

Factors affecting the implementation of nurse-initiated antiretroviral treatment in primary health care clinics of Limpopo Province, South Africa

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Introduction: The implementation of nurse-initiated antiretroviral (ARV) treatment at primary health care clinics was introduced in 2010 as a response to lower the HIV prevalence rate in the community.

Aim: The aim of the study was to identify the factors affecting the implementation of nurse-initiated ARV treatment in primary health care clinics referring patients to Dr CN Phatudi Hospital, Limpopo Province.

Methodology: A qualitative study was conducted in 2013 with a purposeful sample of nurses from 12 clinics involved in the nurse-initiated antiretroviral treatment (NIMART) programme. Two free-attitude focus groups and two individual interviews were conducted (audio- and video-recorded whilst the researcher took field notes). These interviews were transcribed verbatim and analysed using the colour-coding as well as cut-and-paste methods.

Results: Common themes that emerged from the individual and focus-group interviews were: (1) lack of resources, which included health care workers, drugs, stationery, telephones, poor training and inadequate workspace; (2) factors affecting treatment adherence, such as stigma, poverty, poor roads and the restrictions on the 'one pill' regime; (3) support from management and the visiting doctor and (4) nurses' work satisfaction.

Conclusion: Two of the themes that emerged acted as barriers to the implementation of the NIMART programme, namely: (1) lack of resources and (2) factors affecting treatment adherence. The two other themes enhanced the implementation of the NIMART programme, namely: (1) support visits and (2) nurses' work satisfaction.

Keywords: antiretroviral treatment, clinics, nurse initiated, South Africa

Introduction

The roll-out of antiretroviral therapy (ART) has been successful in many countries. However, in southern Africa concerns have been raised about the ability to meet treatment needs in areas with a high prevalence of human immunodeficiency virus (HIV) infection/acquired immunodeficiency syndrome (AIDS) and where there are severe deficits in human resource capacity.¹

South Africa's health care system is struggling to respond to the devastating impact of HIV/AIDS, while simultaneously working towards realising its post-apartheid mandate of providing equitable health services to all. Increasingly the scale-up of HIV services is being re-conceptualised to match both the urgent need for prevention, care and treatment and the national vision of decentralised primary health care.²

The shortage of health care workers is recognised as a barrier in expanding ART delivery and this has the biggest impact in rural areas, where the human resource crisis is most acute.³ The World Health Organization (WHO) recommends a radical departure from traditional models that depend on specialist personnel and, instead, task shifting is promoted: the delegation of tasks from higher qualified to lower qualified cadres. This practice, where nurses are enabled to prescribe, dispense ART and engage community workers to deliver a wide range of HIV services, has become widespread in ART delivery models in low-income countries and it has been increasingly shown to reduce the workload of scarce medical doctors effectively without compromising the quality of care.⁴ Therefore the WHO has made it clear that it supports a public-health model of service delivery

that uses standardised systems in order to maximise the involvement of primary health care services.⁴

In April 2011, South Africa started the implementation of a decentralised, primary health care model of up-scaling ART services called the NIMART (nurse-initiated antiretroviral treatment) programme in response to the HIV/AIDS epidemic; and to address the shortage of doctors, the initiation of ART is delegated to nurses. This article attempts to describe factors affecting the implementation of this programme in the clinics referring to Dr CN Phatudi Hospital in Limpopo Province.

Methods

A qualitative study was conducted at 12 primary health clinics between May and June 2013. Purposeful sampling identified the participants, which included all nurses at the 12 clinics involved in the initiation of antiretroviral therapy.

The 12 clinics were clustered into two focus groups. The two focus groups comprised one with six and the other with seven members. In addition, the principal researcher conducted two individual interviews with nurses from two clinics, as these nurses were unwilling to participate in the focus-group interviews.

Free-attitude interviews were conducted with a single exploratory question: 'What are the factors that affect the implementation of the Nurse Initiated ART programme in the primary health clinics that refer patients to Dr CN Phatudi Hospital?'. A trained interviewer, who facilitated the interviews

through reflections, clarifications and summaries, conducted all interviews.

The interviews were video- and audio-recorded with additional field notes taken by the principal researcher (TM). The audio-recorded data were transcribed verbatim and confirmed with the other sources of data collection by an independent researcher. The transcription was checked by another independent person and the data validated by the participants who confirmed the accuracy of the interview transcript contents. Thereafter, thematic analysis was done on the transcribed data. The principal researcher (TM) acquainted herself with the content of the transcribed data through immersion and subsequently identified themes and sub-themes from the data using colour-coding and the cut-and-paste methods for qualitative data analysis. A second researcher (GM) verified the emergent themes from the transcribed data as part of the validation process. Trustworthiness was further ensured by the fact that the principal researcher (TM) did not work in the clinics where the study was conducted and was therefore not involved in the implementation of the programme.

Ethical clearance for the study was obtained from the Medunsa Research Ethics Committee of the University of Limpopo (MREC/M/02/2013: PG) and permission to conduct the research was obtained from the Department of Health, Limpopo Province. All participants voluntarily signed the informed consent form.

Results

All 15 participants were female professional nurses. The majority of the participants (14 of 15) had received training in the nurse-initiated antiretroviral treatment (NIMART) programme and their ages ranged between 25 years and 55 years. The mean age was 47.07 years ($SD \pm 7.40$ years). The participants had an average of 14.74 years ($SD \pm 6.15$ years) of experience with the range between 1 and 19 years. The majority had more than 10 years' experience, i.e. 13 of 15.

Four major themes emerged from the individual and focus group interviews: (1) *lack of resources* such as health workers (nurses), drugs, stationery, telephones, working space and training; (2) *factors affecting adherence to treatment* including stigma, poverty, poor roads, movement of patients between facilities, the urgent initiation of ART, sharing of medication between patients and the restrictions on the 'one pill' regime⁴; (3) *support from management and the visiting doctor* described as such by the participants; and, (4) *nurses' work satisfaction*. Of these themes, two were subsequently identified as barriers to the implementation of the NIMART programme and two were identified as enhancers that ameliorated the implementation of the programme.

Detailed descriptions of the themes and sub-themes as well as some supporting quotations from the interviews are presented in Table 1.

Discussion

The decentralisation of services to primary health centres has strengthened the retention of patients on ART and simultaneously reduced the burden of managing uncomplicated cases at referral hospitals.⁵ However, several authors concur that scaling up ART to socially meaningful levels in low-income countries with a high AIDS burden is constrained by: (i) the continuously growing caseload of people to be maintained on long-term ART; (ii) evident problems of shortage and skewed distribution of health workers; and, (iii) the heavy workload characteristic of current ART delivery models.^{5,6}

Requirements for maintaining these services at primary health care level include training at all levels (with a strong emphasis on managerial components alongside technical proficiency), appropriate supervision, development of teamwork, and implementation of incentives for good performance.⁷ Successful implementation of programmes such as NIMART requires a comprehensive approach comprising mentoring and clinical guidelines tailored for nurses. Furthermore, significant health services reorganisation is required to accommodate additional programmes as well as the need for 24h services at clinics.⁸ Yusuf et al. believe that task shifting can only be successful when accompanied by intensive training, supervision and support from existing health system structures.⁹

In South Africa, the chronic shortage of health care workers is recognised as a major bottleneck to scaling up antiretroviral therapy and this has the biggest impact in rural areas, where the human resource crisis is most acute.¹⁰ This influenced the introduction of NIMART at the primary care level: the participants in our study reported that the introduction of the initiation of ART at the primary care level made their workload much heavier. However, they also derived work satisfaction from the difference they made in their patients' lives.

On the other hand, it frustrated most participants when their patients did not adhere to their treatment as they expected. They felt that stigma leading to a fear of disclosure made it difficult for patients to adhere to their treatment — a sentiment echoed by Mall et al.¹¹ Improved access to HIV testing and education regarding the benefits of testing and early treatment is the key to reduce stigma and improve treatment adherence and should therefore be encouraged.

A factor enabling nurses to implement the NIMART programme effectively was the support from the visiting doctor, as they could discuss difficult patients with him. While primary health care nurses are not deemed inferior to doctors in monitoring first-line ART in a public health ART programme in South Africa,¹² clinical mentors are, however, considered key in addressing institutional and treatment barriers as well as ensuring quality patient care.¹³ Moreover, investing in nursing resources for the management of non-complex patients should help reduce costs and patient waiting times while freeing up physician time for the management of complex cases, mentoring and supervision activities and other health interventions.¹⁴

A limitation of this study is that the results cannot be generalised as it is a qualitative study. However, the results are transferable to similar settings. Another limitation was the relative small number of participants in the study (the shortage of staff and the heavy workload limited participation). More barriers could have been identified if the sample were larger. However, we achieved data saturation at the completion of the interviews.

Recommendations

Further research is needed to determine solutions to the barriers of the NIMART programme. The clinic managers, pharmacy managers and HAST (HIV/AIDS, STI and TB) managers should be involved in the remedy of the barriers identified. The nurses involved in NIMART can benefit from mentorship by the primary care doctors.

Conclusion

This study identified four major factors that influence the implementation of NIMART in clinics. Two factors posed as

Table 1: Themes and sub-themes

| No. | Theme/sub-themes | Description of the theme/sub-theme | Quotations |
|-----|--|--|--|
| 1 | Lack of resources | This theme included sub-themes such as shortage of nurses, drugs, stationery, telephone communication and limited work-space in the clinics | See sub-themes |
| 1.1 | Shortage of health workers (Fg and li) | The participants felt they were short-staffed and had an overwhelming workload | 'The nurses who are trained on NIMART, there's a big shortage. So if there are two nurses who are initiating, the patients does come and their blood is collected and everything ... but they cannot be initiated if the nurse who is trained is not there. They have to come on a certain day for the initiation.' (TN, 55 yrs, 16 yrs' experience in PHC, NIMART trained) |
| 1.2 | Shortage of drugs (Fg and li) | Shortage of drugs was a common challenge at all primary health care facilities. Nurses were faced with having to turn away patients and having them return for their medication on another day. Other patients were given medication for only a week at a time. These patients had to return frequently to collect medication. Some participants travelled to the hospital pharmacy at their own expense to request drugs for their patients | 'Shortage of drugs... You see that the patients are full at the clinic ... we use our own cars to go to pharmacy.' (VJ, 47 yrs, 3 yrs' experience in PCH, not NIMART trained) |
| 1.3 | Shortage of stationery (Fg) | There was insufficient stationery, making record keeping difficult for participants | 'You just have to use a piece of cardboard ... as long as you have recorded, so that the patients can know that I'm going to the clinic on the 30th.' (NN, 54 yrs, 16 yrs' experience in PHC, NIMART trained) |
| 1.4 | Poor clinic infrastructure (Fg and li) | The clinics are poorly designed: there are not enough consulting rooms for all the activities | 'The counselling room ... HCT room ... tomorrow we're issuing ARV's ... so the one working here has got to move around, find a corner ... there is not enough space.' (MK, 49 yrs, 12 yrs' experience in PHC, NIMART trained) |
| 1.5 | Lack of telephone communication (Fg) | Telephones were unavailable in most clinics and nurses struggled to refer emergency patients to the hospital | 'If you are having a serious problem, we're using 112 to call for an ambulance.' (JM, 48 yrs, 16 yrs' experience in PHC, NIMART trained) |
| 1.6 | Insufficient training (Fg) | The participants were not computer literate and had to learn to capture patient information electronically themselves as there were no data capturers | 'We are having a computer in our facility but unfortunately we don't have data capturers. The training is not intensive.' (ML, 44 yrs, 16 yrs' experience in PHC, NIMART trained) |
| 2 | Factors affecting adherence to treatment (Fg and li) | The participants mentioned several factors contributing to poor adherence of patients to treatment posing barriers to the ARV programme including: stigma, poverty, bad roads, movement of patients between health facilities, sharing of medication, the urgent initiation of ARVs and the restrictions on the single drug regime | See sub-themes |
| 2.1 | Stigma (Fg and li) | Patients did not want to disclose their status because they were afraid of how they would be treated by the community | 'Usually at the clinics we let those patients who are collecting ART come on a certain day, we make sure that NIMART trained personnel is there. So some are afraid to be labelled that this is an AIDS person.' (SH, 52 yrs, 25 yrs' experience in PHC, NIMART trained) |
| 2.2 | Poverty (li) | Poverty due to unemployment resulted in non-adherence. The patients did not have enough food and therefore did not adhere to their treatment | 'Poverty ... you find that patient comes to the clinics, you initiate him or her, but he doesn't have food to eat, you refer to a social worker just knowing that sometimes they will be given some food packets ... not knowing when.' (NN, 54 yrs, 16 yrs' experience in PHC, NIMART trained) |
| 2.3 | Poor roads (li) | During the rainy season, the roads were too bad to travel on and bridges were flooded. Therefore, patients missed out on their follow-up dates until the water levels had subsided | 'Because here is in the rural areas, you find that people are staying high on top of the hills and when it's raining, they can't afford to come to clinics ... the little bridge is full, the river is full, its overflowing, so they can't come to the clinic.' (MK, 49 yrs, 12 yrs' experience in PHC, NIMART trained) |
| 2.4 | Movement between facilities (Fg and li) | Patients changed clinics between provinces, which made it difficult to follow them up — patients would move from one clinic to another without requesting transfer letters | 'They are working in Gauteng province, when they come, some of them don't come with anything to show that they are collecting treatment.' (PK, 25 yrs, 1 yr's experience in PHC, NIMART trained) |
| 2.5 | Urgent (same day) initiation of ART (Fg) | Participants believed that patients who were initiated on the same day they were tested felt overwhelmed and that this might lead to poor adherence to treatment | 'When the patient comes today and you find that the patient is positive, that same day, as a pregnant woman you initiate that day ... I see it's a problem because she's still concerned about her results being positive, whereas you must explain about taking of the ARV ... that's why there are many defaulters at our clinic.' (SA, 50 yrs, 17 yrs' experience in PHC, NIMART trained) |
| 2.6 | Restrictions on the 'single drug' regime (Fg) | The restrictions on the 'one pill' (fixed dose combination) regime created conflict with patients who wanted the single drug but did not meet the criteria | 'Patients are desperate to get the one drug because definitely it's frustrating for them to take all those three drugs.' (MN, 50 yrs, 19 yrs' experience in PHC, NIMART trained) |

(Continued)

Table 1: (Continued)

| No. | Theme/sub-themes | Description of the theme/sub-theme | Quotations |
|-----|---------------------------------------|---|---|
| 2.7 | Sharing of medication | Some participants mentioned that patients were sharing their medication with a spouse, which meant they could run out of medication before receiving their next supply. This affected their adherence to treatment regimes | 'You start the wife on treatment, they are going to share with the husband and you find that the treatment ends before the return date.' (NC, 39 yrs, 13 yrs' experience in PHC, NIMART trained) |
| 3 | Support visits (Fg and li) | Participants felt supported when the doctor and management visited their clinics, but they also felt frustrated that some of their problems could not be solved | See sub-themes |
| 3.1 | Visiting doctor (Fg and li) | Support from the visiting doctor was helpful to the nurses because they were able to discuss complicated patients with him | 'There are people who take the rounds around the clinics and health centres, they are the ones who support us the most, the visiting doctor.' (TN, 55 yrs, 16 yrs' experience in PHC, NIMART trained) |
| 3.2 | Management support (Fg and li) | Management listened to the participants' challenges, though their problems could not be solved | 'We have them, the assistant managers ... we really communicate with them ... they know we are short staffed, they say there is nothing they can really do...'. (NN, 54 yrs, 16 yrs' experience in PHC, NIMART trained) |
| 4 | Nurses' work satisfaction (Fg and li) | The participants experienced satisfaction in being able to initiate treatment of patients on their own at the clinics. They felt a sense of accomplishment because they were making a difference in patients' lives and improving their quality of life | 'If a person comes, you know she was not able to walk ... and the following month if she comes for check up, you see that person now is walking on his or her own, you become happy ... At least I can save lives.' (JM, 48 yrs, 16 yrs' experience in PHC, NIMART trained) |

Note: Fg = focus-group interviews; li = individual interviews.

barriers to this implementation, namely the lack of resources, such as the shortage of nurses and medication, as well as poor treatment adherence. The other two factors played an enhancing role by enabling nurses to better implement NIMART: nurses' involvement in the early initiation of treatment and the feeling that they were helping their patients gave them work satisfaction; and, support from the visiting doctor empowered nurses to manage difficult patients better.

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Conflicts of interest – None.

Note

- The new fixed dose combination drug ('one pill' regime) consisting of Tenofovir®, Efavirenz® and Emtricitabine® was introduced in phases. During the first phase only pregnant women and newly diagnosed patients qualified for the fixed-dose combination tablet and it was during this period that the study was conducted. All other patients were given the individual pills (three different tablets). Currently all patients may receive the fixed-dose combination tablet.

References

- Uebel KE, Nash J, Avalos A. Caring for the caregivers: models of HIV/AIDS care and treatment provision for health care workers in Southern Africa. *J Infect Dis.* 2007;1(196):S500–4.
- Dohrn J, Nzama B, Murrman M. The impact of HIV scale-up on the role of nurses in South Africa: time for a new approach. *J Acquir Immune Defic Syndr.* 2009;52(Suppl. 1):S27–29.
- Medecins sans Frontieres. Achieving and sustaining universal access to antiretrovirals in rural areas. Eastern Cape: The Primary Health Centre Approach to HIV Services in Lusikisiki; 2006.
- World Health Organization. Task shifting to tackle health worker shortages. Geneva: World Health Organization; 2007. Available from: http://www.who.int/healthsystems/task_shifting_booklet.pdf.
- Nyasulu JC, Muchiri E, Mazwi SL, et al. NIMART rollout to primary healthcare facilities increases access to antiretrovirals in Johannesburg: an interrupted time series analysis. *S Afr Med J.* 2012;103(4):232–6.
- Van Damme W. Scaling-up antiretroviral treatment in Southern African countries with human resource shortage: how will health systems adapt? *Soc Sci Med.* 2008;66(10):2108–21.
- Frenk J. Reinventing primary health care: the need for systems integration. *Lancet.* 2009;374:170–3.
- Georgeu D, Colvin CJ, Lewin S, et al. Implementing nurse initiated and managed antiretroviral treatment (NIMART) in South Africa: a qualitative process evaluation of the STRETCH trial. *Implement Sci.* 2012; 7(66):1–13.
- Assefa Y, Van Damme W, Hermann K. Human resource aspects of antiretroviral treatment delivery models: current practices and recommendations. *Curr Opin HIV AIDS.* 2010;5(1):78–82.
- Colvin CJ, Fairall L, Lewin S, et al. Expanding the access to ART in South Africa: the role of nurse initiated treatment. *S Afr Med J.* 2010;100(4):210–2.
- Mall S, Middelkoop K, Mark D, et al. Changing patterns in HIV/AIDS stigma and uptake of voluntary counselling and testing services: the results of two consecutive community surveys conducted in the Western Cape, South Africa. *AIDS Care.* 2013;25(2):194–201.
- Sanne I, Orrell C, Fox MP, et al. CIPRA-SA Study Team. Nurse versus doctor management of HIV-infected patients receiving antiretroviral therapy (CIPRA-SA): a randomised non-inferiority trial. *Lancet.* 2010;376:33–40.
- Visser CA. Quality of care provided at three NIM-ART facilities in the Greater Tzaneen Municipality area: an action research project. Third global symposium on health systems research. Science and practice of people centred health systems. Cape Town. 30 September – 3 October 2014; 2013.
- Boulle C, Kouanfack C, Laborde-Balen G, et al. Task shifting HIV care in rural district hospitals in Cameroon: evidence of comparable antiretroviral treatment-related outcomes between nurses and physicians in the Stratall ANRS/ESTHER trial. *J Acquir Immune Defic Syndr.* 2012;62(5):569–76.