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REVIEW ARTICLE

Integrated Management of HIV and NCDs within the Primary Health Care in the South African Context: A Comprehensive Literature Review

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Abstract:

Introduction

Low and middle-income countries, including South Africa, are facing a challenge of the dual burden of chronic communicable and non-communicable diseases, which again pose a challenge to the improvement of patients' clinical outcomes in the primary health care facilities. The introduction of innovative intervention to address the dual burden in South Africa created a challenge on nurses working at primary health care facilities to acquire a new set of skills to improve patients' clinical outcomes. HIV programmes have shown great improvement in patients with HIV. However, there is still much to be done to improve NCD management. The aim of this review was to understand the status of integrated management of HIV and NCDs in South Africa and document the strengths and opportunities to sustain the implementation of integrated management of HIV and NCDs in PHC facilities in South Africa.

Methodology:

A comprehensive literature review of integrated management of HIV and NCDs in South Africa was conducted and complemented with a hand search literature in the form of policy documents and guidelines that were obtained from the National Department of Health.

Results:

A total of 17 out of 183 documents were analysed. Various strengths and opportunities, such as availability of approved guidelines and standardised training for nurses, are essential for the sustainability of integrated management of HIV and NCDs in Primary Health care facilities in South Africa.

Conclusion:

The CLR revealed that South Africa has strengths and opportunities which can be used to sustain integrated management of HIV and NCDs at PHC facilities and develop a model to strengthen the implementation of integrated management of HIV and NCDs in other provinces with minimal resources.

Keywords: Integrated management, HIV and NCDs, Comprehensive literature review, Strengths, Opportunities, Primary health care.

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1. INTRODUCTION

World Health Organisation (WHO) defines integrated management of chronic diseases as a practice of using a range of measures to prevent and manage communicable and Non-Communicable Diseases (NCDs) [1]. Integrated management of chronic diseases enables primary health care (PHC) and public health to re-orientate services provided at facilities to focus on improving patient clinical outcomes through using

different approaches available within the health systems [2]. Managing patients using the integrated approach is seen as a feasible and sustainable approach to improve clinical outcomes of patients with chronic communicable and NCDs [3]. Human Immunodeficiency Virus (HIV) and NCDs are considered a dual burden in Low and Middle-Income Countries (LMIC). The prevalence of HIV and NCDs remains high in all age groups globally despite the decline of HIV prevalence. Furthermore, NCDs account for 65% death globally and 58% death in LMIC. The prevalence of HIV has declined by 0.6% from 9.8% in 2002 and 9.2% in 2012, however, there is an increase of risk factors including physical inactivity, smoking

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and alcohol intake associated with NCDs in South Africa [4, 5].

Premature mortality among adults due to HIV and NCDs in South Africa has enormous financial implications in the South African Health Care system. Large amounts of money have been allocated to HIV and NCDs programmes, the development of policies and guidelines, procurement of medication as well as the management of complications emanating from HIV and NCDs [6]. Most countries, both LMIC and high-income countries have reported having policies, guidelines and strategies to address NCDs, however little has been done to complement the efforts of the developed guidelines [1]. Furthermore, strengthening training and mentoring of the health workforce, particularly nurses on the prevention and control of NCDs is of great importance [7].

Primary health care facilities in South Africa are led by nurses, therefore, the level of clinical competence in integrated management of HIV and NCDs at the PHC level determines the type of care provided to patients. The level of the nurse's clinical competence must include the use of mixed skills and the use of standardised protocols and guidelines to improve patient clinical outcomes. Nurses' clinical skills should match the type of care rendered in a PHC facility, therefore nurses should be trained in NIMART for patients with communicable diseases and APC for patients with both communicable and non-communicable diseases [8]. Nurses are also expected to provide care in accordance with their training and have to adhere fully to the available treatment guidelines.

There are a number of factors predicting the level of adherence to treatment guidelines among nurses initiating and managing ART and TB treatment identified in South Africa [9]. The factors include poor or lack of knowledge on treatment guidelines. Furthermore, it was indicated that the level of adherence to treatment guidelines varied at different stages of patient care (Screening, diagnosis and treatment) [9]. All these factors prove that nurses' level of clinical competence is important in improving clinical outcomes of patients with HIV and NCDs.

2. PURPOSE

The purpose of this comprehensive literature review was to identify and evaluate South African policies, guidelines and studies to understand the current status of implementation of integrated management of HIV and NCDs within the PHC in South Africa and document the strengths and opportunities to strengthen the implementation of integrated management of HIV and NCDs amongst nurses in the country. The results of the review may inform policymakers about critical areas of focus when designing and implementing programs to strengthen the integrated management of HIV and NCDs among nurses in PHC to improve patient clinical outcomes.

3. METHODOLOGY

A Comprehensive Literature Review (CLR) refers to synthesizing quantitative findings stemming from quantitative research studies and synthesizing qualitative findings stemming from qualitative research and is to recognise all aspects or topics in policies, guidelines, articles, and journals. In addition,

the literature review provides a starting point for policymakers [10, 11]. For this study, through a comprehensive literature review method, we could identify and evaluate the evidence of both qualitative and quantitative research, including the policies and guidelines. The search was limited to South African Publications, policies, and guidelines to exclude other types of publications such as book chapters, newspaper articles and conference proceedings. The following seven CLR, as outlined by Onwuegbuzie *et al.* [10], were applied to reduce literature-review errors and to produce a clear, structured, and comprehensive overview of the available literature as shown in Fig. (1). In addition, the seven steps are divided into three phases, namely Phase 1 Exploration phase which includes steps 1 to 5, Phase 2 which include step 6 and Phase 3 which include step 7 as indicated in Fig. (1).

3.1. Exploration Phase

Step 1: Exploring Beliefs and Topics

The researchers will use the research questions to select a topic and maintain a critical stance. Integrated, management, HIV, NCDs, NIMART, APC, clinical competences, and nurses, were used as key words. Furthermore, the information was selected based on the integrated management of HIV and NCDs by primary health care nurses.

Step 2: Initiating the Search

A structured search of the literature on integrated management of HIV and NCDs in South Africa was conducted between March and June 2018. This included any document that was peer-reviewed and published between 2010 and 2018. A further search of grey literature in the form of guidelines, policy documents and frameworks online and from the South African National Department of Health (NDoH).

An online database search was conducted using the seven steps of a Comprehensive Literature Review (CLR). The database searched include EBSCOhost, Science Direct, Medline, CINAHL and Google scholar. The topic guiding criteria for the search focussed on the implementation of integrated management of HIV and NCDs. However, due to the paucity of literature on integrated management of HIV and NCDs, the researchers used integrated management of chronic diseases as an alternative. The initial search yielded a total of 183 documents which were assessed for their relevance to the study. In addition, 47 research articles were excluded from the search as they did not contain enough evidence which can be used to assess the implementation of integrated management of HIV and NCDs.

Step 3: Storing and Organising Information

We created a trail of all the searched literature and organised the literature in folders. Folder one contained in all published journal articles, folder 2 contained policies and folder 3 contained guidelines. This allowed the reviewers to have easy access to the searched data. A total of 136 documents were stored for review.

Step 4: Selecting and Deselecting Information

According to Onwuegbuzie *et al.* [10], an audit trail of the searched information was kept for the researcher to select or

deselect information to be included in the report based on the information needed. Only articles that have relevant information on integrated management of HIV and NCDs were selected. For this review, the authors simultaneously used documents and secondary data to get a multidimensional, dynamic and holistic quality information on integrated management of HIV and NCDs among nurses in South Africa. A sampling theory was used to determine the number of articles to be read to obtain information about integrated management of HIV and NCDs and to obtain a high degree of representativeness of articles obtained and read [10]. Furthermore, a hand search of policy documents and guidelines was performed at the South African NDoH. The keywords for the search were ‘integrated management’, ‘HIV’, ‘NCDs’, ‘nurses’, ‘Primary Health Care (PHC)’, and ‘South Africa’. Inclusion criteria were all the documents reported on integrated management of HIV and NCDs in South Africa and written in English. Exclusion criteria were all the documents reported on integrated management outside South Africa and studies that were written in other languages. After consultation with other researchers, a total of nine research articles were legibly selected.

Step 5: Expanding the Search

CLR requires researchers to expand the search using the MODES (Media, Observation, Documents, Experts and Secondary data) search [10]. The criteria guiding the search was followed to get the most relevant information related to the

integrated management of HIV and NCDs among NIMART trained nurses in South Africa. MODES resulted in 5 policies and 2 guidelines which were all included in the study.

3.2. Integration Phase

Step 6: Analysing and Synthesizing Information

For this literature review, a parallel synthesis was used to analyse quantitative and qualitative studies, policies, and guidelines. the following analysis questions were used to analyse and synthesise information, 1) In what ways have the researchers and policymakers addressed the integrated management of HIV and NCDs among nurses in the PHC setting in South Africa? 2) What are the strengths and opportunities that can be used to strengthen the implementation of integrated management HIV and NCDs among NIMART/APC nurses in South Africa? The studies, policies and guidelines which were included were clustered and organized into strengths and opportunities to sustain the implementation of integrated management of HIV and NCDs in South Africa. A narrative and statistical synthesis was included in this report. In South Africa, the implementation of integrated management of HIV and NCDs is mostly informed by policies and guidelines as illustrated in Table 1. Two themes emerged 1) Strengths of the South African Department of Health to implement integrated HIV and NCDs management and 2) Opportunities available to the South African Department of Health to sustain the implementation of integrated HIV and NCDs management as indicated in Table 2.

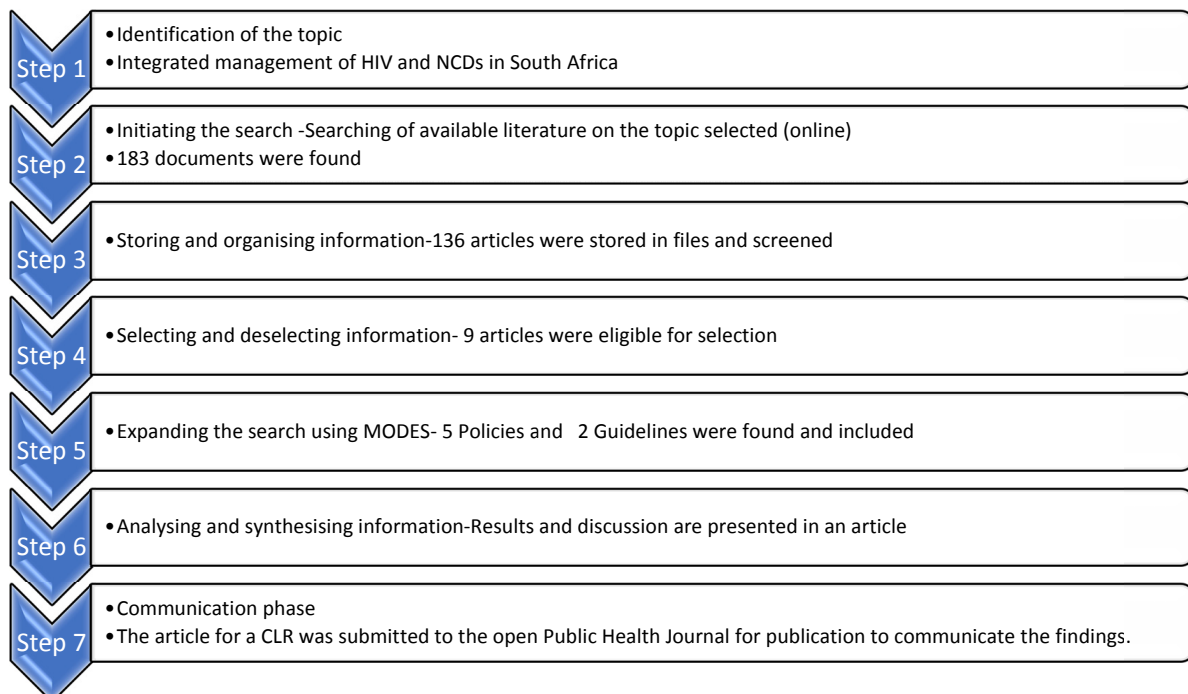


Fig (1). Seven steps to a comprehensive literature review adapted from Onyuebuzie et al 2016.

Table 1. Selected South African documents for analysis

Type of document	Title	Availability of data and material	Year
Article	Educational outreach with an integrated clinical tool for nurse-led non-communicable chronic disease management in primary care in South Africa: a pragmatic cluster randomised controlled trial.	Available in PloS medicine at https://doi.org/article/72a55ff8779945f38edb945909dd1271 [3]	2016
Policy	Integrated chronic disease manual. 2014.	Available at National Department of Health: South Africa at https://www.idealclinic.org.za/ [8]	2014
Policy	Government information system services	Available at Office of the President at https://www.dfa.gov.za/docs/speeches/2009/jzum1202.html [11]	2018
Policy	Strategic Plan for the Prevention and Control of Non-Communicable Diseases 2013-17.	Available at National Department of Health at www.health.gov.za [14]	2014
Article	Nurses' knowledge of chronic disease management. Naidoo <i>et al</i>	Available from: CINAHL at http://dx.doi.org.nwulib.nwu.ac.za/10.4102/hsag.v19i1.809 [17]	2014
Policy	Integrated clinical service management. Department of Health South Africa	Available from Department of Health South Africa at https://www.idealclinic.org.za/ [19]	2017
Guideline	Competencies – Primary Care Nurse Specialist	South African Nursing Council. Available on www.sanc.co.za [22]	2014
Guideline	Primary Adult care- training manual for facility trainers.	Available at National Department of Health at https://www.idealclinic.org.za/ [23]	2017
Article	Professional nurses' perceptions and experiences with the implementation of an integrated chronic care model at primary healthcare clinics in South Africa	Available from: CINAHL with Full Text http://dx.doi.org.nwulib.nwu.ac.za/10.4102/curationis.v40i1.1708 [28]	2017
Article	Multimorbidity in non-communicable diseases in South African primary healthcare: research.	Available from: SA ePublications Service http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S0256-95742015000200024&lng=en&tlng=en [29]	2015
Article	Chronic noncommunicable diseases and HIV-AIDS on a collision course: relevance for health care delivery, particularly in low-resource settings-insights from South Africa	Available from: MEDLINE http://nwulib.nwu.ac.za/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=edsgea&AN=edsgec.274227110&site=eds-live [30]	2011
Policy	District Health Management Information System Policy. 2011	Available on South Africa. National Department of Health. Available at https://www.idealhealthfacility.org.za/ [31]	2011
Article	Improving the quality of nurse clinical documentation for chronic patients at primary care clinics: a multifaceted intervention	Available CINAHL with Full Text http://dx.doi.org.nwulib.nwu.ac.za/10.4102/curationis.v40i1.1708 [32]	2015
Article	Educational Outreach with an Integrated Clinical Tool for Nurse-Led Non-communicable Chronic Disease Management in Primary Care in South Africa: A Pragmatic Cluster Randomised Controlled Trial	Available from: Directory of Open Access Journals https://doi.org/article/72a55ff8779945f38edb945909dd1271 [33]	2016
Article	Integration of non-communicable chronic diseases (NCDs) and HIV/AIDS and mental health care through the involvement of chronically ill patients using empowerment evaluation: research.	Available from: SA ePublications Service http://hdl.handle.net/10520/EJC182817 [27]	2015
Article	Implementing nurse-initiated and managed antiretroviral treatment (NIMART) in South Africa: a qualitative process evaluation of the STRETCH trial	Available in Google scholar at https://doi.org/10.1186/1748-5908-7-66 [26]	2012

Table 2. Strengths and opportunities for sustaining the implementation of integrated management of HIV and NCDs in South Africa (Authors own work)

Strengths for sustaining the implementation of integrated management of HIV and NCDs	Opportunities available to sustain the implementation of integrated management of HIV and NCDs
<ul style="list-style-type: none"> • Availability of Policies guiding the implementation of integrated management of HIV and NCDs <ul style="list-style-type: none"> • Availability of HIV and NCD guidelines • Improved NIMART Clinical competence • Availability of Health information systems for HIV and NCDs 	<ul style="list-style-type: none"> • Leveraging on the existing successful HIV vertical programmes • Support from external stakeholders or donor funded organisation • Continuous research on integrated management of HIV and NCDs <ul style="list-style-type: none"> • Defining NIMART nurses' roles related to implementation of integrated management of NCDs • Involvement of nurses during training

Theme 1: Strengths for implementing integrated management of HIV and NCDs in South Africa

3.3. Availability of Policies Guiding the Implementation of Integrated Management of HIV and NCDs

The South African strategic plan for HIV and NCDs and integrated clinical services management (ICSM) policies outlines the guidelines which the whole country, particularly

the health care systems, must adhere to when implementing the integrated management of HIV and NCDs. The policies outline the processes to be followed when setting up the facilities for integrated management of HIV and NCDs. Furthermore, the policies were developed with the guidance or reference of the WHO chronic diseases management [8, 12]

3.4. Availability of HIV and NCD Guidelines

It was two guidelines amongst others which were strengthening the implementation of integration of HIV and NCDs. One guideline which belongs to the South African Nursing Council was addressing the question of nurses to receive training for any disease intervention introduced whether in-service or before service. The other guidelines were developed by the South African Department of Health experts in HIV and NCDs provided the step by step guidelines on managing HIV and NCDs within a PHC facility [13, 14].

3.5. Improved NIMART Clinical Competence

Researchers measured the clinical competence of NIMART in South Africa through randomised control trials, multifaceted intervention, and qualitative process evaluation. Participants were observed during training on adult primary care, which is the intervention designed for NIMART nurses to enhance their skills in the provision of integrated management of HIV and NCDs. Furthermore, in the studies, nurses showed clinical competence as the patients were having improved clinical outcomes [15 - 17].

3.6. Availability of Health Information Systems for HIV and NCDs

Two policies, one from the office of the President, outlined how health data should be collected and stored. The other one was the district health management information system policy (DHMIS) of South Africa clearly outlines how data on all health performance indicators including indicators for HIV and NCDs should be collected and communicated to all data users for proper planning of the health system of the country. In addition, a need for standardised data collection tools ensures quality and verified data. Furthermore, DHMIS policy provides data collection procedures to ensure efficient quality service delivery through monitoring and evaluation of integrated management of HIV and NCDs [18, 19].

Theme 2: Opportunities to Sustain Integrated Management of HIV and NCDs

3.7. Leveraging on the Existing Successful HIV Vertical Programmes

The study showed insights into how South Africa can be more relevant in the provision of integrated management of HIV and NCDs as the country is facing the collision of the dual burden of diseases. The study wanted to outline how the country can implement the WHO innovative care for chronic condition framework in various provinces where resources are limited [20].

3.8. Support from External Stakeholders or Donor Funded Organisation

All the nine studies indicated the support from external stakeholders or others. Some researches were funded by donor funded organisations and were successfully completed. Another study was conducted in one province where the donor funded organisation procured resources such as guidelines to use during the implementation of integrated management of

HIV and NCDs [2, 15, 16, 21, 21 - 30].

3.9. Continuous Research on Integrated Management of HIV and NCDs

Most studies recommended the use of pilot studies for integrated management of HIV and NCDs as the intervention is still at its early stages. Furthermore, the NIMART nurses are supported through lesson learned from continuous research. Policymakers were urged to look into other studies to further inform the refinement of policies.

3.10. Defining NIMART Nurses' Roles Related to Implementation of Integrated Management of NCDs

A cross-sectional descriptive survey utilising a self-administered questionnaire was conducted amongst all professional nurses who were involved in delivering primary healthcare services. The study indicated that the integrated chronic care model had improved the level of knowledge and scope of practice.

3.11. Involvement of Nurses During Training

Two studies [2, 12] by similar authors and one policy [13] have pointed out that involving nurses including NIMART nurses in their own training assist in making sure they continuously practice the skills required for the implementation of integrated management of HIV and NCDs.

Communication Phase

Step 7: Presenting a CLR Report

This is the final stage of the CLR, where the ideas from original authors are communicated in a funnel shaped approach, starting with the least related information about integrated management of HIV and NCDs first, followed by the most related references discussed last [10]. Sixteen documents met the inclusion criteria as indicated in Table 1.

4. DISCUSSION

This CLR revealed that South African PHC facilities through its trained workforce can successfully implement the integrated management of HIV and NCDs. Nurse-initiated Management of antiretroviral therapy (NIMART) was implemented to improve access to antiretroviral treatment of patients attending PHC facilities in South Africa, which reduced the mortality of patients with HIV in rural settings. Besides, most South African PHC facilities are a nurse-led facility [17, 22]. The changing of PC 101 into Adult Primary Care (APC) in 2014 gained prominence in the country as nurses working at PHC level began to integrate the management of patients with multi-morbidity, also nurses' knowledge on providing HIV and NCDs services was found to be improving [3]. The implementation of APC by nurses created awareness on the need and importance of providing holistic care to all patients who attend nurse-led PHC facilities through screening, diagnosis, treatment and follow up care of patients with HIV and NCDs.

Implementation of integrated management of HIV and NCDs is important to better clinical outcomes of patients faced with dual burden of diseases. The CLR was conducted to

determine aspects to sustain the implementation of integrated management of HIV and NCDs within the PHC context. Various literature databases including grey literature were searched, resulting in nine studies, five policies and two guidelines after three phases of CLR. Results suggest that there are strengths and opportunities to sustain the implementation of integrated management of HIV and NCDs. Three out of five policy documents showed that there is solid guidance and standing framework for the implementation of integrated management of HIV and NCDs and two policies showed the availability of guiding principles in relation to health information collection and storage. Furthermore, two guidelines revealed how NIMART nurses can utilise the step by step guideline to manage patients with dual conditions (HIV and NCDs), respectively, without challenges. Some (3/9) studies have reported that nurses having shown improved clinical competence to implement integrated management of HIV and NCDs. Almost all studies have shown the opportunities for the country to leverage on which include support from external stakeholders, continuous research and defining NIMART roles in the implementation of integrated management of HIV and NCDs.

According to the NDoH ideal clinic, most policies and guidelines have been included in the implementation of ideal clinic model which include facility reorganisation, clinical supportive management, assisted self-supportive management and strengthening of support structures outside the facility level. Several pilots conducted across South Africa have yielded positive results. As in other African countries (Malawi and Kenya), implementation of integrated management of HIV and NCDs demonstrated a change in nurses' knowledge and improved clinical patients' outcomes [31 - 34]. Majority of the initiatives have shown milestones or progress at an early stage, despite the gaps in drug supply and management support. Monitoring, evaluation and programme design, task shifting and health strengthening systems in the implementation of integrated management of HIV and NCDs, are also perceived as a major drive to successful integrated management of HIV and NCDs [35, 36].

The existence of strategic plans for HIV and NCDs in South Africa is identified as a strength. There are national guidelines for the implementation of integrated management of HIV and NCDs. This was an ultimate strength to roll out the implementation of integrated management of HIV and NCDs among nurses at a PHC level. The NDoH provided an oversight function through working closely with the external stakeholders such as universities and donor-funded organisations to develop the guidelines for integrated management of HIV and NCDs. The clear outline of nurses' clinical competence by the South African Nursing Council (SANC), availability of algorithmic approach for screening, diagnosis and treatment of patients with HIV and NCDs in the APC guidelines improves patient clinical outcomes, provided there is ample training for nurses in South Africa [14]. Despite the strengths identified, there are still gaps which may impact negatively to the implementation of integrated management of HIV and NCDs such improper cascade of new programmes to nurse at the PHC level. Similar to other countries, South Africa has implemented different strategies to address the dual burden

of HIV and NCDs. However, staff retention and training programmes for nurses are a challenge to the successful implementation of strategies to address the dual burden of HIV and NCDs [36 - 38].

5. ASSESSMENT OF OUTCOMES

Integrated management of chronic (HIV and NCDs) diseases is one of the major interventions with which many countries are utilizing to curb the collision of HIV and NCDs and should be implemented and sustained, particularly in countries which are having nurse-led facilities and within PHC through APC and NIMART trained nurses. APC is a new dawn which requires nurses to have a new set of skills to address HIV and NCDs equally. Integrated management of HIV and NCDs at the PHC level improves patient clinical outcomes through the use of approved treatment guidelines. Strengthening the clinical competence of nurses provide PHC nurses with the confidence to continue with the care of patients with multi-morbidity. It is also significant for learning and research to provide evidence-based best practices to implement integrated management of HIV and NCDs. Policies and guidelines for integrated management of HIV and NCDs should be made available to all NIMART nurses at PHC level. Policies and guidelines are there to guide the whole country in the implementation of integrated management of HIV and NCDs, however, the studies conducted in South Africa showed none or little evidence on how Limpopo Province in implementing the integrated management of HIV and NCDs without the support of donor funded organisations.

CONCLUSION

This CRL shows that South Africa is legible to sustain the implementation of integrated management of HIV and NCDs to improve the patient's clinical outcomes within the PHC facilities. Many strengths and opportunities have been identified. Guidelines and policies, support and mentorship of nurses are fundamental in maintaining the integrated management of HIV and NCDs. Moreover, leveraging on successful HIV programs and collaborating with academic institutions are essential opportunities which South Africa can count on. It is clear that the NDoH has taken the initiative to improve patient clinical outcomes by using nurses available in the country. Despite the successful implementation, this CLR suggests that there are studies which were conducted in South Africa; however, Limpopo Province was not included all the studies. Future research on full integration of NIMART into APC in South Africa particularly Limpopo Province where there is no support of donor funded organisation is required.

LIMITATIONS

The researchers only reviewed the secondary data from the South African National Department and only English written documents were included in the study.

LIST OF ABBREVIATIONS

APC	= Adult Primary Care
ART	= Antiretroviral therapy
CLR	= Comprehensive literature review

DoH	= Department of Health
DHMIS	= District Health Management Information System
HIV	= Human immunodeficiency virus
ICDM	= Integrated chronic disease management
LMIC	= Low middle-income countries
NCDs	= Non-communicable diseases
NDoH	= National Department of Health
NIMART	= Nurse-initiated Management of Antiretroviral Therapy
PC101	= Primary Care 101
PHC	= Primary Health Care
SANC	= South African Nursing Council
WHO	= World Health Organisation

CONSENT FOR PUBLICATION

Not applicable

CONFLICT OF INTEREST

The authors declare that they have no competing interest, financial or otherwise.

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