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RESEARCH ARTICLE

Experiences of Professional Nurses Regarding the Implementation of a Central Chronic Medicine Dispensing and Distribution Program at Primary Health Care Facilities in South Africa.

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Abstract:

Background:

The Central Chronic Medicine Dispensing and Distribution (CCMDD) program is a new program initiated by the Department of Health, South Africa to provide an alternative chronic medicine access program to public sector patients. The program is designed to improve access to required medicine, especially to patients who are on chronic medicines while assisting with the decongestion of public clinics.

Purpose:

The purpose of the study was to determine the experiences of professional nurses regarding the implementation of the Central Chronic Medicine Dispensing and Distribution program.

Methods:

A qualitative descriptive, phenomenological and exploratory design research was conducted to determine the experiences of professional nurses regarding the implementation of the central chronic medicine dispensing and distribution program. Purposive sampling was used to select 15 professional nurses who participated in the study. Data were collected through a semi-structured one-on-one interview method, using a scheduled interview guide. The study was conducted in three Primary Health Care (PHC) facilities in Vhembe District, Limpopo Province, where professional nurses dispensed medicine to patients through the CCMDD programme. Data were analysed using Tesch's method. Lincoln and Guba's four strategies were applied to ensure trustworthiness.

Results:

The findings of this study reveals that proffessional nurses in Vhembe experienced challenges with the implementation of the CCMDD program; such as late delivery of medication, lack of parcel tracking, patients receiving collection notification messages late, incorrect medication being issued to the patients, lack of pick up points in rural areas, and lack of patients' data availability in the clinic facilities.

Conclusion:

South Africa is in the process of developing and implementing universal health care for all (National Health Insurance). The effective implementation of the CCMDD program should ensure equal access for all patients to their medication, in both rural and urban areas.

Keywords: Experiences, Professional nurse, Implementation, Central Chronic Medicine Dispensing Distribution program, Epidemiological profile, Sub-Saharan African countries.

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1. INTRODUCTION

The South African health system is recognised and known for poor service delivery, especially in Primary Health Care (PHC) facilities. However, the burden of infectious diseases such as tuberculosis and HIV/AIDS were reported to be high in African countries compared to the rest of the world. As a result, the United States Centres for Disease Control and

Prevention (CDC) and the United States President's Emergency Plan for Aids Relief (PEPFAR) offered a grant for the Central Chronic Medicine Dispensing and Distribution program (CCMDD) as a sub-project of the Health Systems Trust (HST) [1]. The global CCMDD program was funded to fight Acquired Immune Deficiency Syndrome (AIDS), tuberculosis, and malaria. It also covers the cost for the payment of dispensing and distribution of patient's medicines, payment for establishing a pick-up point, as well as the procurement of some antiretroviral drugs used in the CCMDD [1, 2]. The program was implemented with the expectation that compliant and stable chronic patients in the public sector will no longer have to travel long distances or wait long hours for their medication [3].

In most Sub-Saharan African countries, the government is responsible for the procurement and distribution of health products and management of the central medical stores [4]. Most countries implemented a pull system for antiretroviral distribution, called last-mile delivery, which refers to a distribution system whereby commodities are delivered in an organised and systematic way to service delivery points, where the commodities reach the end-user [5].

Over the decades, the South African health care system experienced exceptional demand access to long term treatments [1]. These were prompted by the change in SA's epidemiological profile, which placed enormous strain on available resources in the public health sectors, including the primary health care facilities, which provide continuous and comprehensive care to the community [1, 6]. The burden has contributed to medicine shortages and declining quality care. For that reason, SA introduced universal access to antiretroviral therapy for patients living with Human Immune Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS). The program was extended to also cover the stable patients with Non-Communicable Diseases (NCDs) requiring chronic therapy [7]. Lately, in SA, there has been significant progress in improving the public health system by introducing and prioritising several initiatives to achieve these successes [1].

Access to essential medicines is an essential part of the universal coverage and a key element for the delivery of high-quality service [8 - 10]. In SA, primary health care services are provided for free, including treatment. At the primary health care level, some notable challenges hinder access to treatment. This is an increasing burden of diseases aggravated by the shortage of professional careers in public facilities [8, 9]. In order to improve access to much-needed medicine, especially for stable patients who are on chronic medication, thus further decongesting these public clinics, the Department of Health implemented the CCMDD program. The program aimed at optimising the workload for public health facilities and health workers through the use of external Pick-up Points (PuPs) [10, 11].

The CCMDD program commenced in February 2014 and has been implemented in ten National Health Insurance (NHI) districts in eight provinces, excluding Western Cape Province, by the National Department of Health SA [4]. Three serviceproviders were contracted to provide service for the CCMDD component of the program. The program is currently implemented in more than 600 public sector clinics, with over 210 000 patients being registered for participation, with a plan to further increase to one million in 2018 [12]. In Limpopo Province, Vhembe district, around a hundred and thirty public health facilities are rendering central chronic medicine dispensing and distribution programs and nineteen private sector participants are rendering the program [3].

Stable patients with chronic diseases usually receive a six months repeat script, which they collect every month from their nearest public health facility. The system of receiving monthly chronic medicine at public primary health care facilities has been described as being inconvenient and costly for patients, and also leads to overcrowding of facilities [13]. Though the CCMDD program enables medicine from a repeat script to be dispensed and distributed every month to an external pick-up point of the patient's choice, the professional nurses in the primary health care facilities seem to be experiencing some challenges with the implementation of the whole program. The proposed study aimed to determine the experiences of professional nurses regarding the implementation of central chronic medicine dispensing and distribution programs at three primary health care facilities in Vhembe District, Limpopo Province, South Africa. This will be achieved through the following objectives:

To describe and explore the experience of professional nurses regarding the implementation of chronic medicine dispensing and distribution program.

2. MATERIALS AND METHODS

A qualitative descriptive, phenomenological and contextual research design was applied to enable the researcher to gain an understanding of the lived experiences of professional nurses working in the three selected primary facilities, regarding the implementation of CCMDD. Purposive sampling was used to select 24 professional nurses who distributed the CCMDD in the three selected primary health care facilities.

2.1. Study Site

The Vhembe district has a hundred and thirty public health facilities, which are rendering central chronic medicine dispensing and distribution. The study was conducted in three of these primary health care facilities, which are located in Makhado Local Municipality, Vhembe District, Limpopo Province, South Africa. The first primary health care facility had eight (08) professional nurses who facilitated CCMDD activities to three hundred and twenty (320) patients since 2014. The second primary health care facility also had eight (08) professional nurses who facilitated CCMDD activities to two hundred and seventy (270) patients, and lastly, the third primary health care facility also had eight (08) professional nurses who facilitated CCMDD activities to one hundred and seventy (170) patients. All three of the selected primary health care facilities received their CCMDD medicines from Dischem pharmacy at Louis Trichardt Table **1**.

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Table 1. Summary of themes and sub-themes that emerged from data analysis reflecting the experiences of professional nurses regarding the implementation of central chronic medicine dispensing and distribution.

Themes	Sub-Theme
1. Explanation of the experiences regarding the implementation of central chronic medicine dispensing and distribution	1.1 Changing of patient contact details 1.2 Lack of pick up points in rural areas outlined 1.3 Challenges experienced including late delivery, incorrect medication and lack of parcel tracking 1.4 Constraints related to human resources outlined: Under Staffing and lack of trained staff on the CCMDD program 1.5 Existence of poor infrastructure described
2. An explanation of the perceived benefits of central chronic dispensing and distribution	2.1 Alleviating workload problems, less congestion and waiting time for the patients outlined 2.2: Explanation of the travel cost relieve experienced with CCMDD.

Table 2. Demographic characteristics of professional nurses distributing central chronic medicine dispensing and distribution.

Gender	Age	Educational Qualifications	Years of Experience
Males = 2 Females = 13	21 - 30 = 7 31 - 40 = 3 41 - 50 = 5	BCur degree = 7 Diploma in nursing = 8	0 - 5 = 4 6 - 15 = 8 16 - 25 = 3

2.2. Population and Sampling

The study population consisted of 24 professional nurses working at three (03) purposively selected primary health care facilities in Vhembe District Limpopo province. According to Grove, Gray, and Burns, the researchers select specific participants, events, or situations that they believe will provide them with the rich data needed to gain insight and discover new meaning in their study [14]. Therefore, non-probability purposive sampling was used to select the professional nurses who facilitate the CCMDD in the three selected primary health care facilities. The sample size was guided by data saturation, which was reached at participant number 15.

2.3. Data Collection

Data were collected by the principal researcher from September to November (2017) through semi-structured one-on-one interviews. The recruitment of the participants was done through the assistance of the operational managers in the identified primary health care facilities. The purpose of the study, the category of participants to be interviewed, and how the interviews were to be conducted, was outlined. Thereafter the operational managers introduced the researcher to the professional nurses who were facilitating the CCMDD and explained the aim of the study, as well as the voluntary nature of participation and the freedom to withdraw at any time. Individual appointments were established at a time convenient to them. A well-ventilated consulting room, free from noise, was identified as suitable to conduct the interview sessions. The semi-structured in-depth interviews with an interview guide were conducted to facilitate free-flowing communication. One central opening question was asked: "Can you kindly describe your experience regarding the imple-mentation of the central chronic medicine dispensing and distribution program". After the first response, clarity seeking questions were asked, which assisted the researcher in eliciting more information about the lived experiences of professional nurses, concerning the implementation of CCMDD [15]. The participants' permission was sought to record the interviews while assuring them of anonymity. To build rapport with the participants, each interview session lasted for approximately 30 to 45 minutes. A voice recorder was used to capture all the interview sessions and field notes were written. The interview sessions were conducted until data saturation was reached with participant number 15.

2.4. Data Analysis

Tesch's inductive, a descriptive open coding technique, as described by Creswell was used [16]. The researcher got an idea of the entire study by reading all the verbatim transcripts carefully and writing down all thoughts came to mind. The researcher analysed the information by coding the concepts based on the frequency of issues noted during the verbatim transcriptions. All topics were indexed as they emerged at some point in the scaling down. The same topics were grouped, and those that did not have any association were clustered one by one. These codes were written in the margins of the paper, indicating the data they represented. The researcher used advanced themes and sub-themes from the coded data and decreased the entire listing with the aid of grouping themes and sub-themes based on their similarity. The final issues and sub-subject matters were written in a table showing the relationship between the themes and their sub-themes.

2.5. Trustworthiness

Trustworthiness was ensured by adhering to four criteria of Guba's model that is credibility, dependability, confirmability, and transferability. Credibility was ensured by recording all the interview sessions conducted and capturing the field notes as proof that data was collected from the participants. Transferability was ensured by a thorough description of the research methodology. Dependability was ensured by keeping safe all the voice recordings and field notes. To ensure

confirmability, the researchers submitted the verbatim transcripts to the independent coder, and a meeting was set to discuss the themes and sub-themes which were reached independently [17].

2.6. Ethical Standards

The permission to conduct the study was obtained from the University of Limpopo ethics committee (TREC/ 340/2017: PG). Permission to conduct the study was also obtained from the Department of Health, Limpopo Province, and the operational managers in the three selected clinics. The aim and objectives of the study were outlined and the participants were also told that participation was voluntary and they can withdraw from the study at any time without fear of victimisation. Thereafter a written informed consent form was provided for participants to sign as a means of an agreement between the researcher and participants. The anonymity of participants was protected by making it impossible to link the information to a specific individual through using numbers instead of names. Furthermore, the identity of the three selected primary health care facilities was also protected; they were identified by clinic 1, 2, and 3. To maintain confidentiality, data was kept under lock and key and the soft copy was password locked.

3. RESULTS

Results of the data were collected from the experiences of professional nurses regarding the implementation of central chronic medicine dispensing and distribution. The demographic characteristics of the participants are outlined in Table **2**.

The findings are presented in themes and sub-themes, as well as in a narrative format with participants' direct quotations written in italics.

A .THEME 1. Explanation of the Experiences Regarding the Implementation of Central Chronic Medicine Dispensing and Distribution.

The professional nurses shared their experiences and challenges regarding the implementation of this program, which emerged from the following sub-themes:

Sub-theme 1.1: Changing of Patient Contact Details

Participants outlined that patients frequently changed their contact details, which becomes a challenge for them to receive messages for the collection of medication on time. This also became problematic for the staff to follow-up on the patients who are on CCMDD. This is confirmed by the following quotes:

Participant 3: "The change of contact number is the reason why some of the patients do not receive the messages for collection of treatment which results in them not knowing what to do". They end up coming to the clinic any time and be subjected to long queues".

Participant 8: "It is important for the patients who are on the CCMDD program to notify the clinic when they change contact because except the clinic there are different pick-up points so they end up not knowing if their medication is being distributed to their pick-up points".

Sub-theme 1.2: Lack of Pick-up Points in Rural Areas Outlined

The professional nurses raised a concern that a lack of pick up points in the areas closer to a patient's home is one of the challenges that the patients are experiencing. If the external pick up point is far away, patients end up collecting medication at their local clinic.

Participant 6: "Patients are collecting their medication at external pick-up points, such as private clinics and pharmacies, which are far from their homes and they end up coming to the clinic, which is closer to their homes, for collection of medications"

Participant 1: "I think this program is benefiting mostly patients who are working in town or those who frequently go to town only because here in the rural area there are no pick-up points"

Participant 13: "Patients who are living in rural areas have to travel long distances to health facilities to collect their monthly treatment due to lack of pick-up point near their homes. Community halls and churches should also be used as pick-up points for CCMDD medications".

"Sub-theme 1.3: Challenges experienced Include Late Delivery, Incorrect Medication and Lack of Parcel Tracking

The professional nurses revealed that although some patients received their messages on time when they come to the facility, they find out that their medication is not available because the medications are frequently not delivered on time to the facility.

Participant 10: "The program is not effective because of the late delivery of patient's medicine. If the patient's medication is lost, there is no system available to track the patients' parcel and instead, the patients end up getting medicine from the clinic stock."

Participant: 8: "Sometimes patients receive collecting messages at the facility only to find that their medications are not yet delivered". This inconvenience the patients as some of them are staying far and they use the money to travel.

Sub-theme 1.4: Constraints Related to Human resources outlined: Under Staffing and lack of trained staff on the CCMDD program

The participants revealed that they are faced with the challenge of understaffing in the implementation of the CCMDD program as they did not receive any formal training on the program. This statement is supported by the following extract from the participants:

Participant 5: "The department of health should employ new staff who should be working at the CCMDD site just to issue medication as the available staff is not enough. We are expected to issue the medication for CCMDD and at the same time attend to the queue of other patients who need other primary health care services".

Participant 11: In this facility, we only have one assistant.

Us, professional nurses, we never received any formal training on this program. It is a serious challenge as we are experiencing many problems, we don't even have patient data, we only receive the parcels with medication.

Sub-theme 1.5: Existence of Poor Infrastructure Described

Health care infrastructure is the total of all physical, technical, and organizational components or assets that are prerequisites for the delivery of health care services [17]. In this study, the participants revealed that the clinics do not have enough space for the storage of the medication. One participant said:

Participant 4: "We have to search the whole box looking for one small box of one patients' medicine because they are being stored inside the box due to lack of shelves to put CCMDD medication."

Participant 15: "There are poor infrastructure and limited space in this facility. The treatment room is very small, we also don't have enough consultation rooms. I think they have to extend the clinic for the smooth running of the CCMDD program.

B. THEME 2: An Explanation of the Perceived Benefits of Central Chronic Dispensing and Distribution

Sub-theme 2.1: Alleviating Workload Problems, Congestion and Waiting time for the Patients Outlined

The participants revealed that though the CMDD program has got many challenges if it was running effectively, it can reduce the overburdened workload in their facilities.

Participant 10: "This new program was supposed to reduce the workload from us especially because the patients have an option to collect medications from external pick-up points, they should go straight to their pick-up points. Only those who are staying near the clinics and also the patients who are experiencing the problems at their pick up points must come to the clinic".

Participant 14 added by Saying: " The program is not running well, it was supposed to be a good experience because with this program patients no longer queue for their medicine and it is not time-consuming and it reduces the risk of being fired due to absenteeism while coming to collect medication.'

Sub-theme 2.2: Explanation of the Travel Cost Relieve Experienced from CCMDD

The participants also revealed that the CCMDD program assists mostly the patients who were staying far from the clinic facilities and used to travel regularly to collect their medications.

Participant 12: "Patients are no longer traveling to the health facility every month to collect their medication, some they are even receiving this medication at their different workplace".

Participant 15: "This program is good for those who stay far from the health facilities and also for the working class as they can now access the medication in the pick-up points near to their workplace, or homes".

4. DISCUSSION

The findings of this study revealed that there are challenges with the implementation of the CCMDD program - such as late delivery of medication and lack of parcel tracking, patients receiving collection messages late, incorrect medications are issued to the patients, lack of pick up points in rural areas and lack of patients' data in the clinic facilities

A. Theme 1: Explanation of the Experiences with the Implementation of Central Chronic Medicine Dispensing and Distribution.

In South Africa, the National Department of Health implemented the CCMDD program in February 2014 in ten National Health Insurance districts in eight provinces. In SA, the CCMDD program is described as 'a vehicle towards universal access to antiretroviral and other chronic medications [11]. The purpose of this study was to determine the experiences of professional nurses regarding the implementation of central chronic medicine dispensing and distribution programs at three primary health care facilities in Vhembe District, Limpopo Province, South Africa.

The study findings revealed that though the CCMDD program was introduced to assist with reducing overcrowding at primary health care facilities and to improve access to chronic medication, its implementation still has some challenges as outlined by the professional nurses who are facilitating the program. The current research findings revealed that a change of contact details by patients is one of the challenges experienced with the implementation of the program. Consequently, the patients who change their contact details are unable to receive the collection messages in time from the supplier. It also becomes difficult for the professional nurses to follow-up on those patients who change their contact numbers. Smith and Nico outlined that other than the primary health care facilities, the patients can also access treatment from private pharmacies, which offer long trading hours, including weekends. They also indicated that with the CCMDD program, the patients could also access chronic treatment from their place of employment [18]. However, the current study was conducted in a rural setting of the Vhembe district, where there are no other pick up points. It is only those working closer to the town who can access private pharmacies. The participants indicated that the only access points available are at public primary health care facilities.

Medications are being delivered late after the patients have received the messages for collection. There is also a lack of tracking of the patients' parcels when the medication is lost. Lack of trained staff and understaffing contribute to this problem, which is aggravated by the fact that the professional nurses who are dispensing CCMDD medication are not trained in the program. Magadzire, Marchal and Ward's study revealed that due to the lack of enough staff, many patients end up defaulting from the CCMDD program and miss appointments consecutively [8].

Poor infrastructure in the primary health care facilities is one of the challenges identified in hindering the effective

implementation of the CCMDD program. There is limited space for storage of the medication and there are no shelves on which to pack the received medicine. The retrieving of medication thus becomes difficult and time-consuming as they have to rely on boxes for storage. Hunter, Asmal, Ravhengani, et al., study also outlines the challenges of inadequate and inappropriate facility infrastructure in SA primary health care facilities. They recommended that the public health care system develop a universal plan for the construction of all new proposed facilities, as well as for existing facilities needing major refurbishment. Furthermore, maintenance hubs must be developed in each district to ensure that a practical maintenance plan is carried out promptly [19].

The findings of this study revealed that the delivery of incorrect medication is one of the challenges faced by the patients and the staff in the clinics as some of the patients end up receiving the wrong medication. In support of this study, Zeeman's study also identified parcel delivery abnormalities such as wrong deliveries, late deliveries, or non-deliveries as some of the challenges [12].

B. Theme 2: An Explanation of the Perceived Benefits of Central Chronic Dispensing and Distribution

During the launch of the program in Limpopo Province, the Member of the Executive Council (MEC) of health mentioned that the CCMDD program was aimed at relieving the burden of the congested primary health system in both the department of health and the community of Limpopo. She further outlined that patients will be able to access their medication at places that are convenient to them such as Clicks, some private pharmacies, and private doctors' rooms. Additionally, the prescription will be valid for six months and there will be no need for patients to visit the health care facilities regularly [20]. However, in the current study, the professional nurses who are facilitating the program in the selected primary health facilities were concerned that the program was supposed to benefit both the facilities and the patients. They have outlined that if the program was implemented efficiently they were expecting the following benefits: reduction of workload for staff members, reduction of waiting time for the patients, and reduction of overcrowding in the clinics. The results of this study concur with the results of a study done by Steel on the implementation of central chronic medicine dispensing and distribution, one of the positive initiatives on the implementation of the program was to reduce workload for overburdened staff in the clinics [13]. Furthermore, Van Staden also outlined that the program is aimed at promoting universal access to all including the reduction of traveling cost, and more importantly, there is increased privacy because medications are being sealed [21].

CONCLUSION

South Africa is in the process of developing and implementing universal health care for all (National Health Insurance); therefore the effective implementation of the CCMDD program will ensure equal access to medication in both rural and urban areas. It is recommended that the Vhembe District in Limpopo Province introduce more pick up points to ease access to chronic medication by stable patients. Van Staden's study outlined that the patients in Cape Town Wine lands are using pick up points such as community halls and churches, which should also be introduced in the Vhembe District [21]. Further research must be conducted on the strategies to improve the implementation of the CCMDD program involving all the stakeholders already involved, such as the distributing pharmacies and the nurses who are facilitating the program in the primary health care facilities in Limpopo Province, Vhembe District.

LIMITATION OF THE STUDY

The study was conducted only in three primary health care facilities in the rural area of Makhado municipality, which is regarded as a limitation, therefore the results of this study cannot be generalised to the whole of the Vhembe District of Limpopo Province.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The permission to conduct the study was obtained from the University of Limpopo ethics committee, South Africa (TREC/340/2017:PG). .

HUMAN AND ANIMAL RIGHTS

Not applicable.

CONSENT FOR PUBLICATION

A written informed consent form was provided for participants to sign as a means of an agreement between the researcher and participants.

AVAILABILITY OF DATA AND MATERIALS

The data sets used during this study can be made available on request for the readers from the corresponding authors.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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