The level of satisfaction of patients enrolled on the Central Chronic Medicine Dispensing and Distribution programme at a government hospital in Kwa-Zulu Natal:

A cross-sectional study

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BY

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PREFACE

The findings of this study are presented in a manuscript format, as required by the regulations of the University of KwaZulu-Natal, in chapter 3 of this dissertation. In keeping with the reference style set out by the University of KwaZulu-Natal, a list of references can be found at the end of every chapter.

This dissertation consists of four chapters as follows:

- Chapter 1: Provides an introduction to the study as well as the aims, objectives and an overview of the methodology.
- Chapter 2: Highlights the literature review of the South African health care system, Universal Health Coverage, National Health Insurance in South Africa and other countries, the role of the CCMDD program in improving access to medicines and the importance of measuring patient satisfaction on the quality of service offered.
- Chapter 3: Consists of the results, discussion and conclusion written in a manuscript format.
- Chapter 4: Provides the general conclusions, recommendations, limitations and strengths of the study.

DECLARATION 1-PLAGIARISM

In fulfilment of the requirements of the degree of Master of Pharmacy in the Discipline of Pharmaceutical Sciences, School of Health Sciences, University of KwaZulu-Natal, Durban, South Africa, I, Zenisha Mahadeo, declare that:

i. The research reported in this dissertation, except where otherwise indicated, is my original work.

ii. This dissertation has not been submitted for any degree or examination at any other university.

iii. This dissertation does not contain other person's data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.

iv. This dissertation does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:

a. their words have been re-written but the general information attributed to them has been referenced:

b. where their exact words have been used, their writing has been placed inside quotation marks, and referenced.

Student Signature:  Date: 1/05/2020

This is to certify that the contents of this dissertation are the original work of Mrs Zenisha Mahadeo and as the candidate's supervisor; I have approved this dissertation for submission.

Supervisor's Signature: V Perumal-Pillay Date: 1/05/2020

Name: Dr Perumal-Pillay

DECLARATION 2 – ETHICS APPROVAL

Full ethical approval was obtained from the University of KwaZulu-Natal's Biomedical Research and Ethics Committee (BE541/18). Approval from the Department of Health was obtained (KZ_201809_02) as well as permission from the data collection facility for the research to be undertaken at the specified health facility.

DECLARATION 3 – MANUSCRIPT

1. My contribution to the project was as follows:

Zenisha Mahadeo: Primary Author – Performed all literature reviews, data collection, statistical analyses, results interpretation as well as manuscript preparation and writing of the dissertation.

2. The contributions of others to the project were as follows:

Dr Velisha Ann Perumal-Pillay: Supervisor – supervision of the concept of the study, assisted with advice, guidance and the writing of the manuscript and dissertation.

DEDICATION

This dissertation would not have been completed if it was not for the endless blessings and will of God. This dissertation is dedicated to my husband, Calvin, thank you for your unwavering love and support. To my parents, Mr and Mrs Mahadeo, thank you for the encouragement and to my brother and sister, Ashen and Sholine, thank you for your guidance. To my niece Aradhya, thank you for your encouragement. To my friends Toby and Leo, thank you for walking this journey with me.

ACKNOWLEDGEMENTS

I would like to extend my deepest and sincere gratitude to Dr Velisha Ann Perumal-Pillay, my supervisor, for her continuous support, patience, guidance, feedback and encouragement throughout the course of writing this dissertation. Your readiness to give your time even with your very busy schedule is very much appreciated. It was such an honour to be mentored by an academic of excellence like you.

I would also like to acknowledge everyone who took a part in the study. Thank you for your time.

TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS

CCMDD-Central Chronic Medicine Dispensing and Distribution

UHC- Universal health coverage

WHO-World Health Organization

LMICs-Low-middle income countries

PHC-Primary healthcare

SDG- Sustainable Developmental Goals

NHI-National health insurance

UK-United Kingdom

KZN-Kwazulu-Natal

SPSS®-Statistical package for social sciences

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

Background: The central chronic medicine dispensing and distribution programme (CCMDD) was implemented by the South African Department of Health in February 2016 at selected government hospitals to provide easier access to chronic medicines by stable patients. Measuring patients' satisfaction with the CCMDD system would serve as a means to improve quality and patients' acceptance of the system .This study aimed to determine the level of satisfaction of patients enrolled on the CCMDD programme at a selected government hospital in Durban, KwaZulu-Natal.

Methods: A quantitative, cross-sectional descriptive design was employed. Data were collected utilising a research-administered questionnaire and distributed to patients on the CCMDD programme at a medicine collection point from 1st-30th November 2018. Data were analysed with Microsoft Excel® and SPSS® (version 25).

Results: Among 147 participants, 92 % were satisfied with the CCMDD programme. Kruskal Wallis tests indicated no significant difference between socio-demographic groups with regards to the level of satisfaction ($p>0.05$). Mann Whitney test showed no significant difference in satisfaction scores between males and females ($p>0.05$ ($p=0.27$). Challenges highlighted by participants included the lack of general and medical information provided to patients; confusion with appointment dates; insufficient information on medicine labels; and inconvenient medicine collection times.

Conclusion: The overall level of satisfaction with the CCMDD programme was high however the challenges highlighted must be addressed. It is recommended that CCMDD service monitoring be incorporated into the national core standards to improve and set a benchmark for the type of service afforded to patients.

Key words: patient satisfaction, central chronic medicine dispensing and distribution, pharmacy services, South Africa

CHAPTER 1: INTRODUCTION

1.1 Introduction

Access to essential medicines forms a crucial element of universal health coverage (UHC). UHC means that all individuals and communities can utilize health services, of satisfactory and effective quality, without being introduced to financial strain whilst using these health services. [(1)]. South Africa is moving towards UHC through the National Health Insurance (NHI). Assured access to medicines is a key component for the delivery of services and high-quality healthcare [(2)]. A 2012 evaluation of the South African healthcare system conducted by the Health Systems Trust showed the need to prioritise the supply of medicines as they influence many different aspects of access to medicines and healthcare utilization[(3)].

Chronic disease is a leading cause of morbidity and mortality worldwide. The developing world bares this burden excessively, with 80% of deaths attributed to cardiovascular disease and diabetes mellitus and 90% of deaths attributed to chronic obstructive pulmonary disease occurring in low- and middle-income countries (LMICs). It has been estimated that by 2030, 23 million people will die yearly from cardiovascular disease, with approximately 85% of these deaths happening in LMICs. In addition, chronic conditions have become an indicator of the increasing health inequalities in LMICs. [(4)]. South Africa is considered a middle income country in terms of its overall economy [(5)]. The persistent poverty in South Africa has resulted in the South African population currently experiencing a 'double burden' of diseases, with 'modern' diseases emerging in addition to the unresolved ones, thus highlighting the urgent need to implement more valuable and cost-effective interventions[(6)].

Insufficient access to essential medicines is experienced by more than two billion people in LMICs. The views of the responsible stakeholders to solve this complicated problem differs [(2)]. A study conducted in South Africa by Harris et al.(2011), reported that transportation, cost and long waiting lines were the main barriers in access to healthcare [(7)]. Another study conducted in the Eastern Cape in South Africa by Schirenbeck et al.(2013), indicated that many patients lacked access to affordable public transportation or did not own vehicles, compelling them to walk long distances to health service facilities to receive healthcare services. The lack of transport may have been a primary factor for patients not having access

to healthcare at all, therefore, there is a need for the South African government to make medicines accessible to patients. [8].

This increasing burden of chronic disease in South Africa, and the challenges with accessing medicines is further compounded by a shortage and uneven distribution of health professionals (private vs. public sector, urban vs. rural settings), which has negatively impacted on supply chain systems. There is a general staff shortage in all divisions of pharmacy practice. The number of pharmacists in South Africa employed in the public sector is less than half of what would be the norm in a typical middle-income country[9]. Many changes in processes and steps have been taken to deal with the shortages of pharmacists, such as the implementation of incentives and new models of centralized dispensing of medicines for chronic conditions [10] i.e. the central chronic medicines dispensing and distribution programme (CCMDD), which is one initiative to improve access to medicines in South Africa and support the country's move towards UHC.

1.2 Background and rationale for the study

1.2.1 Universal Health coverage

UHC is based on the World Health Organisation (WHO) constitution of 1948, proclaiming health a basic human right and on the Health for All agenda formed by the Alma Ata declaration in 1978. UHC supports the health-related Sustainable Development Goals (SDGs) and provides hope of improved health for all and escape from poverty[1].

"The objectives of UHC are as follows:

- Equity in access to health services - everyone who needs health services should receive it, not only those who can pay for it;
- The provision of good quality of health services which thereby improves the health of those receiving the services; and
- People using health services are not put at the risk of financial harm"[1].

The Declaration of Alma-Ata was accepted at the International Conference on Primary Healthcare (PHC) in 1978 it was the first international declaration highlighting the

importance of PHC. The declaration stressed the need for all governments, health workers, and the world to guard and encourage the health of all people. [11].

The Sustainable Development Goals (SDGs) is a worldwide appeal to stop poverty, look after the earth and make certain that all people prosper. In 2015 the United Nations adopted Agenda 2030 which is intended to recognize the human rights of all. The Agenda will be accomplished through the adoption and carrying out of 17 SDGs with 169 targets on each goal to be reached. It can be noted that Goal 3 of the SDGs is aimed at ensuring healthy individuals and supporting the wellbeing for all. [12].

While countries work to optimize and promote the health of all, national monitoring of health inequalities should be prioritized. Recognizing health inequalities is an essential part of addressing these health inequities. Monitoring health inequalities assists countries to observe their progress towards Goal 3 of SDGs, and ensures that underprivileged or vulnerable distant populations are not forgotten. Progress towards UHC requires monitoring of how essential health services are being extended to serve the general public as well as the most underprivileged populations[12].

South Africa subscribes to the SDGs and has embraced the concept of UHC. The National Development Plan is an ongoing South African development plan, formed by the National Planning Commission in association and discussion with South Africans from different backgrounds and ranks. According to the National Developmental Plan in order to obtain UHC, all South Africans must have equitable access to healthcare, regardless of what they earn. A health financing system should allow equitable access to healthcare for everyone, regardless of what individuals can afford or how often they need to use a service[13].

This aligns with the NHI concept and the NHI White Paper that was released on the 28th of June 2017. It called for South Africa to move towards UHC through the establishment of a unified healthcare system[14]. Subsequent to this, the NHI Bill was passed on the 8th of August 2019.[15].

The NHI is a health financing system that is intended to combine funds to provide access to affordable health services for all South Africans based on their health requirements. With

the implementation of the NHI, the South African government intends to ensure UHC by means of improved access to and the provision of quality and equitable health services[15].

1.2.2 Decentralization in the Healthcare system

In South Africa PHC facilities are the communities' initial point of contact with the healthcare system. However, many patients avoid PHC facilities due to the long queues and poor quality of service provided and go straight to hospital outpatient departments where services are thought to be better[16]. This results in a strain on services provided at hospital facilities that should only be attending to unstable patients or patients living within its catchment area.

The term 'decentralization' is used to describe the transfer of responsibilities to lower health management levels [17]. Decentralization of South Africa's healthcare system could have a significantly positive impact on the quality of and access to health services for the most disadvantaged populations. South Africa implements recommendations from the WHO in promoting decentralization in the provision of healthcare services. The South African national government is in the process of decentralization by transferring accountability and handing over responsibilities to lower level organizations [18]. The down referral of stable patients to receive health services at lower level institutions is aimed at decongesting hospitals and allowing patients to collect medicines closer to their homes.

The launch of the Central Chronic Medicine Dispensing and Distribution (CCMDD) programme has been developed to target patients stable on chronic treatment and reduce facility utilization [10, 16, 19]. In rural areas, this programme is aimed at minimizing travel times and costs, whereas models in urban and semi-urban areas are aimed at reducing facility overcrowding and patient wait times [20].

1.2.3 National core standards as a basis for quality

Quality may be defined as obtaining the best results from available resources[21]. Based on several definitions in literature, the WHO definition of quality of care is "the extent to which healthcare services provided to individuals and patient populations improve desired health

outcomes. In order to achieve this, healthcare must be safe, effective, timely, efficient, equitable and people-centred."[22]

In 2008, the office of Standards Compliance introduced the National core standards for health facilities in South Africa which assists health care workers in providing a benchmark of quality care against which the provision of services can be assessed. The national core standards stipulate what is to be provided in terms of quality care and best practice[23]. Related to each standard are measurable criteria, which outline the requirements for compliance[23].

The measurable criteria serve as a self-assessment tool, reports of which can be utilized to assist in improving the quality of care provided by the healthcare facility [23, 24]. The basic function of National core standards is to ensure that these standards are distributed throughout the healthcare system and that compliance with the standards becomes normal practise that is continuous for staff and managers [25].

Strict regulations make certain that patients are protected from hazardous situations that may occur from healthcare facilities failure to comply with minimum standards[23]. The use of non-routine information (e.g. through questionnaires) is a useful method for monitoring and assessing the quality of services provided [26].

The national core standards include assessments for clinical services such as pharmaceutical services. By including assessments of the CCMDD programme in the national core standards, a benchmark can be set for the quality of service offered to patients and this would lead to a continuous monitoring of the programme[23].

This study was designed to conduct a non-routine questionnaire aimed at determining the level of satisfaction of patients on the CCMDD programme. Since CCMDD is an important tool in achieving UHC for the NHI by enhancing access to medicines, it was important to measure the patients' satisfaction with the CCMDD programme to gauge if the programme was indeed meeting its intended purpose and providing an acceptable service to the patients enrolled.

1.3 Aim and objectives

Aim:

The aim of this study was to determine the level of satisfaction amongst patients enrolled on the CCMDD programme to provide insight on areas that require attention and improvement with the intention to make the process of CCMDD a more patient-centred process.

Objectives:

- To determine the level of satisfaction of enrolled patients with the CCMDD programme
- To identify areas of the CCMDD process that require improvement
- To determine if the level of satisfaction differs between socio-demographic groups
- To make recommendations to policy makers and hospital management for improvement in the quality of the CCMDD service offered to patients.

1.4 Definition of terms:

- Chronic: A chronic condition is a human health condition or disease that is continual or long-term in its effects or a disease that appears with time.
- Central chronic medicine and dispensing programme: CCMDD (Central Chronic Medicine Dispensing and Distribution) has been launched by the Department of Health in partnership with a service provider. Chronic medicines are dispensed at a central point i.e. the service provider dispenses the medicines and distribute these to health facilities or medicine collection points.

1.5 Significance of the study

It is essential to measure patient's satisfaction with pharmacy services as it serves as a means to improve quality and patients' acceptance as well as compliance with treatment. A measure of patient satisfaction gives service providers insights into various aspects of healthcare, including the effectiveness of their care and their level of compassion. There is currently a paucity of studies investigating patients' satisfaction with the CCMDD

programme in KZN. This study provides a novel insight and will provide valuable information (from the patients' perspective) to policymakers for the improvement of the CCMDD service at the selected institution and for comparison with services across institutions offering the CCMDD programme in SA.

1.6 Research Methodology

1.6.1 Study Design

The study adopted a quantitative approach using a cross-sectional descriptive design, where data was collected in the form of researcher-administered questionnaires. This design was implemented as it allowed the researcher an affordable way of collecting data from many individuals in a short period of time. A cross-sectional study allowed for the collection of data at a specific point in time. By collecting quantitative data, the attitudes, opinions and behaviours of patients towards the CCMDD programme were quantified. This descriptive study permitted the illustration of the relationship between the CCMDD programme and patient satisfaction level.

1.6.2 Study Setting:

The study was conducted at a district/regional government health facility in Durban, KwaZulu-Natal (KZN), South Africa. Data collection was conducted at only one medicine collection site, situated on the hospital premises, separated from the usual pharmacy collection area.

1.6.3 Study population

The study population included both male and female patients of all races and educational status, socio-economic status, adults older than 18 years, who were enrolled on the CCMDD programme and collecting their own medication at the selected government health facility in Durban, KZN during the period 1st November to 30th November 2018.

1.6.4 Sampling

Convenience sampling was used as the researcher was employed at the institution where data collection was conducted. The sample size required for this study was calculated using the website www.raosoft.com . A sample of 147 participants was required. The sample size calculator allowed for the generation of a sample size through a 5% margin of error at a 95% confidence interval with a 50% response rate and a population size of 235. The population size represented the number of patients that were actively collecting medicines on CCMDD programme at the hospital.

1.6.5 Recruitment of participants

The recruitment of participants was performed by first explaining the goal of this study to eligible patients (according to the inclusion and exclusion criteria) at the medicine collection point and providing an information sheet (ANNEXURE 1). Patients who agreed to participate were asked to provide signed consent (ANNEXURE 2) and thereafter requested to complete a questionnaire (ANNEXURE 3).

1.6.6 Inclusion criteria and exclusion criteria

The inclusion criteria for participants in this project were,

- adult patients who were enrolled on the CCMDD programme at the KZN government health facility for $\geq$ 2 months,
- patients collecting their own medicines at the medicine collection points
- willingness of patients to provide informed consent for participation.

The exclusion criteria for participants were,

- patients who have unstable psychiatric conditions and are therefore unable to complete the questionnaire,
- family members or friends who have been authorized to collect medicines at the medicine collection points on behalf of the patient

1.6.7 Data collection

The data collection was performed by means of a questionnaire. The questionnaire consisted of three parts, the patient information leaflet and informed consent ,the second part allowed for collection of demographic data and the third part consisted of closed ended questions with a Likert scale (with 5 possible responses) and an open ended question to capture qualitative information.

The questionnaires were distributed by the researcher in the mornings whilst patients who were on the CCMDD programme waited for their medicines at the collection site. Patients who were unable to read or write were assisted through the questionnaire by the researcher. The questionnaire was available in Zulu and English. All responses in Zulu were translated to English by two post-basic pharmacy assistants employed at the facility at which this study was conducted. The translation from Zulu to English was validated through the translation-back-translation process by these two pharmacy assistants. Part of the scope of practice of pharmacists assistants as mandated by the South African Pharmacy Council is to counsel patients hence these individuals were selected who often speak to Zulu speaking patients and would be able to translate the English questionnaire to make it more understandable[27]. Anonymity and confidentiality was ensured by using a questionnaire that did not require respondents to divulge their identity. All research interactions were conducted in a separate private room situated away from the public waiting area where the conversation could not be seen or over-heard by others.

1.6.8 Pilot study

A pilot study was conducted at the same medicine collection point on a sample of 20 patients with the same inclusion criteria to that of the main study sample to assess the clarity and understanding of the questionnaires content. The questionnaire was piloted in Zulu and English. The pilot study was used to ensure the questionnaires were clear and not ambiguous or misleading. Pilot testing revealed that questions were easily understood by the patients and no amendments were required.

1.6.9 Data analysis

The data collected was captured on a Microsoft Excel® spreadsheet. Data capturing was verified and validity checks were performed by proof reading the data entered on Microsoft excel ® against the original document. All statistical procedures were performed on the Statistical package for social sciences (i.e. SPSS® version 25). SPSS® is a Windows based programme that can be used to perform data entry and analysis and to create tables and graphs. SPSS® has the ability to handle large amounts of data and was able to perform all the analyses required for this study. Responses to the question asking for "other comments" were captured on Microsoft word® and common responses from patients were categorized and tabulated. Descriptive statistics was performed in order to properly present the sample of interest according to socio-demographic characteristics, as well as general satisfaction of patients towards CCMDD.

The satisfaction level of the patients was described using percentage, mean and standard deviation. The standard deviation was used to quantify the amount of variation or dispersion of the set of data. The Mann Whitney test was employed to assess the difference in satisfaction of patients between genders. Kruskal-Wallis was used to determine the difference among age groups, employment status and educational level of the patients with regard to level of satisfaction with the CCMDD programme provided. The use of Mann Whitney was appropriate as it is a non-parametric test that examines and compares two groups for data that is not normally distributed, whilst the use of Kruskal-Wallis was appropriate as it is also a non-parametric test that examines and compares data of two or more groups. The Mann Whitney test and Kruskal-Wallis analysis was performed on the SPSS® software. A p-value of 0.05 was used for deciding statistical significance of differences observed.

1.6.10 Data Management

Completed questionnaires were filed and stored in a locked cupboard which was accessible only to the researcher. Data entered on Microsoft word®, Microsoft Excel® and SPSS® were stored under a password protected folder accessible only to the researcher.

1.6.11 Ethical Approval

Full Ethical approval was obtained from the University of KwaZulu-Natal's Biomedical Research and Ethics Committee (BE541/18-ANNEXURE 4 and 5). Approval from the Department of Health was obtained (KZ_201809_02-ANNEXURE 6) as well as permission from the data collection facility for the research to be undertaken at the specified health facility (ANNEXURE7).

1.7 Chapter Summary

This chapter described important definitions and concepts concerning the healthcare system in South Africa. It included information regarding CCMDD and patient satisfaction, highlighting the importance for monitoring the level of patient satisfaction with this pharmacy service provided. This chapter also described the research question, aims, objectives, and the methodology employed in the study.

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CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Over the past 20 years, questionnaires measuring patient satisfaction have gained increasing attention worldwide [1-3]. Patient satisfaction cannot be clearly defined, although it can be used as a vital quality outcome indicator to determine the accomplishments of healthcare systems. The aim of measuring patient satisfaction is that it serves as a significant and important source of information for identifying areas that can be improved and implementing strategies for quality enhancement in healthcare organizations around the world[4].

2.2 Healthcare in South Africa

The South African healthcare system currently struggles with poor infrastructure, provision of essential medicines as well as lack of management and human resources. In addition, the high load of disease and inequality in service delivery between public and private healthcare impacts negativity on the healthcare system[5].

In South Africa, inequalities between the public and private healthcare sectors in terms of accessibility, acceptability and affordability of healthcare services and medicines is well documented [5-9]. A household survey that was conducted in South Africa by Harris et al. (2011) found that uninsured black Africans and rural groups have inequitable access to healthcare [6]. A study conducted by Stuckler et al. (2011) examined the determinants of healthcare funding distribution amongst provinces in South Africa and their effects on healthcare from 1996 to 2007 and found that areas with a greater ability to spend funds were provided with more financing and built better infrastructure than those areas with greater health requirements. The study further states that the past infrastructure inequalities caused by the apartheid era may have been the cause in which the distribution of funds to areas with greater absorptive capability intensifies inequalities till this day [7].

It has been stated that access to healthcare is a South African constitutional right and that all individuals must have access to an equal standard of care, regardless of what they can afford[10].

Despite the implementation of healthcare policies and strategies by the South African government to improve the quality of healthcare and services provided to patients, there still remains inequality between the public and private sectors[11]. The public healthcare sector serves 84 percent (41.7 million) of the South African population and the private healthcare sector 16 percent (8.3 million). The distribution of services is fragmented between the public and private sectors which has led to increased costs for healthcare services[12].

In order to make progress towards UHC and take steps forward to the implementation of National Health Insurance (NHI) , the South African government released the Green Paper on NHI in August 2011.The government thereafter released the White Paper in December 2015, which was officially adopted in June of 2017.[11]. On the 8 August 2019, the Minister of Health, Dr Zweli Mkhize, introduced the NHI bill in the National Assembly[13].

2.3 National health insurance (NHI) in South Africa

The NHI White Paper which was released on the 28th June 2017 and puts down the groundwork for moving South Africa towards universal health coverage (UHC) through the implementation of NHI and establishment of a combined healthcare system[11].

NHI is a health financing system that is intended to combine funds to supply access to quality and affordable health services to all South Africans based on their health needs regardless of their income. It is a fund that will cover the costs for healthcare for all South Africans and there will be no cost charged at the health facility [14].

The Minister of Health has ensured the country that the key focus of NHI is about the pooling of funds to make certain that all South Africans receive the same standard of

healthcare regardless their socio economic status and that an NHI bill would be presented to cabinet for approval. [15]. The NHI bill was passed on the 8th August 2019[13].

According to Harris et al.(2011), a financing-centred approach to NHI may decrease some of the affordability barriers in South Africa, but will not address other access barriers stated in the study's survey[6]. Harris et al. stated that transportation affordability and far travelling distances to healthcare facilities were the main access barriers in their study, particularly for black Africans, underprivileged and rural populations. Although the Clinic Upgrading and Building Programme had enhanced service availability it was found that access barriers were associated with lack of transport to these health facilities. The introduction of the Central Chronic Medicine Dispensing and Distribution (CCMDD) programme serves as a means to address some of these access barriers mentioned by Harris et al., by providing easier access to medicine by permitting stable patients to collect their chronic medicine from an alternate site convenient to them, nearer to their home or work.

A study conducted by Booysen et al. (2018) demonstrates the inequalities in the South African healthcare system and calls for policy proposals such as NHI to attain universal health coverage. Booysen et al. also suggested that future studies are required to continuously monitor the impact on access, inequalities and quality of healthcare once NHI is implemented in South Africa [11]. Since the CCMDD programme is an initiative of NHI to improve access to medicine, monitoring the impact of programme and the quality of this service provided to patients (as suggested by Booysen et al.) would enable service providers and hospital managers to determine areas for improvement.

2.4 Experiences with National Health Insurance in other countries

NHI in Korea has been doing well in organizing resources, rapidly increasing population coverage for healthcare and successfully combining public and private funds to pay for healthcare. However, problems experienced are the fast aging of the Korean population as well as the predominance of private providers in the healthcare delivery system has caused an issue for government regulation and the expenditure control of the NHI programme [16].

A study that was conducted by Genevieve et al. (2016) was designed to determine the impact of the implementation of NHI on health service delivery in health facilities in Ghana. The facilities demonstrated high eagerness to deliver services. There were noticeable increases in outpatient and inpatient attendance, profits, spending and enhanced access to medicines. However, challenges experienced were large amounts of errors in claims processing which lead to non-reimbursement of NHI claims, lack of responses regarding errors, and confusion with claims reporting procedures [17].

NHI in Ghana has observed an increase in enrolment onto the scheme since its implementation in 2003. The NHI scheme aims to achieve UHC, however this is hindered by the negative views of patients of the quality of services provided to them [18]. A study conducted by Nketiah et al. (2019) in Ghana found that rural communities had a better perception of quality of services provided by the NHI scheme than urban communities. The study concluded that various factors affect the perception of quality of services provided by Ghana's NHI scheme between rural and urban communities. Nketiah et al. recommended that strategies that focus on improvement in NHI-related services should use different approaches in the rural and urban areas.

A Study conducted by Iloh et al. (2012) in Nigeria, was designed to assess patients' satisfaction with quality of care provided at the NHI clinic of a tertiary hospital. The study showed that the overall patients satisfaction with the healthcare services provided at the clinic was generally very good. Patients' satisfaction scores were highest for patient–provider relationship and lowest for patient waiting time. The overall satisfaction score of the participants was 66.8%. Iloh et al. pointed out a need to improve on the present level of patients' satisfaction while attempts also needed to be made to deal with the identified areas of dissatisfaction [19].

In the United Kingdom (UK), NHI has been used for over fifty years and is funded by taxpayers however, the choice for individuals to purchase private health insurance is still offered[20]. The main aim of the NHI in the UK is to provide a complete, high quality service, regardless of what individuals can afford or how often they need to use a service. However, the demand for health care in the UK exceeds supply and the demand continues to grow. As

the population of the UK ages, the greater portion of older people will put a financial burden on NHI and advancements in medical developments will increase the number of illnesses that can be treated. Government spending on health care services will therefore need to increase[20].

These studies are case examples of successes and challenges with NHI that South Africa can learn from and be proactive to problem solve should these situations arise during implementation of NHI in South Africa.

2.5 The process of CCMDD at the government hospital pharmacy

The introduction of the Central Chronic Medicine Dispensing and Distribution (CCMDD) programme is one of the initiatives to support the NHI system and improve access to pharmaceutical services [21].

The CCMDD programme was initiated by the Department of Health in partnership with a service provider in 2016 and was implemented locally at the government hospital site in this study in February 2016 as a quality improvement programme initiative.

The CCMDD programme initiative is intended to make it convenient for patients to have access to their chronic medicines. It allows patients to pick up medicines in an alternate site that is convenient for them, closer to their home or work, rather than a health facility. Thus patients do not have to travel far distances and tolerate long waiting times to pick up chronic medicines[22].

As per personal email communication with the CCMDD provider, since inception of the CCMDD programme, there have been approximately 5303 chronic patients enrolled at the government hospital pharmacy at which this study was conducted. As of June 2018, there were approximately 235 active chronic patients per month who were enrolled on the CCMDD programme to collect medicines at the collection site[23]. (Pharmacy direct , 29th June 2018 personal communication).

Patients who qualified for the CCMDD programme were asked at the government health facility to register to collect their medicines from only one medicine collection site, which is situated on the hospital premises (separate from the regular pharmacy collection area) or at

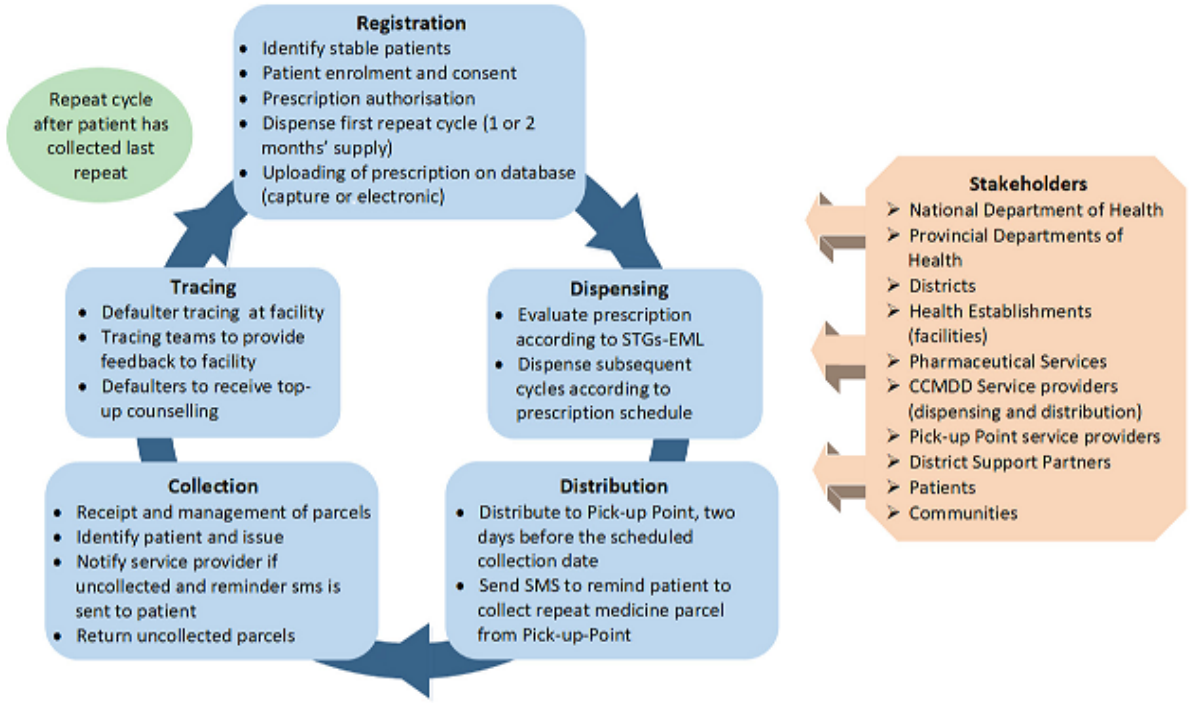
one of the external pick up points (such as Clicks and Medi-rite pharmacies)[24].(Pharmacy direct , 30th April personal communication)

One of the aims of the CCMDD programme is to decrease the burden on the public sector pharmacists thereby allowing the pharmacists' role to be a more clinical one. Thus, all patients who qualify for the programme must be enrolled [25].

The CCMDD programme affords the patient the following benefits: "Fewer clinic visits, increased availability of medicines, shorter waiting times, choice of collection points, collection points closer to home and after-hours collection"[21].

The CCMDD programme process flow and content is illustrated in Figure 1 below.

Figure 1: Flow diagram of the CCMDD process [9]



2.6 Enrolment of patients on CCMDD

According to the standard operating procedure as set out by the National Department of Health, patients, who are clinically stable, reside within the catchment area of the hospital and are ≥18 years old can be enrolled onto the CCMDD programme. After a being evaluated by a doctor, only clinical stable patients can be enrolled onto the CCMDD programme.

Patients who are not clinically stable and those with chronic conditions requiring more regular observation (e.g. certain mental health conditions) or taking medicines requiring more precise control (e.g. benzodiazepines) should not be enrolled onto CCMDD programme[26]. Furthermore, the service provider has a list of medicines ("exclusion list") which is not stocked by the company and patients who are prescribed these items can therefore not be enrolled onto this programme. The service provider emails an updated exclusion list every few weeks to the facilitators of CCMDD at the hospital (Pharmacy direct. 2nd April 2018 personal communication) [27].

Prescribers identify patients who qualify for the CCMDD programme and thereafter prescribe their medicines on a six month repeat prescription that is specific for the CCMDD programme. The qualifying patients then register for the service and select their preferred pick up point. Patients collect their first repeat from the hospital pharmacy and register their remaining five repeats for medicine collection at the point of their choice. Patients are required to register with their identity documents. Once registered, patients are given medicine collection dates by the pharmacy staff and are counselled on how the procedures work and the times they need to adhere to when picking up their medicines. Their prescriptions are then scanned and sent to the service provider and patients are also sent SMS reminders to pick up their parcel from their medicine collection point when ready. Patients are encouraged to contact the service provider, on a toll free phone number for queries. As recorded in December 2016, KwaZulu –Natal already had a total of 464 440 patients on CCMDD [22].

2.7 Challenges of the CCMDD programme

The introduction of the CCMDD programme has resulted in added responsibilities for staff at the facility. Munyikwa's study (2011) conducted in the Western Cape of South Africa found that with the implementation of CCMDD, the pharmacists' duties had not decreased as expected. Instead, the workload moved from dispensing to administrative responsibilities[28].

A study conducted by Magadzire et al. (2015) in the Western Cape of South Africa, indicated that the trend of missed appointments by patients enrolled on the CCMDD programme was a concern to the Department of Health. The implications of missed appointments and resultant non-collection of medicines included a cost to government for services provided by the service-provider, possible losses due to expired medicines, increased workload for the service-provider and healthcare facility staff and possible negative therapeutic outcomes for patients due to non-adherence to medicines[26]. Another study conducted by Magadzire et al. (2017) in the Western Cape, where patients were interviewed indentified the following reasons for missed appointments: temporary relocation, forgetting appointments, work obligations and short-term switch to private care [25].

Considering the challenges experienced, it is essential to continuously monitor the CCMDD programme to determine if any quality improvements can be performed especially with regards to patient satisfaction.

Numerous studies have been conducted to investigate patients' satisfaction towards pharmacy services [1, 29-33]. A study by Tadesse et al. (2013) found that the main theme that emerged when patients on chronic medicines were asked about their view of the quality of the healthcare services they were provided with, was the attitude of the healthcare staff at the health facilities[32]. A study carried out by Chimbindi et al. (2014) on patient satisfaction with HIV treatment and TB care in a rural area in KwaZulu-Natal, South Africa revealed that overall patient satisfaction was high but patients showed some frustration with certain areas of the quality of care. These included the inability to speak to health workers about their treatment and challenges, long waiting times and the neatness of the facility [33] .

Measuring patient satisfaction would therefore be essential since it has been previously reported that quality of healthcare is linked to the level of satisfaction amongst the users of health services [34].

2.8 The concept of patient satisfaction

According to the reviewed literature, authors have described different definitions of patient satisfaction. Jenkinson et al. (2002) and Ahmed et al. (2011) stated that patient satisfaction seems to be attitudes towards care or aspects of care [30, 35].

Mohan et al. (2011) stated that patient satisfaction is patients' emotions and their view of the healthcare services provided to them[36].

Two important points surface from reviewing the literature on the patient satisfaction. First, substantial research has been done thus far on defining the patient satisfaction concept. There seems to be growing agreement that patient satisfaction is a multifaceted assessment of various aspects of healthcare. Second, further compulsory research is required to merge the various schemas existing to conceptualize and measure patient satisfaction [37, 38].

2.9 Measurement of patient satisfaction

Gonzales et al. (2006) stated that for years, satisfaction questionnaires have been the most frequently used method to assess patient views of healthcare, however it was only recently that studies tried to prove that the validity of the instrument was acceptable [39]. In contrast, Hawthorne (2006) stated in a review of patient satisfaction measurement that none of the instruments reviewed were acceptable due to insufficient evidence of their psychometric properties[40] .

Patient satisfaction can be evaluated using a qualitative and/or quantitative approach. Essentially, patient satisfaction measurement tools should be dependable and suitable in order to accurately collect information and to realise the main purpose of collecting patient's feedback[41]. Some of the articles reviewed decided to structure the questionnaire to measure patients' degree of satisfaction and expressed needs using a 5-point Likert scale[34, 42-44]. Participants indicate their level of agreement or disagreement on a symmetric agree-disagree Likert scale for a sequence of statements. The choices on the likert scale captures the intensity of their views for a given statement. The questionaire in this study was designed using a Likert scale in order to obtain patient satisfaction scores and therefore quantify patients satisfaction with the CCMDD programme.

Healthcare facilities tend to concentrate on patient-centred care and hence the level of patient satisfaction shows patients' participation in decision making and their function as partners in improving the quality of healthcare services[30]. Mohan et al.(2011) considered the important relationship between measuring patient satisfaction and treatment adherence and found that the satisfied patients tend to adhere to the treatment and to the same healthcare provider [36]. Patient satisfaction is therefore an important indicator of communication and health-related behaviour [45].

The reviewed literature established that measuring patient satisfaction had an impact on quality improvement of care. However, some of the literature considered patients' perceptions as an untrustworthy judgment of the quality of care[36, 46].

2.10 Determinants of patient satisfaction

Most of the studies reviewed looked at the relationship between demographic factors such as age, gender, health status and level of education with patient satisfaction; however, the conclusions from these studies are contradictory. A study conducted in Scotland by Quintana et al. (2006) and the second study in the America by Otani et al. (2001) both agreed that male patients, patients older than 50 years of age, patients admitted in hospital for a shorter period of time or better health status and those with primary level education had higher levels of patient satisfaction [31, 47].

A survey conducted in different hospitals of Taiwan indicated that patient characteristics such as age, gender and education level only somewhat affected patient satisfaction but that the health status of patients is an important predictor of a patient's overall satisfaction [48]. In contrast, a 2006 national survey in Norway indicated that age, gender, health status and education level were insignificant determinants of overall patient satisfaction[46].

The literature provides contradicting evidence with regards to the determinants of patient satisfaction.

2.11 Impact of satisfaction surveys results on hospital quality improvement

Some studies reviewed looked at the degree to which healthcare managers and policy makers obtained patient perceptions of the quality of healthcare to introduce new quality improvement initiatives. A survey carried out in a hospital in France found that the results from satisfaction surveys resulted in the introduction of some improvement initiatives in the hospital but no noteworthy change in healthcare providers' behaviour such as attitudes towards patients [49].

In 2006, Barr et al. studied the quality improvement initiatives implemented after patient satisfaction surveys were carried out by 13 tertiary care hospitals in Rhode Island, United States of America .The results indicated these hospitals implemented various quality improvement initiatives that dealt with different aspects of healthcare[1]. Some of the quality improvements initiatives introduced in these hospitals were a 'call back programme' to ensure that patients went home with the services they expected as well as support staff in the admitting department to decrease the waiting times.

In contrast a study conducted by Draper et al. (2001) in Victoria, Australia found that limited improvement initiatives were implemented by hospitals in response to feedback obtained from patients' surveys [50].

It is evident from the studies discussed in the literature review that even though there are many efforts and accomplishments with satisfaction measurement there is still more work that is required in this area .One of the ways of monitoring the quality of healthcare services provided would be to measure patient satisfaction. The use of questionnaires from the reviewed studies was shown to be a successful tool in measuring patient satisfaction. This guided this study's methodology because it allowed for the collection of quantitative data and patient satisfaction scores to be quantified.

2.12 Chapter summary

There are very few studies conducted on the CCMDD programme in South Africa. One of the primary challenges in the provision of healthcare services has been in supporting patient satisfaction improvement initiatives in the face of competing priorities and decreasing

resources. From the reviewed literature it can be seen that South Africa is facing many issues with regards to healthcare costs and services. The country spends large amounts of money on an overburdened healthcare system. The objective of the CCMDD programme is to improve access of medicines to patients, however evaluation of patient satisfaction towards the services is important to identify gaps for future improvement, as well as patients' acceptance of the programme and compliance with treatment due to ease of collection of medicines.

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CHAPTER 3: MANUSCRIPT FOR SUBMISSION AND PUBLICATION

3.1 Introduction

This chapter explains the general findings and discussion of the results of the study and is represented in the form of a manuscript entitled "The level of satisfaction of patients enrolled on the Central Chronic Medicine Dispensing and Distribution programme at a government hospital in KwaZulu-Natal: A cross-sectional study". The manuscript has been formatted for submission to South African Family Practice Journal, submission guidelines are presented in Annexure 8.

3.2 Manuscript

The level of satisfaction of patients enrolled on the Central Chronic Medicine Dispensing and Distribution programme at a government hospital in KwaZulu-Natal: A cross-sectional study

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ABSTRACT

Background: The central chronic medicine dispensing and distribution programme (CCMDD) was implemented by the South African Department of Health in February 2016 at selected government hospitals to provide easier access to chronic medicines by stable patients. Measuring patients' satisfaction with the CCMDD system would serve as a means to improve quality and patients' acceptance of the system. This study aimed to determine the level of satisfaction of patients enrolled on the CCMDD programme at a selected government hospital in Durban, KwaZulu-Natal.

Methods: A quantitative, cross-sectional descriptive design was employed. Data were collected utilising a research-administered questionnaire and distributed to patients on the CCMDD programme at a medicine collection point from 1st-30th November 2018. Data were analysed with Microsoft Excel® and SPSS® (version 25).

Results: Among 147 participants, 92 % were satisfied with the CCMDD programme. Kruskal Wallis tests indicated no significant difference between socio-demographic groups with regards to the level of satisfaction ($p>0.05$). Mann Whitney test showed no significant difference in satisfaction scores between males and females ($p>0.05$ ($p=0.27$)). Challenges highlighted by participants included the lack of general and medical information provided to patients; confusion with appointment dates; insufficient information on medicine labels; and inconvenient medicine collection times.

Conclusion: The overall level of satisfaction with the CCMDD programme was high however the challenges highlighted must be addressed. It is recommended that CCMDD service monitoring be incorporated into the national core standards to improve and set a benchmark for the type of service afforded to patients.

INTRODUCTION

Access to medicines is considered a human fundamental right and forms a crucial part of universal health coverage (UHC)[1]. UHC means that hospitals, clinics, medicines, and doctors' services must be accessible, available, acceptable, and of satisfactory quality for all people and communities, without introducing the user to financial strain whilst using these health services [1] . A 2012 evaluation of the South African healthcare system conducted by the Health Systems trust has emphasized the need to prioritize medicine supply chains as they affect various aspects of access to medicines and healthcare utilization[2]. The adoption of National Health Insurance (NHI) by the South African government is a way forward in advancing towards UHC. The NHI is a health financing system that is intended to combine funds to provide access to quality affordable personal health services for all South Africans based on their health requirements[3].

The burden of chronic diseases is rapidly increasing worldwide. [4] It has been estimated that by 2030, 23 million people will die yearly from cardiovascular disease, with approximately 85% of these deaths happening in low- and middle-income countries (LMICs). South Africa is considered a middle income country in terms of its overall economy[5]. The impact of HIV and AIDS in Africa, and in sub-Saharan Africa has overwhelmed healthcare systems to the point that they are currently drowning under the increased burden of disease and are unable to deal with the demands of high-quality delivery of healthcare services. KwaZulu-Natal (KZN) has the highest prevalence due to HIV and AIDS (16.9%), contributing to the overburdening of the province's healthcare system[6]. Chronic conditions have become an indicator of the increasing health inequalities in LMICs, stressing the urgent need to introduce more valuable and cost-effective interventions to improve access to healthcare services [7] .

South Africa has a dual healthcare system comprising of the public sector and the private sector. Presently, of the estimated population of 55.5 million, about 84% of South Africans depend on the public health sector for their healthcare needs[8]. Only 16% of South Africans belong to medical aid schemes, and they are attended to by the private sector[8]. South Africa has an overburdened public healthcare system which is under-resourced and is often regarded as as being unsuccessful in terms of meeting its pledge of accessible, affordable

and appropriate health care[9]. Poor quality of care is provided as a result of high volumes of patients accessing minimal resources in the public healthcare sector[10]. The South African Government anticipates that NHI scheme once implemented will address the existing stark public–private divide by providing UHC based on patients rather than their ability to pay[3].

More than two billion people in low- and middle-income countries do not have adequate access to essential medicines[8]. A previous study conducted in South Africa by Harris et al.(2011), reported that transportation, cost and long waiting lines were the main barriers in access to healthcare[5]. Another study conducted in the Eastern Cape in South Africa by Schirenbeck et al. (2012), found that many patients to not have their own vehicles or cannot afford public transportation, compelling them to walk far distances to health service facilities to receive healthcare services. Transport is an essential aspect of access to health care, helping patients get to health facilities and the lack of transport could be a reason for patients not being able to access health care services [11]. Therefore, there is a need for the South African government to make medicines accessible to patients.

The availability of healthcare workers also forms an important aspect of access to quality health care. The number of pharmacists in South Africa employed in the public sector is less than half of what would be the norm in a typical middle-income country. Pharmacists in South Africa, particularly in the public sector, are faced with many challenges, including high workload and staff shortages[12]. The increasing burden of disease in South Africa together with the unequal allocation of healthcare workers between the well-equipped private sector and the poorly resourced public sector, and between urban and rural areas has hindered the ability of the South African healthcare system to function optimally[5].

Many changes and interventions have been applied to deal with the shortage of pharmacists and improve access to medicines by patients, such as the introduction of incentives and new models of centralized dispensing of medicines for chronic conditions [13] i.e. the central chronic medicines dispensing and distribution programme (CCMDD). The introduction of the CCMDD programme in 2016 targeted patients stable on chronic medicines and intended to minimize facility utilization in South Africa [13-15]. In rural areas, the CCMDD programme was intended at decreasing travel times and associated costs,

whereas in urban and semi-urban areas it focused on decreasing facility overcrowding and patient wait times [16].

The CCMDD programme

The CCMDD programme initiative is intended to make it convenient for patients to have access to their chronic medicines. It allows patients to pick up medicines in an alternate site that is convenient for them, closer to their home or work, rather than a health facility. Patients do not have to travel far and endure long waiting times to pick up chronic medicines at the hospital pharmacy[17]. One of the focuses of the CCMDD programme is to decrease the burden on the public sector pharmacists thereby allowing the pharmacists' role to be a more clinical one; therefore all patients who qualify for the programme must be enrolled. According to the standard operating procedure as set out by the National department of Health, patients, who are clinically stable, live within the catchment area of the hospital and are $\geq$18 years old can be enrolled onto the CCMDD programme. After a being evaluated by a doctor, only clinical stable patients can be enrolled onto the CCMDD programme. Patients who are not clinically stable and those with conditions requiring more regular observation (e.g. certain mental health conditions) or taking medicines requiring more precise control (e.g. benzodiazepines) should not be enrolled onto CCMDD programme[13].

As of November 2018, an estimated 1.7 million patients in KwaZulu-Natal were collecting their chronic medicine closer to their homes. Since the launch of the CCMDD programme in 2016, 4557 chronic medicine pick-up points have been established across Kwa-Zulu Natal[18]. As per personal email communication with the CCMDD service provider since inception of the CCMDD programme in 2016 there has been approximately 5303 chronic patients enrolled onto the programme at the government hospital facility at which the study is being conducted. According to the facilities monthly statistics conducted in June 2018, there were approximately 235 active chronic patients per month who were enrolled on the CCMDD programme to collect medicines at the collection sites (Pharmacy direct, 29th June 2018 personal communication)[19].

The CCMDD programme is one of the initiatives that will contribute to the successfull implementation of NHI in South Africa, leading to a better quality of life for South Africans and improved health outcomes across all socio-economic groups[14].Measuring patient satisfaction is important if service improvement is to be translated into outcomes meaningful to patients, especially improved quality of life. It is therefore essential to measure patients' satisfaction with pharmacy services related to the CCMDD system as it serves as a means to improve quality and patients' acceptance of the system as well as compliance with treatment due to ease of collection of medicines.

The rationale for this study and potential benefits/impacts

In the past, there have been numerous studies done to investigate patients' satisfaction towards pharmacy services, however there seems to be a paucity of studies in KwaZulu-Natal with regards to patient satisfaction with the CCMDD programme. The aim of this study is therefore to determine the level of satisfaction amongst patients enrolled on the CCMDD programme. The findings of this study would be important for policy makers who can use the information generated to understand patient perceptions and requirements with the CCMDD programme. Patients' satisfaction with the CCMDD programme is important to understand how the programme is being received. The successes and/or failures of the CCMDD programme can be used to provide feedback to policy makers and hospital management on areas that require improvement and therefore make the process of CCMDD a more patient-centred process.

METHODS

Study Design

The study adopted a quantitative approach using a cross-sectional descriptive design, where data was collected in the form of researcher-administered questionnaires. This design was implemented as it allowed the researcher an affordable way of collecting data from many individuals in a short period of time. A cross-sectional study allowed for the collection of data at a specific point in time. By collecting quantitative data, the attitudes, opinions and behaviours of patients towards the CCMDD programme was quantified. This descriptive

study permitted the illustration of the relationship between the CCMDD programme and patient satisfaction level.

Study Setting

The study was conducted at a district/regional government health facility in Durban, KwaZulu-Natal (KZN), South Africa. Data collection was conducted at only one medicine collection site, situated on the hospital premises, separated from the usual pharmacy collection area.

Study population and sampling strategy

The study population included both male and female patients of all races and educational status, socio-economic status, adults older than 18 years, who were enrolled on the CCMDD programme and collecting their own medication at the selected government health facility in Durban, KZN during the period 1st November to 30th November 2018.

Convenience sampling was used as the researcher was employed at the institution where data collection was conducted. Sample size was calculated using the website www.raosoft.com . A sample of 147 participants was required. The sample size calculator allowed for the generation of a sample size through a 5% margin of error at a 95% confidence interval with a 50% response rate and a population size of 235. The population size represented the number of patients that were actively collecting medicines on the CCMDD programme at the hospital.

Recruitment of participants

The recruitment of participants was performed by first explaining the goal of this study to eligible patients (according to the inclusion and exclusion criteria) at the medicine collection point and providing an information sheet (ANNEXURE 1). Patients who agreed to participate were asked to provide signed consent (ANNEXURE 2) and thereafter requested to complete a questionnaire (ANNEXURE 3).

The inclusion and exclusion criteria for participants

The inclusion criteria were: adult patients currently enrolled on the CCMDD programme at the KZN government health facility for $\geq$ 2 months; patients collecting their own medicines at the medicine collection points; and willingness of patients to provide informed consent for participation.

The exclusion criteria were: patients with unstable psychiatric conditions and therefore unable to complete the questionnaire; family members or friends authorized to collect medicines at the medicine collection points on behalf of the patient.

Data collection

The data collection was performed by means of a researcher administered questionnaire. The questionnaire consisted of three parts, the patient information leaflet and informed consent , the second part allowed for collection of demographic data and the third part consisted of closed ended questions with a Likert scale (with 5 possible responses) and an open ended question to capture qualitative information .

The questionnaires were distributed by the researcher in the mornings whilst patients who were on the CCMDD programme waited for their medicines at the collection site. Patients who were unable to read or write were assisted through the questionnaire by the researcher. The questionnaire was available in Zulu and English. 37% of responses received were in Zulu. All responses in Zulu were translated to English by two post-basic pharmacy assistants employed at the facility at which this study was conducted. The translation from Zulu to English was validated through the translation-back-translation process by these two pharmacy assistants. Part of the scope of practice of pharmacists assistants as mandated by the South African Pharmacy Council is to counsel patients hence these individuals were selected as they often speak to Zulu speaking patients and would be able to translate the English questionnaire to make it more understandable[20]. Anonymity and confidentiality was ensured by using a questionnaire that did not require respondents to divulge their identity. All research interactions were conducted in a separate private room situated away

from the public waiting area where the conversation could not be seen or over-heard by others.

Pilot study

A pilot study was conducted at the same medicine collection point on a sample of 20 patients with the same inclusion criteria to that of the main study sample to assess the clarity and understanding of the questionnaire content. The questionnaire was piloted in Zulu and English. The pilot study was used to ensure the questionnaire was clear and not ambiguous or misleading. Pilot testing revealed that questions were easily understood by the patients and no amendments were required.

Data analysis

The data collected was captured on a Microsoft Excel® spreadsheet. Data capturing was verified and validity checks were performed by proof reading the data entered on Microsoft excel® against the original document. All statistical procedures were performed on the Statistical package for social sciences (i.e. SPSS® version 25). SPSS® is a software programme that is used to conduct data entry and analysis and to create tables and graphs. SPSS® is has the ability to handle large amounts of data and was able to conduct all the analyses required for this study. Responses to the open-ended question asking for "other comments" were captured on Microsoft word® and common responses from patients were categorized and tabulated. Descriptive statistics was conducted in order to present the sample of interest according to socio-demographic characteristics, as well as general satisfaction of patients towards CCMDD.

The satisfaction level of the patients was described using percentage, mean and standard deviation. The standard deviation was used to quantify the amount of variation or dispersion of the set of data. The Mann Whitney test was employed to assess the difference in satisfaction of patients between genders. Kruskal-Wallis was used to determine the difference among age groups, employment status and educational level of the patients with regard to level of satisfaction with the CCMDD programme provided.

The use of Mann Whitney was appropriate as it is a non-parametric test that examines and compares two groups for data that is not normally distributed, whilst the use of Kruskal-Wallis was appropriate as it is also a non-parametric test that examines and compares data of two or more groups. The Mann Whitney test and Kruskal-Wallis analysis was performed on the SPSS software. A p-value of 0.05 was used for deciding statistical significance of differences observed.

Data Management

Completed questionnaires were filed and stored in a locked cupboard which was accessible only to the researcher. Data entered on Microsoft word®, Microsoft Excel® and SPSS® were stored under a password protected folder accessible only to the researcher.

Ethical Approval

Full Ethical approval was obtained from the University of KwaZulu-Natal's Biomedical Research and Ethics Committee (BE541/18-ANNEXURE 4 and 5). Approval from the Department of Health was obtained (KZ_201809_02-ANNEXURE 6) as well as permission from the data collection facility for the research to be undertaken at the specified health facility (ANNEXURE7).

RESULTS

Demographic overview

The demographic details of the respondents are provided in Table 1. A study population of 147 participants consisted of a majority of the participants between the ages of 40-49 (30%). More than half of the participants were female (60%) and of African ethnicity (64%). Approximately 46% of participants were unemployed. The highest level of education obtained by more than half of participants (59%) was high school.

Table 1: Socio-demographic characteristics of respondents, sample size (n=147)

Variable		
AGE		n(Percentages)
	18-29	9 (6%)
	30-39	38 (26%)
	40-49	44 (30%)
	50-59	33 (22%)
	60-69	13 (9%)
	70+	10 (7%)
GENDER		
	Male	59 (40%)
	Female	88 (60%)
RACE		
	Indian	53 (36%)
	African	94 (64%)
	Coloured	0
	White	0
	Other	0
OCCUPATION		
	Employed	44 (30%)
	Unemployed	68 (46%)
	Pensioner	35 (24%)
HIGHEST LEVEL OF EDUCATION		
	No formal education	15 (10%)
	Primary school	27 (18%)
	high school	87 (59%)
	higher education	18 (12%)

An assessment of the participants' responses provided on the questionnaire

Participants' responses to the Likert scale questions were analysed and tabulated (Table 2). The means were used to assess the satisfaction of participants towards the CCMDD programme and to determine the level of satisfaction. The resulting mean was interpreted by considering the closest Likert scale to it. A cut off mean score of 3.5 or more was considered as participants being satisfied with a particular aspect of CCMDD. The percentages for "strongly agree" and "agree" were added to provide an overall satisfaction percentage for the variable being measured.

According to Table 2, participants had relatively high satisfaction with cleanliness and comfort of the waiting area and with the waiting time until they received the service with a mean satisfaction of 4.14 and 3.86 respectively.

Participants (68%) were relatively satisfied with pharmacy staff being on time (prompt) at the medicine collection site with a mean satisfaction of 3.73. Most participants (86%) felt that the registration process to be enrolled onto the CCMDD programme was hassle free with a high mean satisfaction of 4.14. Participants (85%) were relatively satisfied with the times during which they were allowed to collect their medicine parcel scoring a mean of 3.95. Participants (89%) were also satisfied with the information provided on all the options of available collection sites, scoring a mean satisfaction 4.10. Participants (94%) felt that the labels on the medicines given to them in their parcel were clear and easy to read, mean satisfaction 4.33. Participants (89%) were satisfied with the courtesy and respect shown to them by the pharmacy staff at the medicine collection site.

As displayed in Table 3, majority of participants stated in the questionnaire that they do not often experience problems and queries with their medicine parcel received on the CCMDD programme. However, only 56% of participants were aware of the service provider's Toll-free number available if they did encounter problems with their medicine parcel. A high portion of participants (91%) indicated that the medicine collection point was convenient and within close proximity to them.

Table 2: Likert scale responses of participants' satisfaction with the CCMDD programme

Variable	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Mean	Standard deviation
I am satisfied with the waiting time for receiving my medicine parcel	30%	43%	14%	9%	4%	3.86	1.07
Pharmacy staff are on time (prompt) at the medicine collection site	26%	42%	15%	12%	5%	3.73	1.13
The times during which I am allowed to collect my medicine parcel are convenient	24%	61%	6%	6%	3%	3.95	0.92
The registration process for the medicine collection programme is hassle free	31%	55%	10%	4%	0%	4.14	0.75
Information on all the options of available collection sites is clear	29%	60%	7%	3%	1%	4.10	0.80
The labels on the medicine given to me in my parcel are clear and easy to read	42%	52%	4%	1%	1%	4.33	0.71
The waiting area at the medicine collection site is clean and comfortable	32%	58%	5%	3%	2%	4.14	0.82
I prefer collecting my medicines at the medicine collection site every month rather than the hospital pharmacy	30%	41%	7%	12%	10%	3.69	1.30
The courtesy and respect shown to me by the pharmacy staff at the medicine collection site is satisfactory	31%	58%	7%	1%	3%	4.15	0.78
The pharmacy staff provides me with clear instructions on how/when/where to collect my parcel	35%	56%	5%	1%	3%	4.20	0.82
Overall, I am happy with this service being provided	40%	52%	5%	0%	3%	4.27	0.79

Table 3: The percentages of responses to "Yes/No/Sometimes" questions

Variable	Yes (%)	No (%)	Sometimes (%)	TOTAL
I often have queries/problems with my medicine parcel.	6%	82%	12%	**100%**
I am aware of the service provider's Toll-free number available if I have any queries with my medicine parcel	44%	56%	0%	**100%**
The site where I go to collect my medicine parcel is convenient and close to me	91%	9%	0%	**100%**

To determine if the level of satisfaction differed between different socio-demographic groups, a Mann Whitney test and Kruskal-Wallis test were calculated using the SPSS® (version 25) package, represented in Tables 4 and 5 respectively.

Table 4: **Statistical significance testing (The Mann Whitney test) for gender**

Mann Whitney test				
	Gender	N	Mean Rank	Mann-Whitney sig test
Satisfaction scores of participants	Male	59	71.70	0.27
	Female	88	75.54	
	Total	147		

The Mann Whitney test was used to compare the satisfaction scores between males and females with CCMDD. As displayed in Table 4, there is not much difference between the mean ranks of males and females. Since $p>0.05$, there is no significant difference between the level of satisfaction between males and females ($p=0.27$)

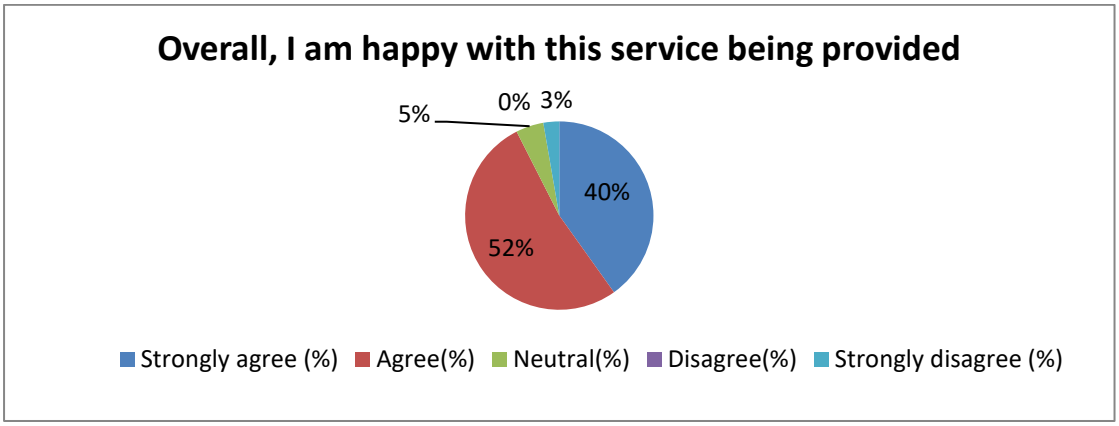
Table 5: Statistical significance testing (Kruskal-Wallis Test) for the different socio-demographic groups

Kruskal-Wallis Test			
Satisfaction scores			
Age range	N	Mean Rank	Kruskal-Wallis sig test
30-39	38	77.79	0.27
40-49	44	75.78	
50-59	33	69.95	
60-69	13	60.38	
70+	10	84.00	
Total	147		
Occupation			0.286
Employed	44	66.61	
Unemployed	68	78.07	
Pensioner	35	75.39	
Total	147		
Highest level of education			0.482
No formal education	15	83.47	
Primary school	27	71.67	
High school	87	71.27	
Higher education	18	82.81	
Total	147		

The Kruskal-Wallis test was performed to determine whether there is a statistically significant difference between some or all of the groups.

As displayed in Table 5, there was no significant difference between: the different age groups (Kruskal Wallis test is 0.27); different participants' occupation groups (0.286); and different levels of education (0.482) with regards to the level of satisfaction.

Figure 2 : **Overall participants' satisfaction with the CCMDD programme**



As displayed in Figure 2, Majority of participants were overall satisfied with the CCMDD service provided to them.

Additional comments from participants

The survey participants were further asked to comment or provide recommendations to improve the CCMDD service at the hospital. Comments/recommendations were categorized and tabulated (Table 6).

Table 6: Categories of participants' comments/ recommendations

CATEGORY	PARTICIPANT COMMENT/RECOMMENDATION
Medicine collection times. n = 11	*"The opening times to collect medicines are not good for people that are working because most companies operate from 8am to 5pm. My suggestion is that if the medicine collection could begin at 7am to accommodate working people, closing time should be 12:00. "*
	"I'm happy with the service, however I would like if the times allowed to collect our medicines where extended from maybe 7am to 10am".
	"Staff can be rude and they were supposed to give us our medicines at 8am, but come when they feel. They don't care that I need to go to work, may they want me to lose my job, I am not happy. The waiting times are very long."
Information provided n = 6	*"I do understand that sometimes the service given to us is delayed, but please give us information why. Sometimes we feel ignored".*
	"I get confused with the dates given to me. The doctor gives me one date and when I come to pharmacy they give me other dates. Why is this happening? "
	"Some of the labels on the medicine need to show what the medicine is for."

DISCUSSION

The results of this study showed that majority of the participants (92%) were overall satisfied with the service provided by the CCMDD programme. The high satisfaction scores provided by participants may indicate that participants are more likely to accept the service and therefore register for and make use of it. The CCMDD service therefore fulfils its role in increasing access to medicines therefore striving towards achieving universal health coverage as more patients would want to experience the benefits of this service. The CCMDD service in this study proved to be successful as it provided a satisfactory service to majority of the participants and thus supports the implementation of NHI in South Africa. Despite participants' satisfaction scores being high for the CCMDD service being offered, suggestions/comments were provided by participants as to how the service can be improved in the "other comments/recommendations" segment of the questionnaire. Challenges highlighted by participants included the lack of general and medical information provided to patients; confusion with appointment dates; insufficient information on medicine labels; and inconvenient medicine collection times.

According to the Hastings centre report conducted by Junewicz et al. (2015) there are three domains of patient satisfaction: the delivery of essential healthcare services, treatments required by patients and their relatives and the attitudes of the healthcare workers displayed towards patients [21]. The questionnaire used in this study contained these three domains and participants displayed a high level of satisfaction with all these domains used to measure participants' satisfaction with CCMDD programme.

Some studies have established that patient characteristics such as age and gender influence patient satisfaction and that all of these variables should be considered when evaluating patient satisfaction [22, 23] .Therefore the questionnaire in this study was designed to also collect information on demographics of participants. In this study, no significant differences were observed between the different socio-demographic groups with regards to the level of satisfaction with the CCMDD programme, indicating that the services of the CCMDD programme affected patients equally.

Operation times of the medicine collection sites

Majority of participants (85%) either strongly agreed or agreed that the medicine collection times were convenient. A suggestion made by participants in the "other recommendations/comments" segment of the questionnaire was for the medicine collection time to be earlier (at 7am). The reason for this, as stated by participants, was that this would allow them to get to work on time. It can be recommended that patients enrolled on CCMDD should be informed that they can collect medicine at a site that is close to their place of work when they register a new script. This would avoid them having to come to the hospital and taking time off work. It would also be possible for patients to collect on a weekend at these sites during a time that is convenient to them.

Information needs of patients

In this study, participants identified a lack of information provided to them. According to the results, majority of the participants (56%) were unaware of the Toll free number of the service provider if they had queries with their medicine parcel. Participants also raised concerns regarding insufficient information on medicine labels, confusion with appointment dates, the "feeling of being ignored" when waiting and inconvenient medicine collection times.

Majority of participants (94%) answered either strongly agree or agree that the labels on the medicine containers were clear and easy to read. Participants however stated a lack of information on the medicine container labels. Insufficient information on medicine container labels may have resulted because of the service providers' unawareness in delivering such information with a notion that patients are knowledgeable since it is chronic treatment being received by the patient on a monthly basis. Medicine labels contain valuable health information, and insufficient information on medicine labels may negatively affect patient adherence to chronic medicines [(24)] A study by Shrank et al (2007) stated that the label on a medicine container may not contain a particular warning if it was communicated verbally to the patient. The study therefore recommended that future studies be done to evaluate the extent to which pharmacies tailor warning information to patients [(24)]. A more in-depth study into the lack of information on the labels of medicine containers and providing feedback of the results to the service provider would result in an

improvement in the service provided. Improvements in the medicine container labelling may enhance patient understanding about the medicine and safe use, and may encourage better adherence [24].

It can also be recommended that the pharmacy staff counsel patients on their medicines once they receive their medicine parcel to ensure they understand the labels on the medicine containers before leaving the collection point. According to a study conducted by Larson et al. (2001), understanding and meeting patients "need to know" by providing essential information needed by the patient can produce more well-informed and capable patients who are able to support their own recovery from illness and control their own health[25].

Majority of participants (91%) either strongly agreed or agreed that pharmacy staff provided clear instructions on how/when/where to collect their medicine parcel. Some participants however, stated in the recommendation/suggestion segment of the questionnaire, a confusion with appointment dates. The facilitator of patient enrolment onto the CCMDD programme should reinforce the information given to patients upon enrolment to avoid confusion and unambiguous messages about appointment dates. The use of patient information leaflets to inform patients about the various aspects of CCMDD or talks given by the pharmacy assistant in the mornings whilst patients wait for their medicine parcels will empower patients with knowledge to gain control of their health. A survey conducted by Gibbs et al (1990) found leaflets to be effective when counselling patients and those patients who received leaflets were significantly more satisfied than the patients who were not given additional written information [26]. According to a study conducted by Behar et al. (2005), knowledgeable patients are better able to understand and control their own health throughout their lives. Patient understanding of information provided by healthcare providers results in improved patient satisfaction, improved adherence with treatment, enhanced outcomes, and reduced waiting times and costs[27].

Patient –centred care for CCMDD

A comment made by participants in the “other recommendations/comments” segment of the questionnaire was that they “feel ignored”. According to a study by Larson et al. (2001),

it was found that patient satisfaction can be improved if healthcare providers create an atmosphere that encourages conversation between the healthcare provider and the patient that allows them to identify the most important information to provide to patients and families [25]. It can be proposed that the pharmacy assistant has a 'question and answer' session each morning in Zulu and English whilst patients wait for their medicine parcel at the medicine collection points. However, according to a study by Kinnersley et al. (2008) some healthcare providers may lack the skill to assess the patients' information needs and to provide customized information [28]. It can be recommended to the hospital management that pharmacy assistants responsible for issuing medication at the collection site be provided with training to improve communication skills with patients thereby providing a CCMDD service that is more patient-centred.

Patient-centred care is a form of care that values the patient's understanding, needs and preferences in the planning, co-ordination and delivery of healthcare. Patient-centred care involves patients in decision making about their health and has proven to add to enhanced outcomes for patients, improved use of resources, reduced costs and increased satisfaction with healthcare [29].

Employing the established patient centred care approach into the CCMDD programme will attempt to empower patients to make lifestyle modifications, and improve their overall health and wellbeing. This would ultimately lead to patients being involved and eradicate the feeling of being ignored as mentioned by participants in this study. According to a study conducted by Little et al.(2001) in the United Kingdom to assess patient preferences for a patient centred approach, most patients want a patient-centred approach, this included a pleasant approachable healthcare professional who promotes healthcare and uses a partnership approach to help patients manage their health [30].

STRENGTHS AND LIMITATIONS

A quantitative approach using a cross-sectional descriptive design was adopted in this study, where information was collected in the form of researcher-administered questionnaires. This design was implemented as it allowed the researcher an affordable way of collecting

data from many individuals in a short period of time. Majority of questions posed were closed-ended which was less time-consuming for participants and easier to analyse. The quantitative data collected was coded and captured onto an Excel spreadsheet which was password protected which allowed for easy analysis of the data as well as maintaining confidentiality for each participant.

The study was done in a single government facility, at only one medicine collection point and was cross sectional in nature, thus the findings cannot be generalized.
Furthermore, a few of the participants may have provided extreme responses compared to others, due to their motivation and values which may have affected the findings of this study.

Researcher bias may have resulted from the researcher having to guide participants who could not read or write through the questionnaire.
Back-translation of Zulu to English could have affected results.

RECOMMENDATIONS

An internet application should be used to monitor the various elements of CCMDD. The application should allow managers on all levels (district, provincial and national) to monitor the progress made with CCMDD and whether it being adapted to meet patients' needs. The application should also give a National overview to the policymakers on the progress made with the CCMDD and create alerts to improve these services.

Although this study used a patient satisfaction questionnaire to collect quantitative data; perhaps a more in-depth qualitative study should be conducted in a separate study to gain more insight into the problems experienced with the CCMDD programme as well as patient preferences.

This study was cross-sectional in nature and therefore only provided a "snapshot" of the participants' satisfaction with the CCMDD service. Since aspects of this service provided to patients are always changing over time, continuous monitoring is recommended.

Furthermore, patient preferences need to be taken into account and a more patient-centred care approach adopted.

The use of patient information leaflets to inform patients about the various aspects of CCMDD or talks given by the pharmacy assistant in the mornings whilst patients wait for their medicine parcels will empower patients with knowledge to gain control of their health.

CONCLUSION

The overall level of satisfaction amongst participants with the CCMDD programme was high. Feedback from patient satisfaction surveys is an established measure for healthcare quality improvement plans, however these are still not being promptly utilized to improve the CCMDD service offered to patients. Finally, this study investigated the level of patient satisfaction with the CCMDD programme and provided an opportunity for organization managers and policy makers to use the information generated to better understand patient views and perceptions.

CCMDD service monitoring should be incorporated into the national core standards to improve and set a benchmark for the type of service provided to patients. Setting a benchmark for quality of service provided by the CCMDD programme will lead to a continuous monitoring of the programme allowing hospital managers to improve and adjust the CCMDD programme according to patients' needs. This is an ongoing process of assessment, redesign and monitoring that will ensure that the CCMDD system is constantly evaluated and, where necessary, enhanced to improve quality.

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CHAPTER 4: CONCLUSIONS

4.1 Introduction

This final chapter highlights the purpose and significance of conducting the study, describes the strengths and limitations, the conclusions drawn from the findings of the study, and recommendations for future research.

4.2 Purpose of conducting the study

The aim of this study was to determine the level of satisfaction of enrolled patients with the CCMDD programme. Measuring patient's satisfaction with pharmacy services is important as it serves as a means to improve upon the quality of service provided to patients as well as patients' acceptance and compliance with treatment. The benefit of measuring patient satisfaction with the CCMDD programme is that it provides policy makers and hospital management with insight into the effectiveness of the service provided as well as the opportunity to identify areas requiring improvement.

4.3 Conclusions drawn from study findings

- The first objective in this study was to determine the level of satisfaction of enrolled patients with the CCMDD programme. It can be concluded that the overall level of satisfaction amongst participants with the CCMDD programme was high, indicating that the CCMDD service provided at the hospital was successful in meeting the needs of the patients enrolled on the programme, however there were still some challenges highlighted by patients.
- The second objective of this study was to identify areas of the CCMDD programme that required improvement. Challenges identified with the CCMDD service provided to patients included: a lack of general and medical information provided to them; confusion with appointment dates; insufficient information on medicine labels; and inconvenient medicine collection times.
- The third objective in this study was to determine if the level of satisfaction differs with the CCMDD service between the different socio-demographic groups and was met by conducting statistical testing (Kruskal-Wallis test and the Mann Whitney

test). It can be concluded from the insignificant results of these statistical tests that the level of patient satisfaction with the CCMDD programme between the different socio-demographic groups did not differ.

- The fourth objective of this study was to make recommendations to policy makers and hospital management for improvement in the quality of the CCMDD service offered to patients. This objective was met by reviewing the challenges experienced by patients and making recommendations to overcome these challenges as well as stating methods in which policy makers and hospital management can continuously monitor patient satisfaction with the CCMDD service. (Refer to subsection 4.7.2 for recommendations).

4.4 Significance of the study

- The findings from this study will assist hospital managers to improve the quality of the CCMDD service offered to patients at the selected facility.
- The findings of this study will be shared with policy makers and hospital managers on all levels (locally, provincially and nationally) thereby creating awareness of patient satisfaction and identified areas for improvement.
- It is envisaged that the findings from this study paves the way in assisting policy makers to include CCMDD service monitoring in the national core standards to improve and set a benchmark for the type of service provided to patients. Setting a benchmark will lead to an ongoing monitoring of the CCMDD programme allowing hospital managers to improve and adjust the programme according to the needs of the patients thereby strengthening the healthcare system.
- This study may form the basis to extend such studies across the province to evaluate and monitor the quality of the CCMDD service provided to patients.

4.5 Strengths of the study methodology and design

A quantitative approach using a cross-sectional descriptive design was adopted in this study. Data was collected in the form of researcher-administered questionnaires and majority of questions posed were closed-ended which was less time-consuming for participants to

answer and easier to analyse. The use of this design provided a cost-effective way of collecting information from many participants in a relatively short period.

The quantitative data collected was coded and captured onto a password protected Excel spreadsheet. This allowed for easy analysis of the data as well as maintaining confidentiality for each participant.

4.6 Limitations of the study

The findings of this study cannot be generalized as this study was done in a single government facility, at only one medicine collection point and was cross-sectional in nature.

The findings may have been affected by some of the respondents possibly providing extreme responses compared to others, due to their motivations and beliefs.

Participants who could not read or write were guided through the questionnaire by the researcher and this may have resulted in researcher bias.

Back-translation of Zulu to English could have affected results.

4.7 Recommendations

4.7.1 Recommendations for future research

- A more in-depth qualitative study should be conducted where patients should be interviewed to provide more insight into the successes and challenges experienced with the CCMDD programme. This may also provide an indication of patient preferences to further improve the service.

4.7.2 Recommendations to policy makers and hospital management

- The development of an internet application could afford policy makers and hospital managers on all levels (district, provincial and national) the ability to monitor progress made with the CCMDD program and adjust the program according to the changing needs of patients.
- This study provides a "snapshot" of participants' satisfaction with the CCMDD service as this study was cross-sectional in nature. Since elements of this service provided to patients are always changing over time, there needs to be continuous monitoring

of it by hospital management, patient preferences need to be taken into account and a more patient-centred care approach adopted. It can be recommended that repeat questionnaires be annually distributed which will prompt action by hospital managers to enhance the programme according to the ever changing needs of patients.

- CCMDD service monitoring should be incorporated into the national core standards to improve and set a benchmark for the type of service given to patients, which should lead to an ongoing process of monitoring the programme.

- Hospital management can empower patients with knowledge to gain control of their health by distributing patient information leaflets to inform patients about the various aspects of CCMDD or through talks by the pharmacy assistant in the mornings whilst patients wait for their medicine parcels.

4.8 Chapter summary

This chapter recapped the purpose and significance of conducting the study, described the strengths and limitations, discussed the conclusions drawn from the study findings and recommendations for future research and those to policy-makers. The chapter further highlighted the importance of monitoring the level of patient satisfaction with the CCMDD programme and called for policy makers and hospital management to engage in a process of continuous monitoring to strengthen the programme and ultimately the healthcare system.

ANNEXURES:

ANNEXURE 1: PATIENT INFORMATION SHEET

TITLE OF STUDY

The level of satisfaction of patients enrolled on the Central Chronic Medicine Dispensing and Distribution programme at a government hospital in KwaZulu-Natal

PRINCIPAL INVESTIGATOR
Zenisha Mahadeo

Pharmacy Department

100 Phoenix Highway, Mount Edgecombe

0315021719

zenishamahadeo@yahoo.com

PURPOSE OF STUDY

You are being asked to take part in a research study as part of my degree requirements for Masters in Pharmacy Practice which I am currently completing at UKZN. This research will be conducted under the supervision of Dr Velisha Ann Perumal-Pillay and approval obtained from the Biomedical Research Ethics Committee. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information. The purpose of this study is to determine the level of satisfaction amongst patients with the Central Chronic Dispensing and Distribution programme.

STUDY PROCEDURES

Please note that you must be older than 18 years old to participate in this study. Participation is voluntary and you may decline or withdraw at any time without consequence. You will be given a questionnaire to fill in and return to the researcher. The questionnaire will take about 15minutes to complete. The questionnaire contains statements about your satisfaction with the medicine collection programme and you will need to tick ONE appropriate box.

RISKS
If you agree to participate in the study, you are not likely to experience any risk or unique discomfort from answering these surveys. You will not receive any payment or direct personal benefit or reward from this research. You may decline to answer any or all questions and you may terminate your involvement at any time if you choose.

BENEFITS
There will be no direct benefit to you for your participation in this study. However, we hope that the information obtained from this study may improve the medicine collection service that is offered to you.

CONFIDENTIALITY

Your responses to this questionnaire will be anonymous. Please do not write any identifying information on your questionnaire. Every effort will be made by the researcher to preserve your confidentiality including the following:

- Assigning code names/numbers for participants that will be used on all research notes and documents
- Keeping notes, interview transcriptions, and any other identifying participant information in a locked file cabinet in the personal possession of the researcher.

CONTACT INFORMATION
If you have questions at any time about this study you may contact the researcher whose contact information is provided on the first page. If you have questions regarding your rights as a research participant, or if problems arise which you do not feel you can discuss with the Primary Investigator, please contact the Biomedical Research Ethics Committee at (031) 260-4769.

VOLUNTARY PARTICIPATION
Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this study will not affect the relationship with medical staff or affect your treatment.

ANNEXURE 2: INFORMED CONSENT FORM

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

Participant's signature _____ Date _____

Investigator's signature _____

ANNEXURE 3: QUESTIONAIRE

Questionnaire ID:
Collection point:
Date and Time:
Data collector's name:

DEMOGRAPHIC DETAILS

THE FOLLOWING ARE FOR DEMOGRAPHIC STATISTICS ONLY. PLEASE TICK ONLY ONE OPTION

AGE

- ☐ 18-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60-69
- ☐ 70+

GENDER

- ☐ Male
- ☐ Female

RACE

- ☐ Indian
- ☐ Black
- ☐ Coloured
- ☐ White
- ☐ Other

OCCUPATION

- ☐ EMPLOYED
- ☐ UNEMPLOYED
- ☐ PENSIONER

HIGHEST LEVEL OF EDUCATION

- ☐ No formal education
- ☐ primary school
- ☐ high school
- ☐ Higher education

FOR THE FOLLOWING QUESTIONS, PLEASE TICK ONE APPROPRIATE BOX

1) I am satisfied with the waiting time for receiving my medicine parcel

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

2) Pharmacy staff are on time (prompt) at the medicine collection site

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

3) The times during which I am allowed to collect my medicine parcel are convenient

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

4) The registration process for the medicine collection programme is easy and hassle free

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

5) I often have queries/problems with my medicine parcel

☐ Yes

☐ No

☐ Sometimes

6) I am aware of the Toll free phone number I can call if I have queries with my medicine parcel

☐ Yes

☐ No

7) The information provided to me by pharmacy staff on all the available options of medicine collection sites is clear.

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

8) The labels on the medicines given to me in my parcel are clear and easy to read

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

9) The waiting area at the medicine collection site is clean, safe and comfortable

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

10) The site where I go to collect my medicine parcel is close to my home or place of work

☐ Yes

☐ No

11) I prefer collecting my medicines at the medicine collection site every month rather than the hospital pharmacy

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

12) The courtesy and respect shown to me by the pharmacy staff at the medicine collection site is satisfactory

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

13) The pharmacy staff provides me with clear instructions on how/when/where to collect my parcel

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

14) Overall, I am happy with this service being provided to me

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

15) Do you have any other comments/recommendations? (Please write in the space provided below)

_____

_____

_____

_____

_____

_____

ANNEXURE 4: ETHICS APPROVAL CERTIFICATE

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

25 October 2018

Ms Z Mahadeo (205508808)
School of Health Sciences
College of Health Sciences
zenishamahadeo@yahoo.com

Protocol: The level of satisfaction of patients enrolled on the Central Chronic Medicine Dispensing and Distribution program at a government hospital in KwaZulu-Natal: a cross-sectional study.
Degree: MPH **BREC Ref No: BE541/18**

EXPEDITED APPLICATION: APPROVAL LETTER

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application received on 24 August 2018.

The study was provisionally approved pending appropriate responses to queries raised. Your response received on 22 October 2018 to BREC letter dated 16 October 2018 have been noted by a sub-committee of the Biomedical Research Ethics Committee. The conditions have now been met and the study is given full **ethics approval** and may begin as from 25 October 2018. Please ensure that site permissions are obtained and forwarded to BREC for approval before commencing research at a site.

This approval is valid for one year from **25 October 2018.** To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be noted by a full Committee at its next meeting taking place on 13 November 2018.

We wish you well with this study. We would appreciate receiving copies of all publications arising out of this study.

Yours sincerely

Prof V Rambiritch
Chair: Biomedical Research Ethics Committee

Supervisor: Perumalv@ukzn.ac.za Postgrad admin: nengo1@ukzn.ac.za

Biomedical Research Ethics Committee
Professor V Rambiritch (Chair)
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Telephone: +27 (0) 31 260 2486 **Facsimile:** +27 (0) 31 260 4609 **Email:** brec@ukzn.ac.za
Website: http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx

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ANNEXURE 5: ETHICS APPROVAL RECERTIFICATION

UNIVERSITY OF
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI
RESEARCH OFFICE
Biomedical Research Ethics Administration
Westville Campus, Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BREC@ukzn.ac.za
Website http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx

28 January 2020

Ms Z Mahadeo (205508808)
School of Health Sciences
College of Health Sciences
zenishamahadeo@yahoo.com

Dear Ms Mahadeo

Protocol: The level of satisfaction of patients enrolled on the Central Chronic Medicine Dispensing and Distribution program at a government hospital in KwaZulu-Natal: a cross-sectional study.
Degree: MPH
BREC Ref No: BE541/18

RECERTIFICATION APPLICATION APPROVAL NOTICE

Approved:	25 October 2019
Expiration of Ethical Approval:	24 October 2020

I wish to advise you that your application for Recertification received on 04 December 2019 for the above protocol has been **noted and approved** by a sub-committee of the Biomedical Research Ethics Committee (BREC) for another approval period. The start and end dates of this period are indicated above.

If any modifications or adverse events occur in the project before your next scheduled review, you must submit them to BREC for review. Except in emergency situations, no change to the protocol may be implemented until you have received written BREC approval for the change.

The committee will be notified of the above approval at its next meeting to be held on 10 March 2020.

Yours sincerely

Prof V Rambiritch
Chair: Biomedical Research Ethics Committee

Supervisor: Perumalv@ukzn.ac.za
Postgrad admin: nenep1@ukzn.ac.za

ANNEXURE 6: DEPARTMENT OF HEALTH APPROVAL TO CONDUCT RESEARCH

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

Physical Address: 330 Langalibalele Street, Pietermaritzburg
Postal Address: Private Bag X9051
Tel: 033 395 2805/ 3189/ 3123 Fax: 033 394 3782
Email:
www.kznhealth.gov.za

DIRECTORATE:
Health Research & Knowledge Management

Ref: KZ_201809_027

Dear Ms Z Mahadeo
(UKZN)

Subject: Approval of a Research Proposal:

1. The research proposal titled **'The level of satisfaction of patients enrolled on the Central Chronic Medicine Dispensing and Distribution program at a government hospital in Kwa-Zulu Natal: a cross-sectional study'** was reviewed by the KwaZulu-Natal Department of Health.

   The proposal is hereby **approved** for research to be undertaken at Mahatma Gandhi Memorial Hospital.

2. You are requested to take note of the following:

   a. *Kindly liaise with the facility manager BEFORE your research begins in order to ensure that conditions in the facility are conducive to the conduct of your research. These include, but are not limited to, an assurance that the numbers of patients attending the facility are sufficient to support your sample size requirements, and that the space and physical infrastructure of the facility can accommodate the research team and any additional equipment required for the research.*
   b. *Please ensure that you provide your letter of ethics re-certification to this unit, when the current approval expires.*
   c. *Provide an interim progress report and final report (electronic and hard copies) when your research is complete.*

3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za

For any additional information please contact Ms G Khumalo on 033-395 3189.

Yours Sincerely

Dr E Lutge
Chairperson, Health Research Committee
Date: 19/10/18.

ANNEXURE 7: PERMISSION TO CONDUCT RESEARCH AT THE FACILITY

health
Department:
Health
PROVINCE OF KWAZULU-NATAL

HOSPITAL

Physical Address:
Postal Address:
Tel: Fax: Email: kznhealth.gov.za
www.kznhealth.gov.za

Reference: Research 06/18

17 July 2018

MS ZENISHA MAHADEO
COLLEGE OF HEALTH SCIENCES

RE: PERMISSION TO CONDUCT RESEARCH AT HOSPITAL

I have pleasure in informing you that permission has been granted to you by Hospital to conduct research on "The level of satisfaction of patients enrolled on the Central Chronic Medicine Dispensing and Distribution program at a government hospital in Kwa-Zulu Natal: a cross-sectional study".

Please note the following:

1. Please ensure that you adhere to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
2. This research will only commence once this office has received:
   a. Approval of your study from the Provincial Health Research and Ethics Committee (PHREC) in the KZN Department of Health.
   b. Full Ethics approval.
3. Please ensure this office is informed before you commence your research.
4. The Hospital will not provide any resources for this research.
5. You will be expected to provide feedback on your findings to the Hospital.
6. You are required to contact this office regarding dates for providing feedback when the research has been completed.

MEDICAL MANAGER

HOSPITAL

PHARMACY MANAGER

Fighting Disease, Fighting Poverty, Giving Hope

ANNEXURE 8: SOUTH AFRICAN FAMILY PRACTICE SUBMISSION GUIDELINES:

Original Research Article full structure

Word limit	7000 words (excluding the structured abstract and references)
Structured abstract	250 words to include a Background, Methods, Results and Conclusion
References	40 or less
Tables/Figures	no more than 7 Tables/Figure
Ethical statement	should be included in the manuscript

Title: The article's full title should contain a maximum of 95 characters (including spaces).

Abstract: The abstract, written in English, should be no longer than 250 words and must be written in the past tense. The abstract should give a succinct account of the objectives, methods, results and significance of the matter. The structured abstract for an Original Research article should consist of four paragraphs labeled Background, Methods, Results and Conclusion.

- Background: Summarize the social value (importance, relevance) and scientific value (knowledge gap) that your study addresses.
- Methods: Clearly express the basic design of the study, and name or briefly describe the methods used without going into excessive detail.
- Results: State the main findings.
- Conclusion: State your conclusion and any key implications or recommendations.

Do not cite references and do not use abbreviations excessively in the abstract.

Introduction: The introduction must contain your argument for the social and scientific value of the study, as well as the aim and objectives:

- Social value: The first part of the introduction should make a clear and logical argument for the importance or relevance of the study. Your argument should be supported by use of evidence from the literature.
- Scientific value: The second part of the introduction should make a clear and logical argument for the originality of the study. This should include a summary of what is already known about the research question or specific topic, and should clarify the knowledge gap that this study will address. Your argument should be supported by use of evidence from the literature.
- Conceptual framework: In some research articles it will also be important to describe the underlying theoretical basis for the research and how these theories are linked together in a conceptual framework. The theoretical evidence used to construct the conceptual framework should be referenced from the literature.
- Aim and objectives: The introduction should conclude with a clear summary of the aim and objectives of this study.

Research methods and design: This must address the following:

- Study design: An outline of the type of study design.
- Setting: A description of the setting for the study; for example, the type of community from which the participants came or the nature of the health system and services in which the study is conducted.

- Study population and sampling strategy: Describe the study population and any inclusion or exclusion criteria. Describe the intended sample size and your sample size calculation or justification. Describe the sampling strategy used. Describe in practical terms how this was implemented.
- Intervention (if appropriate): If there were intervention and comparison groups, describe the intervention in detail and what happened to the comparison groups.
- Data collection: Define the data collection tools that were used and their validity. Describe in practical terms how data were collected and any key issues involved, e.g. language barriers.
- Data analysis: Describe how data were captured, checked and cleaned. Describe the analysis process, for example, the statistical tests used or steps followed in qualitative data analysis.
- Ethical considerations: Approval must have been obtained for all studies from the author's institution or other relevant ethics committee and the institution's name and permit numbers should be stated here.

Results: Present the results of your study in a logical sequence that addresses the aim and objectives of your study. Use tables and figures as required to present your findings. Use quotations as required to establish your interpretation of qualitative data. All units should conform to the SI convention and be abbreviated accordingly. Metric units and their international symbols are used throughout, as is the decimal point (not the decimal comma).

Discussion: The discussion section should address the following four elements:

- Key findings: Summarize the key findings without reiterating details of the results.
- Discussion of key findings: Explain how the key findings relate to previous research or to existing knowledge, practice or policy.
- Strengths and limitations: Describe the strengths and limitations of your methods and what the reader should take into account when interpreting your results.
- Implications or recommendations: State the implications of your study or recommendations for future research (questions that remain unanswered), policy or practice. Make sure that the recommendations flow directly from your findings.

Conclusion: Provide a brief conclusion that summarizes the results and their meaning or significance in relation to each objective of the study.

Acknowledgements: Those who contributed to the work but do not meet our authorship criteria should be listed in the Acknowledgments with a description of the contribution. Authors are responsible for ensuring that anyone named in the Acknowledgments agrees to be named.
Also provide the following, each under their own heading:

- Competing interests: This section should list specific competing interests associated with any of the authors. If authors declare that no competing interests exist, the article will include a statement to this effect: *The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.* Read our policy on competing interests.
- Author contributions: All authors must meet the criteria for authorship as outlined in the authorship policy and author contribution statement policies.
- Funding: Provide information on funding if relevant

- Disclaimer: A statement that the views expressed in the submitted article are his or her own and not an official position of the institution or funder.

References: Authors should provide direct references to original research sources whenever possible. References should not be used by authors, editors, or peer reviewers to promote self-interests. The referencing must adhere to Vancouver referencing style.

Formatting requirements:

Referencing style guide: The manuscript must adhere to the Vancouver referencing style.

Language: Manuscripts must be written in British English, according to the Oxford English Dictionary [avoid Americanisms (e.g. use 's' and not 'z' spellings), set your version of Microsoft Word to UK English].

Page and line numbers: Include page numbers and line numbers in the manuscript file.

Font type: Use a standard font size in any standard font family.

Line spacing: 1.5

Headings: Ensure that formatting for headings is consistent in the manuscript. Limit manuscript sections and sub-sections to four heading levels. Make sure heading levels are clearly indicated in the manuscript text. Do not number headings.