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Research Article

Healthcare workers' perspectives on availability and accessibility of the prevention of mother-to-child-transmission programme in North West province, South Africa

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Background: Despite the availability of prevention of mother-to-child transmission (PMTCT) of human immunodeficiency virus (HIV) services, many factors and reasons prevent mothers from accessing these services. HIV prevalence is still high among South African women of reproductive age and mother-to-child-transmission (MTCT) is a concern. This study ascertained the perspectives of healthcare workers regarding availability and accessibility of the PMTCT programme.

Objective: To explore and describe the perspectives of healthcare workers regarding availability and accessibility of the PMTCT programme.

Method: Qualitative research with exploratory-descriptive design was utilised. Data were collected from 21 healthcare workers using three focus-group discussions. The participants were selected based on rendering the PMTCT programme services for more than two years. Moreover, the participants had undergone training, formal education and continuous support on the PMTCT programme. Three large clinics were selected as the main clusters of the sub-district. Tesch's method was used to analyse the qualitative data.

Results: Healthcare workers indicated ineffective utilisation of the PMTCT programme services by HIV-positive pregnant women. Most women had challenges with child feeding owing to limited knowledge. Another challenge indicated by healthcare workers was lack of resources. It is important that recommendations be implemented to assist with availability and accessibility of the PMTCT programme.

Conclusion: Availability and accessibility of PMTCT programme services are still problematic. The study has the potential to inform development of strategies that may facilitate access to care for PMTCT programme clients.

Keywords: availability, accessibility, healthcare workers, perspectives, prevention of mother-to-child-transmission programme

Introduction

Thirty years into the HIV epidemic, effective combination antiretroviral therapy (cART) has transformed HIV into a chronic disease. Life expectancy for persons living with HIV has improved dramatically as compared with that of HIV-negative adults (Agwu et al., 2017). UNAIDS reported in 2016 that 1.2 million new HIV cases in children were averted in the 21 global plan priority countries in sub-Saharan African between 2009 and 2015. Seven of these countries had reduced new HIV infections by more than 70% since 2009, including South Africa, at 84% lately. Furthermore, UNAIDS highlighted the urgent need for action to end the AIDS epidemic by 2030 as part of the Sustainable Development Goals (UNAIDS, 2016a). The WHO guidance, updated in 2017, recommends that each country should have adequate national monitoring and evaluation systems in place and adequate laboratory systems within the public and private sectors to assist with measurement (WHO, 2016).

Children mainly acquire HIV infection from their mothers during pregnancy, labour, delivery or breastfeeding. HIV is detectable at birth with a polymerase chain reaction (PCR) test, as the presence of HIV antibodies may merely reflect maternal status and not neonatal infection. HIV antibodies may be detectable at birth but are not diagnostic. Antibodies detected after six weeks may reflect neonatal immune responses to infection or exposure. However, even so, the modern practice is to rely on an immediate PCR and to confirm status later, while on antiretroviral therapy (ART). Therefore, preventing vertical transmission of HIV is more complex, requiring intervention from preconception to the end of breastfeeding. This includes primary prevention of HIV before, during and after pregnancy; prevention of unwanted or unplanned pregnancies; early initiation of ART; retention on ART for women with HIV; and retesting women without HIV to detect new infections early. Early antenatal care is also important to optimise general care, monitoring of maternal viral load, safe delivery practices and infant postexposure prophylaxis (WHO & UNICEF, 2016).

Despite the complexity of reducing vertical transmission, many countries with a high HIV prevalence have made good progress. However, they remain far from achieving a case rate of less than or equal to 50 new HIV infections per 100 000 live births at the end of breastfeeding, which is needed to validate elimination of vertical transmission (UNAIDS, 2016b). In 2016–2017, antenatal HIV prevalence in South Africa was roughly 32% (Statistics South Africa, 2017) and the national intrauterine vertical transmission of HIV rate was 0.9% (Goga, Chirinda & Ngandu, 2017) at delivery. This corresponds with an HIV case rate at delivery of 288/100 000 live births. This value is well above the target of less than or equal to 50 babies and is a measure of intrauterine HIV transmission, not transmission at the end of breastfeeding. At the provincial level, across South Africa, intrauterine vertical transmission rates ranged from 0.6% to 1.3%, but new HIV infection case rates ranged from 168/100 000 to 325/100 000 live births (Goga et al., 2017).

Up-to-date WHO guidance recommends that all women diagnosed as HIV infected should receive ART immediately, which should be continued for life (WHO, 2016). The importance of exclusive breastfeeding in reducing the risk of postnatal HIV transmission was first established in a South African study published in 1999 (Kunh & Kroon, 2015) and subsequently confirmed among Zimbabwean infants in 2005 (Nduna, 2011). In the latter study, compared with early mixed feeding, exclusive breastfeeding reduced transmission by 75% in babies tested at six months. It was hypothesised that too-early feeding with other foods and liquids besides breast milk may disturb the normal infant gastrointestinal flora (Morrison & IBCLC, 2018).

When the risk of mother-to-child transmission (MTCT) of HIV in utero, during birth or during breastfeeding can be reduced to almost zero, as it can today, it is no longer necessary for HIV-positive women to give up all hope of breastfeeding. Current evidence-based research suggests that when HIV-positive women receive adequate ART, they can safely embark upon a pregnancy and deliver their children vaginally. Research also shows that improved health outcomes can be achieved with breastfeeding compared with not breast feeding. There are only two provisos, namely, mothers must be meticulously adherent to their medication and breastfeeding should be practised exclusively during the first six months of life (Morrison & IBCLC, 2018).

In September 2015 the WHO released guidelines recommending that all pregnant women living with HIV be immediately provided with lifelong treatment, regardless of CD4 count. This approach is called Option B+. By 2015, the implementation of Option B+ had resulted in 91% of the 1.1 million women receiving antiretroviral (ARV) drugs as part of prevention of mother-to-child transmission (PMTCT) services being offered lifelong ART (UNAIDS, 2016b). A year later, the WHO released guidelines recommending a "treat all approach", meaning all people diagnosed with HIV should be offered immediate treatment. This has increased the number of women of reproductive age who are receiving ART, regardless of whether they are pregnant or not (WHO, 2016).

In 2016, the WHO released guidelines recommending that mothers living with HIV who are on treatment and are being fully supported to adhere to it should exclusively breastfeed their infants for the first six months of life. Thereafter, appropriate complementary foods should be introduced while continuing to breastfeed for at least 12 months and up to 24 months or longer (Avert, 2019).

In 2017, 80% of pregnant women living with HIV were receiving ART, a significant increase from 2010 levels when only 51% had access (UNAIDS, 2018a). Around 1.4 million HIV infections among children were prevented between 2010 and 2019 owing to the implementation of PMTCT services (UNAIDS, 2018b). Despite this significant progress, 740 000 women of reproductive age became HIV-positive in 2016. Around 73% of these women live in just 23 countries, the clear majority of which are in sub-Saharan Africa, and are classified as high priority for PMTCT by UNAIDS (UNAIDS, 2018a). In 2017, just over half (52%) of the 1.8 million children living with HIV were receiving ART. Among those without access to effective treatment, 110 000 died owing to AIDS-related illnesses (UNAIDS, 2018a).

Integrating ART services for mothers with maternal and child health services is a simple and highly effective way of retaining mothers in care after they have given birth. For example, a study from South Africa found the integration of postnatal HIV treatment services into maternal, neonatal and child health services markedly improved treatment outcomes. Around 77% of the mothers who were offered ART as part of maternal, neonatal and child health services achieved viral suppression, compared with 56% of the mothers who were referred to separate treatment services (UNAIDS, 2018b).

The proportion of the population living with HIV is higher in eSwatini than South Africa, but South Africa is home to the largest number of people living with HIV in a single country Simelane & Venter, 2014). In addition, South Africa is experiencing a high prevalence of vertical transmission of HIV from MTCT and government had set a goal of universal access and increased the capacity for the delivery of PMTCT by provision of antiretroviral (ARV) drugs (WHO, 2013). In 2015, about 77% of pregnant women living with HIV had access to ARV treatment to prevent MTCT (UNAIDS, 2016b). Therefore, in sub-Saharan Africa, gaps in access to treatment persist in some countries, including South Africa.

The North West province (NWP) of South Africa has an estimated 503 766 (13.5%) people living with HIV, of whom 26 790 are children under the age of 15 as of midyear 2016. Bojanala Platinum District, in which this study was carried out, is one of the four districts of the NWP. It is the most populous district, especially in its Rustenburg and Madibeng sub-districts due to mining and other economic factors. The ART programme was successful, but HIV prevalence increased because the number of women living with the virus also increased (North West Provincial Government, n.d.).

MTCT rate is usually affected by many factors including HIV prevalence and incidence. Current trends in HIV prevalence and incidence in South Africa indicate that ART rates for pregnant women remained low (Ngidi, Reddy, Luvuno, Rollins, Barker & Mate, 2013). Factors affecting the uptake of PMTCT services include distance and cost of attending the clinic, long waiting times, general dislike of the facility, systematic gaps in referral processes, lack of faith in the health services and/or providers, being informed that services were not available when sought and poor provider– patient interactions (WHO, 2013). Measures to sustain and maintain availability and accessibility of the PMTCT programme must ensure that all pregnant women are treated with dignity, respect and compassion. If the services are not user-friendly, even the best and most physically available and accessible PMTCT programme may remain underused by HIV-positive pregnant women. The study on community dialogues in NWP conducted by Masuku, Mampe, Matse, and Jassat (2012) noted lack of disclosure, stigma and distance to health facilities as some of the reasons that led to pregnant women not getting into the PMTCT programme.

Because South Africa has a relatively high HIV prevalence, research is essential to explore and describe factors influencing availability and accessibility of the PMTCT programme. To control PMTCT in NWP, identifying HIV-infected pregnant women and enrolling them in the programme is therefore likely to have major public health benefits. A free PMTCT programme is available in NWP, which could reduce the risk of MTCT considerably. This reality inspired the researcher to explore and describe the perspectives of healthcare workers working in remote, rural areas in respect of availability and accessibility of the PMTCT programme services.

Methods

Research design

Qualitative research with an exploratory-descriptive design was utilised to explore and describe healthcare workers' perspectives on availability and accessibility of the PMTCT programme. Healthcare workers were interviewed using the focus-group discussion (FGD) guide until data saturation was reached. Farming and rural communities predominantly populate the district.

Sampling and sample size

Healthcare workers in the Madibeng sub-district were selected purposively because they were rendering PMTCT programme services and underwent training to work with HIV-positive pregnant women. A sample of 21 healthcare workers ensured representation from three cluster clinics and different PMTCT functions. Potential FGD participants were approached by the researcher and asked if they were willing to share their views concerning the study. Each healthcare worker was contacted verbally and asked to participate. These included professional nurses (n = 14), enrolled nurse assistants (n = 2), HIV/AIDS counsellors (n = 3), pharmacists' assistants (n = 1), and mother-tomother mentors (n = 1). Most of the participants were female (n = 20), with one being male (n = 1). Eligibility criteria for participation were healthcare workers with more than two years' work experience in rendering PMTCT services in the sub-district. Cluster B had seven participants, cluster I eight and cluster J six. The sample size constituted approximately 70% of the professional nurses across all three clusters. The seniority within FGDs ranged from senior professional nurses to mother-to-mother mentors.

Data collection

Healthcare workers were interviewed using the FGD guide until data saturation was reached. Three FGDs were conducted with seven participants in cluster B, eight in cluster I and six in cluster J in the facilities' private rooms. Informed consent was obtained. The FGDs were conducted in English and lasted for about 45 minutes to an hour. A study research assistant moderated the discussions and the researcher took field notes to support analysis of transcripts. Responses were recorded with a digital voice recorder after permission was requested and granted by the participants. An interview guide with a central statement and probing questions was used. The central statement was: "Tell me about your perceptions of the availability and accessibility of the PMTCT programme." Data from the digital voice recorder were identified by the dates on which the FGDs were conducted rather than the names of the clinics. Thereafter, data were transcribed verbatim after the researcher had completed the FGDs and transcripts were checked by supervisors for verifying accuracy.

Data analysis

Analysis, organisation and interpretation of data were conducted manually according to Tesch's method of data analysis for qualitative research. This was chosen to better understand the meaning of data and identify themes and sub-themes and sub-categories from the collected data (Creswell, 2009). The researcher analysed the data herself and was guided by a senior research supervisor. The digital voice recordings with their accompanying field notes were transcribed and data were analysed using thematic analysis. This enabled inductive, data-driven coding. All the transcripts were read to develop initial codes. These were used systematically to code the relevant data set, and new codes were generated in the process. The patterns of data were clustered from similar topical themes and then organised into sub-themes. Finally, sub-themes were attached to the main thematically organised themes. By means of the interpretation process, the content of each theme was summarised to arrive at meaningful conclusions. The analysis process was guided by discussions within the study team. More importantly, the reviewed literature was used to support the findings.

Ethical considerations

The University of South Africa's higher degrees committee approved the research and the North-West Department of Health research directorate granted permission to conduct the study. Ethical clearance was obtained (certificate permit number HSHDC/37/2012). All participants were assured of voluntary participation and gave written consent after reading and understanding the information letter. Confidentiality was achieved by replacing the real names of the participants with code names and numbers. Only the researcher and her assistant could match them. The recordings and transcriptions were locked away during the study and thereafter. It was agreed that the findings and recommendations would be made available to relevant authorities and a copy would be kept in the university's online research repository housed within the library.

Results

In total, 21 participants aged between 26 and 59 years contributed to the study. Most participants (38%) were aged between 30 and 39 years, with 28.5% between the ages of 40 and 49 years, 19% between 20 and 29 years, and a

minority (14.2%) were between 50 and 59 years. In addition, 14 healthcare workers (66.6%) were professional nurses with more than two years' experience in PMTCT services. Healthcare workers' highest educational qualification was either diploma or degree.

The following four themes and 134 sub-themes emerged during data analysis. A narrative account of the themes and sub-themes supported by direct quotes from participants is presented in Table 1.

Theme 1: Ineffective utilisation of the PMTCT programme

Healthcare workers reported that HIV-positive pregnant women neither disclosed nor returned for antenatal care (ANC) follow-ups because of stigma. Stigmatisation was identified as the main reason for non-disclosure. HIV-related stigma was reported as the leading cause of social isolation. It is for this reason that the HIV-positive pregnant women desist from disclosing to their partners and families.

Stigmatisation/Stigma

The HIV-positive pregnant women were expelled from their homes by their parents. Others mentioned that they even had their dishes separated for fear of transmission. Stigmatisation first occurs within families, and later spreads throughout the community. One healthcare worker indicated the following:

Stigmatisation of the patients should be reduced. It would be highly appreciated that HIV is treated in the same manner as diabetes mellitus and hypertension. Stigmatisation could be reduced by means of integrating healthcare services. For instance, all the patients should be treated together. HIV-positive pregnant women should not be treated in isolation or at separate sites. Many of them stopped coming to the clinic because of stigmatisation. (P5)

Fear of victimisation

The findings revealed that some HIV-positive pregnant women refuse to accept their HIV results. As a result, most of the HIV-positive pregnant women book late for ANC, at 28 and 32 weeks' gestation. The HIV-positive pregnant women Some pregnant women are diagnosed during delivery, but still do not disclose their status. Most of them book late, at 28 weeks and 32 weeks' gestation and this delays treatment. (P15)

Immigration of some users

The participants reported that some HIV-positive pregnant women immigrate from the neighbouring countries into their sub-district to be tested. Thereafter, they are nowhere to be found. They then come back for delivery of their babies. They change clinics continuously, migrate around the neighbouring countries, book late for ANC, are diagnosed during delivery and still do not disclose. These obstacles resulted in interruptions in their treatment and delays in receiving treatment. A participant commented that:

Some move around the neighbouring countries like Mozambique and Botswana. They will then later resurface in time to deliver. They change clinics and not reveal their status. (P16)

Refusal of the outcome of testing

The participants mentioned that some HIV-positive pregnant women refuse to accept the HIV results, especially after testing positive. This denial causes delays in and interruptions of treatment. As a result, some of the HIV-positive pregnant women stop attending the PMTCT services. The following was reported:

Some patients refuse to accept the outcome of the HIV-positive test. They mention that their blood is not reactive to HIV. They undergo testing and thereafter nowhere to be found. (P18)

Travelling difficulties

The participants alluded to the clinics being far away from other villages, farms and mines. Most of the HIV-positive pregnant women were depending only on the mobile clinics that came only once a month. The following comments were made:

HIV-positive pregnant women in some villages, farms and mines depend on the mobile clinic to

Themes	Sub-themes	
1. Ineffective utilisation of the PMTCT programme	1. Stigmatisation/stigma	
	2. Fear of victimisation	
	3. Emigration of some users	
	Refusal of the outcome of testing	
	5. Travelling difficulties	
2. Challenges in child feeding	1. Challenges of mixing formula and breast milk	
	2. Stoppage of breastfeeding early	
	3. Lack of knowledge on feeding	
3. Lack of resources	1. Shortage of staff and medication	
	2. Inappropriate clinic structure and layout	
	3. Lack of appropriate PMTCT programme knowledge	
4. Recommendations to assist availability and accessibility	1. Staff training and development	
	Women's education on PMTCT programme	
	3 Formation of support groups for mothers	

Table 1: Themes and sub-themes of healthcare workers' perspectives

access PMTCT programme services. They travel long distance to reach the mobile clinic points. (P11) Some ended up defaulting treatment because of lack of transport to reach the mobile clinic points. (P2)

Theme 2: Challenges in child feeding

Mixed feeding was reported to be practised by the mothers and the child-sitters. The findings revealed mixed feeding because of mothers not disclosing their HIV status to their partners, parents and their families. Babies were returned to the healthcare facilities as they became sick owing to mixed feeding. Healthcare workers had problems with infant feeding, as they reported that most of the HIV-positive pregnant women do not avoid breastfeeding post-delivery.

Challenges of mixing formula and breast milk

The results revealed that the babies had health complications because of incorrect feeding. The mothers provided mixed feeding despite their knowledge of the risks. When the babies became sick, they brought them to the healthcare facilities. A healthcare worker reported the following:

They give breast milk to their babies even if they know the risks, but others do not like breastfeeding and this poses a challenge to us as healthcare workers. Others mix breast milk and formula milk. Some stay with their in-laws and the persons remaining with the babies give drops, formula milk, and solid. Some of them mix feed when they get home and thereafter bring the babies to the facilities with some problems. (P4)

Early stoppage of breastfeeding

Healthcare workers indicated that the HIV-positive pregnant women were not sure of either exclusive breastfeeding or formula feeding for six months, stop breastfeeding before six months and stop formula feeding before six months. As a result, babies become infected because of both exclusive breastfeeding and mixed feeding, despite their mothers being on ARVs. The findings also revealed that HIV-positive women were not knowledgeable about whether formula feeding should cease before six months. However, it appeared that the facilitators did not recommend formula milk for HIV-positive women. Participants mentioned that:

Some HIV-positive pregnant women stay with their in-laws and left the babies with them after delivery, formula feeding then discontinued as they give babies solid food. This results in a negative PCR at six weeks, and at a later stage, it becomes positive. They stop breastfeeding their babies before they are six months old, acting as though they did not obtain enough information on feeding. (P1)

Another problem is that, since this promotion of exclusive breastfeeding, whether HIV-positive or negative, most of the babies become infected. Some pregnant women threw away their files and went to the delivering facilities as though they had not booked. When the child becomes ill, we start to wonder because we knew that the mother was on ARVs prior to delivery. Some of these women do this after getting new partners to suppress the fear of rejection. We encounter cases like this when the fathers to the first born have died. (P3)

Lack of knowledge on feeding

The participants indicated that some of the HIV-positive pregnant women hold the idea that HIV could be transmitted during breastfeeding. Lack of knowledge regarding child feeding has led them to stop breastfeeding before six months. One facilitator of the PMTCT programme did not advise healthcare workers to give formula milk to employed HIV-positive women. Instead, the facilitator encouraged breast milk. The following statements verify this assertion:

Most of the HIV-positive pregnant women still believe that HIV can be transmitted to the babies during breastfeeding regardless of the available ARVs. With formula feed, one facilitator informed us that we must not give it to mothers who are working, they must breastfeed for six months. (P8)

As mother-to-mother mentor, I know how to counsel, but not allowed to do PCR because my scope of practice does not allow me to prick an HIV-positive pregnant woman. Love Life and mother-to-mother mentor trainings must re-skill us so that we could do the PCR on babies and HIV testing on pregnant women. (P14)

Some of us healthcare workers are not conversant with the PMTCT programme. I have a challenge with this programme. A person giving a lecture emphasises the advantages more than the disadvantages. I think it is best for the facilitators to have enough information and knowledge on the PMTCT programme. Some facilitators are sometimes unable to answer when something is not in the manual. (P6)

Theme 3: Lack of resources

Healthcare workers highlighted that there were shortages of staff and of consulting rooms. PMTCT programme services were at times provided in the parking areas and in the containers for extension of clinic buildings with no privacy. Shortage of ARVs was also reported. Virtually all healthcare workers complained of their sub-district being understaffed, therefore limiting the PMTCT services that are ultimately delivered. After introduction of the PMTCT programme, no additional staff members were provided.

Shortage of staff and medication

The findings revealed that ARVs were already in short supply and were being requested from neighbouring clinics. The influx of people to the mines, as well as the preponderance of informal settlements, contributed to large health clusters that needed a multidisciplinary team approach. Healthcare workers encountered lack of resources regarding availability and accessibility of the PMTCT programme. Furthermore, healthcare workers found that follow-up checks are problematic as mothers fail to come back after diagnosis. Owing to shortage of healthcare workers, door-to-door campaigns have been reduced. Moreover, staff shortages were found to be an impediment to access and availability of PMTCT services. These views are supported by the following comments: I think staff needs to be increased because we have a problem of being short-staffed, and we see pregnant women from other countries. There is a huge influx of people in this cluster. The employer should send us enough staff, more medication, and increase space by building bigger healthcare facility. There is no social worker. The forms that the nurse initiator fills need the information from the social worker. We are also running short of staff such as psychologists. As nurses we do not have social work background. (P13)

We could not work with ANC, Nimart and PMTCT programme while we are understaffed at the same time. Most of the clinics in this cluster do not have the M2M mentors. I think more staff is required to do things correctly. When we are few, we do things in a rough manner. Truly speaking special healthcare workers who work with the PMTCT programme are needed as a priority. (P21)

The participants reported that they experienced acute shortages of medication, especially ARVs, and even sought assistance from neighbouring sub-district pharmacies and clinics. Healthcare workers commonly stated that staff shortages and lack of equipment and supplies need to be addressed if clinics are to provide a quality service to clients. One participant reported their experiences as follows:

The other problem is that we run short of some medication, especially cotrimoxazole. When the ARVs are out of stock at the pharmacy, we borrow from the neighbouring clinics. We do not have a chance to go and do home visits. We do not have health promoters. Previously, we used to have some, but currently we don't. There are no support groups. (P11)

Inappropriate clinic structure and layout

Space constraint was a recurrent phenomenon at all the clusters. Healthcare workers wished that the Government could build clinics at the borders for patients who migrate from their own countries. The need for privacy and enough consultation rooms for HIV-positive pregnant women were mentioned as of importance since more HIV-positive pregnant women were at the denial stage and needed moral support. The layout and size of a health facility impacted on the services and quality of the PMTCT programme, owing to many HIV-positive pregnant women. This view is evident from comments such as:

The government should build clinics at the borders for patients who immigrate to the country. The sub-district's Department of Health must play a role. The PMTCT programme needs persons who work with PMTCT patients and they must have rooms and know their patients. (P12)

As far as the participants were concerned, the PMTCT programme requires privacy and healthcare workers must have rooms to work with their patients in total privacy. The participants indicated that:

We were doing the support groups at the parking area, but patients stopped participating because there is no space and no privacy. First, the Government must do something here at our cluster because there is no space. They must build more rooms. The PMTCT programme needs private rooms for consultation of the HIV-positive pregnant women. (P19)

Lack of appropriate PMTCT programme knowledge

Healthcare workers mentioned that they needed support from the sub-district management in rendering the services of the PMTCT programme. They highlighted that some of healthcare workers were not conversant with the PMTCT programme. Refresher training, in-service training, workshops, and on-site mentoring on the PMTCT programme were among the formal training methods mentioned as indispensable. This is supported by the following comment:

It will help a lot to have more healthcare workers trained on HIV at the informal settlements in order that they could work with the HIV-positive pregnant women. More Nimart trained nurses should be employed, or those who are available should be Nimart trained to deliver a better PMTCT service. We had one training last year, but trainees were not enough. Nimart should be included in the Nursing Diploma and Degree curricula. If all nurses are well trained, this will reduce the practice of one nurse working with HIV-positive pregnant women alone. (P7)

Theme 4: Recommendations to assist availability and accessibility

Willingness to train HIV-positive pregnant women in conducting the support groups was also emphasised. However, healthcare workers expressed the need for more training (continuous professional development) on the PMTCT programme to update their knowledge and skills given the rapid changes relating to HIV issues at global and national levels. The common areas identified regarding further training were support of health sub-district management, encouragement of HIV-positive pregnant women in conducting support group sessions, in-service training by the NGOs and provision of some information on PMTCT.

Staff training and development

Healthcare workers mentioned that there was a lack of knowledge concerning the PMTCT programme. They were also uniquely affected by HIV/AIDS since they too have HIV-positive pregnant relatives. Such a situation necessitated that enough information and knowledge about the PMTCT programme be made available to them. One participant remarked that:

As healthcare workers, we really need the support of sub-district management on rendering the services of the PMTCT programme. When there is a training session, for example, practical approach to lung health and HIV in South Africa (Palsa Plus), the management wants us to be trained and we do not want to be forced. We want to go for training voluntarily and it will be easier for us to teach other colleagues. (P10)

Women's education on the PMTCT programme

The findings revealed that when the PMTCT programme facilitators and the coordinators arranged workshops for healthcare workers, it was found that the healthcare workers do not possess enough information concerning the PMTCT programme. As PMTCT knowledge is evolving, healthcare workers expressed a need to be continually updated through continuing education by knowledgeable facilitators regarding the PMTCT programme. The following was mentioned:

Trainings of healthcare workers on PMTCT programme are needed so that they are able to teach the very same community. (P2)

Formation of support groups for mothers

The findings revealed that door-to-door campaigns, home visits and support groups were not undertaken to trace and support HIV-positive pregnant women. These same HIV-positive pregnant women should form support groups so that they are able to share information. This is verified by the following comment:

We must encourage the HIV-positive pregnant women to practise how to conduct the support groups. They must own them and we healthcare workers will train with them and guide them where there is a need. Most of the HIV-positive pregnant women are on denial stage; they need moral support. (P16)

Discussion

Rural areas of Madibeng sub-district are characterised by relatively logistical costs and high per capita service costs. Therefore, the provision of government services such as clinics becomes costly (Madibeng Local Municipality, 2015). It has one district hospital, three health centres, 17 day-clinics that operate five days per week, five mobile clinics and four clinics that operate on a 24-hour basis. Healthcare facilities are grouped into three clusters (B, I and J), which render 24-hour services and are typical primary health care (PHC) facilities. The three clusters serve the general population in Madibeng sub-district, as well as villages, farms and mines with some thousands of patients, and not only for PMTCT services. Insufficient staffing and increased workload resulted in increased waiting time. Access to PMTCT services remains a pipe dream for many rural populations. This is true in NWP, where pregnant women travel long distances for PMTCT services; because of some villages' two-roomed structures clinics are not functioning. Patients attest to the hardships they endure because of the non-functioning clinics. The reason for non-functioning is shortage of healthcare workers.

This study found, according to the perceptions of healthcare workers working within the provisions of the PMTCT programme, that availability and accessibility of the services is still a challenge. HIV-positive pregnant women still do not access the services even when they are available due to inadequate accessibility. According to a study conducted in Eastern Uganda, programme improvement occurs where there is constant availability of critical PMTCT supplies, such as provision of adequate facilities for effective follow-up and support for mothers (Rajumba, Tumwine, Tylleskar, Neema, & Heggenhougen, 2012).

Even when the programme services were offered free of charge, the study was conducted in rural, farming and mining areas with relatively basic transport networks. For HIV-positive pregnant women living in villages without community health facilities, the need to journey to distant locations such as the mobile clinic points to receive services presented travelling difficulties. The newly HIV-positive women contribute to continued MTCT because of being identified late, resulting in delays in accessing the PMTCT services. Many women were surprised by their HIV diagnosis, guestioned their test results and sought additional HIV testing elsewhere. According to the study on increasing access to institutional deliveries using demand- and supply-side incentives in Uganda, the use of transport and service vouchers were shown to be a potential strategy for increasing health facility utilisation for maternal and newborn services including PMTCT in poor rural areas, as it removes some key barriers (Ekirapa-Karacho et al., 2011).

Prenatal care for women with HIV includes counselling on the benefits of continuing HIV medicines after birth. Life-long use of HIV medicines prevents HIV from advancing to AIDS and reduces the risk of transmitting HIV. Together with their healthcare providers, women living with HIV make decisions about continuing or changing their medicines after childbirth (UNAIDS, 2019).

Minimising stigma requires PMTCT programme provision that is discrete and certainly provided in private places that are not subjected to long queues for services. Some of the participants believed HIV-positive pregnant women still experienced a fear of being stigmatised by their communities and did not disclose their HIV status. Walcott, Hatcher, Kwena and Turan (2013) found that women's ability to safely disclose their HIV-positive status to male partners is essential for uptake and continued use of PMTCT services. Their findings revealed facilitating disclosure as acceptable for pregnant women and partners in rural Kenya. These findings can be geared at promoting HIV disclosure among pregnant women and partners, especially in the home setting.

Stigma associated with HIV in general has posed a challenge to access of services. Lack of disclosure of a mother's HIV seropositive status to her partner, family and in-laws worsened the problem. The findings of the study also support what is already known about stigmatisation as a challenge to the effectiveness of PMTCT programme services, including availability and accessibility.

Human migration contributed to a tendency to late booking or not booking at all. Lack of support systems also contributed to late booking and HIV-positive pregnant women who do not have supportive family or community around them tend to book later for the PMTCT programme. Therefore, healthcare workers need to educate immigrants on the importance and availability of PMTCT services.

According to the study on missed opportunities in the PMTCT programme, Sithole and Khunou (2016) found that pregnant HIV-positive women move from one place to another. In addition, Adedimeji, Aboud, Merdekios, and Shiferaw (2012) report that HIV-positive pregnant women were desperate to conceal their status from close family members. In that regard, the authors documented that the pregnant women were compelled to stay away from the facilities where they were diagnosed and to give birth at

home or in facilities where their HIV-positive status was not known.

The introduction of free health services through the National Health Plan in 1996, to increase access to PHC and improve the health of the poor in South Africa, has had significant effects on staffing and workload, putting strain on the already poorly staffed facilities. The relatively highly under-resourced facilities in this study meant that HIV-positive pregnant women were often disappointed by the lack of resources. Studies in Uganda and Kenya revealed that shortage of counselling space was among the reasons leading to loss of PMTCT programme clients. The constraints led to long waiting periods and some women left without receiving their HIV results. The constraints also compromised privacy and confidentiality of mothers. Similar findings were also found in Kenya, where 92% of respondents lacked privacy in counselling rooms, as indicated by the presence of more than two people in the room (Kalembo & Zgambo, 2012).

To improve the provision of PMTCT services, formal reorganisation of tasks among healthcare workers is of utmost importance. Reports from rural and primary health care centres in Rwanda, Lesotho and elsewhere, including South Africa, demonstrate that nurses could prescribe ARV treatment safely and effectively to HIV-infected adults and children, if they receive adequate training and support. A cost-minimisation model has also shown that task shifting during the follow-up of patients on ART has also been shown to reduce costs substantially as well as the need for a physician (Touré, Audibert & Dabis, 2010).

To improve access to ARVs, a skills development process is necessary and should include the development of standardised clinical guidelines, and simplified recording and reporting systems that assist doctors and nurses in their clinical interventions (Bam & Naidoo, 2014). Several reasons for the scant evidence of PMTCT service integration on improving service delivery have been identified as poor infrastructure, shortage of trained healthcare workers and low rates of client retention (Ambia & Mandala, 2016).

Consequently, the women made the decision not to return. The amount of time HIV-positive pregnant women had to wait to be seen by healthcare workers, especially after long and difficult journeys, was a common cause of not coming for follow-up consultations. Shortages of staff and medication could lead to protracted visits by HIV-positive pregnant women. Healthcare workers feel that their education and commitment are instrumental in the success of the PMTCT programme. Staff shortages in resource-limited settings are a major obstacle to the scaling-up of HIV care and treatment, including PMTCT availability and accessibility. According to Touré et al. (2010), a performance-based system for providing PMTCT services may therefore improve maternal neonatal child health (MCNH) and long-term HIV care and treatment. As efforts are expended towards eliminating paediatric HIV infection through PMTCT in resource-limited countries, it is imperative to improve the quality of the existing healthcare workforce.

The study found that some participants mentioned that they did not receive regular in-service training on the PMTCT programme from the sub-district. This could suggest fragmentation of training sessions at either district or cluster levels. Some participants felt that HIV-positive pregnant women did not breastfeed exclusively and practised mixed feeding. Health education could address the lack of knowledge on PMTCT programmes and improve the general understanding and uptake of services.

Decisions on whether HIV-infected mothers should breastfeed their infants is generally based on comparing the risk of infants acquiring HIV through breastfeeding, with the increased risk of death from malnutrition, diarrhoea and pneumonia if the infants are not exclusively breastfed. Accumulating evidence has shown that giving ARV medicines to the mother or the baby can significantly reduce the risk of HIV transmission through breastfeeding (WHO, 2019).

A study on the provision of reproductive health services including PMTCT services in a primary health care setting in Tshwane, South Africa found patient overcrowding and long waiting times all hampered people's access to services. The factors leading to long waiting times were staff shortages and increase in clients as people moved to the area (Mataboge, Beukes & Nolte 2016). The importance of virological testing, particularly early infant diagnosis, is hampered by a lack of resources for point-of-care testing alongside a lack of knowledge among healthcare providers and mothers or caregivers. Some mothers living with HIV are not coming for follow-up consultations, and when they change healthcare providers this presents another barrier to availability and accessibility of the PMTCT programme (Avert 2019).

Limitations of the study

The study used small purposive sampling. The study was also limited to healthcare workers' perspectives on PMTCT programme availability and accessibility and was limited to one district of the province. The study might have missed the perspectives of healthcare workers who were attending patients, off-duty, on leave and working night shifts. Therefore, the selected sample may not be representative, and the findings could neither be generalised to the whole NWP nor to the whole of South Africa. Furthermore, healthcare workers did not report anything about adherence to treatment of HIV-positive pregnant women, especially with implementation of Option B+ until delivery. More research is needed in this regard.

Conclusions and recommendations

Despite the challenges that still prevail concerning availability and accessibility of the PMTCT programme, improving the functional capacity of healthcare workers for effective delivery of PMTCT services and continuous in-service training should be the priority in the sub-district. The roles of healthcare workers providing a comprehensive package of PMTCT programme services need to be clearly defined and optimised within the designated scope of practice for each cadre of HCW. The facilities' buildings and equipment should be improved and the sub-district's management need to take cognisance of the opinions and views of healthcare workers on the ground.

The findings of this study may inform nationwide initiative in South Africa to improve the utilisation of the PMTCT programme. In-service workshops could teach skills for engaging with healthcare workers regarding challenges of stigmatisation and child feeding encountered by HIV-positive pregnant women. Barriers such as lack of resources including staff, medication and clinic spaces should be addressed and increased to benefit HIV-positive pregnant women. Nurse educators and researchers may use these findings to strengthen staff training and development. Curricula might integrate skills in healthcare workers' empowerment and HIV-positive pregnant women's education on the PMTCT programme. Continuing professional development programmes may include topics such as formation of support groups, and involvement of families and communities in caring for HIV-positive pregnant women to eradicate stigma and maintain confidentiality. Future research may be conducted on healthcare workers and HIV-positive pregnant women's knowledge of the PMTCT programme's availability and accessibility to understand their views, and this could help to improve its services.

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