Integrated Management of HIV and NCDs in Vhembe District, Limpopo Province: A SWOT Analysis for Primary Health Care Facilities

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Abstract

Introduction: integrated management of Human Immunodeficiency virus and Non-communicable diseases is essential to improve clinical outcomes of patients living with HIV. there is poor implementation of integrated management of HIV and NCDs in Primary health care facilities in most of the African countries. The study aimed to conduct the strengths, weaknesses, opportunities and threats (SWOT) analysis of the Vhembe district to determine the implementation of integrated management of HIV and NCDs among NIMART nurses in Limpopo Province, South Africa.

Material and Methods: A descriptive quantitative study was employed using a checklist and SWOT framework. We used 25 PHC facilities to collect facility data, NIMART nurses' data and patients' data to complete the four checklists. The collected data was analysed using SPSS version 26. the analysed data was further analysed and segregated into the SWOT framework.

Results: From the total of 25 PHC facilities we found that 147(100%) were NIMART trained, 109(74.1%) were not trained on Adult primary care guidelines. All 100% of facilities did not have the updated adult primary care guideline 2016/17. In all 25(100%) despite the evidence of implementation of integrated management of HIV and NCDs, patients were not screened for diabetes as per the guidelines.

Conclusion: The SWOT analysis allowed the researchers to identify the areas which can be sustained, strengthened and addressed for successful implementation of integration of HIV and NCDs to improve patient clinical outcomes in PHC facilities. The results of the study may be applied to any context and may be used by decision-makers, managers, professionals and other relevant stakeholders to develop more policies or frameworks on the integrated management of HIV and NCDs.

Keywords: NIMART nurses, integrated management, HIV, Non-communicable diseases, SWOT analysis

Introduction

The World Health Organisation (WHO) states that 75 million people are living with HIV globally and 71% of deaths worldwide are due to non-communicable diseases (NCDs). Globally there is an enormous number of premature deaths due to HIV and NCDs. Low- and middle-income countries are mostly affected by the dual burden of diseases. An estimated 26.6 million people is living with HIV in sub-Saharan Africa, which is nearly 73% of the global total. Furthermore, sub-Saharan African countries remain the most affected including South Africa [1,2]. It has been estimated by WHO that in the next decade, the global dual burden will increase by more than 15%, and in African countries by more than 25% [1,2]. Sub-Saharan Africa is faced with a high number of people living with HIV and NCDs with limited human and diagnostic resources. South Africa is amongst the most affected countries and has more than 7 million living with HIV and AIDS. Furthermore, the country has the largest Antiretroviral therapy/treatment (ART) programme [3,4]. According to the UNAIDS 2019 report [4], HIV and AIDS prevalence for adults aged between 15 to 49 is 20% in South Africa (UNAIDS). At least more than 60% of people living with HIV (PLWH) in South Africa are on ART. Since the roll-out of ART in 2004, adult life expectancy increased by 15.2 years for men (95% CI 12.4–17.8) and 17.2 years for women(95% CI 14.5–20.2) [5]. In addition to the phased implementation of the ideal clinic, WHO through UNAIDS they introduced the attainment of 90-90-90 antiretroviral therapy and viral load suppression by 2020 in South Africa [6]. According to the National Department of Health (NDoH) and CDC, South Africa has made progress concerning the 90-90-90 ART targets, of the estimated 7.9 million people the survey estimates,

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85% of people living with HIV aged 15 to 64-year-olds have tested for HIV and know their status, 71% of this group are on antiretroviral treatment (ART), and 86% of the group on ART are virally suppressed [4,7] HIV infected patients are now living longer on ART, however many of the patients are now developing NCDs due to various reasons related to risk factors such as age, heredity, side effects of medication or due to the progressing of the HIV disease itself [1,8]

South Africa is no exception to the rising prevalence of NCDs. Diabetes prevalence is increasing rapidly in South Africa as a whole. With a few exceptions, this is also true at the local level, although the pace of growth showed significant variation across districts. In South Africa, there is little data on NCDs. furthermore, there is an increase in the number of undiagnosed cases of diabetes and hypertension [9- 11].

At present, the Adult Primary Care (APC) guidelines which guide the implementation of integrated management of HIV and NCDs has been put in place for professional nurses working at primary health care facilities in South Africa. The APC guidelines further supplement the HIV guidelines which solely focus on the management of HIV. The APC guidelines allow NIMART nurses to diagnose NCDs effectively in a PHC setting for better clinical patient outcomes. It has been noted in the previous years that focus only on managing the NCDs clients who have been down referred from hospital limits the nurses' ability to diagnose the NCDs at PHC level [12-14].

Identification of comorbidities' of NCDs among HIV infected patients is a critical component of the clinical competency of the nurses in primary health care, in addition, it calls for a more coordinated patient-centred approach to disease management as stipulated in the ideal clinic module in South Africa [15]. The South African health system has prepared districts to implement integrated management of HIV and NCDs and as such the NIMART nurses must accept this game-changing approach to successfully implement the policy. However, there is poor implementation of integrated management of HIV and NCDs in some rural districts where there is no support from donor-funded organisations.

Materials and methods

Aim

The study aimed to conduct the strengths, weaknesses, opportunities and threats (SWOT) analysis of the Vhembe district to determine the implementation of integrated management of HIV and NCDs among NIMART nurses.

Study design and setting

We used a cross-sectional study in the 25 Vhembe district PHC facilities, Limpopo, South Africa. data was collected between June and July 2020. The study consisted of 25 PHC facilities. The study was approved by the NWU Health Research Ethics Committee (NWU-00957-19-S1). Ethical issues Written informed consent, privacy and confidentiality were maintained in the study. facilities were assigned with code to maintain anonymity during reporting. Permission to conduct the study was obtained from the Limpopo Province Department of Health and Vhembe district facility managers.

Data collection instrument and process

We used four checklists which were adapted from the South African Department of Health Ideal clinic package to collect facility demographic data, NIMART nurses' data, Availability of medication and equipment data and integrated management of HIV and NCDs data.

An online google checklist adapted from the ICSM monitoring tool was used in the study. A SWOT analysis relating to HIV and NCDs integration, enabling environment and general issues were used as a data abstraction tool. The checklist is comprised of four tools. Checklist tool 1 comprised of facility information, checklist tool 2 comprised of professional nurses' training, checklist tool 3 covered availability of medication and equipment and lastly checklist tool 4 comprised of integrated management of HIV and NCDs through reviewing medical records. The checklist required the researcher to observe the facility as a whole and fill in the required statistics which is readily available in the selected facilities. The researchers used a tick - Yes or No to the relevant statement or question in each checklist. A not applicable option was not required in the checklists as the indicators included in the checklists were all a requirement for proper implementation of integrated HIV and NCDs services. The checklists required the researchers to complete through observations and reviewing patients' files. For facility data, the researchers used the facility skills audit and facility monthly collected data, for the availability of data, the researchers observed the facility pharmacy and the patients' consultation rooms for equipment's and guidelines, lastly the patients' files were reviewed for integrated management of HIV and NCDs. Data were entered directly into google forms, converted into an excel spreadsheet and cleaned before analysis.

We used a SWOT framework as shown in Table 1. The SWOT analysis was conducted to give an overview of the current implementation of integrated management of

HIV and NCDs. The SWOT analysis assists in determining the positive effects on implementation, negative effects, external conditions which are outside the control of the programme and internal effects which falls within the programme [16].

Data analysis

Data were captured using the statistical packages for Social Sciences (SPSS) version 26 and to run the statistical analysis. The four data sets namely facility demographic data, NIMART nurses' data, availability of medication and equipment and integrated management was analysed separately to get the frequency and to write descriptive results.

Results

Facility and NIMART Nurses Demographic Information

Table 1 indicates that out of 147 NIMART nurses, 108(73.5%) of the NIMART nurses were placed in PHC and 39(26.5%) were working in CHCs. The majority (90.5%) of the NIMART nurses were females and a few (9.5%) were males. Almost all NIMART nurses (99.3%) were African and 1(0.7%) was White.

Most of the nurses (64.6%) were placed in 8 hour operating facilities and 35.4% were placed in a 12-hour operating facility. In relation to the NIMART nurses ages, the study revealed that the majority (46.3%) were aged 40–49 years, followed by age 30-39 years (27.9%), then 50-59 years were 21.1%, 20-29 years were 4.1% and above 60 were only 0,7%. Furthermore, the study revealed that 111(75.5%) were having a four years' diploma or degree, 23(15.6%) were having a bridging course, 12(8.7%) were having honours in Nursing and only 1(0.7%) had a Masters in Nursing.

Out of 147 NIMART trained nurses, only 57(38.8%) were trained on PHC while 90(61.2%) were not trained in PHC. The majority (74.1%, n=109) of the NIMART nurses were not trained on PC101/APC, only 57(25.9%) were trained on PC101/APC. For PALSA or PALSA Plus, 42(28.6%) were trained whereas 105(71.4%) were not trained.

The NIMART nurses number of years of training were grouped into categories, out of 147 NIMART nurses, 54(36.7%) were trained 1 to 3 years at the time of the study, 63(42,9%) were trained 4 to 6 years at the time of the study, while 30(20.4%) were trained 7 to 9 years back at the time of the study. For APC training, the study revealed that 57% were trained on APC, therefore 109(74.1%) were having 0 years of training, 16(10.9%) were having 2 years of APC training, 6(4.1%) were having 1 year of training, 9(6.1%) were having 3 years of training, 6(4.1%) were having 4 years of training and 1(0.7%) was having 5 years of training.

For the number of years working in a PHC or CHC, 9(6.1%) indicated to have worked in the facility for less than 5 years, 26(17.7%) indicated they had worked for 5 to 10 years, majority 85(57.8%) indicated that they have worked in PHC/CHC for 11 to 20 years and lastly 27(18.4%) indicated they have worked in PHC/CHC for 21 to 30 years.

Integrated management of HIV and NCDs stationery for PHC facilities

Figure 1 indicates shows the descriptive analysis availability of stationery in 25 facilities where the study was conducted. Of all the 25 facilities, none of the facilities had all the required stationery. Zero facilities had APC guidelines 2016/17. About 40% of the facilities had consolidated 2015 consolidated ART guidelines, while 60% of the facilities did not have. Seventy-two per cent of the facilities had a PHC Laboratory handbook and 28% of the facilities did not have. The results further revealed that 68% of facilities had Clinical stationery while 32% of facilities were not having clinical stationery. In addition to the findings, 100 % of the facilities had new Adult clinical records. Furthermore, the results show that 16% of facilities had general appointments cards and 24% had ART appointment cards. In relation to the PHC tick register, 64% had tick registers and 100% of the facilities have general referring cards.

Availability of medication and equipment in PHC facilities

The findings of this study showed that all 25(100%) PHC facilities had the following HIV medications Efavirenz 600mg tabs, Lopinavir/ritonavir tabs, fixed-dose combination of Tenofovir/Emtricitabine/Efavirenz 300/200/600 mg tabs while 84% of the facilities had Zidovudine 300mg tabs. For Hypertension medication 100% of the facilities had amlodipine 5mg tabs and Enalapril 5mg tabs. Whereas 13(52%) had Hydrochlorothiazide 12.5 mg and 12(48%) did not have. Eighteen facilities (72%) had Hydrochlorothiazide 25mg tabs. The findings also revealed that all 25(100%) had Metformin 850mg, 21(84%) facilities had Glibenclamide 5mg with only 4(16%) of facilities that did not have. For metformin 500 mg, 7(20%) facilities had and 18(72%) did not have.

For diagnostic equipment, all facilities (100%) were having a blood pressure machine, a glucometer and HIV testing kits. However, only 2(8%) facilities had urine dipsticks or tests with 23(92%) facilities not having urine dipsticks. All facilities had specimen bottles especially

Table 1: Facility and NIMART nurses' Demographic information

		Frequency	Percent
Type of Facility	PHC	108	73.5
	CHC	39	26.5
Municipality Name	Collins Chabane	54	36.7
	Thulamela	47	32
	Makhado	46	31.3
Hours of Operation	8 hours	95	64.6
	24 hours	52	35.4
Area	Rural	147	100
Age	20-29 years	6	4.1
	30-39 years	41	27.9
	40-49 years	68	46.3
	50-59 years	31	21.1
	60-69 years	1	0.7
Gender	Male	14	9.5
	Female	133	90.5
Race	African	146	99.3
	White	1	0.7
Qualifications	Bridging Course	23	15.6
	4years Diploma/Degree	111	75.5
	Honours in Nursing	12	8.2
	Masters in Nursing	1	0.7
Number of Years Trained on NIMART	1	9	6.1
	2	12	8.2
	3	33	22.4
	4	17	11.6
	5	22	15
	6	24	16.3
	7	11	7.5
	8	10	6.8
	9	9	6.1
Number of Years working in a PHC/CHC facility	< 5 years	9	6.1
	5-10 years	26	17.7
	11-20 years	85	57.8
	21-30 years	27	18.4
PHC trained	Yes	57	38.8
	No	90	61.2
NIMART Trained	Yes	147	100
PC 101/APC trained	Yes	38	25.9
	No	109	74.1
Number of years trained on APC	Less than 1 year	109	74.1
	1	6	4.1
	2	16	10.9
	3	9	6.1
	4	6	4.1
	5	1	0.7
PALSA or PALSA PLUS trained	Yes	42	28.6
	No	105	71.4
	Total	147	100

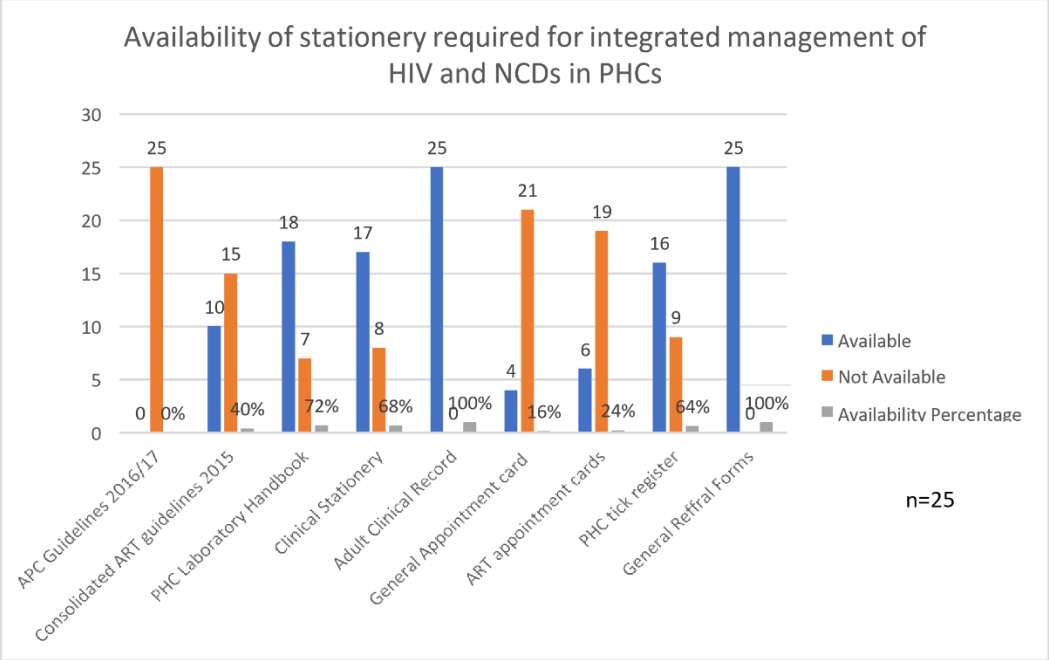

Figure 1: Integrated management of HIV and NCDs stationery for PHC facilities

Table 2: Availability of medication and equipment in PHC facilities

Medication or Equipment	Available	% Available	Not Available	% Not available
Efivarenz 600mg tabs	25	100%	0	0%
Nevirapine 200mg tabs	21	84%	4	16%
Lopinavir/Ritonavir 200/50 mg tabs	25	100%	0	0%
Tenofovir/Emitricitabine/Efivarenz 300/200/600 mg tabs	25	100%	0	0%
Zidovudine 300mg tabs	25	100%	0	0%
Hypertension Medication_Enalapril 5mg tabs	25	100%	0	0%
Amilodipine 5 mg tabs	25	100%	0	0%
Hydrochlorothiazide 12.5 mg tabs	13	52%	12	48%
Hydrochlothiazide 25 mg tabs	18	72%	7	28%
Diabetes Medication_Glibenclimide 5 mg tabs	21	84%	4	16%
Metformin 500mg tabs	7	28%	18	72%
Metformin 850 mg tabs	25	100%	0	0%
Gliaclizide 5mg tabs	0	0%	25	100%
Blood glucometer	25	100%	0	0%
Blood pressure machine	25	100%	0	0%
Urine Disticks	2	8%	23	92%
Rapid HIV Test kits (screening and confirmation)	25	100%	0	0%
Vacutainer tubes_ Red top	21	84%	4	16%
Yellow top	25	100%	0	0%
Grey top	5	20%	20	80%
White top/Purple top	25	100%	0	0%

the white, purple and yellow top, 21(84%) facilities had the red top specimen bottles and only 5(20%) facilities had the grey top specimen bottles, while 20(80%) facilities did not have.

Integrated management of HIV and NCDs in PHC facilities

The findings revealed how patients were managed to meet the Integrated management. We reviewed 612 about 24 patients' files in each facility as shown in Figure 2.

Out of 612 files reviewed, 499(81.5%) had a chronic condition indicated, and 113(18.5%) were not indicated. Five hundred and thirty-six (78.6%) patients were clinically staged according to WHO HIV staging while 76(12.4%) were not clinically staged. The majority of the patients 534(87.3%) were screened for IPT, while 78(12.7%) were not screened for IPT. For baseline CD4 blood, only 47(7.7%) patients were collected baseline CD4 blood, with 565(92.3%) not collected. Seventeen (2.8%) patients were collected 6 months VL blood while 595(97.2%) were not collected. Furthermore, all 612(100%) of the patients were screened for cotrimoxazole and were collected blood for 12 months Viral Load and creatinine. All 612(100%) had the clinical factors influencing ART regiment assessed.

For NCDs related management, BMI at first visit was only assessed on 19(3.1%) patients while 593(96.6%) BMI was not assessed. Furthermore, the findings revealed that only 12(2%) patients had their BMI assessed yearly while on ART medication with 600(98%) patients BMI was not assessed yearly. For blood pressure, more than half 376(60.6%) had their blood pressure measured with 241(39.4%) with no blood pressure measured at the first visit. However, for a subsequent visit, the majority of the patient 564(92.2%) had their BP measured with only 48(7.8%) patients with no subsequent BP measures. Only 205(33.5%) had their urine test done at the first visit while 407(66.5%) patients were not done urinalysis. For blood glucose, all 612(100%) were not checked their glucose levels at the first visit, nor a yearly visit.

The majority of the patients 601(98.2%) were generally examined, with a few patients 11(1.8%) who were not generally examined. The patient management plan was not indicated in most of the patient files 348(56.9%) whereas in 264(43.1%) patient files the patient management plan was indicated. The findings further revealed that recording of patient blood results was correctly recorded in 49(8%) patient files and 563(92%) patient files blood results were not recorded correctly. In addition to the results, it was found that in most of the patients' files 360(58.8%) health education was given and recorded whilst in 252(41.2%) health education was not given or recorded.

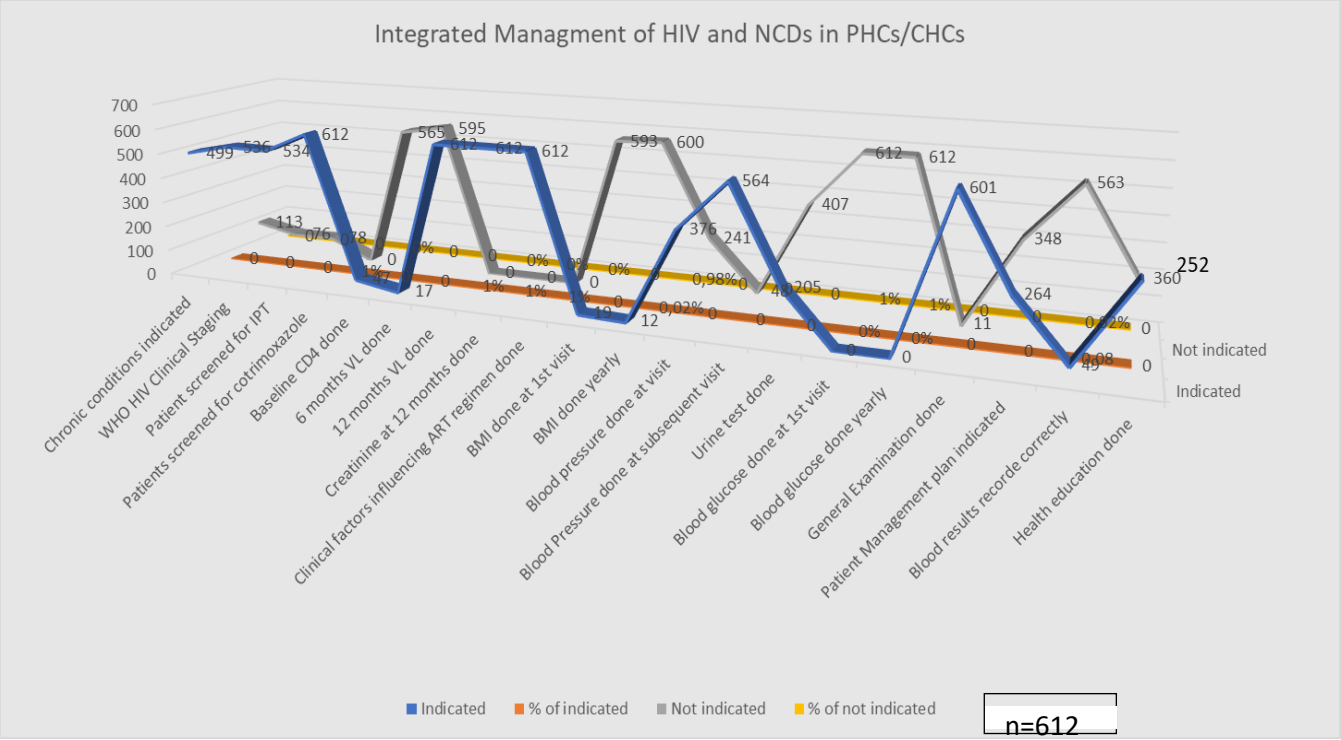

Figure 2: Integrated management of HIV and NCDs in PHC facilities

Table 3: Summative SWOT analysis based on the SPSS findings

STRENGTHS	WEAKNESSES
Demographic • Flexible facility operating hours • The majority of NIMART nurses are Africans • The majority of nurses are comprehensively trained- 4 years diploma/degree • Experience of working in PHC/CHC facilities • Set of required skills for integrated management of HIV and NCDs **Required stationery** • Availability of adult clinical records • Availability of referral forms • Tick register • PHC lab handbook • Clinical stationery **Medication and equipment** • HIV Medication available in all facilities • Blood pressure machine, glucometer meter and HIV test kits in all facilities • Some facilities having hypertensive medication • Some facilities having diabetes medication • Availability of specimen bottles **Integrated management** • The general examination is done on almost all patients • Adherence to HIV clinical guidelines (screening for IPT and WHO staging) • Chronic condition indicated	• Few NIMART nurses trained on APC • A low number of nurses who are attending to their professional development • A low number of NIMART nurses trained on PHC • A low number of NIMART nurses trained on Palsa plus **Stationery** • All facilities using an older version of APC guidelines • No appointments cards in facilities • All facilities not having the required stationery **Integrated management** • No blood glucose was done to all the patients • Few urine tests done • Health education is not provided to all patients • Blood results not correctly **Medication and equipment** • No specimen bottle meant for blood glucose measuring
OPPORTUNITIES	**THREATS**
• Utilising the trained NIMART nurses to in-service others in facilities • NIMART nurses who are pursuing continuous professional development to be recognised to motivate learning in other NIMART nurses • Adherence to APC guidelines • The consistent supply chain of medication	• Incorrect recording of patients data leading to continuous mismanagement of patients with HIV and NCDs. • Unskilled NIMART nurses contributing to poor patient clinical outcomes • Non-provision of updated guidelines affecting the delivery of patients care • High mortality rates due to missed chances of diagnosing NCDs amongst HIV patients. • Lack of motivation by nurses to function at their best ability due to shortage of guidelines, medication and equipment

Discussion

The discussion is in line with Table 2.

In this study, several strengths have been identified. The PHC facilities are operating on flexible hours which indicates that NIMART nurses can treat the patients at a required pace without rushing or chasing knock off time. Furthermore, the NIMART nurses serving the patients at the PHC level are mostly Africans which is an advantage for proper health education provision. The majority of the NIMART nurses have been working in PHC facilities which add to the expertise of implementing the set guidelines. In addition, the mixture of skills amongst NIMART nurses makes it possible for successful program implementation. this is confirmed in another study which reported that programs should be flexible enough for implementing activities including capacity building and development of human resources focusing on patients and professionals[16]. In our study, it was found that facilities had most of the required clinical stationary, policies and guidelines which gives NIMART nurses a clear pathway to follow when implementing integrated management of HIV

and NCDs. This finding concurs with a study by Van dume et al [17] where it is indicated that clinical information systems must allow patients information to be shared to improve clinical outcomes and support clinical decision making.

The study also outlines the weaknesses where it was found that few NIMART nurses were trained on the required skills for integrated management of HIV and NCDs. Furthermore, the use of the older version of the APC guidelines, different patient clinical stationery and lack of appointments cards may impact patient outcomes. The latter may inform the poor integration of HIV and NCDs management by NIMART nurses where it was found that no patient was screened for diabetes as per the requirements of the guidelines including correctly recording of blood results. This was further shown by lack of grey top specimen bottle as the grey top specimen is indicated for glucose including lack of urine tests in facilities. NIMART nurses should be empowered to provide comprehensive care to patients living with HIV and NCDs [17]. Lack of resources, lack of nurses training, non-adherence to clinical guidelines and outdated clinical guidelines have been found in most countries as barriers to improved patient outcomes, furthermore, there is limited data in many countries on integrated management of HIV and NCDs [18-21].

The opportunities identified in this study can address the weaknesses identified. In-service training of NIMART nurses on the newly introduced guidelines such as APC guidelines can be achieved in a cost-effective manner where facility NIMART can be trained by their peers. Facility training empowers NIMART by using experiential and interactive learning practices to draw on existing clinical knowledge and experience [22]. Furthermore, NIMART nurses can be empowered by their managers to continuously develop themselves to keep abreast with the recent developments in patients care. Incentives to motivate nurses is also seen as an opportunity to strengthen the NIMART nurses adherence to recent guidelines. A study by Kinsella et al [23] and Dill et al [24] showed that nurses are motivated by both extrinsic and intrinsic motivators to best perform their duties, however, the outcomes of patients are impacted differently. Adhering to clinical guidelines by nurses has proven to be the best weapon for NIMART nurses to deliver quality patient care. The supply of the medication should not be interrupted in facilities as HIV and NCDs are dependent on medication to be controlled particularly in PHC facilities[25,26]

Threats are identified as having negative to program implementation, furthermore, threats are conditions that are outside the direct control of the program, in this study the threats which were identified can be addressed as they are within the direct control of the program [16]. From the study, it was found that Incorrect recording of patients data leading to continuously mismanagement of patients with HIV and NCDs. Unskilled NIMART nurses contributing to poor patient clinical outcomes, non-provision of updated guidelines affecting the delivery of patient care, high mortality rates due to missed chances of diagnosing NCDs amongst HIV patients and lack of motivation by nurses to function at their best ability due to shortage of guidelines, medication and equipment were identified as threats and will need to be addressed in order to improve and strengthen the implementation of the facilities.

Conclusion

The SWOT analysis allowed the researchers to identify the areas which can be sustained, strengthened and addressed for successful implementation of integration of HIV and NCDs to improve patient clinical outcomes in PHC facilities. The results of the study may be applied to any context and may be used by decision-makers, managers, professionals and other relevant stakeholders to develop more policies or frameworks on the integrated management of HIV and NCDs.

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Conflict of interest

The authors declare no conflict of interest concerning the research, authorship, and/or publication of this article.

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