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Knowledge of pregnant women regarding prevention of mother-to-child transmission of HIV infection in Gert Sibande District, Mpumalanga Province, South Africa: A qualitative study

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Background. Prevention of mother-to-child transmission (PMTCT) of HIV helps in closing the gaps for new HIV infections, thereby contributing to achieving the global targets of an AIDS-free generation.
Objective. To explore knowledge regarding PMTCT among pregnant women in Gert Sibande District, Mpumalanga Province, South Africa (SA).
Methods. The study was performed in two clinics in Chief Albert Luthuli Municipality, Gert Sibande District. It was a qualitative and descriptive exploratory study involving in-depth, one-on-one interviews with pregnant women regarding their PMTCT knowledge and perspectives.
Results. The study findings showed that pregnant women from the two clinics have a good knowledge of PMTCT. However, they were not aware that caesarean section can minimise mother-to-child transmission (MTCT) of HIV infection.
Conclusion. PMTCT is important in establishing an HIV-free generation. The study revealed that women had a good understanding of MTCT; nevertheless, additional education is necessary, particularly regarding birthing procedures that minimise the risk of MTCT.

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The elimination of mother-to-child transmission (MTCT) of HIV is a global public health objective. Prevention of mother-to-child transmission (PMTCT) of HIV helps in closing the gaps for new HIV infections, thereby contributing to reaching the global targets of an AIDS-free generation.[1] MTCT of HIV occurs when a mother who is HIV-positive transmits the virus to her baby. Transmission of HIV can occur during pregnancy, labour, delivery or breastfeeding. There is a 15 - 45% risk that an HIV-positive woman may pass the virus on to her baby during pregnancy, or during childbirth or nursing, if no preventive measures are taken.[2] South Africa (SA) has made significant progress in lowering the vertical transmission of HIV and has updated PMTCT guidelines.[3] Districts such as Gert Sibande, Mpumalanga Province, SA, reported an infant polymerase chain reaction (PCR) HIV positivity rate of 0.8% in 2017/2018.[4] Furthermore, a study conducted in KwaZulu-Natal Province, SA, found a similar infant PCR HIV positivity rate (0.85%).[5]

Despite the significant achievements in PMTCT, intrauterine infections are still high, with a high antenatal HIV prevalence of >30% reported in 2019.[6] Notably, rural areas in SA generally have higher MTCT rates than urban areas, 1% to 4% in rural districts in the Free State and Northern Cape provinces.[4,7] Some of the barriers to accessing PMTCT in rural areas include higher rates of intimate partner violence, poor retention and adherence to HIV treatment, limited access to PMTCT information, stigma, a lack of testing and disclosure, gender inequalities and limited involvement of men.[7-9]

Accurate knowledge about MTCT and PMTCT is pivotal among women of reproductive age. It plays an important role in shaping behaviour, thus fostering a shift towards self-protecting attitudes. This includes recognising heightened vulnerability, embracing condom use and advocating HIV testing.[10] PMTCT is a key strategy to end HIV/AIDS by thwarting new infections among children born to women living with HIV.[1] Particularly in east and southern Africa, most of the new infections in children are owing to mothers acquiring HIV during pregnancy and breastfeeding.[1] The current study contributes to achieving goal 3 of the global sustainable development goals (SDG 3) of 'Good health and wellbeing' and particularly contributes to targets that speak to ending preventable deaths among newborns and children <5 years of age and ending the epidemic of HIV/AIDS by 2030.[11] It is important to acknowledge that PMTCT is a global responsibility, although the burden falls heavily on developing countries, including SA.

The involvement of women holds significant importance, particularly as their understanding influences the success of the preventive programmes in the realm of MTCT of HIV.[10,12] Yet, there remains uncertainty regarding whether women, especially those residing in rural areas such as Gert Sibande District, grasp the importance of HIV medication adherence as a preventive measure against MTCT of HIV. Despite nationwide educational efforts, including awareness campaigns and workshops, the issue persists, particularly in impoverished rural and urban communities. Women of reproductive age bear a disproportionately higher burden of HIV than men,[13] and as the majority of people living with HIV reside in east and southern Africa, women in these regions inevitably have a higher burden of HIV than those in other regions.[1] Understanding the knowledge of women regarding PMTCT programmes aids in enhancing its effectiveness in the Gert Sibande District and throughout SA. Furthermore, the public health community stands to gain valuable insights from the research findings, contributing to evidence-based PMTCT programmes.

Objectives

The current study explored knowledge of MTCT of HIV infection among women in Gert Sibande District, Mpumalanga, SA.

Methods

Study design and setting

Pregnant women in Gert Sibande District were surveyed using a qualitative and exploratory descriptive study approach to learn more about women's perspectives on MTCT of HIV. Gert Sibande is one of three districts that comprise Mpumalanga, characterised by high HIV burden. The prevalence among women aged 15 - 49 years stands at 28.2%, underscoring the critical importance of PMTCT programmes in the region. The district is characterised by its low-to-middle income demographic, with a majority of its residents falling in the lower socioeconomic bracket.[6] Gert Sibande District is sub-divided into three sub-districts, i.e. Chief Albert Luthuli, Caroline and Chief Mxolisi municipalities. The research was conducted in Chief Albert Luthuli Municipality, home to 6 clinics: Badplaas Clinic, Zoe Pregnancy Centre, Nhlazatse Clinic, Embuleni Clinic, Mooiplaas Clinic and Tjakastad Clinic.

Study population and sampling

All pregnant women and those in the puerperium aged 18 - 40 years who attended the antenatal clinic at Badplaas Clinic or those who attended counselling sessions at Zoe Pregnancy Centre during the time of data collection were eligible for recruitment. Health information statistics estimate that at least 350 women visit these two facilities every quarter. Pregnant women visiting these facilities were the target population of the study and were used in developing the sampling frame. The two facilities, Zoe Pregnancy Centre and Badplaas Clinic, were selected, as they were the most frequently visited pregnancy centres in Gert Sibande District. Notably, Zoe Pregnancy Centre provides pre- and postnatal care services to women from disadvantaged backgrounds free of charge. Women in the selected study sites who presented with pre-existing medical conditions such as psychiatric conditions and speech complications, without a legal representative who could respond on their behalf, were excluded from the study. Women whose residential addresses were not within the study setting, despite attending Badplaas Clinic and Zoe Pregnancy Centre, were also excluded from the study. Furthermore, all women who did not give signed informed consent to participate in the study were excluded. Key informants were purposively sampled for recruitment in this study. Purposive sampling is deliberate handpicking of 'those that yield the most relevant and plentiful data, given the topic of the study chosen'.[14] In this case, key informants were deliberately selected for participation, based on their knowledge and experience of PMTCT of HIV programmes in Gert Sibande District. The sample size was determined by data saturation. A total of 15 women (pregnant or in the puerperium) were interviewed - 7 from Badplaas Clinic and 8 from Zoe Pregnancy Centre.

Data collection

Data were collected through face-to-face in-depth individual interviews. Semi-structured interviews consisting of a list of open-ended questions were used through an interview guide (Appendix 1: https://www.samedical.org/file/2207). The data collection tool was subdivided into relevant sections that sought to explore knowledge, attitudes and beliefs of the uptake by pregnant women of the PMTCT programme. Interviews were conducted in a safe and isolated environment - often in the office, boardroom or consultancy rooms at the two centres, with a few participants identifying alternative venues where they felt comfortable. Considerable effort was made to limit disturbances and factors that compromise client confidentiality through the mutual agreement of the researcher and the participant involved.

Data management and analysis

Data were stored in tapes, notes and transcripts of recordings that were locked away in a cabinet that only the researcher has access to. Thematic analysis with descriptive analysis was used to analyse the research data, whereby themes were generated from interviews and data. Data analysis was done in three phases, i.e. description, analysis and interpretation. After data collection, the researcher transcribed the recorded data with the assistance of a professional transcriber due to time limitations of the proposed project. The researcher verified accuracy of transcription to eliminate human errors and contextual mistakes from the assistant.

Ethical considerations

Ethical clearance to conduct the study was granted by the Faculty of Health Sciences Research Ethics Committee, University of Pretoria (ref. no. 429/2022). Permissions were granted by directors of health facilities in the Gert Sibande District. The researcher sought permission to use an audio recorder, which ensured the accuracy of the data for transcription and analysis. For approval of interviews and recordings, mothers were informed of the implications and process and asked to sign an informed consent form. Permission included the right to conduct the study, right to self-determination, anonymity and confidentiality.

There are no names of individuals or household addresses in the data files. Privacy and confidentiality were ensured through encryption and locking away of tapes, notes and transcripts of recordings in a cabinet that only the researcher has access to. No names were recorded; instead, participants were assigned unique identifying codes that comprised the number of the interview and site.

Results

Demographic characteristics

The study comprised interviews with 15 pregnant women; 7 were conducted at Badplaas Clinic and 8 at Zoe Pregnancy Centre. To maintain anonymity, the participants from Badplaas Clinic were coded from B1 to B7 and the those from Zoe Pregnancy Centre from Z1 to Z8. Among the 15 participants, 7 (47%) were aged between 18 and 24 years, although the mean (standard deviation (SD)) age of the participants was 26 (11.3) years. In terms of marital status, the majority were single (n=7; 47%), and 6 (40%) participants spoke isiZulu. Sixty percent (n=9) were unemployed, and in terms of education, 40% (n=6) of the participants held a college/university qualification. Additionally, 60% of the participants had only 1 child (Table 1).

Knowledge of MTCT of HIV

Knowledge about MTCT among pregnant women is the first step towards minimising HIV infection of unborn children. All the participants highlighted that they had knowledge about MTCT of HIV. Below are some of the verbatim statements by the participants to confirm this:

> 'It occurs when an HIV positive pregnant woman infects the baby.' (Participant B5)
>
> 'HIV cannot be transmitted by sharing cups, handshakes, and hugging. But when you have unprotected sex, you can get and you can then infect the unborn child because she depends on you before she is born.' (Participant Z7)

MTCT can occur before or after the birth of a child. This statement is supported by the participants who highlighted that:

> 'Care should be taken not only when you are pregnant but when you give birth because it can still happen. I didn't know this but, when

Table 1. Sociodemographic characteristics of the study participants

Category	Description	*n* (%)
Age, years	18 - 24	7 (47)
	25 - 30	4 (27)
	31 - 35	3 (20)
	36 - 40	1 (7)
Marital status	Single	7 (47)
	Living together	3 (20)
	Married	5 (33)
Language	siSwati	4 (27)
	isiZulu	6 (40)
	isiNdebele	3 (20)
	Xitsonga	2 (13)
Employment status	Employed	6 (40)
	Unemployed	9 (60)
Educational level	Primary school	3 (20)
	High school	6 (40)
	College/university	6 (40)
Children, *n*	1	9 (60)
	2	4 (27)
	≥3	2 (13)

the nurses told me that when I was enlightened.' (Participant B1)

'The nurses showed how to take care of the baby even after giving birth because she said the child can be infected by breastfeeding.' (Participant B4)

The study findings show that the pregnant women had comprehensive knowledge of MTCT of HIV infection.

Prevention of MTCT of HIV

A mother's understanding of PMTCT is crucial to implementing preventive measures and using the antenatal care service. The majority of participants (*n*=12) had knowledge of PMTCT. Other participants were specific about the measures to prevent MTCT of HIV and stated that:

'All women with HIV should start taking [antiretroviral] ART treatment as soon as possible but I think its encouraged to do so in the first trimester. This prevents it and even giving milk from the bottle.' (Participant Z6)

'It's the basics that are done to prevent infection of the child. Use a condom when you are sleeping with a man, being faithful to one partner and drinking ARV drug.' (Participant Z7)

Conversely, 3 participants did not have knowledge of preventing MTCT of HIV:

'Honestly, I don't know how it is prevented. These things with science are not for me.' (Participant B2)

'I have to read again on this because I am not sure on how to prevent mother to child transmission. I can take a guess and it might be wrong.' (Participant Z8)

The study results show that the majority of participants had knowledge of measures to prevent MTCT of HIV infection.

Caesarean section and MTCT of HIV

Caesarean section is a birth delivery mode that is recommended to prevent the transmission of HIV from mother to child. Only 2 of the participants had knowledge of caesarean section minimising MTCT:

'Yes I was told by my mother because she also has an operation when she gave birth to the last born in our family. She told us that she was positive, and this was done so that my brother cannot have HIV. So when it comes to HIV I have first-hand information because my parents lived with it.' (Participant Z6)

'People are afraid of having C-section but in terms of protecting your child it is the best method because there will be less fluids involved.' (Participant Z5)

However, the majority of the participants (*n*=13) did not have knowledge of caesarean section as a delivery method that minimises MTCT. The following statements confirm this:

'It's my first time to hear it and thank you I am informed now.' (Participant B4)

'I don't think the way you give birth has a problem as long as the birth does not involve any complications.' (Participant B3)

The study results show that most participants were not knowledgeable regarding the use of caesarean section birth delivery in minimising MTCT. The results imply the need to improve awareness of accessible birth delivery methods and MTCT.

Discussion

The study findings show that women had a good knowledge regarding MTCT of HIV and prevention measures, although very few of them were aware that caesarean section can minimise the risk of MTCT of HIV. Although the World Health Organization (WHO)[15] reported that women in sub-Saharan Africa (SSA) do not have extensive knowledge about MTCT of HIV, and an Ethiopian study[12] also reported poor knowledge and attitude towards PMTCT, there are studies that report results consistent with our findings. A study from Nigeria[16] found that the majority of women had a good knowledge of HIV transmission. Similarly, an SA study[17] also showed that women were informed about HIV transmission, which could be attributed to an increase in HIV awareness across the country over the years.[18] This underscores the need of having larger studies in the SSA region to understand the variation in knowledge regarding PMTCT between countries.

The study results indicate that pregnant women have adequate knowledge of prevention of MTCT. As a result, it is expected that women with good HIV preventive knowledge protect themselves, their partners and their children against HIV infection, and are more likely to receive HIV testing than women with inadequate knowledge of HIV.[19] In recent years, an increase in the number of women with a comprehensive knowledge of PMTCT of HIV has been reported in SA.[20] Knowledge of PMTCT of HIV has been the major driver of reduction in the HIV infection rate in SSA.[21] Women who are unaware of MTCT of HIV and its prevention have a low uptake of PMTCT services.[19]

Surprisingly, only 2 of the 15 pregnant women interviewed in this study were aware of caesarean section as a method to reduce the risk of MTCT of HIV. This lack of awareness possibly stems from vaginal birth being the prevailing delivery method in SA, with other options not widely considered.[22] The findings underscore the need for increased education and awareness about MTCT, particularly because sexually active women are more susceptible to HIV infection than men.[23]

Study limitations

The information was collected through semi-structured interviews, which are subject to information and recall bias. Nonetheless, probing was used to ensure that comprehensive information was collected from the participants.

Conclusions

The prevention of HIV transmission from mother to child is a crucial step in establishing an HIV-free generation. The study revealed that women had a good understanding of MTCT; nevertheless, additional education is necessary, particularly about birthing procedures and minimising the risk of MTCT. The study recommends increasing the awareness of women, as well as training of healthcare workers to improve knowledge, attitudes and behaviour of pregnant women regarding MTCT of HIV.

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