

# The Effects of Antenatal Health Education on Postnatal Care of HIV-positive Women

**Stembile Matambo**

<https://orcid.org/0000-0002-1500-4747>

University of South Africa

[smatambo@gmail.com](mailto:smatambo@gmail.com)

**Johanna Mathibe-Neke**

<https://orcid.org/0000-0002-5811-8680>

University of South Africa

[mathijm@unisa.ac.za](mailto:mathijm@unisa.ac.za)

## Abstract

This study was carried out in Botswana. The purpose of the study was to determine the effects of antenatal health education on postnatal care among human immunodeficiency virus (HIV) positive women in the city of Francistown, Botswana. The study followed a quantitative research paradigm. Data were collected using a questionnaire from 100 eligible women who consented in writing to participate in the study. A quantitative design and a descriptive cohort quantitative design were used. The researcher collected data from two of the busiest clinics in Francistown that have a workload of 100–150 patients a day. Any HIV-positive woman within the child-bearing age group (15–49 years) who visited the clinic 6–8 weeks postnatal was eligible. Forty-five per cent ( $n = 45$ ) of women living with HIV who visited the clinic with babies for the 6-weeks postnatal care and 55 per cent ( $n = 55$ ) brought 8-week old babies either for weighing or for immunisation. The majority (40%) of the women received health education from lay counsellors, 31 per cent from midwives, 15 per cent from doctors and 14 per cent from other sources. Qualified healthcare workers beyond lay counsellors should probably be providing antenatal health education given the expertise that is required to cope with the dynamic changes in healthcare delivery for HIV-positive women. Further studies in African settings are essential to identify the magnitude of utilising health workers that are inappropriately prepared for rendering certain healthcare services.

**Keywords:** acquired immune deficiency syndrome (AIDS); antenatal health education; effect; HIV-positive women; postnatal care

## **Introduction and Background Information**

Pregnant women in Botswana are encouraged to attend antenatal care (ANC) from 14 weeks of gestation. Those who are HIV-positive receive the usual health education plus health information related to their HIV-positive status. The antenatal education is supposed to prepare them for pregnancy, labour, delivery and postnatal care. According to the policy guidelines of the Botswana Ministry of Health (2004, 35), all pregnant women are offered HIV testing during their first visit to the clinic.

Botswana has a population of 2 024 904, and Francistown, the second largest city in the country, has a population of 100 079. Health education is defined by the World Health Organization (WHO) as any combination of learning experiences designed to help individuals, families and communities to improve their health by increasing their knowledge or influencing their attitudes (WHO 2005). Health education requires participation of the target group for it to be sustained. Antenatal health education within the context of this study included a combination of learning experiences offered to pregnant women to increase their knowledge and to equip them to make positive informed decisions during the antenatal period, throughout labour and delivery and during the postnatal period. In most cases, according to the Botswana National Guidelines on Prevention of Mother-to-Child-Transmission, HIV-positive women are mostly diagnosed during the ANC period as all pregnant women are offered HIV voluntary counselling and testing (Botswana Ministry of Health 2011, 8). There is a greater risk for maternal mortality among HIV-positive women than HIV-negative women (Warren et al. 2006, 80). Women who are HIV-positive have additional health education needs that include their CD4 count, additional education on antiretroviral (ARV) therapy for both the mother and the baby, HIV tests for the baby, referral to support groups and stakeholders, feeding methods for the baby, and general hygiene and nutrition for the mother (Montgomery 2003, 16–26).

Postnatal care means the care offered to the mother and the baby six weeks after childbirth in the maternity unit, primary care setting or home. Postnatal care encompasses management of the mother, newborn and infant during the postnatal period. “This period is usually considered to be the first few days after delivery, but technically it includes the six-week period after childbirth up to the mother's postpartum check-up with her health care provider” (Jacobson 2002, 2). It involves keeping delivered babies for at least 24 hours, timely home visits from day 2 of delivery and attendance for postnatal care at a healthcare facility at 6 weeks post-delivery (Jacobson 2002, 2). It extends to the provision of health information to promote healthy behaviour and to promote exclusive feeding methods which could either be formula feeding or breastfeeding (Botswana Ministry of Health 2009). The information includes the importance of ensuring that the baby is kept in a warm environment. In addition, the mother is provided with health information on diet, rest, sleep, supportive systems, family planning, and sex after delivery, and also identification of illnesses, for example

pneumonia in the baby, so that the baby can be treated as soon as possible. The mother is taught to identify danger signs for her and her newborn baby.

Postnatal health information re-enforces antenatal health education (Warren et al. 2006, 81). Demographic and health surveys conducted between 1999 and 2004 have shown that four in ten women who had live births in the five years preceding the survey had not received any postnatal care in the first two days of delivery. (Warren et al. 2006, 83). The UN Millennium Project (United Nations 2005) revealed that there is substantial evidence that the use of maternal care services is closely linked to the economic status of the women. Analysis of existing data in different countries showed that the wealthy have more access to maternal health services than the poor (Ronsmans, Graham, and Lancet Maternal Survival Series Steering Group 2006; Stanton et al. 2007; WHO 2005). This is also reflected by the findings of this study. The respondents were not wealthy but 77 per cent of the respondents had high school education. Those who attended postnatal care were from this group. A study by Stanton et al (2007) and Türkyilmaz, Abbasoglu Ozgoren, and Yildiz (2013) found that one quarter of the women from the wealthiest households were four times more likely to receive postnatal care than women of poor households.

It was proven in some studies that women who have secondary education or higher are more independent to demand services. Those who had primary education were more inclined to seek ANC than postnatal services (Bhartia 1995). The Centers for Disease Control and Prevention (2013) stated that health education must be goal oriented and have behavioural outcomes. This means that if HIV-positive women receive effective goal-oriented health education during the antenatal period, they must exhibit positive outcomes among them when attending postnatal care clinics.

Some of the participants in the study by Svensson, Barclay and Cooke (2007) questioned the skills of and facilitation of learning programmes on antenatal and postnatal care by the health educators. The research recommended that it is vital for healthcare workers to be trained and mentored. They concluded that effective and high quality antenatal education that was facilitated by skilled and trained educators could produce superior postnatal outcomes.

An estimated 1.16 million African babies die in the first 28 days of life and 850 000 do not live to exceed the week they were born. About 51 per cent of all these deaths occur in the sub-Saharan region (Warren et al. 2006, 80), which includes Botswana. In Botswana, 95 per cent of women seek ANC where they were given health education by midwives, lay counsellors, medical doctors and other cadres (Botswana Ministry of Health 2011).

In view of the risks facing HIV-positive women during postnatal care, there was a need to determine the effects of antenatal health education on postnatal care among HIV-positive women.

Some of the risks facing HIV-positive women during the postnatal period include poor wound healing due to compromised immunity, cervical changes which can lead to cancer of the cervix, and haemorrhage due to HIV-related thrombocytopenia (Warren et al. 2006, 80). In addition, the mother may develop anaemia due to HIV-related illnesses, chronic diseases, malnutrition and wasting. Hormonal contraceptives may cause drug-to-drug reactions with ARV medications and intra uterine contraceptive devices may contribute to infections (Warren et al. 2006, 80). HIV-positive women who choose to breastfeed face the risk of transmitting the HIV virus to the baby if they are not receiving ARV treatment or prophylaxis (Warren et al. 2006, 81). Antenatal health education has the potential to equip HIV-positive pregnant women with the appropriate knowledge that will assist them in making correct and informed decisions about seeking postnatal care.

This study was motivated by an average of 55 per cent postnatal attendances noted during routine clinic audits conducted by partners of the Botswana Ministry of Health in Francistown health facilities from 2008 to 2012 (Matambo et al. 2014). This finding implied that 45 per cent of women who were HIV-positive did not report for postnatal care. This means that both the mothers and the babies were at risk of developing complications and that the babies were likely not to have had a polymerase chain reaction (PCR) HIV test, which is necessary for early initiation of ARVs if the baby is HIV-positive (Botswana Ministry of Health 2011).

## **Statement of the Research Problem**

The risks facing HIV-positive women during postnatal care motivate the importance of determining the effects of antenatal health education on postnatal care among HIV-positive women.

## **Purpose of the Study, Objectives, Research Questions**

The purpose of this study was to determine the effects of antenatal health education on postnatal care among HIV-positive women.

This study aimed to: (1) determine the effects of the antenatal health education given to HIV-positive women, (2) describe the health education that HIV-positive women who attended postnatal clinics received during the antenatal period, and (3) recommend aspects to be included in the antenatal health education for HIV-positive women to ensure comprehensive health education.

The research questions for this study were: What health information does an HIV-positive woman receive during the antenatal period? What effects does antenatal health education received by HIV-positive pregnant women have on postnatal care? What aspects of antenatal health education can be recommended to ensure comprehensive health education for HIV-positive pregnant women?

## Research Methodology

This study followed a quantitative research paradigm. Quantitative research is concerned with measuring attributes and relationships in a population (Joubert 2007). A descriptive cohort quantitative design was used. This was chosen as a suitable design because the purpose of the study was to determine the effects of antenatal health education on postnatal care or attendance among HIV-positive women as the aim of quantitative research is to classify features, count them and then construct some statistical models that help in explaining the researcher's observations. A descriptive study often takes the form of a survey, as applicable to this study which was aimed at quantifying the effect of antenatal health education on postnatal care or attendance among HIV-positive women. The researcher collected data from two of the busiest clinics in Francistown that had a workload of about 100 to 150 patients a day. Any HIV-positive woman within the childbearing age (15–49 years), who had attained the majority age of 21 years and who attended any of the two clinics out of the 15 healthcare facilities in Francistown within 6 to 8 weeks post-partum were offered an opportunity to participate in the study if they gave consent to do so. Those who were under 21 or over 49 years were excluded from the study. Women in the stated category who did not consent to participate in the study were also excluded. Participation in the study was voluntary.

Convenience sampling was used to obtain participants for the study. A non-probability sample of 100 women living with HIV who were 6 to 8 weeks post-partum and attending any one of the two busy clinics was conveniently selected and enrolled in the study. These women attended the clinic within the three months period of data collection. A sample size less than 100 would have brought out results that may not be easy to generalise to the population using a 95 per cent confidence interval. The number of HIV-positive antenatal pregnant women in Francistown ranges between 1 000 and 1 350 per annum, which is 25 per cent of all the women attending the antenatal clinic. All selected participants received a questionnaire. An observation made during routine clinic audits of prevention from mother-to-child transmission (PMTCT) clinics in Francistown (2008–2012) showed that only 55 per cent of the women attend postnatal clinic. None of the women who were offered the opportunity to participate in the study declined.

Data collection started on 26 April 2014 and ended on 30 June 2014 after a pilot study on 10 participants had been undertaken at the two clinics from where data were collected. Two Botswana healthcare professionals who are working in research projects made some changes to the Setswana version of the questionnaire after piloting to achieve accurate communication. According to clinic registers, a total of 159 HIV-positive women were expected to have attended 6 weeks postnatal care and brought their children for the first immunisation at 8 weeks of birth within the data collection period. Forty-five women managed to attend the postnatal clinic and some of these came

from surrounding clinics. Some of the reasons for this low attendance for postnatal care will be explained under the discussion section.

The administration of the questionnaire at the clinics was conducted by the researcher who is a qualified general nurse and midwife. The questionnaires were administered in privacy within the consulting rooms in the healthcare facility. Completion of the questionnaire was scheduled to take 15–20 minutes although some questionnaires were answered in 7–10 minutes. The questionnaire which was developed by the researcher and reviewed by experienced university facilitators had questions covering information on the respondent's biographical data, antenatal health education, postnatal information and care, and health provider information. The questionnaire was also reviewed by colleagues who are researchers. Codes were allocated to the study respondents. No names were reflected on the data collection forms for the sake of confidentiality and to maintain anonymity. All data were captured electronically and kept in a laptop with the researcher's secret password. Verbal responses were recorded in a uniform way on the questionnaire form. Responses were quantified and analysed for interpretation, and summaries including percentages, other measurement of variables and measures of construct were made. The data were stored under lock and key. We used Excel and SPSS to analyse the data, and then we documented the findings. A statistician assisted with the data analysis using SPSS.

Ethical clearance to conduct the study was obtained from the University of South Africa (ethical clearance certificate number HSHDC/99/2014), and from the Health Research and Development Committee of the Botswana Ministry of Health.

## **Results**

Women with ages ranging from 21 to 49 years were included in the study. These women visited the clinic for six weeks postnatal care, and brought their babies for weighing at eight weeks or for the first eight weeks immunisation.

A total of 30 per cent of the women were within the 31–35 years range, 22 per cent were aged 26–30 years, 21 per cent were in the 21–25 years bracket, 22 per cent in the 36–40 years range and only 5 per cent ranged between 41–49 years.

Some of the biographical data included the following: the highest number (82%) of those who attended postnatal clinic consisted of single women, followed by 15 per cent being married, 2 per cent were divorced and 1 per cent was a widow.

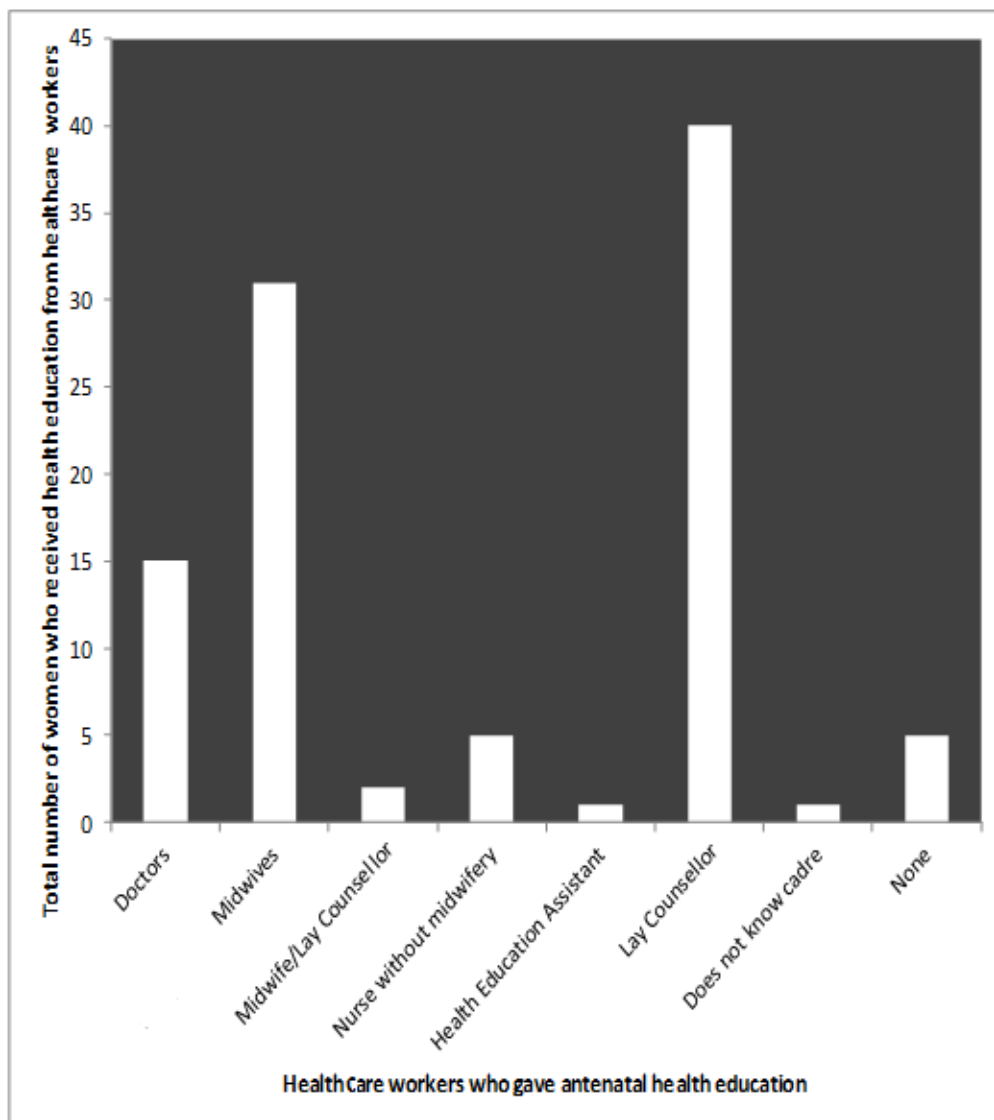
A total of 61 per cent of the respondents stay in rented housing, 37 per cent own their homes, 1 per cent live in government housing for staff, and 1 per cent live in company houses. Among the respondents, 77 per cent ( $n = 77$ ) had completed high school, 12 per cent ( $n = 12$ ) completed primary school, 9 per cent ( $n = 9$ ) had a university degree, and 2 per cent ( $n = 2$ ) never went to school.

Though the majority of these women were unemployed, they had attained high school education. In this study 62 per cent (n = 62) of the women who were unemployed attained higher education which encouraged them to seek healthcare services.

The respondents in this study were varied from gravida 1 to 9. About 6 per cent (n = 6) were gravida 1, 8 per cent (n = 8) gravida 2, 33 per cent (n = 33) gravida 3, 11 per cent (n = 11) gravida 4, 11 per cent (n = 11) gravida 5, 8 per cent (n = 8) gravida 6, 1 per cent (n = 1) gravida 7, 1 per cent (n = 1) gravida 8, and 1 per cent (n = 1) gravida 9. The majority of the women (33%) had been pregnant three times. It can be assumed that they had received antenatal health education before and therefore they would have been more informed on the importance of attending a postnatal clinic for care.

All respondents were aware of their HIV status. A total of 25 (25%) knew that they were HIV-positive for 1 year, 33 per cent (n = 33) for 2 to 5 years and 42 per cent (n = 42) for more than 5 years. The women were very comfortable to talk about their HIV status and the health education that they were given during their pregnancy.

In this study, 40 per cent of the HIV-positive women received health education from lay counsellors, 31 per cent from midwives, 15 per cent from doctors, 5 per cent from nurses without midwifery, 5 per cent did not know the cadre who gave them health education, 2 per cent were given health education by both lay counsellors and midwives, 1 per cent by a health education assistant and 1 per cent did not receive health education. Figure 1 illustrates the cadre who gave health education.



**Figure 1:** Number of women who received antenatal health education in the study (n = 100)

Several HIV-positive postnatal mothers brought their babies who were three months and older for the first time to the clinic because in the Setswana culture, a woman has to stay in confinement (a period called botsetse in Setswana) for at least three months after delivery. These women were excluded because their babies were older than the eight-week cut-off point. The respondents received antenatal health education as outlined in Table 1.



**Table 1:** Antenatal health education received by antenatal women

<i>Questions</i>	<i>Yes %</i>	<i>No %</i>
Growth and development of the baby	69	31
Diet appropriate for a pregnant woman	75	25
Importance of personal hygiene	84	16
Smoking during pregnancy	78	22
Drinking alcohol or using other illicit drugs	74	26
Sexual intercourse during pregnancy	78	22
Vaccination for both mother and baby	79	21
Infections during pregnancy	73	27
Bleeding during pregnancy	71	29
HIV in pregnancy	93	7
Information on mother-to-child transmission of HIV	90	10
Diabetes mellitus in pregnancy	54	46
Taking medication in pregnancy	85	15
Vitamins and supplements for pregnant women	75	25
Delivery options	70	30
Environmental and workplace exposure, if applicable	38	62
Hereditary diseases	77	23
Natural diseases	21	79
Available medical, psychological and social services for HIV-positive pregnant women	61	39
Infant feeding options	81	19
Importance of attending postnatal care	70	30
Blood tests necessary for mothers after delivery	74	26
Six weeks HIV testing for babies	87	13
Importance of taking ARV treatment	44	56
Visiting the clinic or had a healthcare worker visiting you at home	46	54
Visiting the clinic at six weeks	94	6

On average, 71 per cent of the antenatal information was given to the pregnant women. Most of the women (40%) received antenatal health education from lay counsellors. Svensson, Barclay, and Cooke (2007) recommended that it is vital for healthcare workers to be trained and mentored. They concluded in this study that effective and high quality antenatal education that was facilitated by skilled trained educators could produce superior postnatal outcomes. Though numerically in this study most women received antenatal health education, the quality of the education is questionable as lay counsellors do not receive information on ANC in their training. This cadre was brought in as a support to healthcare workers in the fight against HIV/AIDS (UNICEF 2013, 3).

## **Discussion**

Health education was given during the antenatal period to 99 per cent of the respondents. The study showed that the HIV-positive pregnant women were given health education by different cadres of health, i.e. doctors, nurses with no midwifery, midwives, health assistants and lay counsellors. Only 45 out of 159 HIV-positive women brought their babies for postnatal care. About 94 per cent of the women were told to bring their babies to the clinic at 6 weeks. Only 28 per cent of babies that were 6 weeks old and their mothers received postnatal care at the appropriate time. There is a possibility that some of the women moved to other clinics in the country but this cannot be proven in this study since there are no data linking postnatal care within facilities in Botswana. Sexual and reproductive information is not yet centralised in the country.

In this study, lay counsellors gave health education to most of the HIV-positive postnatal women. In Botswana, lay counsellors were introduced in 2003 to alleviate the workload that was put on nursing staff in the fight against HIV/AIDS. The lay counsellors were given basic education on how to test and counsel HIV-positive pregnant mothers (UNICEF 2013, 3). It is clear that lay counsellors may give health information but at a very superficial level. One major reason why lay counsellors give antenatal health education is that the midwives are responsible for consulting and treating antenatal, postnatal and all clients seeking family planning services. Appropriate allocation of responsibility is crucial as mentioned in the study by Svensson, Barclay, and Cooke (2007) where it was concluded that healthcare providers should be knowledgeable and skilled to produce superior postnatal outcomes.

The clinics where the data were collected treat 100 to 150 patients a day with about a third seeking reproductive healthcare services. This compromises the quality of antenatal health education that is given by the midwives because they will not have adequate time to attend to the women seeking antenatal services.

According to National Nurses United (n.d.), the recommended nurse-patient ratio in skilled nursing facilities is one nurse to five patients.

## **Limitations**

The collection of data took time because the sample size was not yet attained. This is partly because the participants had to comply with their culture of confinement for at least three months (botsetse). The quality of health education which was not evaluated in this study could be a contributing factor since health information was given by differently qualified healthcare workers. Only two clinics out of 15 were used for data collection. The questionnaire was close-ended and did not give much room for collection of qualitative information.

The antenatal and the postnatal registers are manual and they are separate. The country is currently not using a centralised electronic system on health information for antenatal

and postnatal patients attending clinics for care. This means that one cannot trace where the client ended. There is no way of determining whether or not the HIV-positive antenatal woman ever attended postnatal care.

In each of the clinics that were involved in the study, there was one midwife attending to all antenatal, postnatal and family planning clients including attending to babies that required a PCR test to be done. It therefore means that the waiting period for patients was long. This could be one reason why the clients do not wait for health education.

The question, however, is how much of the health education was given and at what depth since the cadres who provided the health education to these women had varied qualifications and experience.

## **Conclusion**

The study revealed that HIV-positive pregnant women received health education from different cadres of health and mostly by lay counsellors. The literature indicates that lay counsellors are not trained to give antenatal health education. It is essential to ascertain that appropriately trained personnel give ANC health education and manage reproductive health clients with excellence. Lessons that were learnt in this study will be shared with other stakeholders nationally and internationally. There was a need to further study the outcomes of all these clients in a year's time. Further studies in African settings are essential to identify the effects and magnitude of utilising health workers that are inappropriately prepared for rendering certain healthcare services.

## **Recommendations**

In Botswana, lay counsellors are trained for six months to test for HIV and to give post-test counselling. They are also taught to give information on infant feeding. The study recommended that the managers of health in the country upgrade the training and equip lay counsellors with quality antenatal health education skills. Lay counsellors should be well-prepared to give antenatal health education since they relate with antenatal women from the first day of registration where they offer and do HIV testing. Increasing the number of appropriate manpower will allow recommended nurse-patient ratios (1:5) in healthcare facilities which will result in excellence in the provision of healthcare services.

The importance of sensitising the community to attending both antenatal and postnatal care should be emphasised in places such as in Kotlas (the administrative meetings of the chiefs) and social media.

The healthcare managers should diligently monitor and audit the care that is being rendered in the healthcare facilities. They may need to redefine policies to guide the provision of excellent healthcare services. Motivating factors for the healthcare workers, for example promotion on merit, may increase the quality of care rendered.

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