Tama, a fertility specialist who travels from South Africa to a satellite clinic in Namibia, noted: "In Africa, most people that actually need ART services cannot actually afford it, you know, that's the reality, whichever way you want to spin the dice, that's what it is, they can just can never get to it". Eric, an embryologist who started a clinic within a public hospital in Ethiopia, noted the demand there for fertility treatment: "We established a clinic, and many patients have been registered to get treated, but the wait time is so high, like – it's like 20,000 [patients] were registered, and capacity was about 5,000 [patients] a year, so there is a big waiting list". Dr Rif, from Zimbabwe, noted that infertility, along with prevalent infectious diseases such as HIV, malaria and TB, is a significant health issue across Africa, yet, he argued, infertility treatment and fertility assistance receive little attention.

Many private sector fertility specialists expressed frustration that they could not treat people who needed treatment but lacked resources. Dr Lito moved from the public to the private sector, and reflected:

"The health care in South Africa … it still bothers me, because if you do not have the funds, you get the worst health care … I sometimes feel guilty … what usually pains me is that we still sometimes end up with [patients saying] 'I don't have the funds' and sometimes they go and save up … they go for four years just to save up and they come back, and I tell them the price is now double what it was then."

Funding the public sector: "They can't even afford vaccinations"

The high cost and subsequent lack of affordability of ART were recognised as an overwhelming barrier to access. All fertility specialists agreed

Table 1. Characteristics of informants interviewed

Fertility specialist	Embryologist	Clinic manager	Sector	Country
14	4		Private	South Africa
2	2		Public	South Africa
1	1		Private	Zimbabwe
1	2		Private	Namibia/South Africa
	1		Private	Ethiopia
1			Private	Namibia Kenya
	1		Private	Uganda
		1	Private	Uganda
19	11	1		TOTALS

that government funding for public sector-assisted reproduction services was necessary to address access. Some suggested ART provision through public teaching university clinics, so as to cover the human resource costs. Those advocating cost-shifting schemes estimated that the subsidy by the state for university staff costs, with the other proposed measures, would reduce costs to the patient by two-thirds in the private sector. However, Dr Gulison, a private sector fertility specialist, was sceptical of the notion of "low-cost" IVF, and considered that shifting human resources costs onto the state merely hides the costs, including of wards, nurses and pharmacies: "The cost is the cost of the materials, the people and the way you do it". In any case, state commitment to provide adequately funded ART services within state hospitals was considered unlikely:

"You cannot leave it [provision of ARTs] to the private sector entirely; there must be some sort of political willingness and commitment from the government to say, 'Yes, we are willing to come aboard'. But it was always thought it [infertility] was not a disease and it [ARTs] cannot be provided by the state … I know [at the public hospital] we do at least 400 or 500 [cycles] per year, and this is pretty much limited by the staff we have, and the incubator in the lab … And the waiting list on our programme now is almost a year and six months. So, this means you have to wait almost two years to start your IVF [at a public clinic] and that will frustrate most people." (Dr Pule, a public sector fertility specialist)

Dr Klerk, a fertility specialist in a private clinic, believed that South Africa lacked government commitment to fund ART in public hospitals. They estimated that only 20% of ART cycles in the country were currently conducted in the public sector, because of limited funding for patients. Dr Keen was similarly critical of the government for failing to provide adequate funding for public hospitals. He suggested that corruption was part of the problem:

"*In the government sector with our patients that cannot afford private health care, if this government stopped stealing the money and they would make it [accessible] … It means that if you go to a government hospital you should be able to get that care. Now go to a government hospital and try and get reproductive medicine, zero, they can't even afford vaccinations."*

Another specialist in a public hospital, Dr Nata, noted that some South African provinces offered no fertility treatment at all, and emphasised the need for funding to subsidise fertility treatments for poor patients "at least if they pay for one IVF cycle, even if they said you have to be under 35, just to give them a chance". The few public clinics and most private clinics in South Africa are located in Western Cape and Gauteng Provinces; a few private clinics operate in Eastern Cape, Free State,

Table 2. Means of improving access suggested by fertility specialists and embryologists in interviews

Human resources	Laboratory	Medications
• Public employees/public funded clinics • Academic centres employ staff • Fertility specialists/ embryologists travel • 3-month trained embryologists	• Mobile low-tech incubators • 'Standard' IVF • Wealthy patients subsidise poorer patients • Mobile full lab on truck • 'Batching' • Develop intra-uterine incubation device	• Sufficient volume of patients to reduce wastage • Low stimulation cycles • Conscious sedation for removals • Reduce costs

KwaZulu Natal and Mpumalanga; none operate in the other provinces. While the primary cost of treatment is for direct measures, the indirect costs of travel and accommodation magnify the inequality.

In Zimbabwe, one private clinic is trying to provide what they termed "low-cost IVF" for some cycles through subsidies. The clinic is working with a university in Zimbabwe to set up an academic ART centre which would cover some laboratory and staff costs. Dr Rif explained "what we do is we tend to offer, we tend to make the other patient that can afford [it] to also subsidise those that cannot afford it [conventional IVF] … But the problem is, there are a lot of patients that don't have money".

Reducing costs

Various interventions were suggested by clinicians and embryologists to lower the costs of ART. We have organised these interventions into four 'pillars' of ART as suggested by our informants: laboratory costs, human resources, medications, and additional services/add-ons (Table 2).

Laboratory expenses: "Do it properly"

One model currently being explored in a public hospital is a mobile laboratory, with a low-tech incubator inspired by the Belgium-based "Walking Egg" not-for-profit organisation (tWE). The main objective of tWE is to implement good quality and affordable infertility centres in resource-poor countries using a simplified lab system.[8,36] This system does not need specialised medical grade gases or equipment, and it enables timed performance assessments for embryo selection.[7,8] In addition, tWE advocates for a "one-stop … standardised investigation of the couple at minimal costs" and low-cost ovarian stimulation protocols to avoid multiple pregnancies and severe medical complications.[36] With further development, this could be taken on a truck to hospitals in areas without existing capacity, to be utilised as an ART laboratory.

Most of our informants in South Africa were aware of the tWE initiative and referred to this model when discussing low-cost IVF. However, the model – as our informants understood it – did not receive universal support. They were concerned that the limited hormone stimulation used in such programmes would lead to fewer oocytes being produced and hence lower chances of success, especially for older women, while fixed costs would remain the same. This would cause further delays and expense for patients. Dr Keen, for example, felt that it was a false economy to reduce hormone stimulation, which he felt lessens the chance of a successful outcome:

"I can't make a cheaper needle for a one egg cycle. I can't make cheaper culture media for a one egg cycle. I've got the same incubator that I have grown 20 eggs that I've got to grow one egg in. I've got the same manpower hours that we are paying for, normal time, over-time. There's no change in your inputs when you are trying to do cheaper IVF … . If you come in here and want a baby, do it properly."

Dr Keen summarises the attitude of many private specialists – the importance of maximising the

chances of a "take-home" baby with the fewest numbers of cycles for an individual. They suggest the fixed costs are the same whether a woman has 20 eggs or one, but chances are maximised if she has 20 eggs to fertilise. Optimal stimulation regimes aim to produce sufficient eggs for a successful cycle; mild stimulation protocols are therefore controversial.

Dr Ren, a public sector fertility specialist, was adamant that data on low-cost interventions were insufficient to proceed with them. Dr Ren was concerned that these interventions could simply perpetuate treatment inequalities. Although low stimulation protocols are advocated by researchers in high-income countries,[6] all but three participants were critical of them. Dr Ren felt that low-cost IVF hinted at a colonial mindset, that inferior technologies were good enough for poor people in poor countries: "Low-cost interventions have no role in developed countries and do not have a role in developing countries". Sustainability was also an important consideration to ensure equitable access to care for as many patients as might benefit. This would involve identifying those who would benefit most and providing standard cycles (i.e. without genetic tests or add-ons).

Another private fertility specialist mused that experiments to develop an *in-vivo* incubation device that could be carried within a woman's body would help reduce laboratory costs and negate the need for expensive incubators. Although there have been promising studies of such devices in Colombia and Pakistan,[8] this is yet to be explored in SSA.

Human resources and the focus on hardware

Another major concern regarding the introduction of low-cost laboratory systems was the huge lack of skilled embryologists, as Dr Klerk commented:

"I don't think it [low cost incubator system] is really taken off as people expected, because of the reason that you need senior embryologists to do that, and they're in such demand anyway, they're going to be in an IVF centre most of the time. So that's been the one massive drawback."

All embryologists and fertility specialists argued that people with short-term training lacked sufficient skills to work in an ART laboratory and to analyse processes and outcomes. Another private fertility specialist, Dr Neels observed: "There is a focus on hardware, not a focus on the people, and skills required to make low cost IVF a reality" and preferred a low-cost model with a bus or a truck with "a proper lab", with trained personnel from a "mother clinic". This mobile laboratory would move around, spend time in locations, then move on.

Lack of skilled staff and competition from well-resourced private clinics also affects the possibilities of expanding public sector assisted reproduction services. Dr Nata noted that without adequate funding and equipment, it is difficult for a public hospital to recruit staff such as fertility specialists or embryologists. A further human resource issue was what fertility specialist Dr Zak called the need for "primary care fertility specialists" within health systems. Because obstetrician-gynaecologists work across maternity, pregnancy, obstetrics and gynaecological oncology, very few are able to do a proper assessment for fertility problems. Dr Zak constantly sees people who have consulted a gynaecologist but have never had a proper infertility investigation. He suggested gynaecologists receive extra training to do "a proper work-up", then refer patients to a fertility specialist in a timely fashion for more complex interventions.

Reducing medication expenses

As noted above, one public clinic seeks to lower the costs of treatment to patients by reducing the amounts and types of medications used. Drs Pule, Gulison and Keen described how costs were reduced in their clinics when a mild stimulation protocol was used. Dr Pule also described how in the public clinic, sedation rather than a full anaesthetic for egg retrieval procedures reduced costs:

"So we looked at the medication and said 'can we cut our medication costs' – and that we cut significantly, so that was one area where we cut down on the costs of IVF … Now the third of the costs of IVF are the lab, which is where in the private sector they will have an anaesthetist who puts the patient to sleep and then they can do their egg harvest and all that. And they have to be paid, the anaesthesia medication and drugs have to be factored in the whole costing."

"So in our programme we don't use an anaesthetist, we do conscious sedation. … So there is no anaesthetist, we don't have to take care of any anaesthetic medications or machines to look after our patients." (Dr Pule)

Dr Ren criticised pharmaceutical companies for the high costs of medications used in IVF; no other informant did so. Pharmaceutical companies across the ART sector are highly visible, and in conversations, clinic staff told us that these companies sponsor trips to conferences, give free information pamphlets, sponsor training and fertility education campaigns, and have even helped decorate a surgical room with attractive posters. SSA is an expanding market for ART medications, and the development of goodwill with clinics was clearly in the interests of the pharmaceutical companies. However, there was little criticism of the political economy of the medicines used in ART, nor willingness of interviewees to discuss the possibility that drug companies could reduce their profits on these medicines.

Reducing excessive servicing

Clinics charge for a range of optional extras, so-called add-ons. These may include laboratory techniques such as assisted hatching and embryo screening; clinical procedures such as endometrial scratching; and medications such as prednisolone and aspirin or vitamin supplements. Dr Gulison, a private sector fertility specialist, noted the conflict of interest when private clinics offered profitable "add-ons" and high-tech interventions: "the incentives are not always noble".

A number of fertility specialists suggested that financial incentives to over-service characterised the private sector, and that gynaecologists were undertaking profitable unnecessary surgeries with little regard for future fertility, particularly if a patient had health insurance. In many cases, these surgeries impaired women's fertility and increased overall costs of treatment:

"When a gynaecologist sees a patient the gynaecologist is not worried about whether the patient will or won't fall pregnant. The gynaecologist is looking at 'What can I milk out of this patient to look after my bank balance?'. I will show you now in a new case that I saw from another fertility clinic today again. No names mentioned, she has had four D&Cs and four laparoscopies. She is 28 years old. For what purpose? For one reason, and that is on your forehead, it says 'Pulse and credit card'." (Dr Keen)

Dr Keen argued for peer review processes to inform health insurance companies about appropriate interventions: "Let's take all that money that we are wasting on unnecessary procedures and feed it into a fund for fertility treatment".

Reducing travel distances

Distance is a barrier to access to fertility clinics. Even within South Africa, the major hub of fertility clinics in SSA, ART services are concentrated in urban areas, particularly in Gauteng (Johannesburg and Pretoria) and Western Cape (Cape Town). Other patients need to travel long distances. As one private clinic doctor Dr Neels commented, "[patients] might drive 1,000 kilometres to Pretoria for treatment. And so that's the equivalent of driving from Paris to Amsterdam (sic) to get treatment, that's what we're talking about within South Africa".

Across SSA, many clinics use "batching" to manage the workload and hence reduce costs, especially when staff travel regularly to satellite clinics or other locations to provide services.[8,37] The term "batching" here refers to the practice of using hormone regimes to synchronise patients' menstrual cycles so that a cohort of women undergo oocyte retrievals and embryo transfers within a fixed period when fertility specialists and embryologists are available.

Although the costs remain high for "batched" cycles, some clinicians – from various places in SSA – claimed that the practice improved access for patients who otherwise would have to travel at greater expense to an ART clinic. Not all clinicians agreed, however. Dr Klerk, for instance, was critical of the "one size fits all" model in batching and potential lack of follow-up of patients: "I don't know if it's so great, because the patients end up paying almost the same as they would to go to a proper place and do it correctly; they're getting really short-changed in terms of what they get". Such concerns with regard to batching mirror the controversies surrounding interventions to introduce low-cost IVF – how to maintain high-quality ART services while reducing cost and increasing access.

Discussion

We have summarised the suggestions, practices, opinions and concerns of fertility specialists and embryologists regarding how to increase access to ARTs in SSA. As leaders in fertility care in their countries, it is important to document their perspectives and framing of the issues in their particular contexts. All agree that better access to

ART is needed across the region. How best to achieve this remains contested.

Limited access to ART was variously conceptualised by fertility specialists and embryologists as a problem of high cost of treatment; lack of public funding for medical services and medication; poor policy awareness and prioritisation of fertility problems; a shortage of ART clinics and well-trained expert staff; and the need for patients to travel long distances (cf.[12]). In addition, fertility education was advocated so couples would not delay seeking treatment.

Respondents' suggestions for improving access to ART clustered around costs, including: reducing the cost of human resources, laboratory and medications; decreasing the use of add-ons; and offering batching to reduce travel costs for clients. Njagi et al[14] list the major drivers of costs in assisted reproduction as: direct medical costs (payments for diagnosis, procedural costs, laboratory tests, and drugs/medications) and indirect costs (food, accommodation, and travel for patients living remotely from the treatment institutions). Private services on average are more costly than public services where institutional subsidies may lower or support costs. The major driver of costs is related to laboratory costs, procedural costs, equipment, and drugs with a study in South Africa reporting that laboratory services contributed to between 35% and 48% of ART fees paid by patients.[38] This suggests that interventions to improve support of ART within public health systems, and to reduce laboratory and drug costs, should be encouraged. However, our informants also pointed to the significant limitations in human resourcing, particularly the shortage of embryologists in SSA, which further impact the ability to expand services.

There were significant criticisms of "low-cost IVF" initiatives, particularly programmes like tWE (though some elements of the programme may not be understood properly); short training programmes for embryologists; simple mobile incubators; and simplified protocols including reduced hormonal stimulation and laboratory procedures. This was because specialists felt there remained insufficient data on low-cost IVF initiatives in LMIC settings. The implementation of low-cost initiatives requires political, human resource and professional support to succeed.[9] It also poses ethical issues as to the equitable distribution of this scarce resource in an unequal setting.[39] Access to *in vitro* fertilisation with pre-implantation testing is also important, given the high rates of sickle cell disease in sub-Saharan Africa. The cost of sickle cell disease will increase if, as expected, case identification and survival improve in the coming decades and costly treatment options evolve.[40,41]

Some participants' critique of mild stimulation protocols to reduce costs did not consider evidence that these less costly protocols, while resulting in fewer oocytes being recovered can: yield similar numbers of good quality blastocysts and euploid (chromosomally normal) embryos as conventional high-cost protocols; reduce the risk of ovarian hyperstimulation syndrome, a serious complication which may require hospitalisation; result in similar number of embryos in women considered "poor responders"; and potentially improve perinatal outcomes.[42] In addition, only one participant mentioned the potential influence of pharmaceutical companies' support for clinics and clinicians upon their practices such as using costly stimulation protocols, and the possibility that drug companies could reduce their profits on these medicines was not discussed.

Implications

A reproductive justice approach to infertility starts from the basic tenet of people's rights and ability to access infertility treatment and services.[43] Currently, across SSA, intersecting systems of oppression (racism, sexism, poverty, and legacies of colonisation and apartheid) continue to position poor women living in poor countries as the target of contraceptive interventions, coercive contraception and fertility reduction regimes.[44–47] As a consequence, for most people in the region suffering infertility, being able to see a provider and access assisted reproductive treatment if required remains unattainable, and points to the important difference between *affordability* and *cost* and the broader political economy of healthcare and infertility.[14,32] Further, reproductive health measures to minimise preventable causes of infertility have been neglected. Few countries have fertility care in reproductive health policies[12] and most countries lack regulations overseeing the standards of care or implementation of ART. While such policies and regulations are in place in South Africa, most people in the country cannot access the high-quality fertility care offered in private clinics. Even if the measures discussed

above were implemented, few people in SSA requiring treatment for infertility are in a position to afford it.

Our study among infertility experts and embryologists in SSA underlines the importance of: national governments giving more attention to infertility care and increasing access to ARTs in the public health sector; the further development of national policies and professional guidelines to guarantee high quality, safe and ethical use of ARTs; the need for more studies that evaluate the efficacy and safety of low-cost initiatives; clarification of existing controversies and concerns about these initiatives; and the need for more fertility experts – in particular, embryologists.

As a qualitative study, this research was limited to interviews with a relatively small sample of fertility specialists and staff from southern African countries only. Informants from francophone west Africa and North Africa were not included, and a more extensive study might provide different insights in those regions. Nevertheless, it is likely that the broader patterns of poor access and contestations on how to provide affordable options to patients are similar continent-wide.

Throughout SSA, clinical providers are grappling with how to improve access to ART treatments for patients requiring them. Most view costs and a shortage of personnel as the main barriers to access. There remains disagreement among providers over the best ways to provide assisted reproduction to improve access: how to maintain the highest standards of care in low-income contexts and offer ART at the same level of competence and technical expertise as in high-income countries. Yet, concerns about clinic profits and on continued support from pharmaceutical companies may also play a role in the way providers position themselves in these debates. As experts in assisted reproduction, they can influence the systems and structures that impinge upon the rights of people to pursue their parenthood goals.

Author contributions

Andrea Whittaker: conceptualization, formal analysis, funding acquisition, investigation, methodology, writing – original draft, writing – review & editing. Trudie Gerrits: conceptualization, formal analysis, funding acquisition, investigation, methodology, writing – original draft, writing – review & editing. Lenore Manderson: conceptualization, formal analysis, funding acquisition, writing – review & editing. Karin Hammarberg: conceptualization, formal analysis, funding acquisition, writing – review & editing.

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Appendix 1. COREQ methods reporting framework checklist for this study

	Elements	This study
Domain 1: Research team and reflexivity	1. Interviewer/facilitator	1. Majority of Interviews undertaken by AW & TG. Some additional interviews undertaken by KH and RA staff member.
	2. Credentials	2. AW, LM and TG have PhDs in Anthropology, KH has a PhD in Public Health.
	3. Occupation	3. All researchers in academic positions; KH is also in a regulatory position
	4. Gender	4. All middle-aged, white women
	5. Experience and training	5. All senior experienced researchers
	6. Relationship established	6. In some cases participants were known to researchers before the study commencement but in other cases not.
	7. Participant knowledge of the interviewer	7. Prior to participation, informants received written information and informed consent material about the researchers and study.
	8. Interviewer characteristics	8. Reasons and interests in the research topic were included in information informants received prior to study.
Domain 2: study design	9. Methodological orientation and theory	9. Grounded theory and critical medical anthropology
	10. Sampling	10. Participants selected through a combination of purposive sampling and snowball sampling when other potential informants suggested
	11. Method of approach	11. Participants approached through emails and telephone calls to respective clinics. In a few cases, face-to-face requests were made.
	12. Sample size	12. 19 Fertility specialists, 11 embryologists, 1 clinic manager
	13. Non-participation	13. 27 fertility specialists and embryologists were approached to participate, 19 agreed to be interviewed; 2 declined to be interviewed and 6 did not respond to our requests. 13 embryologists were approached for an interview of which 11 agreed and 2 declined. Of the 2 who declined, 1 could not participate as her clinic manager declined for anyone in the clinic to participate and 1 did not respond.
	14. Setting of data collection	14. Interviews took place in workplaces or via Zoom

	15. Presence of non-participants	15. Only researchers and participants present at interviews.
	16. Description of sample	16. See Table 1.
	17. Interview guide	17. Interviews largely unstructured, prompt questions were used for particular themes. These were modified as the study progressed.
	18. Repeat interviews	18. In 1 case a fertility specialist was interviewed twice by this is not counted as a repeat interview.
	19. Audio/visual recording	19. All interviews audio recorded and transcribed expect one when notes taken.
	20. Field notes	20 Fieldnotes also undertaken by researchers.
	21. Duration	21. Interviews took approx. 1 hour
	22. Data saturation	22. Data saturation considered to have occurred when repeated issues emerging from interview data however it is recognised that additional issues likely to emerge if the sample could have extended to more specialists across the region.
	23. Transcripts returned	23. Transcripts of interviews were offered and given to participants when requested.
Domain 3: analysis and findings	24. Number of data coders	24. Research team of 5 participated in coding and discussion of analysis
	25. Description of the coding tree	25. Coding was thematic and generally first order codes. Not analysed for relationship between codes.
	26. Derivation of themes	26. Themes were derived from the data.
	27. Software	27. NVivo 4.0 used for data management.
	28. Participant checking Reporting	28. Feedback to participants is occurring through presentations at some clinics as requested and a professional organisation meeting.
	29. Quotations presented	29. Quotations are presented to illustrate the themes and are identified through participants.
	30. Data and findings consistent	30. Findings are drawn from the data.
	31. Clarity of major themes	31. Major themes are presented
	32. Clarity of minor themes	32. Discussion of diverse cases and minor themes is also presented.

Résumé

En Afrique subsaharienne, des désaccords subsistent entre les prestataires experts locaux sur les meilleurs moyens d'élargir l'accès à la procréation assistée dans les contextes à faible revenu. Des entretiens qualitatifs semi-structurés ont été menés entre 2019 et 2021 avec 19 spécialistes de la fécondité et 11 embryologistes ainsi qu'un gestionnaire de centre de santé d'Afrique du Sud, d'Éthiopie, du Kenya, de Namibie, d'Ouganda et du Zimbabwe, pour étudier les problèmes liés à l'accès et aux options potentielles de FIV à faible coût. Le manque d'accès à l'assistance médicale à la procréation (AMP) a été diversement conceptualisé comme un problème de coût élevé du traitement; le manque de financement public pour les services médicaux et les médicaments; une sensibilisation politique insuffisante et une faible priorisation des problèmes de fécondité; une pénurie de centres d'AMP et de personnel expert bien formé; la nécessité pour les patients de parcourir de longues distances; et l'excès de services au sein d'un secteur largement privatisé. Tous les spécialistes de la fécondité conviennent qu'un financement étatique était nécessaire pour les services de procréation assistée du secteur public afin d'élargir l'accès dans la région. D'autres suggestions comprenaient: une réduction des coûts des médicaments en utilisant des protocoles de stimulation légère et des prélèvements d'ovocytes sous sédation plutôt que sous anesthésie générale. L'insuffisance des données sur les interventions à faible coût a été citée comme un obstacle à leur mise en œuvre. Le manque d'embryologistes qualifiés sur le continent était considéré comme un obstacle majeur à l'expansion des services d'AMP et au succès de systèmes de FIV à faible coût. Quelques rares spécialistes ont suggéré que les bénéfices des compagnies pharmaceutiques ou des centres d'AMP pourraient être réduits pour faire baisser le coût des traitements.

Resumen

En toda la región de África subsahariana, continúan los desacuerdos entre prestadores de servicios expertos locales sobre las mejores maneras de mejorar el acceso a la reproducción asistida en contextos de bajos ingresos. Se realizaron entrevistas cualitativas semiestructuradas entre 2019 y 2021 con 19 especialistas en fertilidad, 11 embriólogos y un administrador de una clínica, provenientes de Sudáfrica, Zimbabue, Namibia, Kenia, Etiopía y Uganda, con el fin de explorar los asuntos en torno al acceso y posibles opciones de FIV a bajo costo. La falta de acceso a TRA se conceptualizó de diversas maneras como un problema de alto costo del tratamiento; falta de financiamiento público de los servicios médicos y medicamentos; poca conciencia de la política y baja priorización de los problemas de fertilidad; escasez de clínicas de TRA y de personal experto bien capacitado; la necesidad de las pacientes de viajar largas distancias; y prestación de servicios en exceso en el sector en gran parte privatizado. Todos los especialistas en fertilidad coincidieron en que el financiamiento gubernamental de los servicios de reproducción asistida en el sector público era necesario para abordar el acceso en la región. Otras sugerencias fueron: reducir los costos de medicamentos utilizando protocolos de estimulación leve y recuperación de ovocitos bajo sedación en vez de anestésicos generales. Como barrera a su aplicación, se citó la insuficiencia de datos sobre intervenciones de bajo costo. La falta de embriólogos calificados en el continente fue considerada como una limitación importante para ampliar los servicios de TRA y para el éxito de los sistemas de FIV de bajo costo. Muy pocos especialistas sugirieron reducir las ganancias de las empresas farmacéuticas o las clínicas de TRA para disminuir los costos de los tratamientos.