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Lessons learnt and challenges from implementing Safer Conception Services (SCS) in high HIV burden and resource-limited settings: Narratives from Healthcare Providers (HCP)

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Abstract: Introduction: Couples infected and affected have fertility desires and intensions to become pregnant. Safer Conception Services (SCS) has been promoted as an HIV combination prevention intervention to reduce HIV exposure to uninfected partners and prevent mother-to-child transmission at the very early stages of gestation. To successfully introduce, integrate, promote, and optimize the service delivery of safer conception services in resource limited primary healthcare settings, it is crucial to understand the lessons learnt and challenges faced by healthcare providers.
Purpose: The purpose of the study was to explore the lessons learnt and challenges from the implementation of SCS in high HIV burden and resource-limited settings.
Material and Methods: This was a qualitative study and part of the implementation study, data was collected from six facility healthcare managers who were purposively selected, face-to-face in-depth interviews were using semi-structured guide between November 2017 - September 2018. Data were analysed using thematic analysis.
Results: Four themes emerged: thoughts on the introduction of SCS/perception regarding the introduction of SCS, challenges faced HCP during the implementation of SCS, recommendations by healthcare providers, and monitoring and evaluation systems.
Conclusions: The results revealed that there was high acceptability and support of SCS services reported by HCP and patients. To enhance and strengthen the SCS, there is need for continuous and ongoing support and training on diverse topics on SCS for all staff members regardless of their levels. To reduce burnout, lengthy services and workload, additional staff members should be employed. Furthermore, services should be streamlined, administration of relevant documents to be used should be strengthened and available guidelines should be translated into training programmes and more proactive policies to support scale-up of this essential service.

Keywords: Challenges, Healthcare Providers, Implementation, Lessons, Safer Conception Services

Introduction

Safer Conception Services (SCS) include a variety of comprehensive services such as: antiretroviral-based strategies (including Antiretroviral Therapy (ART) use by the HIV-1 infected partner and preexposure prophylaxis (PrEP) use by the HIV-1 uninfected partner), timing condomless sex to periods with peak fertility, STI treatment, basic fertility screening (e.g. considering medical history for episodes of amenorrhea or adverse pregnancy outcomes), medically-assisted reproduction (including sperm-washing and artificial-insemination), and male circumcision and vaginal self-insemination when the woman is the HIV-1 infected partner (Ciaranello & Matthews 2015). Recent studies suggest that a considerable proportion of new HIV-1 infections in mature epidemics like South Africa occurs within discordant couples, making discordancy a major contributor to the spread of HIV/AIDS in Africa, yet most couples are not even aware of their HIV status. Many of the HIV prevention options used for safer conception are available through existing healthcare programmes, such as ART, VMMC and growing availability of PrEP. Vernazza et al., (2011), Brown et al., (2016) asserts that one barrier to fully minimizing HIV transmission risk during peri-conception is knowledge about safer conception options among individuals and providers and the initiation of discussion about these methods (individually and as a package) between providers and patients. However, there are limited SCS services in public healthcare facilities and providers are faced with challenges in implementing SCS. Rucinski et al., (2020)

assets that SCS has been found to be both acceptable and feasible in South Africa, but the services remain unavailable. It is therefore crucial to better understand provider perspectives lessons and challenges regarding the implementation of SCS since they will be pivotal to the successful delivery of safer conception. This study is imperative since it will contribute to the broader field on knowledge by exploring a completely new area, proposes new developments, and addressing the existing gaps in the literature. Since there is limited data in the field of safer conception especially in South Africa, this study will build upon previous studies, filling gaps in understanding and providing evidence-based information for decision-making and advancement in the field of safer conception. This paper reports on the narratives of healthcare provider's lessons learnt and challenges from implementing Safer Conception Services (SCS) in high HIV burden and resource-limited settings.

Literature Review

Safer conception services are crucial for HIV-discordant couples, where one partner is HIV-positive and the other is HIV-negative, to achieve pregnancy while minimizing the risk of HIV transmission. These services include various medical and behavioral strategies: Antiretroviral Therapy (ART): Ensuring the HIV-positive partner is on effective ART to achieve and maintain an undetectable viral load, which significantly reduces the risk of sexual transmission of HIV (WHO, 2017), PrEP: the HIV-negative partner takes PrEP, a daily medication that reduces the risk of acquiring HIV (CDC, 2014), Timed Unprotected Intercourse: having unprotected intercourse during the HIV-negative female partner's ovulation period to increase the chances of conception while minimizing the number of unprotected sexual encounters (JIAS, 2018), Sperm Washing: A process where sperm is separated from the seminal fluid, which is then used for intrauterine insemination (IUI) or in vitro fertilization (IVF), reducing the risk of HIV transmission from an HIV-positive male partner to an HIV-negative female partner (WHO, 2017), Assisted Reproductive Technologies (ARTs): Techniques such as IUI and IVF that can be used to facilitate conception while managing the risk of HIV transmission (NIAID, 2020), Maternal ART During Pregnancy and Breastfeeding: Continuous use of ART by the HIV-positive woman during pregnancy and breastfeeding to reduce the risk of mother-to-child transmission of HIV (WHO, 2017), Male Circumcision: This procedure has been shown to reduce the risk of HIV acquisition in men and can be part of a broader prevention strategy (CDC, 2014), and Regular Monitoring and Counselling: Ongoing medical follow-ups, counselling, and support to address the emotional, psychological, and health-related concerns of the couple (JIAS, 2018).

Schwartz et all (2012) defines safer conception services as services that intends to promote, enhance, and strengthen the reproductive health and rights of families, while minimizing HIV transmission risks between partners trying to conceive, as well vertical transmission risks. According to the Department of Health (2012), South Africa has been implementing safer conception services as a pilot project and the country's Contraception and Fertility Planning Policy (2012) marked a paradigm shift from a contraception-focused family planning model, with the primary focus on preventing unintended pregnancies, to one inclusive of safer conception services to support healthy, planned pregnancies. Mantell et al (2014), Cooper (2009), and Schwartz (2012), maintain that the shift occurred in response to South Africa's high HIV-burden amongst women of reproductive age, increasing evidence of high fertility intentions and pregnancy rates in this group and persistently high HIV acquisition rates around the time of pregnancy. Services to prevent unintended pregnancies and support safe pregnancy are seen as key to reducing new HIV infections in young women and achieving elimination-of-mother-to-child-transmission (eMTCT) goals Department of Health, 2012, Crankshaw (2016). In the findings by Rucinski., et al (2021), their findings suggest that a single family-planning assessment at one time point is insufficient to fully identify and meet the reproductive needs of women with HIV. As HIV testing and treatment evolve in South Africa, routine screening for fertility intentions can offer important opportunities to optimize HIV treatment, prevention, and maternal and child health. According to Matthews et al 2010 and Vernazza et al (2011), the fertility desires of

HIV-affected individuals are increasingly being acknowledged in the global public health setting, and several safer conception strategies exist that may reduce HIV transmission risk for serodiscordant couples who wish to conceive. Kawale et al (2015) suggest that researchers and clinicians have drawn attention to the reproductive rights and needs of people living with HIV including the challenges that healthcare in addressing these needs. SCS can assist in addressing the various needs of couples living with HIV or at risk of acquiring HIV who desire children is a complicated task that requires improved quality, utilization, and access to safer conception counselling and methods. Finocchario-Kessler et al (2014) stipulates that tools have been developed to empower providers to initiate discussions with couples about pregnancy plans. Studies by Forsetlund et al (2009) and guidance from the World Health Organization promotes safer conception counselling (World Health Organization 2012). According to Dworkin 2012, Matthews et al, 2015, suggest that the prevailing community perspectives and assumptions about sexual and perinatal HIV transmission by people living with HIV prevent many individuals and couples from actively seeking safer conception counselling or services.

In studies conducted by Kaggiah et al., (2021), it was evident in their studies that discordant couples had limited knowledge on safer conception services and there is a need for provide comprehensive counselling services and providing on-going information and education on a regular basis since this can help them to make informed decisions and making SCS acceptable to these couples. Despite the limited services, healthcare providers experience challenges in the implementation of SCS. According to studies conducted by Hancuch et al, (2018), they have shown that major challenges and barriers to safer conception counselling included clinicians not routinely initiating discussions with patients around fertility desires, a reluctance to provide safer conception knowledge to patients perceived as not being prepared for conception, and gaps in knowledge of safer conception strategies. A more recent study in Uganda showed that even when those barriers are removed, a lack of training on how to counsel patients about safer conception can be a barrier including clinician training aspect would be a key aspect of successful programs (Matthews et al., 2015 Brown et al., 2016). Furthermore, Kimemia et al (2019) maintain that healthcare providers did not always know all the safer conception techniques while implementing and were not always able to support the couples. Studies conducted by Mathenjwa et al (2022), stipulates that Men living with HIV (MLWH) often have reproductive goals that can increase HIV-transmission risks to their pregnancy partners and their findings suggested that offering safer conception care to MLWH is a novel stigma-reducing strategy for motivating HIV prevention and treatment and serostatus disclosure to partners. Therefore, it is necessary that healthcare providers to create a healthy, safe, and supportive environment for serodiscordant couples to ensure that they realize their goals for building a family and to educate communities about safer conception so that they also support couples. Mandell et al., (2021) maintain that the significant role of healthcare providers to educate men and women on issues surrounding conception, as well as the potential for incorporating PMTCT and safer conception education into HIV clinical services. This study explored the lessons learnt and challenges from implementing SCS. Insights from this study will inform policies and interventions to enhance and strengthen SCS in public primary healthcare facilities and addressing the challenges impacting early on the implementation of SCS to meet the need of both HCP discordant couples. Studies conducted by Matthews et al., (2022), their preliminary data suggested that safer conception care is acceptable to men and has the potential to reduce HIV incidence among women and their children while supporting men’s health, refinement to optimize uptake is needed while providing safer conception care and peer support at the community level may help reach men. Understanding the acceptability, preferences and challenges while providing SCS between different approaches is important to optimise service delivery (Steiner et al., 2013 and Chadwick et al 2011). Since SCS remain unavailable in the African context, there is little that is known about the lessons learnt and challenges from implementing SCS in high HIV burden and resource-limited settings. Previous studies focusing on SCS focused on clinical trials, few demonstrations project and did not

report on the primary public healthcare facilities lessons and challenges from implementing SCS. Studies have reported by Lelaka & Ojoniyi (2024) on the perceptions and experiences of facility managers in the implementation of safer conception services in public health care facilities suggest that despite the challenges healthcare providers faced in the implementation of SCS e.g., patients did not know much about SCS there was some positive impact of SCS in public healthcare facilities, although most patients did not know much about SCS healthcare workers had to engage them in providing ongoing education and sharing of information to empower them. In the study by Mandell et al., (2021), they maintain that safer conception, family planning education and service delivery should all have the overall goal of helping families to optimize health outcomes and achieve their reproductive goals. SCS have costs that may be affordable in many low-resource settings and cost data will help implementers and policymakers add SCS in their healthcare facilities, therefore it is necessary to do the cost-effectiveness analysis to assess value for money for SCS., (Hughes et al 2020). Considering the above, there is still more information needed for focused efforts to learn from lessons, challenges and improve the SCS in public healthcare services. Steiner et al., (2013) discuss strategies for improving implementation of such related services and offer initial recommendations, including considerations about who should provide SCS, what services should be offered, and where and when they should be provided. Answers to these questions are more likely to assist in providing guidance in the development of SCS to eliminate challenges that may prevent the success of the SCS especially in high HIV burden and resource-limited settings. More data relating to lessons learnt and challenges SCS public healthcare facilities are lacking, and models to optimize the integration of SCS into primary and specialty healthcare services have not been well-defined or evaluated. The purpose of our study was to report on narratives of healthcare providers lessons learnt and challenges of the implementation of SCS in high HIV burden and resource-limited settings. This gap will assist to develop models, framework, and policies to explore factors or barriers that might impact on the implementation of SCS. Furthermore, this gap will assist to plan better, implement, promote, scale up and SCS to benefit more patients in need of the services for discordant couples.

Theoretical Framework

The study adopted a biomedical approach because it related well with discordant couples and the challenges they are facing. This approach forms the foundation of challenges faced by discordant couples and offers a systematic and evidence-based framework for understanding, preventing, diagnosing, and treating diseases, thereby improving healthcare outcomes, and advancing human health and well-being. For safer conception services tailored to discordant couples (where one partner is HIV-positive and the other is HIV-negative), a comprehensive theoretical framework would ideally integrate principles from both HIV prevention and reproductive health. A Biomedical Approach framework that combines biomedical interventions with a patient-centered approach would be most suitable. According to the biomedical framework, within the context of HIV and reproductive health, the framework emphasizes the application of medical interventions and technologies to prevent HIV transmission and facilitate safer conception, (Smith & Johnson, 2020). Krieger (2001) asserts that the biomedical framework is a theoretical approach within healthcare that emphasizes biological and physiological factors in understanding health and illness. It focuses on the biological mechanisms underlying diseases and conditions, as well as the development and application of medical interventions to diagnose, treat, and prevent them.

In the context of HIV and reproductive health, the biomedical framework involves utilizing biomedical interventions such as antiretroviral therapy (ART) interventions to prevent HIV transmission while facilitating conception, pre-exposure prophylaxis (PrEP) for the HIV-negative partner, and safer conception strategies to reduce the risk of HIV transmission and promote reproductive health for individuals and couples affected by HIV, timed intercourse to coincide with periods of low viral load, and assisted reproductive technologies (ART) such as sperm washing or in vitro fertilization (IVF) to reduce the risk of transmission. A

comprehensive approach to safer conception services for discordant couples would draw on multiple theoretical frameworks, integrating biomedical, psychosocial, ethical, and behavioral perspectives to address the complex interplay of factors involved in HIV prevention and reproductive health decision-making. For couples that desire to have children, a framework that combines biomedical interventions with a patient-centered approach would be most suitable. A comprehensive approach to safer conception services for discordant couples would draw on multiple theoretical frameworks such as integrating biomedical, psychosocial, ethical, and behavioral perspectives to address the complex interplay of factors involved in HIV prevention and reproductive health decision-making.

Material and Methods

Study Design

The research adopted an exploratory qualitative approach because it is focused highly on exploring and gaining a deeper understanding of real-life problems, concepts, or phenomena (Tenny et al., 2022). Additionally, qualitative research is interested in identifying and understanding the perceptions, experiences, attitudes, and meanings that people have in relation to social phenomena (Tenny et al., 2022). Qualitative research is also rooted in investigating the context of social phenomena through the person's own subjective narrative and experiences thereof (Rahman, 2017). Furthermore, qualitative research is known for its significance in highlighting and understanding the real-life experiences and meanings that people have in relation to a certain social phenomenon (Rahman, 2017). By using the qualitative approach, this study will be able to yield the true and real-life experiences of lessons learnt and challenges of healthcare providers from implementing SCS in high HIV burden and resource-limited settings. The explorative qualitative study was conducted in six clinics at Region F, Inner City of Johannesburg. Region F healthcare facilities are based in the inner city of Johannesburg, and they fall under the City of Johannesburg Metropolitan Municipality. This municipality is regarded as the largest city in South Africa. There are mostly poor people residing and are unemployed and live in abject poverty, living in informal settlements that lack electricity and proper roads. The Wits Reproductive Health and HIV Institute implementation project piloted the SCS integration into Region F public primary healthcare services. According to the South African Department of Health (NdoH) volume, these clinics are classified as low-volume clinics (Crosby and Crown Gardens), medium-volume clinics (Bellavista and Jeppestown), and), and high-volume clinics (Rosettenville and Esselen).

Population and Sampling

The participants who took part in the study were all purposively sampled. They we all healthcare facility managers located in six different clinics in Region F- Johannesburg. (Rosettenville, Crosby, Jeppestown, Esselen, Bellavista, and Crown Gardens) in the inner city of Johannesburg. They consisted of three men and three women with age ranging from 27-64 years, and they all had the overall working experience between 4-38 years.

Data Collection

In-depth Interviews (IDIs) were conducted with health facility managers between November 2017 and September 2018. Semi-structured guides were used during the interview to engage respondents' perspectives on SCS and evaluate their lessons learnt and challenges experienced during the implementation of SCS at their own respective healthcare facility. All participants were able to speak and understand English, and therefore all interviews were conducted in English for 30-45 minutes, and audio recorded.

Data Analysis

In-depth Interview (IDI) were recorded and transcribed with 24-48 hours verbatim. Prior to the interview, all participants were asked to sign an informed consent form, including consent for audio recording. The researchers used a digital voice recorder to record the interviews and took field notes during the interviews. At the end of each day, the recorded interviews were listened to by the researchers. The interviews were transcribed into Word documents within 24-48 hours. The transcripts were read multiple times for understanding and compared with the recordings to ensure uniformity. To ensure quality, another person who was not involved in

the interviews translated, cleaned, and coded the transcripts. The codes were reviewed and harmonized. Sub-themes were formed by grouping similar codes. Any disagreement between the reviewers was resolved through discussion and consensus. Finally, related sub-themes were merged to form themes that describe the lessons learns and challenges with SCS. Thematic analysis was therefore used to analyse the data.

Ethical Considerations

The study received ethical approval from the Human Research Ethics Committee (Medical) at the University of Witwatersrand, Johannesburg, South African and the ethical clearance number allocated was M170311.

Results

Demographic data of study participants

A total of in-depth interviews conducted among healthcare providers in Region F were six. The participants ages ranged between 27-64 years, and half of the participants between 35-50 years old. There were three professional nurses and three primary healthcare nurses, three having less than 20 years of working experience and another three with more than 20 years of working experience.

Table 1: Themes and sub-themes

Theme	Sub-Themes
Thoughts on introduction of SCS/Perception regarding SCS.	Response from staff
	Response received from patients
Challenges faced by HCP during the implementation of SCS	Limited staff training
	Workload
	Staff shortage
	Interruption of services and lengthy consultations
Recommendations by healthcare providers	The need for other training on fertility and contraception module
	The need to train other cadre/staff members
	Supervision and support post SCS training
Monitoring and evaluation systems	Introduction of SCS standardized data collection tool

The above results are organised to examine themes under four primary categories, namely: thoughts on the introduction of SCS/perception regarding the introduction of SCS, challenges faced HCP during the implementation of SCS, recommendations by healthcare providers, and monitoring and evaluation systems.

Theme 1: Thoughts on introduction of SCS/Perception regarding SCS.

Despite being a new project, when SCS were introduced in different primary healthcare facilities, managers and their staff were engaged, presentations were done to ensure information is well understood and questions can be clarified were possible. They acknowledge the new project, there were hesitations initially accompanied by mixed reactions although they managed to take part in the process positively despite the project being new to them and resulting in more workload. This is what one of the managers had to say:

Response from staff

"Initially when it was introduced, it was like one of those independent projects, like something like an extra job. It was impacting on their daily duties. I remember when stickers were introduced, the administrators did not want to do stickers on patient's cards/files and HIV Counselling and Testing counsellors who were trained were not serious," (Participant 4).

Furthermore, there were positive responses that managers received from their patients as well. This is because there was in-depth education, counselling and support provided to patients. Those who were HIV saw value and had hope that they would have families eventually. This further resulted in successful pregnancies as evidence and positive impact of SCS in primary public healthcare.

Response received from patients.

"Initially patients thought they would not be able to participate in such an activity especially like those who were HIV positive they thought they would never ever have babies. So, because of these services that have been introduced, we managed to counsel them and educated them to

start a family safely. Again, now that patients know that they can have babies, their perception that people with HIV cannot have children was proven incorrect (Smiling…….), yes, it was proven incorrect," (Participant 1).

"Patient accepted the services very well; you just need to explain more about the project. Believe me or not, clients that are HIV positive still want babies, but they are scared to say," (Participant 3).

Theme 2: Challenges faced HCP during the implementation of SCS.

It should be noted that when the SCS was introduced and implemented in public healthcare facilities, no new or additional staff was recruited. The facilities implemented the program with the existing staff members. In some facilities, there was already a shortage of existing staffing since staff members are more likely to rotate to other sections so that they be maximise their experiences in strengthening their healthcare skills and knowledge.

Workload

Even though the implementation of SCS was successful in public healthcare facilities, workload was seen as a challenge due to the staff-patient ratio. HCP were expected to provide additional services which brought challenges and at times this hampered them from providing such additional services to discordant couples. The new SCS was reported to have brought additional workload challenges to the existing primary healthcare services that were already there that had to interfere with the workload of HCP. The increased workload challenged HCP to provide and multitask by providing multiple services to the same patients but also this was impacted by staff shortage in addition as well such that SCS were not implemented. This is supported by the following quote below:

Aaahh…. Our workload was high……ok, we were short staffed at the beginning and then you would think that safer conception services would not run……services not running due to not having enough staff. We needed support as we were short-staffed. (Participant 1).

Staff shortage

It is normally acceptable and important when planning a new project to consider staffing as one of the key collaborators so that the implementation of the project can be successful. With SCS, the program had no intention to provide additional staff, the program intentionally intended to use the existing staff with intention to add no inexperienced staff members. Unfortunately, the program was affected by the shortage of staffing/personnel challenges as reported by the following HCP:

"The most challenging thing in safer conception was personnel. We did not have enough staff to implement the safer conception because change is always a problem and had staff been resistant to people. Also, the trained staff was limited." (Participant 3)

"The staff is not enough. Population grows every year and manpower it is also increased. We see a lot of patients with the same numbers of staff, so the staff must be increased so that we can be able to provide quality service to our communities. So, the stuff numbers need to be increased because we do not want to overburden one nurse with one task and over burden the next and over burden the next." (Participant 2).

"Safer conception can be integrated in the facilities, but we are going to have a challenge on the project and as well as on the staff for this facility. We have only four permanent staff, meaning others are on contracts. So having to teach temporary nurses over and over with these services it is going to become a problem." (Participant 1).

Interruption of services and lengthy consultations

In public healthcare facilities, patients report to different HCP for distinct reasons. The process is known and easy and may seem to be easy and quick. However, with the introduction of SCS in public healthcare facilities, their screening services included additional screening for SCS to assess or screen those who might meet the criteria to benefit from SCS. In doing so, there were interruptions of services, and more time was spent on the screening process. Although the normal provision of day-to-day services in public healthcare facilities is known and may seem to be fairly easy and quick for most HCP patients, since with the introduction of SCS this seemed to be different because

additional screening services was provided to all patients so that individual in discordant relationships and discordant couples who needed the SCS criteria may be identified, this resulted in numerous interruption of services because time was provided and additional services were extended to patients. Those who met the inclusion criteria for SCS were expected to be seen by HCP and were provided extensive and comprehensive SCS. That meant the screening consultation was lengthy because of providing extensive health education and screening of other additional services such as screening and testing for HIV, provision of counselling, screening of cervical cancer and sexually and transmitted infections, antiretroviral treatment initiation and management, adherence and viral load suppression and monitoring, condomless sex, vaginal self-insemination inkling education on PrEP amongst others. This is supported by the following except:

"Safer conception impacted on other staff as safer conception patients took time to be seen and other patients who needed other services needed to be seen." (Participant 6).

Some healthcare providers saw value in booking patients as they come, and this strategy worked well. This is supported by the below quote:

"I would see them (SCS patients) as they come and that impacted on time. So, what I did was I would prefer to book them, if I had booked them, I know I need to see them and I had planned to see them too. So, I had time for that as they had been booked. Seeing them as they come is not ideal." (Participant 3).

Theme 3: Recommendations by healthcare providers

Although training did not cover other modules that participants felt were significant, they felt there was more need that other related modules to be added to the SCS as they believe they can improve and sharpen the knowledge and skills related to SCS. This is supported by the following except:

The need for additional training on the introduction of fertility and contraception module

"The staff that did not get the training on infertility and contraception will find it a bit hard for them to implement safer conception. So, I would recommend you add the module on fertility and contraceptive. But they do touch on it but the really do not dwell much on it and safer conception relate well with those topics. So, if one's knowledge is limited to that it will be a problem when implementing safer conception," (Participant 3).

The need to train and involve other cadre of staff members.

The employed staff at healthcare facilities interact closely and work as a team regardless of professional levels. Furthermore, this is also the same and extended to patients who are accessing the services since they are seen and engage with non- professional staff on their arrival at the healthcare facilities before being referred to the correct section for registration. During the time of training, unfortunately not every staff member was involved due to various research hence staff members were excluded accidentally. It was noted that the nature of the SCS requires various staff members to work together as they all play significant roles in supporting discordant couples in the healthcare facilities. Therefore, there is need to consider other staff members junior levels, thus - excluding other members should be considered going forward to benefit the program. This evidence is supported by the below quote:

"The thing you find that our clients interact with the counsellors and the cleaners before they are, they get to see the professional nurses. So, if people at the lower category are trained about safer conception…this ….it's…it's like you are creating a positive view on the provided service, so it is important to align everyone involved like for example, if the cleaners know about safer conception and patients walk in, the cleaner will be able to tell the patient that we have this sort of service at this facility we are proving, speak to the counsellors and the counsellor will educate and clear up any misconceptions. So, by the time the patient gets to see the professional nurse at least they have an idea of safer conception," (Participant 1).

"Lower staff is important, and they must be involved a lot, especially counsellors at large. Please involve everyone and it will flow smoothly. We did have counsellors and linkage officer and they did well in the project despite

the challenge experienced," (Participant 4).

Furthermore, to ensure effective delivery and achieve project goals, supervision and support post training was reported to be the key for most projects. There was evidence of an improved knowledge, skills and understanding, and participants emphasised the need for and importance of coaching and mentoring post training to ensure the skills are implemented correctly and efficiently.

Coaching and mentoring post training

"I think like with any other project; you need a specific team to ensure the project runs smoothly. So, as our partner, the support is quite key, you need to support the people you have trained to ensure they are in line with the needs of the project. I mean supporting people whom you had trained is important to ensure they implement what they had leant and to ensure the programme runs smoothly…. umm…... Umm…. Like I said, continued support is important, that is key. Because sometimes you train these people and after a week or so if there is no support, they will stop. So, coaching and mentoring is important. Also, train more than one or two, even three will make sure the services run smoothly," (Participant 1).

The supervision and mentoring were also reported that if provided weekly or bi-weekly it will make an enormous difference since challenged reported can be dealt with sooner to avoid failure of the project.

"I would recommend training support of supervision and mentoring happen yes, every week or every two weeks to ensure they tackle the challenges they may encounter. The mentoring was good. Like I said, the support is key in this whole project facilitate and to ensure the project go well," (Participant 3).

Theme 4: Monitoring and evaluation systems

Every project is required to create or identify data collection tools to be used to ensure the integrity of data collected is correct and the overall project becomes a success. During the project, the participants felt the need for standard documents to be introduced in all primary public health care since they will all provide the same services to patient needing same services.

Introduction of SCS standardised data collection tool

"There must be a single document so that the capturing can take place. So, such a document must be captured separately. So, you need a system to capture that because I can provide safer conception today and come next week. So, there must be a way to track that in future," (Participant 5).

Furthermore, not only participants were concerned regarding the standardised tools were also concerned regarding the standardised guidelines to be followed to ensure they do the same thing the same way. Such can include the development of protocol, SCS strategy guideline, checklist format etc. This is supported by the quote below:

The need for standardised guidelines

"Our facilities do things differently and I think there should be special guidelines for safer conception. We should do things the same and have a checklist that we follow when we see such patients. Like, you will find that at EE clinic they are doing the same thing as us but follow a different procedure. So, if safer conception can have those guidelines advising us step-by-step on what to do, that will be much better," (Participant 3).

Since the services are new, more unfamiliar staff will need to be trained to benefit from such services. Regardless, participants feel the need that SCS should be a daily service provided to patients, there should be routine in providing such services and proper documentations/data collection tools or daily logs should be used to gather data for further intervention, management, and monitoring.

Integrate safer conception in the stationery so that nurses know that this is their day-to-day duties, or there is a register or booklet they use as part of their duties and be able to submit the numbers. This should be as part of their scope, as a service and not as implementation research. We need to start to put it as part of the service for all patients and not for all patients who are HIV positive" (Participant 5).

All the information captured from each participant taking part in the implementation of SCS, such data is useful as it provides the history, updates, and progress of the intervention so that proper track can be facilitated where possible.

"There must be a single document so that the capturing can take place. So, such a document must be captured separately. So, you need a system to capture that because I can provide safer conception today and come next week. So, there must be a way to track that in future," (Participant 1).

Discussions

The study explored the lessons learnt and challenges from implementation of SCS. There is need for SCS in public healthcare facilities to support couples infected and affected by HIV. SCS are imperative intervention aimed at reducing the transmission of HIV both horizontally and vertically. The findings revealed four themes emerged namely, perceptions regarding the introduction of SCS, challenges faced HCP during the implementation of SCS, recommendations by healthcare providers, and monitoring and evaluation systems. It should be noted that when the SCS was introduced and implemented in public healthcare facilities, no new or additional staff was recruited. The facilities implemented the program with the existing staff members. In some facilities, there was already a shortage of existing staffing since some staff members are more likely to rotate to other sections so that they maximise their experiences in strengthening their healthcare skills and knowledge. In this study, healthcare providers saw value, showed consensus and willingness to implement SCS successfully. Their patients reported positive by accepting, accessing, and using the service provided. This is like the studies conducted Matthews et at., (2016), that HCP showed positive response in providing implementing SCS to both men and women living with HIV, and despite facing challenges in the implementation process, they continue to provide services to offer support and advise to discordant couples. The results suggests that despite the successful of implementing the SCS, there were lessons learnt and challenges experienced by healthcare providers, and this includes amongst other: workload, shortage of staffing/personnel including interruption of services and lengthy services.

Whilst the introduction of SCS did not mean employing additional staff to implement SCS, this resulted in challenges because of additional work for the existing staff members unfortunately. The workload of employees, if not professionally managed well, may result in burnout including a wide range of psychosocial stressors. Some employees reported that the new SCS project increased their workload since they had limited staff, and few staff members were trained on SCS. With such a new project only based on existing limited staff, it was likely for healthcare providers to experience additional workload. This was also observed and reported in the study by Portoghese et al (2014) that limited healthcare workers in new projects experience an increase in the workload and this is likely to result in job exhaustion and feeling demotivated. Workload may negatively impact the presence of employees and result in a turnover of staff, inadequate quality, absentees due to sickness, relative ineffectiveness in the workplace, as well as low job satisfaction (Maslach et al 2001, Schaufeli 2008). Studies conducted by Barpanda, S. and Saraswathy, G. (2023), regarding the impact of excessive workload on the job performance of healthcare workers also confirm that workload on employees has a negative effect as it can cause unprecedented levels of stress. Furthermore, with the additional workload, long hours, and lack of resources, healthcare professionals are more likely to experience job burnout (Barpanda, S. and Saraswathy, G. 2023). It is therefore imperative that healthcare providers who experience challenges with workload be provided with a supportive environment such as psychosocial and counselling support to mitigate the negative effect of the stress on them and they can be productive in return.

Regarding staff shortage reported by participants, no experienced staffing was hired to maximize the human resources. The project relied solely on the existing public healthcare providers. It is the nature of public healthcare facilities to rotate staff across different sections so that they can sharpen their knowledge, skills, and experience. At the same time, it was a concern since some staff who were trained on SCS were moved to other sections, opening the gap to the limited SCS since not all staff members were trained in the SCS. Furthermore, some would resign due to work better opportunities. Issues related to staff retention and staffing shortages are still seen as a challenge in many healthcare facilities. Such

challenges are more likely to put patients at risk such that the quality of services is compromised and might result in untrained staff intervening. To avoid such challenges, staff must be motivated to mitigate the staffing challenges, and to ensure the provision of diverse SCS to various staff members including inexperienced staff members across various healthcare sections. Also reported by the Centers for Disease Control and Prevention (2022) that maintaining appropriate staffing in healthcare facilities is essential to providing quality care and service to all the patients in need of healthcare support and there should be effective contingency strategies to address staffing shortages urgently, especially in times of staffing crisis. No new services in healthcare can be implemented as a new project and go smoothly with no challenges.

The challenges also provide positive feedback such that improvements can be made where possible. Participants reported that during the implementation of SCS, there were challenges such as interruption of services since patients needed safer conception services. In addition to that, there were timely consultations with safer conception patients because services were comprehensive, ensuring all patients benefit from the most available services such as screening for HIV, sexually transmitted infection, amongst others. The same was reported in the study conducted by Patwa et al (2019) that time constraints and the need to continue safer conception care over time were identified as important challenges to high quality safer conception service delivery. While providers were convinced of the value of promoting safer conception, many expressed concerns with the length of time required per consultation and the number of patients they were expected to counsel with limited time and staff. Switching between care providers at different safer conception follow-up visits, which would occur when transitioning from a stand-alone service to integrated care, was raised as an important concern given the intimate nature of information shared within safer conception discussions (Schwartz et al 2019).

The results suggest the need for training for other related modules such as fertility and contraception. This is key because it is included in the safer conception package of services and reported to have been omitted in the training provided to healthcare providers. This is also supported by the department of health (2012) that two realities undermine South Africa's progress in this area, and this includes the inclusion of safer conception services in the Contraception and Fertility Planning Policy has not been reflected in provider guidelines or training curricula. As such, most providers are not even aware of such guidelines. It was also noted that not all staff members received training on SCS and there was a need to also include staff members across all levels. Since findings suggests the need for training of other staff members, this was found and recommended by studies conducted by Schwartz., et al (2016), Schwartz et al., 2017, Mmeje et al (2016), that SCS training and a safer conception "toolkit", including a training package and counselling guide should be created for training and implementation of safer conception services on a larger scale. Training must cover the available safer conception methods, emphasize counselling methods for lay counsellors and clinical providers, and include a guide for service providers to refer to address frequent questions and concerns of patients. Furthermore, this is also supported by studies conducted by Kimemia et al (2019), that healthcare providers should be provided with training opportunities to enhance and strengthen their knowledge and skills on SCS to benefit discordant couples. Although participants received training, they felt there was additional need for supervision, mentoring and coaching post SCS training. Post supervision support is imperative since it strengthens the knowledge and skills acquired by trainees. According to Kulkarni (2013), post training support should be provided because this improves the trainee's aptitude, self-efficacy, effectiveness, and morale at an individual level and prepares them for the required task.

Since participants reported different methods of recording and tools, it is necessary for healthcare setting to have standardized tools since this will help to capture, organise data, follow-up and evaluate the intervention progress provided for each patient. Studies conducted by Neugebauer et al (2021) assets that standardized tools are more beneficial and can be statistically evaluated and compared to other results. Furthermore, in studies conducted by Najafpour., et al ((2019), their studies confirmed that the use of standardized assessment tools

are highly effective since they enable monitoring of patient information and progress because there is close monitoring and evaluation of services.

Summary

The purpose of our study was to report on narratives of healthcare providers lessons learnt and challenges of the implementation of SCS in high HIV burden and resource-limited settings. This was a qualitative study and part of the implementation study. Four themes emerged: perception regarding the introduction of SCS, challenges faced HCP during the implementation of SCS, recommendations by healthcare providers and monitoring and evaluation systems. The results suggest that there was positive acceptability of support of SCS and capacity building for healthcare. Recruitment of staff is necessary to prevent burnout and reduce lengthy service times, standardised documents are necessary for improvement of monitoring and evaluation.

Conclusions and recommendations

Despite the lessons and challenges reported by healthcare providers, there is evidence that there is a need for SCS in primary public healthcare facilities and healthcare providers perceived SCS as a value and beneficial service for discordant couples. There is a need for training of all staff members on diverse topics that form the package of SCS. To avoid employees having burnout, more staffing should be recruited to ensure the quality of services is provided to patients, reduce workload, services are not disrupted, and service length times are reduced. Furthermore, the tools to be used should be standardised for the purpose of smooth evaluation and monitoring purposes. In the pilot study conducted by Brown et al., (2023), their findings suggested that findings for the implementation of future safer conception programs in less-resourced areas like South Africa and other countries, it is important to prioritize keeping the HIV-positive partner on ART and virally suppressed, with viral load monitoring at enrolment, and if possible, during follow-up; offer PrEP as a complementary prevention method before, during, and after pregnancy; and teach couples to identify their peak fertile period in order to limit exposure to condomless intercourse. Regarding the limitations of the study,

The study's findings cannot be generalised because not all healthcare managers participated in the study, the research was done in urban areas only, and in primary healthcare facilities. It is recommended that other healthcare providers involved with discordant couples be involved in the study, a mixed method and longitudinal studies on related research be explored in different areas including rural and other geographical areas, and the study also be implemented in other various healthcare facilities spaces such as regional and tertiary healthcare facilities/hospitals to expand more knowledge and finding solutions to practical problems and for building a better future enhancing generalizability.

Author contributions

CML Conception and drafting of the manuscript, methodology, data collection, data analysis, and interpretation, and structure of the content, editing of the manuscript, critical review, and revision for intellectual content.

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Institutional Review Board Statement

The ethical clearance certificate number is M170311 and therefore this study received ethical approval from the University of Witwatersrand under the University Human Research Ethics Committee (Medical).

Informed Consent Statement

All participants who took part in the study provided voluntary written informed consent prior to data collection. The anonymity and confidentiality of participants were observed and respected during the entire process of the study.

Data Availability Statement

Raw data is available on request from the researcher.

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Conflict of Interest

No potential conflict of interest was reported by the authors.

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