Perceptions of people living with human immunodeficiency virus regarding the use of a dolutegravir-based regimen, Limpopo Province

ZR Sibeko

orcid.org/0000-0002-6374-3763

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Supervisor: Mr BJ Molato

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Student number: 39637646

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DEDICATION

I would like to dedicate this work to my late mother, Betty Thoko Sibeko who was a loving mother and a great advisor and my late brother, Jacob Themba Sibeko. I will forever cherish your memories in my heart.

I would also like to dedicate this work to my Father Timothy Mlema and my sister, Else Thembi Sibeko who have been great pillar of strengths and inspired me to follow my dreams.

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DECLARATION OF ORIGINALITY

I Zandile Rachel Sibeko, declare that this dissertation entitled, **Perceptions of people living with human immunodeficiency virus regarding the use of a dolutegravir-based regimen, Limpopo Province,** is my original work and that it has not been submitted before for any degree or examination at any other institution. All the sources that have been used or quoted have been acknowledged by means of complete references in the text and the reference list.

ZANDI RACHAEL SIBEKO DATE: 24 Nov 2022

ACRONYMS LIST

AIDS- acquired immunodeficiency syndrome.

ART- Antiretroviral therapy

DoH- Department of Health

DTG – dolutegravir

HIV- Human immunodeficiency virus

PLWHA- people living with HIV/AIDS

ABSTRACT

Background: Progress to manage HIV has been implemented over the years and introduction of antiretroviral therapy (ART's) has been a great achievement. Dolutegravir (DTG) is the current drug of choice due to its numerous benefits thus the World Health Organisation (WHO) recommended it as the first and second line treatment for HIV and AIDS. However, challenges have emerged due to its use which leads to discontinuation of treatment. Dearth of literature to understand the new drug from the patients' perspective is evident, thus the study seeks to explore and describe perceptions of PLWHA regarding the use of DTG based regimen in Limpopo.

Objectives: To explore and describe perceptions of PLWHA regarding the use of dolutegravir based regimen in Limpopo province

Methods: A qualitative, explorative-descriptive and contextual design was followed. Twelve individual semi structured in depth interviews were conducted. Non-probability, purposive sampling was used and sample size was determined by data saturation reached. Transcribed data was analyzed using thematic data analysis to generate themes and sub themes. Ethical considerations and trustworthiness were ensured throughout the study.

Results: Four main themes emerged namely, Acceptance to the new treatment of dolutegravir, level of knowledge regarding the new treatment, the burden of knowledge regarding the new treatment of dolutegravir, the burden of taking ART treatment and the reasons to non-adherence to Dolutegravir

Conclusion: Findings have shown great acceptance of the new treatment by participants. The importance of taking treatment was also evident although majority of participants lack knowledge about the actual treatment.

Keywords: Perceptions, HIV, Dolutegravir, People living with HIV

SECTION 1: OVERVIEW OF THE STUDY

1. Introduction

Human Immunodeficiency Virus (HIV)/ Acquired Immunodeficiency Syndrome (AIDS) have been and still continue to be a public health crisis (Dona et al., 2021:2). It remains a sensitive topic that poses threat to human existence. The World Health Organization (WHO, 2022:1), defines Human immunodeficiency virus (HIV) as an infection that attacks and destroys the body's immune system, particularly the CD4 cells making the body's immune system weak to fight other illnesses. belongs to a group of retroviruses characterized by long interval between initial infection and the onset of serious symptoms. The authors further state that HIV remains a serious epidemic with its growth continuing to increase globally and AIDS being the 4th leading cause of death worldwide. According to the latest global HIV statistics of 2019/2020 by The Joint United Nations Program on HIV/AIDS (UNAIDS) (UNAIDS, 2020:1), people living with HIV (PLWHA) accounted to approximately 44.5 million globally with more than 970 000 AIDS related deaths being reported. UNAIDS reports that the burden of HIV/AIDS remains more concentrated in the Eastern and Southern African region accounting for more than 23 million people living with HIV by the end of 2019. According to World Health Organisation (WHO, 2020:1), there are approximately 38 million people living with HIV (PLWHA) globally.

HIV and AIDS continue to be a public health issue with Sub Saharan Africa having the highest HIV prevalence. Simelela and Venter (2014:249) state that South Africa (SA) is the epicentre of the HIV and AIDS epidemic worldwide, with the first HIV case being discovered in 1982. To date, SA's total number of PLWHA is estimated at 7.8 million, with 18.7% of the population ranging from15-49years of age (Stat SA, 2020:1).

Since the identification of the first HIV and AIDS related case, so much progress has been done to manage the disease. The era of antiretroviral therapy (ART's) has been the greatest weapon to date. Continuous research has made it possible to manage the disease. The introduction of new ARTs such as dolutegravir and review of already existing ARTs such as Efavirenz has been done to further better the lives of PLWHA.

2. Background of the study

According to a study by Morison (2021:7) the first HIV/AIDS related cases identified in the early 1981 among gay men in United State of America (USA). According to the Global Burden of Disease (GBD) HIV collaborators (2015:1), the creation of the Joint United Nations Program on HIV/AIDS (UNAIDS) in 1996, the Global Funds to Fight AIDS, Tuberculosis and Malaria in 2003 and the US President's Emergency plan for AIDS Relief (PEPFAR) in 2003 were all the development strategies necessary to combat the HIV epidemic.

The latest global HIV statistics of 2019/2020 by The Joint United Nations Program on HIV/AIDS (UNAIDS, 2020:1), states that people living with HIV (PLWHA) are approximately 44.5 million globally with more than 970 000 AIDS related deaths. The Centre for Disease Control and Prevention (CDC) (2008:1) estimated a 1.1 million of PLWHA in the United States, with the majority of them being non-whites. According to a study conducted in the Western Pacific by Dona *et al*. (2021:1), about 60% of the global population of PLWHA are from the Asia Pacific region, which by WHO' definition refers to both the South East Asia and the Western region. The author further states that the Asia Pacific region is ranked the second region after Sub-Saharan Africa to have the highest population of PLWHA. Morison (2021:7) also states that the HIV prevalence varies according to different regions and the SSA is ranked the first as it contains more than 70% of PLWHA compared to other regions.

According to Kharsany and Karim (2013:34), SSA is home to only 12% of the world's population but it accounts to more than 70% of the global burden of HIV infection. The authors further give a breakdown of the HIV prevalence in the SSA, with South Africa at 25%, Nigeria at 13%, Mozambique, Uganda, Zimbabwe and Kenya at 6%, Zambia and Malawi at 4% and lastly Ethiopia at 3%. Looking at the statistics given by Kharsany and Karim, South Africa seems to face the most rapid growth of HIV/AIDS epidemic in the world.

According to Simela and Venter (2014:249-250), the first HIV case in SA was reported in 1982 followed by an AIDS related death which was recorded in 1985. The ratification to delay intervention to manage HIV, particularly under the leadership of the honourable President Thabo Mbeki caused devastating consequences for SA (Hogg *et al*. 2017:2). The act to delay proper intervention to manage HIV and AIDS led to so many SA people dying due to HIV and AIDS related deaths. To this date, SA still harshly faces the consequences of the delay that was made under the leadership of the former President Thabo Mbeki. In 2009, under the then newly elected President Jacob Zuma and the then Minister of Health (MoH) Dr Aaron Motswaledi, the roll out of antiretroviral therapy (ARTs) began to reach people (Simela& Venter, 2014:250).

Prof Yunus Moosa, president of Southern African HIV Clinician (2019:3), states that HIV is now recognised as a chronic condition that is well managed and with a near normal life expectancy provided

that effective treatment is being taken. For four decades, major improvement has occurred since the start of ARTs. The first line treatment to manage HIV and AIDS comprised the Nucleoside reverse transcriptase inhibitors (NRTIs) such as Stavudine (d4T) and non-nucleoside reverse transcriptase inhibitor (NNRTI's) such as Nevarapine (NVP) which were known for their long-term toxicity and later replaced by Efavirenz (EFV) based regimen (Victoria *et al.* 2018:1552).

In 2013, the fixed dose combination was introduced with Efavirenz (EFV) being preferred as the first line treatment of HIV by World Health Organisation (WHO) until June 2018 where the introduction of dolutegravir based regimen commenced (Kouanfack *et al*. 2019:823). WHO also recommended the use of EFV as it had positive effects in reducing the prevalence of low Bone Mineral Density (BMD). Stavudine was merely the cause of low BMD thus it was replaced by EFV (Dave, 2015:2). However, EFV was challenged and questioned for its worth as first line treatment due to its adverse effects. Meintjies (2017:3) argued that resistance profile for EFV was developed faster and discontinuation of treatment amounted to 10% overall in SA. The rising resistance of HIV to EFV posed a threat to the success of the global scale up of ARTs, thus the switch to implementation of Dolutegravir (DTG) based regimen to further improve the management of HIV and AIDS.

Dolutegravir is an integrase strands transfer inhibitor, the recent class of antiretroviral drugs which have joined the pharmacotherapy agents to fight against HIV and AIDS (WHO, 2019:2). According to Victoria *et al*. (2018:1552) approximately 60 low income and middle income countries had adopted or planned to adopt DTG based regimen in their national treatment guideline by 2017. Countries such as Brazil, Botswana, Kenya and Uganda were the first to roll out DTG based regimen to their patients. According to WHO (2019:1), the DTG based regimen can be a fixed dose combination of Dolutegravir with two non-nucleoside reverse transcriptase inhibitors (NNRTIs) as first line treatment for adults and adolescents. It can be a fixed dose of Abacavir (ABC), Lamivudine (3TC) and Dolutegravir (DTG) or either Tenofovir disoproxil fumurate (TDF), Lamivudine (3TC) and Dolutegravir (DTG).

The WHO (2019:1), also recommended the use of DTG based regimen as the preferred first and second line treatment for both naïve and experienced HIV positive patients due to its superior tolerability and a lower risk of resistance and its advantage of being economically affordable. Although every drug has adverse effects, WHO (2019:1) indicated that patients believed adverse effects caused by DTG were minor and did not amount to strong reasons for discontinuation of treatment and that would increase adherence to treatment. In 2017, Brazil recommended the use of DTG based regimen as the first line ART treatment for both naïve and experienced patients. Suppression of viral load was seen among those on DTG based regimen, with 81% being <50 copies after three months of treatment compared to 61% of those on EFV based regimen (Philips, 2021:1). WHO (2019:2) refers to a study that was revised in Botswana in 2016 on the use of DTG based regimen on pregnant women and the results revealed that a small percentage of

pregnant women developing neural defects after six weeks of conception. However more revised studies are needed.

Nabikita *et al*. (2020:5) state that there is a higher level of acceptability to DTG based regimen by both naïve and experienced patients in Uganda and Nigeria accounting to 90% reporting minor adverse effects which were not self-limiting. The high efficacy, its robustness, drastic drop in viral load and safety profile that was demonstrated by DTG based regimen positioned it as the preferred option.

Povar-Echeverria *et al*. (2020:79) agree that a level of high acceptability to DTG based regimen was established. Although DTG based regimen has had great outcomes to help in the management of HIV and AIDS, it was found to have some unpleasant adverse effects to some patients which caused a higher than expected discontinuation to treatment. The authors' further point out that adverse effect during trial studies was lower and somewhat relatively higher during real life studies with weight gain being the most common bothering adverse effect which caused discontinuation to treatment. A study by Hoffmann (2016:18) reflected that there was an increased percentage of discontinuation in patients on DTG based regimen due to neuropsychiatric adverse effects with the common ones being insomnia, sleep disturbances, dizziness and painful paraesthesia. De Boer *et al.* (2016:2831) agree that discontinuation was due to intolerable adverse effects and neuropsychiatric symptoms that ranged the highest with a percentage of 5.6 % on insomnia, sleep disturbances, anxiety and depression, followed by 4.3% of gastrointestinal complaints.

The discontinuation of treatment can be safely highlighted as a concern and threat to the progress already made to fight against HIV. National Cancer Institute (2018:1) defines adverse effect as an effect of a drug that is beyond the desired effect but rather unintended effect occurring at a normal dose as a response to use of medicine. Therefore, it should be kept in mind that medication presents some risks associated with its consumption. With that being said, it is not entirely possible to determine whether or not there will be adverse reaction. Adverse effects such as nausea and vomiting, headache, to name a few are regarded as not serious adverse effects. Most DTG adverse effects include minor side effects such as nausea and vomiting which should not be a reason for discontinuing treatment.

An online newspaper article written by Green (2020:1) indicates that according to the National Department of Health (NDoH) spokesperson Popo Maja, there are approximately 1.3 million people living with HIV who have been switched from other regimens to DTG based regimen since the rollout of DTG in 2018. The author further states that there was a delay in the rollout of DTG based regimen due to its conspiracy to have caused neutral tube defects in pregnant women. There are, however, limited studies that have been conducted about DTG in SA to understand an in-depth knowledge of DTG based regimen, particularly from a patient's perspective. Therefore, there is a need for further research to gain more understanding. The proposed study will not be a continuation or stem from any previous clinical trial studies.

3. Problem statement

Over the past years, numerous research studies have been conducted to understand the HIV epidemic and how to manage it effectively. The introduction of ARTs has been the most powerful tool to manage the disease and its access gave PLWHA and AIDS a chance to live a normal life. According to WHO (2019:2), The fixed dose combination containing the Non-nucleoside reverse transcriptase inhibitors (NNRTIs), the EFV regimen, being the first line of treatment for HIV caused a significant reduction in HIV and AIDS related deaths. Although NNRTI's made a drastic improvement in the management of HIV and AIDS, challenges such as resistance to the NNRTIs started to arise which needed to be dealt with. The WHO ? year reports that Uganda and South Africa amount to a higher percentage rate of resistance to NNRTIs, and account to 20% and 25% respectively. The rising concern of HIV resistance to NNRTIs posed a threat to the progress already achieved and the continued use of such regimen will increase risks of treatment failure and further transmission of drug-resistant virus. Therefore, the integrase strands transfer inhibitors, with DTG being the most available one, especially in the SSA, was started to address challenges caused by the NNRTIs.

DTG regimen was recommended by the WHO as the preferred treatment for HIV and AIDS due to its high efficacy potential. In addition, DTG regimen has been reported to have limited adverse effects and fewer chances of patients developing resistance due to its higher generic barrier and its fewer drug interactions also makes it to be highly tolerable (WHO, 2019:1). The literature on dolutegravir based regimen has largely focused on assessing its therapeutic efficacy, particularly with regard to viral load suppression. However comparatively little empirical attention has been devoted to understanding the perceptions of PLWHA regarding the use of dolutegravir based regimen. Understanding these perspectives is important to ensure that the treatment regimen is as effective and well received as possible. Different studies that have been conducted about DTG in South Africa were focusing on the effectiveness of the treatment, its tolerability and viral load suppression. So far, perceptions of PLWHA regarding the use of DTG based regimen remains unknown. Given that, the researcher deems it necessary to conduct the study regarding the phenomenon, particularly in Limpopo Province. Exploring the perceptions of PLWHA regarding the use of DTG based regimen will assist in formulation of the recommendations to address the perceptions identified.

The researcher is a Nurse Initiated Management of Anti-Retroviral Therapy (NIMART) nurse who worked at Elandskraal clinic for two years and six months. The clinic gave care to three surrounding villages, namely Elandskraal, Morarela and Mbuzini. During her time, she managed to switch and initiate at least most of the population in those villages who were eligible to be on DTG regimen. Almost 90% of naïve and experienced patients who were eligible to be on DTG regimen were initiated or switched respectively. The provision of adequate information about DTG as it was a new drug to patients decreased the level of reluctance to switch from experienced patients. The positivity was observed as most of the patients who

were initiated or switched to a DTG regimen reported not having any or having limited adverse effects to the new treatment and that posed limited chances of treatment discontinuation. Other advantages of the new drug were enhanced energy and stimulation of appetite. There was also a rapid decrease of viral load copies within the first three months in patients initiated and or switched to DTG based regimen. Although the switch of patients to DTG regimen was of high importance to address the problems caused by NNRTIs, it also presented new challenges. Some patients reported adverse effects that were uncomfortable and self-limiting such as rash, intense nausea vomiting and heavy menstrual bleeding to women, which resulted in discontinuation of treatment, causing a delay to the progress made to give PLWHA a chance to live a normal life. Therefore, understanding of patients' point of view, their perceptions regarding their use to dolutegravir based regimen is deemed important to address further.

4. Research Question(s)

The following was the research question for this study:

What are the perceptions of PLWHA on the use of dolutegravir regimen in Limpopo Province?

5. Research aim(s) and objective(s)

The following were the research aim and objective of the study.

5.1 Research aim

The aim of the study was to explore and give description of the perceptions of PLWHA regarding the use of dolutegravir based regimen in Limpopo province.

5.2 Research objective(s)

The following was the objective of the study:

To explore and describe the perceptions of PLWHA regarding the use of Dolutegravir based regimen in Limpopo Province.

6. Significance of the study

6.1 Nursing practice

The findings of the study may enhance an in-depth knowledge to health care workers to further understand the pharmacodynamics of DTG based regimen. The study may also contribute to formulation of policies and guidelines regarding DTG based regimen as well as developing controlled measures to enhance compliance taking into consideration the perceptions of PLWHA regarding the use DTG based regimen.

6.2 Nursing Education

The study may contribute to the existing body of knowledge in nursing education and provide an in-depth understanding regarding the use of DTG based regimen. This may be added into the nursing curriculum based on the understanding of perceptions of participants on DTG based regimen.

6.3Nursing research

The information gained from the study may also be incorporated into nursing research and serve as future guide for other researchers who want to further increase knowledge on these phenomena.

7. Conceptual definition

7.1 Human immunodeficiency virus and Acquired immunodeficiency syndrome

According to Clinical info HIV. Gov (2021: 4), Human Immunodeficiency Virus (HIV) is defined as a virus that attacks only the human body immune system and can lead to Acquired Immunodeficiency Syndrome (AIDS) which is defined as the disease that attacks the immune system caused by HIV infection. AIDs its further stated to be the most advance stage of the HIV infection. To be diagnosed with AIDS, a person must have at least one AIDS defining condition such as carposi sacorma and a CD4 count of less than 200 copies. when HIV disease progresses without being treated. According to Center for Disease Control and Prevention (CDC, 2021:1) HIV has four stages, with stage 1 namely being acute HIV infection or asymptomatic, stage 2 Chronic HIV infection, stage 3advanced HIV disease progression and stage 4being AIDS. For the purpose of this study, HIV is the virus that affects the immune system of the body and AIDS is the end stage of HIV.

7.2 Dolutegravir regimen

According to National Cancer Institute (2018:1), dolutegravir is an integrase strand transfer inhibitor with activity to integrase from binding to retroviral deoxyribonucleic acid (DNA) of HIV type 1. The dolutegravir regimen that the study focused on was the Tenofovir, Lamivudine and dolutegravir regimen.

7.3 Perception

Qiong (2017:18), states that in philosophy, perception is defined as a process of attaining awareness or understanding of sensory information. In order to interact with the physical world, it is then necessary to process information from it with the purpose of making sense of the world. For the purpose of this study, perceptions refer to the views, knowledge, experiences and what PLWHA think about the use of DTG based regimen.

7.4 People living with HIV.

According to Clinical info HIV.gov (2021:132), people living with HIV (PLWHA) are defined as infants, children, adolescents, and adults who are HIV positive. For this study, PLWHA refers to HIV positive clients, adults who are on dolutegravir based regimen period of six months and more.

8. Study design

According to Polit and Beck (2017:743), research design is defined as an overall plan for addressing a research question, including specifications to enhance the study's integrity. This study has followed a qualitative explorative-descriptive-contextual design. Botma *et al*. (2010:288) state that an exploratory design is used when there is little knowledge about the problem under study. A descriptive design is described by Burns and Grove (2011:35) as a design that is used to identify problems with current practice and rationale for current practice. Polit and Beck (2018:302) describe contextual design as naturalistic and that it desires to understand how things work in real life. Therefore, this research design, namely explorative-descriptive-contextual was deemed appropriate by the researcher to assist in understanding the real-life situation by exploring and giving a description of perceptions of PLWHA regarding the use of DTG based regimen in Limpopo Province.

9. Research method

Burns and Grove (2011:154) define research methods as the expertise used to gather and analyse the collected data to answer the research question. Semi-structured, individual interviews were used as the method of choice for this study and have provided an extensive depth of knowledge about the phenomena studied.

9.1 Study context

The main focus of the study was to explore and give a descriptive view of the perceptions of PLWHA regarding the use of DTG based regimen in Limpopo one of the nine Provinces in South Africa. This is deemed important to add light and more insight to the knowledge that is available about DTG based regimen, although limited.

The study was conducted in Sekhukhune district, Ephraim Mogale sub-district in Limpopo Province. The sub district had approximately 8 clinics. The researcher used a systematic sampling to select every 3rd clinic on the list of clinics provided from the district information health system. Each clinic treats roughly 400 PLWHA per month. Each clinic serves almost three villages which are more or less 10-15kms apart. Limpopo is said to be home to approximately 11, 8% of the South African population, with the 3 main ethnic groups being, The Northern Sotho or BaPedi, VhaVenda and VaTsonga speaking people (Stats SA, 2022:1). Three clinics were selected using systematic sampling to be included in the study.

9.2 Population and sampling

The researcher elaborated further on the population and sampling that was chosen for this study as indicated below.

9.2.1 Population

Polit and Beck (2018:243) refers to population as the entire group of interest the researcher intends to investigate. The population for this study were PLWHA, both naïve and experienced, who have been on DTG based regimen for a minimum period of six months. The targeted population were patients attending health care services at the various selected clinics of Sekhukhune district in Limpopo Province. The researcher chose the above-mentioned population due to the fact that they might have experience and knowledge about DTG based regimen as they have been taking the treatment for six months or more.

9.2.2 Sampling

The sampling size, technique as well as the selection criteria for this study is discussed below.

9.2.3 Sampling size

Polit and Beck (2012:535) states that sample size in qualitative research methods are often smaller than those used in a quantitative study. This is because qualitative research methods seek to gain in depth understanding of the phenomena studied. For the purpose of this study, there was no specific sampling size. Sample size was determined by data saturation reached. The sample consisted of adults females and males living with HIV and AIDS who are on DTG based regimen.

9.2.4 Sampling technique

The study followed a non-probability sampling approach to meet its objectives. Brink and Grove (2011:295), states that the researcher chooses non probability sampling when unable to locate the entire population and where access to participants is limited. Furthermore, the author states that not all individuals in the population have equal chances of being selected. Due to the sensitivity of the topic studied, the researcher was aware that she might not be able to access the entire population thus non probability sampling was deemed appropriate. Purposive sampling technique was also followed to best help the researcher to understand the phenomena studied.

The researcher selected participants based on an idea that they would best answer the research question of the study. Only participants who had the characteristics needed for this study were considered key informants to fulfil the research objective were selected. Therefore, the sampled population contained characteristic representation of the population of PLWHA on DTG regimen for at least a minimum period of six months. Due to the sensitivity of the topic and the stigma that is still surrounding HIV and AIDS, the

researcher also selected participants from the available population that had come to attend healthcare services for that day, provided that they met the criteria of the study.

9.2.5 Selection criteria

The selection criteria or sampling criteria is referred to as the characteristics that are essential to the membership of the targeted population (Burns& Grove. 2011:366). This assists to limit the population to only the one of interest and to fulfil the aims of the study. Below is a discussion of the inclusion and exclusion criteria that was chosen with the justification for this study.

- **Inclusion criteria**

Inclusion criteria	Justification
PLWHA on DTG based regimen for a minimum of a period of six months and more	they may have adequate knowledge to give about DTG based regimen
Males and females aged 18 to 45 years.	They may be mature enough and have the intellect to give sound responses regarding the use of DTG based regimen

- **Exclusion criteria**

Exclusion criteria	Justification
PLWHA on DTG based regimen for less than six months.	They may not have an in depth of knowledge to give rich information on their perceptions regarding the use of DTG based regimen.
PLWHA on other ART based regimen.	They do not meet the criteria to fulfil the objective of the study.

Children and old age people (anyone below 18 years and above 45 years) and mental health care users.	To avoid bias and manipulation of participants.
PLWHA with other medical conditions such as kidney disease, tuberculosis.	They may not be reliable in giving their experiences and perceptions regarding the use of DTG based regimen, as they might give perception for other drugs.

9.3 Data collection

According to Offredy and Vickers (2013:100) data collection is an essential part of any research project. It involves the systematic gathering of information that is relevant to the research problem being studied. The authors further state that data collection can take form of surveys, observations, and interviews to name a few.

Data collection was done through semi-structured individual interviews to gain primary information from the participants regarding their perceptions on the use of DTG based regimen in Limpopo province. It also enabled the researcher to probe the participants according to their responses in order to gain in depth information about the topic. Data were collected during interview sessions with the use of audio recorder. Field notes were also recorded to ensure that every detail was well captured and summarized without disturbing the flow of the interview process or distracting the participants. The researcher maintained the COVID-19 regulations and restrictions. Although lockdown had been ceased, the researcher ensured that safety precautions to prevent the spread of COVID-19 such as wearing of cloth face mask and maintaining distance of 1.5 to 2 meters frequent sanitization of hands were adhered to.

9.3.1 Data collection instrument tool / Interview schedule

The researcher used semi-structured interview schedule as a data collection tool for this study as it provided participants with the opportunity to describe their perceptions according to their own words instead of being forced to think along the lines of questions pre-established to favour the researcher.

The researcher had individual interview sessions with participants to get in-depth knowledge about the topic. However, the length of the interview sessions was determined by how much of views, knowledge, or perceptions the participant had about the topic. An audio recorder was used to record the discussions with the participant's permission.

The interview sessions were structured as follows:

As the lockdown restrictions were stopped, the researcher proceeded with face to face interviews. The sensitivity of the topic which still involved HIV stigma issues required an individual interview to build rapport and get in depth understanding about perceptions of participants regarding the use of DTG based regimen. A private room was requested from the selected clinics to maintain anonymity and confidentiality of participants and prevent by-passers from identifying them. The private room was well ventilated. COVID-19 regulations were not strictly followed, however wearing of cloth mask and social distance were maintained.

9.3.2 Data collection process

Data were collected during individual interview sessions. A digital voice recorder was used during the sessions to record data and field notes to ensure that every detail on the perceptions of PLWHA regarding the use of DTG based regimen in Limpopo province was well-captured. All participants were greeted and treated with respect. Open ended questions were asked to ensure that rich information was obtained. Probing was also done to ensure that the researcher had a deeper understanding of the participants' understanding. . Paraphrasing was used to ensure that clarity of the stories from participants were well captured. All participants were thanked at the end of every individual interview session for their participation.

9.3.3 Data analysis

Polit and Beck (2012:725), define data analysis as an orderly organization and synthesis of the study according to the study's objectives. Thematic analysis was used as the appropriate analysis for this study. The following thematic analysis steps were used for this study:

Step 1: Familiarization of data – the researcher familiarized herself with the data collected. She listened to recordings and read notes taken during interviews and transcribed the data.

Step 2: Generating initial codes- the researcher read the transcribed data more than once to identify similar patterns that are of interest to create codes.

Step 3: Searching for themes- the list of different codes that were generated were then collated and relevant potential themes emerged.

Step 4: Reviewing of themes- themes were revised to ensure they are relevant and qualified as being themes. The researcher ensured that data within each theme created cohered together meaningfully.

Step 5: Defining and naming themes- when thematic mapping of the data was satisfactory done, the researcher defined and named themes accordingly.

Step 6: Producing the report- when themes were fully worked out, the final analysis was done whereby the researcher wrote the report of the findings. Co-coding was also done.

10. Rigour / Trustworthiness

In a qualitative research study, it is important that trustworthiness is carried out to ensure that the study conducted is necessary. Trustworthiness refers to the confidence, accuracy, and truth the researcher has in the research study (Polit & Beck, 2017:559). In this study, the principle of credibility, confirmability, dependability, and transferability were adhered to in order to ensure trustworthiness was maintained.

The researcher strived to disseminate true data findings that reflected perceptions of the participants about the use of DTG based regimen.

- **Credibility**: Botma et al. (2010:233) refer to credibility as the confidence the researcher has in ensuring that the findings are correct and truthful. In this study, credibility was maintained through fulfilment of prolonged engagement, member checking and triangulation.
    - **Prolonged engagement**: Guba and Lincoln (1985) define prolonged engagement as the process of spending sufficient time in the field with participants to understand the phenomena being studied. The advantage of prolonged engagement is that it allows the researcher to detect and account for any distortions that might be in the data. It also builds trust between the researcher and the participants. Prolonged engagement with participants was achieved however it depended solely on the level of knowledge the participants had about the topic.
    - **Member checking**: Polit and Beck (2017:743), describe member checking as a continuous confirmation of the accuracy of data, themes and interpretation of data with members where data were originally collected. The researcher informed the supervisors of any formation of themes and interpretation of findings to ensure that credibility was maintained. The input of supervisors ensured that the themes and findings of the study were a true reflection of the perceptions of PLWHA regarding the use of DTG based regimen in Limpopo province. Member checking was done at the end of each interview session where the researcher confirmed by showing the participants the notes taken during the interview sessions and getting verbal clarity to ensure that the message was taken the exact way that the participant tried to convey it.
    - **Triangulation:** Lincoln and Guba (1985) say triangulation involves using multiple data sources in an investigation to ensure that rich, robust, and comprehensive information is yielded. For the purpose of this study, triangulation was enhanced by conducting individual interview sessions with participants to capture in depth information about the perceptions of PLWHA regarding the use of DTG based regimen in Limpopo province.

- **Dependability:** Botma *et al*. (2010:233) refer to dependability as the consistency of the research findings. To ensure dependability, the researcher reported in detail the processes of the study to enable the readers to have an extent and proper background of the research practices that were followed. Interview notes and tape recordings were handed to the supervisors and an independent subject for analysis and audit, to assist with data sorting and to ensure that there was consistency and accuracy of data over time. A thick description of data was reported which included how data gathering and analysis was handled. This will assist future researchers to be able to depend on the findings that were reported in this study when conducting similar studies.
- **Transferability**: It refers to the stability of data findings over time and under other conditions (Botma *et al*. 2010: 234). When determining transferability, the audience must be given evidence that data findings of this study can be repeated with the same population in a similar context and still have the same results. To ensure that transferability was maintained, the researcher made available to the reader comprehensive and thick descriptive information about the setting and context of the research process to allow evaluation of the study should the reader decide to apply the findings in another setting. The reader could then determine if the results could be transferable or not.
- **Confirmability:** Guba and Lincoln (1985) refer to confirmability as a degree of neutrality to which the findings of the study are shaped by the participants and not the researcher's expectations. In this study, a trial audit was utilized to ensure that no biasness had taken place and that the findings are a true reflection of the participants' responses. The audio tape used to capture data during individual interview sessions were sent to external audit.

11. Ethical considerations

Pilot and Beck (2017:743), refer to ethics as the equality of the research procedures and adherence to professional, legal, and social obligations to the research participants. Botma *et al*. (2010:56), state that when research involves interaction with human beings, it is the responsibility of the researcher to ensure that participants are not subjected to harm and disrespect. It is therefore important that the research study does not expose participants to any form of harm, physical, emotional, or psychological. Ethical consideration was adhered to in the following manner: The research proposal was submitted to the research ethics committee, the school of health of the North-West University granted approval prior to commencement of the study. The principles of justice, beneficence and autonomy were also maintained.

- **Justice**: this refers to the fact that participants should be exposed to fair treatment (Botma *et al*. 2010: 53). The researcher ensured that the principle of justice was maintained with the following:
- **The right to fair treatment:** the researcher gave all participants fair treatment as well as showed respect for the beliefs, socioeconomic status, and cultural difference of all participants without

discrimination of any form. Participants who refused to be part of the study or withdraw in the middle of the study were allowed and assured that they would not receive ill treatment.

- **Right to privacy:** Privacy was maintained by ensuring that participants' responses are not traced back to them. This was achieved by use of a coded number to refer to participants instead of their real names. The researcher ensured that information of participants was kept in a locked cupboard in the office of the supervisor. A Private room at the selected clinics was used to avoid any disturbances and by-passers identifying the participants.
- **Beneficence** is defined by Botma *et al.* (2010:21), as the person's right to be protected from harm.As the study involves a sensitive health issue- HIV and AIDS, which is still surrounded by stigma, emotional triggers may be expected since participants may have to relive their experiences when they first discovered about their HIV status. The researcher ensured to minimize any potential harm by being sensible and understanding to the participants. It was further ensured that participants were aware of their rights to voluntarily participate and to withdraw from the study without having any negative impact on the health care services they were supposed to receive at the clinic. Some clinics where the research was conducted had either a psychologist or social worker on site. Pre-arrangements were made with the psychologist or social worker at the selected clinics and to enlighten them about the dates of data collection so that they could be available during those dates of data collection to provide psychological support should a need arise.

The researcher was aware that participants might experience adverse effects to the treatment although that could rarely occur provided that the inclusion criteria was patients who were on DTG based regimen for six months and above and more likely have adjusted to the treatment with no to less adverse effects. However, if such incidences occurred, the participants would be referred to professional nurses on duty at the selected clinics to give an immediate intervention to the identified side effects. For minor adverse effects, the researcher would advocate immediate management. If adverse effects persisted, the researcher would motivate to consider referral to a doctor for further management. However, during data collection, most participants did not have any current side effects and only reported on side effects that they had had and were resolved, therefore, no referrals were done.

- **Autonomy** is defined as the respect to person by respecting their ability to decide whether they want to participate in the study or not (Botma *et al*. 2010:23). The researcher gave full disclosure of the context of the research process and thereafter sought for a written informed consent from the participants prior to participating in the study. The researcher respected every participant's intelligence and allowed them to make decisions for themselves. Autonomy was also fulfilled by making participants aware that they could withdraw from the study whenever they felt like they wanted to without any penalties.

- **Confidentiality:** the researcher protected the participants' right to confidentiality by ensuring data collected were not traceable back to the participants. The researcher made use of a study ID Letter instead of the participants' real name to maintain confidentiality. The researcher ensured that the records were kept safe and out of reach of any unauthorised person for the duration of the study and would be destroyed to ensure no tracing back to the participants could be made by any means.

11.1 Legal authorisation

The research proposal was sent to the scientific review committee of the North West University (NWU) School of nursing for approval. The next step was to seek ethical clearance from the NWU Health Research Ethics Committee (NWU-HREC) prior to conducting the study. Approval to conduct the study was also sought from the Limpopo department of Health (DoH) and Sekhukhune district through email to access the selected clinics. The study received all necessary approvals to be conducted.

11.2. **Goodwill permission/consent**

The researcher sought permission in writing from the operational nursing managers of the selected clinics to access the premises and recruit prospective participants for the study.

11.3 Monitoring and Evaluation

The researcher and the supervisors complied with the approved proposal. It was ensured that the management of science and ethics is carried throughout the research process and that it was in line with the NWU-HREC guidelines. Should there be a need for any changes during the execution of the research study, a report with those changes would be compiled for the NWU-HREC to notify promptly and seek approval of the amendments. In this study, there were no changes during the execution of the research study, therefore no reports were written to the NWU-HREC. There was no need for appointment of a monitoring committee for this study; however, supervisors monitored the process of the research study. There will also be submission of monitoring reports to the NWU-HREC committee as required, to have a view of the progress of the research study.

11.4 Recruitment of participants

Permission was requested from Limpopo health district and Sekhukhune sub-district manager as they represent the Limpopo DoH. Those were the gatekeepers of the study as their role was that of controlling and monitoring who had access to their premises. After permission was granted, the researcher notified the Operational Managers (OPMs) of the selected clinics through email communication.

Pamphlets were used to recruit prospective participants at the selected clinics where study was conducted. The pamphlets had the title of the study, brief information of the study background, objectives of the study, and steps taken to ensure that privacy and confidentiality would be maintained. Recruitment pamphlets

were posted on the information board at all selected clinics. The OPMs were the mediators for this study as they were not involved in the study to avoid biasness and coercion of prospective participants. Their role was to assist in informing prospective participants about the study pamphlets that were posted on the information board of the clinics. The pamphlets were translated in the well-spoken languages in the community which were English and Sepedi. Contact details of the research assistant, the researcher and the supervisors were available on the pamphlets. Prospective participants, who showed interest to be part of the study, contacted the research assistant. If not reachable, they then contacted the researcher or supervisors to set a date for the obtaining of informed consent. In most cases, the research assistant was contacted.

The research assistant was someone who was not part of the study but had a degree in nursing, good clinical practice certificate and Ethics training to understand the process of research. A confidentiality agreement form, and declaration form was signed by the research assistant as an indication that she agreed not to share information of the study discussed by the participants, researcher, and supervisors with anyone.

11.5 Process of obtaining informed consent

Informed consent is said to be the cornerstone of the ethical conduct and regulation of the study . Informed consent is state to be an ongoing process and it's a legal document that serves as proof for participant willingly agreeing to be part of a particular study after been given adequate information about the study in order to make an informed decision (South Africa Department of Health,2020:12). After successful recruitment of participants, the research assistant facilitated the process of obtaining consent form from the participants.

The research assistant was the only independent person to obtain informed consent from the participants. She engaged with each participant as the study unfolded. A written informed consent that outlined the title, background and purpose of the study was given to participants so that they could make an informed decision either participate in the study or not. Participants who were willing to read through the informed consent were encouraged to do so, however, a verbal explanation was also given by the research assistant based on the participant's needs. For those who could not read the informed consent by themselves, research assistant went through the form with them to ensure they had a clear understanding of the intentions of the study. Medical terminologies were minimized to ensure that participants had a thorough understanding of the intentions of the study.

Participants were informed that their participation in the study was solely voluntary and that they could decide not to participant or to withdraw from the study at any time. It was also explained that withdrawal from the study would not result in any punishment or prevent them from receiving the health care services at their selected their clinics.

In cases where the participants were illiterate, a witness would be requested during the process of obtaining informed consent. This would have been done to ensure that the research assistant would not coerce prospective participants. However, all participants were literate, and a witness was not used. A consent form was given to participants to take home for a period of 14 days prior to data collection to give them sufficient time to make an informed decision. Informed consent form had the research assistant, researcher and supervisors contact details so that the prospective participant could be able to contact any one of them when decision to participate had been made. Informed consent forms were translated into languages spoken in the community which were Sepedi and English. When participant had decided to participate, the research assistant assisted in signing of the informed consent form. An original copy remained with the research assistant and was given to the researcher for the purpose of record keeping and a copy would be given to the participant.

Consent to participate in the study did not only follow the DoH (2015) guideline but also followed recommendations done by NWU-HREC. As the lockdown was relaxed, there were less restrictions when conducting the research. Only wearing of cloth masks, using a ventilated room and social distancing of 2.5 to 2 meters was maintained.

Probable experience of participants

It was explained to participants that they might experience feelings of anxiety during participation in the study because the study would need them to open about their personal experiences as people living with HIV and AIDS on DTG based regimen.

11.6 Risks and benefits

Every research study has potential risks and benefits especially research that involves human beings. It is the responsibility of the researcher to ensure that the potential benefits of the study outweigh the risks.

11.6.1 Risks and precautions

The following were the listed risks of the study as well as precautionary measures to be taken to ensure risks were being minimized.

Potential risks (e.g., physical, emotional, or psychosocial risks)	**Precautions** (When describing these precautions, be clear on how they will mitigate all the identified risks)
Possible adverse effects	When side effects occur or participants report to have side effects during interview sessions, the

	researcher will refer the participant to professional nurses on duty at the selected clinics to give an immediate intervention to the identified side effects. For minor adverse effects, the researcher advocated for their immediate management. If adverse effects persist, the researcher will motivate for considering referral to the doctor for further management. Participants did not report any current side effects during interview sessions. Therefore, there was no referral to professional nurses.
Psychological risks (possible risk of emotional discomfort, fear of embarrassment and stigma, psychological distress)	Pre-arrangements were made with the psychologist or social worker at the selected clinics and to enlighten them about the dates of data collection so that they can be available during dates of data collection to provide psychological support should a need arise. Participants were informed of the potential psychological risks that they might have such as depression, feelings of guilt and anger as they may have to relive the experiences when they discovered their HIV status being positive. The researcher will encourage participants to indicate when feeling overwhelmed and that they can take a break anytime during the interview session. During interview sessions, participants were encouraged to take breaks or stop the interview when they felt overwhelmed. Through researcher's observation, no participants showed signs of psychological distress.
Possible fatigue and hunger from participation	Participants were made aware of the anticipated length of interview sessions. The researcher will strive to limit time to avoid fatigue. Light snack will be provided at the end of interview session for participants. Interview sessions did not last more

	than 35 minutes. However, no participants showed any signs of fatigue.
Possible risk COVID 19 infection to the researcher, participants, mediators and gatekeepers.	A room with closing door and sufficient ventilation was utilized for the interview sessions. Participants, the researcher, research assistant, mediators and gatekeepers wore cloth masks during the entire research study and sanitized their hands after every 15 minutes to prevent the spread of the virus. Social distancing of 1.5 to 2meters was maintained to prevent the spread of the virus.

11.6.2 Anticipated benefits

The anticipated benefits from this study are as follows:

Direct benefits for participants	**Indirect benefits** for society at large or the researchers/institution
There won't be any possible direct benefits for participants on this study.	Adequate knowledge will be generated about understanding the new drug; DTG as the first line for the treatment of HIV and AIDS as recommended by WHO. New and proper intervention will be implemented through understanding the perception of participants on DTG regimen to reduce discontinuation rate.

11.6.3 Risks/benefit analysis

Minimal risks were anticipated for participating in this study. Participants may experience emotional distress as they will be expected to engage during individual interview sessions in a sensitive discussion about their HIV status which may make them relive the moment they discovered that they were HIV positive. Arrangements were made with the psychologist and social worker on site to offer emotional

support should a need arise during data collection. When side effects to medicine occurs or are reported by participants, the researcher will refer the participant to professional nurses on duty at the selected clinics to give immediate intervention to the identified side effects. For minor adverse effects, the researcher will advocate their immediate management. If adverse effects persist, the researcher will motivate to consider referral to the doctor for further management. However, no psychological distress and current side effects were experienced by participants.

Although it was anticipated that participants would have exhaustion due to the length of the individual interview sessions, the maximum interview sessions were thirty minutes and most of participants showed no signs of exhaustion.

Risk of COVID-19 transmission may occur; the researcher ensured that safe precautions to prevent spread of infection were maintained. Individual interview sessions were conducted in a well ventilated room; participants and researcher adhered to wearing of cloth masks for the duration of the individual interview sessions. Sanitizing of hands and keeping to a distance of 1, 5 to 2 meters was also maintained. Although this study had minimal anticipated risks, the researcher ensured that proper intervention was done to manage the anticipated risks. This then makes the benefits of the study to outweigh the risks.

11.7 Respect for participants

The principle of respect for person refers to decision to protect a person's dignity and autonomy.

- **Dignity:** The researcher ensured that all participants were treated and referred to with utmost respect regardless of their economic status, race, and cultural background. The researcher introduced herself so that the participants would know whom they were talking to. Dignity was also protected by means of ensuring that confidentiality was maintained. The researcher made it clear to participants that their identity would not be revealed at any stage of the research process, including when findings were being disseminated.
- **Autonomy:** The researcher showed respect to participants' intelligence and did not undermine their thinking capacity. She strived not to make decisions on behalf of the participants. She made participants aware of their right to autonomy and encouraged them to use it. Participants were told about their freedom of speech and right to choose to be part of the study. If at any stage the participants wished to withdraw from the study, they were told they could do so without any penalties.

11.8 Measures to ensure privacy.

The researcher ensured that privacy was maintained by ensuring that data collected could not be traced back to the participants. The researcher made use of coded numbers instead of personal names during the study

to avoid any form of tracing the responses back to the participants. This was done to ensure that privacy was maintained. Individual interview sessions were held in a private room. A “no disturb” sign was placed at the door when interview sessions were in progress to ensure no disturbances from external environment, however the researcher ensured that the room that was used for conducting individual interview sessions was not labelled to safeguard privacy. Participants were also assured that all information discussed during interview session would not be disclosed to anyone who was not part of this research study, unless the information discussed caused harm to the patient. A case where information may be disclosed is when the participant might need social a worker, psychology, or police services. The informed consent also ensures that measures of privacy were well maintained.

11.9 Data management

The researcher used data collected solely for the purpose of this study. Data recorded was transcribed by the researcher and was deleted from the recorder after transcribing. The researcher ensured that transcription of data was accurate and complete. Confidentiality of data was maintained by storing transcribed data in a computer that has a password and field notes stored in a lockable cupboard in the supervisor’s office for the duration of the study and ensured that access was controlled to only research personnel. Data was said to be stored for a period of five years in the Director’s office. Field notes were to be destroyed by means of shredding or burning to ensure that data cannot be traced back to the participants. Data handling and process of the study was aligned in accordance with the Protection of Personal Information (PoPI) Act no 04 of 2013.

11.10 Dissemination of research findings

The purpose of dissemination of research finding is to ensure that all parties that participated in the study know in detail about the findings of the study. For this study, the parties include the North-West University for academic purposes, participants, and the Limpopo department of Health. Data will be disseminated in the following manner:

Academic purposes: findings would be disseminated through peer reviewed journals and article publications. Findings will also be presented at academic conferences, seminars and workshops and be published on the database of the institution.

Limpopo Department of Health: a written report to the Limpopo district and sub-district will be issued to give a summary of the study’s findings. Recommendations were made which could assist in amendment and/or formation of new policies about managing PLWHA on dolutegravir based regimen. Operational managers of all selected clinics will be informed about the findings of the study through report writing.

For participants: A user friendly pamphlet will be used to give feedback on the findings of the study to participants and will be made available to all selected clinics. The researcher will also liaise with the manager of the home-based healthcare workers who work on the ground to assist in distribution of the pamphlets as they do their direct observed therapy in the community.

11.11 Experience, skills, and competency of the researcher(s)

Researcher

The researcher is a master's student at North-West University. Also holds a bachelor's degree in nursing which forms the fundamental basis of her critical skills. The researcher is a Nurse Initiated Management of Anti-Retroviral Therapy (NIMART) and Pre-Exposure Prophylaxis (Prep) trained, with four years work experience and possesses efficient skills in the management of HIV and AIDS. The researcher also has Good Clinical Practice (GCP) certificate of training and TREE ethics certificate.

Supervisors

The supervisor and co-supervisor are skilled and knowledgeable individuals and experts in qualitative research study and will guide proficiently the motion of this study. They hold master's and PhD qualifications in nursing and Education respectively. Both supervisors have ethics training certificates.

11.12 Reimbursement of Participants

The researcher acknowledged time consumption and expenses that might inconvenience participants in this study as participants will be required to contact either the research assistant when they have made the decision to participate in this research study and travel for data collection. Therefore, participants were reimbursed appropriately for their time and travelling costs. Reimbursement was based on the time, inconvenience, and expense (TIE) model. Incentives were set at levels that were not unduly influential to a participant to take part or remain in the study. Refreshments for participants will be made available after every interview session.

12. Conflict of interest

According to Australian Code for Responsible Conduct of Research (2018:1), conflict of interest is defined as the interest that exists in a situation where an independent observer might reasonably conclude that professional action of a person may be unduly influenced by other interests. Such interests may include but not limited to the following, financial or personal relationship interests. It is further stated that the existence of conflict of interests must be accepted and not be equated to scientific misconduct.

For this study, there was no anticipated conflict of interest that might cause biasness and impact negatively in the conduction of the study and disseminating of the findings. The researcher was however not naïve to

the knowledge that conflict of interests may arise even though not anticipated. The following were done to ensure that no minimal conflict of interest arose:

Financial conflict of interest: the study was self-funded, however if sponsors arose, the researcher would ensure transparency and public disclosure of any sponsors for this study. However, it was self-funded throughout and there were no sponsors,

Personal relationship interests: the researcher ensured not to form any personal relationship with prospective participants for this study to avoid biasness and coercion of participants to answer according to the predetermined idea that the research has about the topic to be studied.

13. Time Frame

Table 1 Time frame

Activity	**Time frame**	**Due Date**
Finalise proposal		16/06/2021
Scientific Committee Review	4 weeks	July 2021
Application for ethical approval by HREC – NWU and title registration	8 weeks	January 2022
Other ethical approval	4 weeks	March 2022
Write Chapter 1 Overview	4 weeks	April 2022
Data collection	8 weeks	May 2022
Data analysis	4 weeks	May-June 2022
Write article 1st draft	4 weeks	June 2022
Article draft 2	4 weeks	July 2022
Report writing – methodology, conclusion, recommendations – final chapter	4 weeks	September 2022
Notice of submission	3 months before examination	September 2022
Technical editing	2 weeks	September 2022
Language editing	2 weeks	September 2022
Make corrections and proofread	2 weeks	October 2022
Prepare examination copies	2 days	October 2022
Submission for examination	Date from PG office	November 2022
Examination	6 weeks	Nov-Dec 2022

Examination corrections and rebuttal	2 weeks	Jan 2023
Extract and submit the article	2 weeks	Jan 2023
Planned graduation	Dates from PG office	April 2023

14. Budget

The researcher conducts this study as a minimum requirement for a Master's degree and remains accountable for all the financial responsibility of the research study. The research was self-funded by the researcher with the planned budget as follows:

Table 2: Proposed budget for this study

Item	Description	Cost
Digital video recorder		R 2.500-00
Internet use Phone calls		R 2 500-00
Transcription	@ R25/page (±200 pages)	R 2,000-00
Independent coder	@ R25/page (±200 pages)	R2,0 00-00
Technical editing	@ R25/page (±200 pages)	R2,000-00
Language editing	@ R25/page (±200 pages)	R2.000-00
Dissemination of results: article in a journal		R4,500-00
Dissemination of results: local conference	Conference registration, poster printing, travel, accommodation	R5,000-00
Unforeseen costs		R2,000-00
Total:		R 24,500-00

15. Research report structure

Article format

The study followed the article format as follows:

Section 1: Overview of the study.

Section 2*:* Manuscript: Perceptions of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen, Limpopo Province.

Section 3*:* Conclusion, limitations, and recommendations

16 Conclusion

This research overview outlined how the study named; Perceptions of PLWHA regarding the use of dolutegravir based regimen in Limpopo Province was conducted. The overview covered the research method, how data would be collected and analysed and well as how the results would be disseminated. It also outlined the approvals that were granted to conduct this study.

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SECTION 2 MANUSCRIPT

Perceptions of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen, Limpopo Province

Sibeko Z.R [1], Molato B.J[1] and Moloko-Phiri S.S [1]

Affiliations

[1]School of Nursing, Faculty of Health Sciences, North-West University, Mafikeng, Mmabatho 2745, South Africa

Corresponding Author: ZR Sibeko**:** **zarasi.zr@gmail.com**

Telephone number: +27685291877

Mailing address: 1442 Tanzania street, Cosmo City Ext2, 2189.

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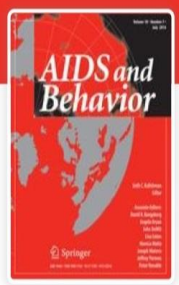

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Manuscript Preparation

- Type double-spaced on one side of 8 ½ × 11-inch white paper using generous margins on all sides, (including copies of all illustrations and tables).

- A title page is to be provided and should include the title of the article, authors name (no degrees), authors affiliation, and suggested running head, and Declarations. The affiliation should comprise the department, institution (usually university or company), city, and state (or nation) and should be typed as a footnote to the authors name. The suggested running

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• Funding (information that explains whether and by whom the research was supported)

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1) McKirnan DJ, Vanable PA, Ostrow DG, Hope B. Expectancies of sexual "escape" and sexual risk among drug and alcohol-involved gay and bisexual men. J Subst Abuse. 2001;13(1-2):137-54.

2) van der Straten A, Cheng H, Moore, J et al. The use of the diaphragm instead of condoms in a phase III diaphragm trial. AIDS Behav. 2009; 13(3):564-72.

3) Eaton LA, Kalichman SC. Changes in transmission risk behaviors across stages of HIV disease among people living with HIV. J Assoc Nurses AIDS Care. 2009 Jan-Feb;20(1):39-49.

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5) Richman D, Bozzette S, Morton S, et al. The prevalence of antiretroviral drug resistance in the US. Interscience Conference on Antimicrobial Agents and Chemotherapy. Chicago, 2001 [abstract LB-17].

6) Hirsch MS, D'Aquila RT, Kaplan JC. Antiretroviral therapy. In: DeVita VT, Hellman S, Rosenberg SA, eds. AIDS: Biology, Diagnosis, Treatment and Prevention. 4th ed. Philadelphia, PA: Lippincott-Raven; 1997.

7) Ray SC. Simplot for Windows, version 2.5. Available at: http.//www.med.jhu.edu/deptmed/sray/download/. Accessed November 7, 2001.

Verify that every instance of a number in text corresponds to the numbered reference.

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Abstract

INTRODUCTION: HIV/AIDS is a continued public health concern with Sub-Saharan Africa having the highest number of HIV incidences. Progress in management of the disease has led to implementation of antiretroviral therapy. The World Health Organisation recommended dolutegravir as first and second line of treatment for the disease and said to have great outcomes although also discovered to have unpleasant side effects on some patients. The study explored and described perceptions of PLWHA regarding the use of dolutegravir based regimen in Limpopo province.

METHOD: Qualitative, explorative-descriptive design was followed. Twelve individual semi-structured interviews were conducted. Purposive sampling was used until data saturation reached. Thematic analysis was used.

RESULTS: four themes emerged, namely, Acceptance of dolutegravir, level of knowledge regarding dolutegravir, burden of taking ART treatment, and reasons for non-adherence to dolutegravir.

CONCLUSION: The findings revealed great acceptance of dolutegravir although great lack of knowledge to the treatment was evident

Keywords: Dolutegravir, HIV, perception, people living with HIV

INTRODUCTION

It has been four decades since the discovery of HIV new case and the invention and scale up of Antiretroviral treatment (ART) has been a remarkable global response in the management of HIV/AIDS. There is an estimate of about 34 million new HIV cases and up to 17 million HIV related deaths per year [1]. However, the progress made to scale up ART accessibility has led to an increased survival among people living with HIV and AIDS (PLWHA). In support of that [2], an estimated number of 24.5 million of PLWHA is currently having access to ARTs.

The World Health Organization (WHO) has constantly been moving towards safer, better tolerated and more effective ARTs in the past years [3]. The fixed dose combination of Efavirenz (EFV) regimen was introduced by WHO as the first line treatment for PLWHA in 2013; however, it received negative remarks with time due to its unpleasant side effects and probability of drug resistance [4]. The resistance profile noticed in EFV was a threat to the Sustainable Development Goals (SDG3.3) and the UNAIDS 95-95-95's strategy for ending AIDS as a public health threat by 2030 [5].

for the past 25 years, numerous ART classes of drugs have been developed to target inhibiting the viral replication mechanism of HI virus. In addition, the authors state that the ARTs evolvement has led to three drug combination emerging which was highly active antiretroviral therapy [1]. However, there was always a need for ARTs that were robust and maintained excellent virological suppression and tolerability. Dolutegravir (DTG) based regimen was developed to meet those needs.

A new treatment goal to manage HIV requires more effective, tolerable, and robust regimen. The World Health Organization [6], recommended DTG based regimen, with the most common combination being Tenofovir (TDF), Lamivudine (3TC) and DTG or Abacavir (ABC) , 3TC and DTG as the first and second line treatment for naïve and experienced HIV positive patients, both adults and children aged 12 and above with a weight of at least 40 kg. For this study, the fixed dose combination of interest will be TDF, 3TC and DTG as the DTG based regimen.

The DTG belongs to the recent class of ARTs which are the integrase strand transfer inhibitors (INSTI's) [7, 8]. A DTG based regimen is said to be the drug of choice due to its efficacy, safety, and robust ability in reducing viral load [9]. Furthermore, it is stated that it has a high barrier to the development of drug resistance. The rollout of DTG based regimen started to be seen in different countries and by mid-2019, most of the low and middle income countries Uganda, Botswana, and South Africa to name a few, had planned or adopted DTG based regimen in their national ART guidelines [8]. On a global scale, a vast number of clinical studies have been conducted to evaluate the efficacy and capability of viral load

reduction by DTG [3], but the empirical data on perceptions of people living with HIV has been relatively limited [2]. In the sub Saharan region, studies have attempted to explore community acceptability of dolutegravir [10] and some on perceptions of pregnant women on the use of dolutegravir [11, 2]. but when zooming closely, there is a need for more research to address and explore in depth perceptions of a larger population without focusing on a specific group regarding the use of dolutegravir based regimen.

Although the golden drug has received positive feedback, challenges were experienced which led to WHO [12] recommending a cautious approach to DTG in pregnant women as it might have risks of neural tube defect. Concerns on the use of DTG based regimen in patients with Drug Sensitivity Tuberculosis (DS-TB) as rifampicin (RIF) can decrease the efficacy of DTG were evident [3]. Furthermore, EFV based regimen, even though it showed to have low barrier resistance, it was still a drug of choice in DS-TB patients. On the other hand, Viiv healthcare as an independent, global HIV specialist company encouraged the use of DTG based regimen in patients with DS-TB with an increased dose of DTG to compensate its efficacy [13], but studies foreseen challenges such as decreased drug availability or shortage in some countries, especially developing countries with the double dose of DTG [9].

The Meta analysis of selected safety endpoints in the phase 3 trials demonstrated a slight increased risk of insomnia, weight gain and central nervous system adverse events associated with the use of DTG [14].

Although there is controversy in literature about DTG based regimen, whether the benefits outweigh the risks or not, there is still dearth of literature relatively limited studies that have addressed the patients' perceptions on the use of DTG based regimen in a broader space, particularly in South Africa. Dearth of studies in literature that have covered the patient's satisfaction on the use of DTG based regimen has been observed [15]. Therefore, this study seeks to explore and describe the perceptions of PLWHA regarding the use of DTG based regimen, in Limpopo province.

METHODS

Research method is said to be all the methods or techniques used to conduct research [16]. Furthermore, it is referred to as the methods the researcher uses in order to collect data and information. Below is a discussion of the study design, study setting, population and sampling, data collection, data analysis and ensuring trustworthiness.

Study design

Qualitative research is essential in the behavioural science where the aim is to discover underlying motives of human behaviour [16]. Therefore, a qualitative, explorative-descriptive, and contextual design was used

to conduct the study. The explorative design enabled the researcher to explore perceptions of PLWHA regarding the use of DTG based regimen. A descriptive design assisted participants to describe perceptions of patients regarding the use of DTG based regimen in Limpopo Province. A contextual design was used where the study was conducted at the clinics where participants collect their ART.

Study setting

The study was conducted in Sekhukhune district in Limpopo province at several selected clinics in Ephraim Mogale sub-district which is under the Sekhukhune district. A systematic sampling of the clinics was done. From the database of the number of clinics available in the sub-district, which was a total of 10 clinics, the 1st then 3rd of every clinic was selected and only lead to three clinics were selected.

Population and sampling

Population is defined as a group of individuals that the researcher intends to draw conclusion about. Sampling is the process of selecting a representative sample of individuals from the population of interest [16].

The population of the study comprised PLWHA, females and males from the age of 18 to 45 years, who have been on DTG based regimen for a minimum period of six months. A non-probability sampling approach was used in which twelve participants were purposively selected to take part in the study. In addition, participants were selected based on the idea that they had characteristics that could fulfil the objective of the study. Due to the sensitivity of the topic that was studied, the researcher also used convenient sampling whereby only patients who were already at the selected clinics during the recruitment process were recruited. Twelve participants were interviewed until data saturation was reached.

Data collection

Data collection is described as the process of gathering and measuring information on the variables of interest being studied [17]. The researcher contacted the Sekhukhune department of health a week before the proposed date of data collection to seek permission to access the selected clinics. In addition, the researcher visited the local clinics sub-district area manager and the operational managers of the selected clinics physically to give a brief overview of the study and produce all necessary approval letters from North-West University HREC, Department of Health Limpopo and the Sekhukhune district.

Semi-structured individual interviews were conducted for a period of 6 days at the selected clinics. Prior to every interview conducted by the researcher, informed consent was obtained by the research assistant. This

method was appropriate for providing rich data about perceptions of PLWHA regarding the use of DTG based regimen. The principal researcher conducted the interviews using an interview guide that had open ended questions with the main question being "What are the perceptions of PLWHA regarding the use of dolutegravir regimen in Limpopo Province?" followed by probing questions. The interview guide questions were developed in a way that addressed the objective of the study and were in English and also translated to Sepedi, which is a well spoken language by the population to accommodate those who could not understand English. The individual interviews lasted for 30 minutes each. Audio recordings were done with the permission of the participants and nonverbal cues were observed. Data were transcribed by the principal researcher and sent to supervisors who are experienced in qualitative research to check transcriptions for accuracy of data. Data saturation was reached on participant number 7; however, 5 more participants were interviewed to ensure that data saturation was indeed reached.

Data analysis

Qualitative data analysis involves organizing and making sense of data collected [17]. In addition, the researcher makes sense of data collected through identifying patterns, themes, categories, and regularities in the data. Thematic data analysis steps were used to analyse data. The analysis was carried out through reading of each transcription to obtain the main idea from it. All 12 transcripts were analysed, similarities were grouped together to formulate themes and subthemes. The analysis was conducted by the principal researcher. However, an independent co-coder who is experienced in qualitative research was sent the transcripts for coding in order to verify if the same themes were reached. A meeting with the supervisors was held to compare the themes and come up with the final themes and a consensus was reached with the co-coder. The analysis was done using Braun and Clarke's six phase framework for doing a thematic analysis. The six steps were as follows:

Become familiar with the data, (2) Generate initial codes, (3) Search for themes, (4) Review the themes, (5) Define themes and lastly (6) Write up of final themes.

Trustworthiness

Trustworthiness is an important aspect of any research study [18]. The authors further define trustworthiness as the confidence that the researcher has in the accuracy and truth of the study. Without trustworthiness, the study would be of little value. Therefore, to maintain trustworthiness, principle of credibility, transferability and dependability and authenticity were maintained.

Credibility is referred as the degree to which the research represents the actual voice of the research participants [19]. Credibility was therefore ensured by prolonged engagement in the study during interview sessions to capture the exact realities of the participants. Member checking was ensured by continuously checking with participants to ensure that all affirmed the information they had given to the researcher regarding the topic. The findings of the study are reliable and can be trusted. The research was conducted thoroughly, and the data were collected and analysed carefully. The conclusions drawn from the data are supported by evidence in literature. Therefore, we can have confidence in the truth of the findings. Prolonged engagement with the participants was also done and the researcher probed to evoke further narrative of the participants' perceptions regarding the use of dolutegravir base regimen in Limpopo Province.

Transferability is determining if the findings of the study can be applicable from one specific situation to another [19]. For transferability purposes, the researcher made detailed research method as well as thick description of the participants' perceptions regarding dolutegravir based regimen was outlined in such a way that the reader may be able to transfer the findings of the study to other settings.

Dependability refers to the ability of the findings to show consistency and repeatability [19]. This was maintained by the researcher through repeated listening of the audio recordings, re-reading of the transcripts for accuracy of the themes and subthemes formulated. In addition, audio recordings and transcripts were sent to an independent coder to ensure that the codes formulated were a true reflection of the participants' perceptions regarding the use of dolutegravir based regimen. The findings of this paper are consistent with previous research and suggest that a study like this could be repeated with similar results in a different setting. The study is due to be sent for external audit to examine both the process and product of the research process.

Confirmability is the degree to which the findings of a study are shaped by the participants and not researcher's bias, motivation or interest [19]. In order to ensure confirmability, the researcher remained neutral and unbiased during the execution of the study. Triangulation was used to check out for consistency of the findings generated to ensure that it accounts to rich, robust, and comprehensive findings as realistic as possible to the perceptions of PLWHA regarding the use of dolutegravir based regimen in Limpopo Province.

RESULTS

The results are discussed in this section. Twelve12 participants took part in the study. Majority of participants were treatment-experienced patients. No gender was dominant in this study. The age of 30-39 years was the dominated age group among participants.

i Table 1 below describes the demographic characteristics of the participants.

Characteristics	N=12
Gender	Females= 6 Males=6
Age	18-29= 2 30-39=6 40-45= 4
Marital status	Single= 8 Married= 2 Not married but staying with partner= 2
Level of Education	No schooling= 0 Primary school= 2 Secondary school= 3 Matric= 7 Tertiary= 0
Employment	Employed= 7 Unemployed= 5

	Pensioner= 0

The table below gives a description of the themes and sub themes that emerged through participants' responses on their perceptions regarding the use of DTG based regimen.

ii. Table 2: A summary of the themes and sub themes

Themes	Sub themes
Acceptance of new treatment, dolutegravir	Benefits of new treatment, dolutegravir Persistent adherence to new treatment
Level of knowledge regarding the new treatment dolutegravir	Insight to importance of taking new treatment Lack of Knowledge regarding the new treatment
The burden of taking ART treatment	Side effects to previous regimen Side effects to DTG based regimen
Reasons of Non adherence to dolutegravir	4.1. Alcohol use and work related issues

The following themes and related sub-themes were identified in the study 1) acceptance of new treatment, Level of knowledge regarding the new treatment dolutegravir, the burden of taking ART treatment and reasons to Non adherence to dolutegravir.

Theme 1: Acceptance of new treatment

Acceptance of the new treatment, dolutegravir emerged as the first theme and benefits of new treatment and persistent adherence to new treatment dolutegravir were identified as the sub-themes.

Sub-theme 1.1: Benefits of new treatment, dolutegravir

The following reflections from the majority of participants indicated that the new treatment known as dolutegravir had acceptable benefits and that their lives had changed as they felt better. A common view was that the new treatment did not inflict any problems in their lives. It was also indicated that dolutegravir enhanced strength and energy and appetite stimulation. These were expressed as follows:

Uhmm, according to me, the medication treats me good and does not give me problems, it is just okay. I'm not sure if it's because I am used to them or what, but according to me, they are very good to me. *No, this medication is good, that's why I said they started treating me good from the beginning. When they changed me to these ones, I thought I would experience side effects like my previous treatment until I get used to them but when I took them at night, I did not have any problem. The following day again I did not have any problem then I figured these ones are better than my previous ones.*(PA).

Another participant voiced:

I never had any problem from the word go with this treatment until now; even my child was born fine. My child was born HIV negative. I think it's because of the treatment and taking it correctly. My wife is also HIV positive but we live normally. The thing is we were told at the clinic that if we take our treatment well, we will give birth to an HIV negative child. So we did that because we wanted our child to be clean." (PG)

One statement from a participant indicated that dolutegravir enhanced them with strength and appetite.

Aaah, Isn't it the body also changes and have some strength, I am no longer weak and have power. Meaning that medication that I am taking now, at least it gives me strength and does its job well in my body. (PA)

A quote from another participant emphasizing that the new treatment enhances strength and appetite was as follows:

I mean I never had any side effects that they said I will have or maybe make me sick. They said sometimes the pills can make you sick at the beginning of your treatment, but I never experienced any of those things. According to me, I see a change that is good since I started taking the treatment… I see myself having more energy and eating more, so I assume that it's the new pills that do that to me. (PK)

Another participant also supported the sentiment by saying:

Eish, they are fine. When I take them every day my body becomes fine. I eat a lot sometimes, like, I can do many things. (Pause)*… maybe I can jog a bit for a distance and have strength. I also gained weight, that's how I see the treatment is good*. (PE)

Sub-theme 1.2: persistent adherence to new treatment Dolutegravir

The findings revealed that participants showed persistent adherence to new treatment, and it was echoed that one main reason for that was due to the treatment being well tolerable.

One participant stated:

You have to take them and not skip days because the more you skip, the more the virus has power and… what is it again? Your immune system starts to decrease. So, you have to take them every day and should take your treatment accordingly. I take mine every day at 8 at night and the fact that the treatment does not give me problems, makes it easy for me to take it(PE)

Another participant indicated:

*What I can say is that, for the treatment to work effectively, you need to take it accordingly and don't skip your treatment. If you don't do so, you won't see its effectiveness. What is important is to listen to the instructions said at the clinic. When they say take your treatment in the morning or at night, do as you are told and then you will be fine. You need to do something that will make you remember time to take your treatment. It's a good thing the treatment is fine in my body so I have no reason not to take it, and I make sure to take mine at 7 O'clock every night.(*PL)

Majority of the participants showed great acceptance of the new treatment, dolutegravir and acknowledged the benefits that the treatment had in their lives. Adherence to new treatment was also an indication of acceptance of the treatment as it was showed to be tolerable by most patients.

Theme 2: Level of knowledge regarding the new treatment (dolutegravir)

The level of knowledge regarding new treatment, dolutegravir emerged as the second theme and addressed three sub themes namely, insight to importance of taking new treatment dolutegravir and Lack of Knowledge regarding the new treatment

Sub-theme 2.1: Insight to importance of taking new treatment.

In most cases, participants reported being aware of the importance of taking their treatment effectively to ensure that HI virus is controlled.

One interviewee indicated:

Eeeh, I don't know how to explain it. Let me say, when you take treatment, at first it will try to adjust with your body to kill the virus that is in your body, but it does not mean that you are cured when you drink them, they just manage the disease by making the virus not active to can make you sick. But if you take your medication properly, it means that these pills can kill this disease and you can be cured.(PB)

Another participant argued:

You have to take them and not skip days because the more you skip, it's the more the virus has power and… what is it again? Your immune system starts to decrease. So, you have to take them every day and should take your treatment accordingly. I take mine every day at 8 at night and the fact that the treatment does not give me problems, makes it easy for me to take it. (PE)

To support the sentiment of being aware of the importance of taking treatment, one participant indicated that:

The new treatment should be taken every day so that the HIV disease can be managed and not make you sick, then you will live normally. But if you don't take it accordingly you will get sick and everyone will see that you are sick and now then you won't be able hide the fact that you are sick. Taking treatment gives you a chance to live like any normal person and work any kind of job you want just like other people. (PL)

Sub-theme 2.2: Lack of knowledge regarding the new treatment (dolutegravir)

Majority of participants showed lack of knowledge about the new treatment. Furthermore, it was evident that they were somewhat not aware that their previous regimen was changed to the new regimen. This was expressed as follows:

One participant said:

Aii, I'm not sure…(laughs). *They give us different containers every time, so I'm not too sure if it's still the same treatment or not. The inside is the same; it's just that the package is different so I'm not sure what that means… they tend to change the bottles. Today you get a blue bottle, next month it's a white bottle then the other month you can get a blue one again. (PK)*

Another participant voiced:

I don't have much perception about my treatment. What I know is that you must take your course accordingly…I mean you should take treatment the way you were told by the nurses. You should not skip taking your medication and adhere to your dates for collection of treatment. Now I feel like I am fine, I am 100 percent fine… Yes, they changed mine but I did not ask why they changed them. In my mind I thought it's just stages. You either have completed the first stage and you are now in the second stage. (PI)

Another participant echoed the same sentiment:

(Silence)*... What I know about this treatment… I don't have anything I know, I just take the treatment with the perception that since I was sick and not knowing who I was, they said I must take the treatment every day and that was it. (PJ)*

One participant said:

*I just know that the treatment is to heal us, and we should take them every time and that if you take them correctly you won't have a problem, you will be able to live like any normal person.(*PG)

Overall, participants seemed to have knowledge about the importance of taking treatment, but the actual insight to the new treatment dolutegravir was deficient in majority of them.

Theme 3: The burden of taking the previous regimen

The findings showed that majority of participants started their HIV treatment journey with a different ART regimen and were switched to DTG based regimen. A few participants had DTG based regimen as their first and only regimen. A theme named the burden of taking ART treatment emerged with its subthemes namely, side effects to previous regimen and side effects to DTG based regimen

Sub-theme 3.1: Side effects to previous regimen

Majority of participants interviewed were experienced HIV Positive patients who started their HIV treatment journey on a different ART regimen then were switched to DTG based regimen. While comparing the new treatment to their previous regimen, a common concern expressed was having experienced unpleasant side effects to their previous regimen which made it difficult for them to tolerate the treatment. This sentiment was echoed by participants in the following quotes:

One participant stated that:

At the beginning when I was drinking the HIV treatment I was taking before the new ones, they treated me somehow. I wondered if I should stop taking them or go to the clinic and report. At night when I was asleep, I would feel dizzy while in bed, I would dream of weird things. I would dream of people who died. I would just see scary things, as if I am falling underneath the bed. So, as I was explaining to them, they told me that these pills are like this. They are fighting with the disease in my body. (PB)

Another participant said:

When I started taking medication for HIV, I was taking a different kind of HIV treatment, I'm just not sure of their name but it was orange-ish in colour. Those pills, Eeeh, they were very strong. They would make me have scary dreams but with time when I changed to these pills that I am now taking, I am no longer experiencing those scary dreams. You understand. You also find my body itching but with these new pills, my body does not itch.(PA)

Another informant stated:

When I started taking my first HIV treatment, I would feel burning here (Points at stomach) ... *I would feel some dizziness but they told me that after six day I will feel better and I should take treatment at night. Then after six days they changed me from taking the treatment at night and I then started taking it in the morning. I did have dizziness and feeling like I wanted to vomit but then I was fine. As time goes by, they would change containers which I don't know if it's still same treatment or what. Every February they would take blood and will then say now it's alright. (PH)*

Sub theme 3.2: Side effects to DTG based regimen

A small number of those interviewed started their HIV treatment journey on DTG based regimen and stated that they had experienced side effects of DTG.

One participant stated:

No, it has always been these ones which is the new treatment. Initially I would feel dizzy when taking the treatment. Sometimes I would feel like vomiting but never vomited and I would take water and sit down to relax then after ten to fifteen minutes I would feel better until they adjusted to my body. Now I am fine. (PE)

Another participant said:

Not really, at first when I started taking the new treatment, I was having problems with sleep. I was very energetic and that made me to have a hard time to sleep at night. I would be up until 2am that was the only thing. But they really helped me with the tiredness. I am more energetic now because of the pills and I am back at work, I am working well. I don't have a problem. I am able to live like any person. (PL)

The results suggested that most of the interviewees had experienced side effects on their previous regimen. The experienced patients expressed negative comments about their previous regimen. A relatively small number of participants who started their treatment with only DTG based regimen did not experience side effects to the treatment at the early stages of starting treatment.

Theme 4: Reason for non-adherence to dolutegravir

Non-adherence to DTG based regimen was revealed by few participants and emerged as the theme with sub themes namely Alcohol use issue and work related issues.

Sub-theme 4.1: Alcohol use and work related issues

It was identified that alcohol use was a factor that made a few participants not to comply with their treatment. This was echoed as follows:

Eeeh, mostly when I skip, to be honest with you, let me not hid anything. Honestly, I skip due to taking alcohol. So, when I'm at a drinking place, I can't take a pill and go with it in my pocket. The reason why the pills have to remain in its container is so that it is not exposed to air. So, if I am going to take it and put it in my pocket, then it will be exposed to air and will not work effectively as it would have had if it was in a container. (PA)

The same participant echoed that work related issues often affect his times of taking medication:

If I receive a sudden call that I am needed urgently maybe by family or a job since I am job-hunting and they say you have interview. When you get to Marble Hall, you take more time than expected and you get transport to go home late…. We are drinking treatment at a specific and same time, and I drink mine at 8 at night. So, at times I would get back home at past 8 or to 9 and then. According to what I told myself, if I missed time to take my treatment then I won't take it until the following day. (PA)

Another participant said:

Well, I work as a taxi driver, and I do long distance trips from Marble hall to Pretoria. Sometimes I will go to Pretoria and come back this side late and it will be past my time of taking treatment. So, I take my treatment at 8 o'clock at night when I am home. I don't carry it with me to work because I know I am coming back. But now I am trying to make sure I am home before the time to take my treatment. (PE)

In summary, the findings on theme 4 revealed non-adherence to treatment from few participants. It was further outlined that reasons for non-adherence were patient factors rather than having side effects to the treatment.

DISCUSSION

This study attempted to elucidate perceptions of PLWHA regarding the use of DTG based regimen in Limpopo Province. The results yielded four themes and their sub themes respectively to fulfill the objective of the study.

Benefits of new treatment, dolutegravir

The results of this current study were overwhelming and positive acceptance of the new treatment, dolutegravir was shown by the majority of participants. These findings are consistent with results from Nabikita et al, [20] which showed a high level of acceptability to Dolutegravir by patients. Benefits to new treatment, dolutegravir were predominantly stated by participants in the current paper, with the first one being increased appetite. The findings broadly supported results from previous studies [21], which indicated an increase in weight gain of about 0.68Kg in patients who were switched to Dolutegravir based regimen. The weight gain could be a desired outcome for patients who struggle to gain weight but could be an issue to patients prone to obesity. Regardless of that, professional nurses should emphasize to all patients a healthy lifestyle that involves exercise and healthy diet to prevent other health implications.

Majority of participants also stated that dolutegravir enhanced physical strength. The physical strength contributed to them being able to do exercises and carry their duties at work with no concerns. Surprisingly, limited to dearth of literature to support these findings of the study was evident. A note of caution for this discovery could be argued that this can be because this topic is still at infancy. These findings may help to further understand the pharmacodynamics of dolutegravir and how it causes increased physical strength.

The most interesting finding though was voiced by a minority of participants that dolutegravir benefits in enabling them to give birth to HIV free children. These finding echoes that of Philips [22], which showed about 81% of rapid decrease in viral load to less than 50 copies on dolutegravir based regimen compared to EFV based regimen which amounted to 61%.

Persistent adherence to new treatment Dolutegravir.

The current study established that there was consistent adherence to new treatment, dolutegravir among participants and the common reason was that the treatment was well tolerated. With these findings revealing great tolerability to dolutegravir, it ultimately increases individual adherence which then brings assurance to the health system at large as chances of drug resistance may be decreased. These findings are in uniform with other studies [23], which also found that there was great indication of adherence among patients on dolutegravir group which amounted to more than 50% adherence compared to other non-dolutegravir

groups. The findings of this paper are also in agreement with that of McCluskey et al. [24], who indicated that dolutegravir containing regimens were highly tolerated by participants compared to EFV regimen.

Insight to importance of taking new treatment.

The majority of participants voiced the importance of taking new treatment, dolutegravir and at one specific time for the treatment to work effectively. These findings were however not consistent with previous literature as no studies have captured the importance of compliance from the patients' perspective. Regardless of that, it is evident in literature from studies that dolutegravir effectiveness to suppress the viral load depends on individual compliance [25]. The fact that participants in this study understood the importance of complying with treatment shows that there is hope in the management of HIV and goal to end AIDS.

Lack of knowledge regarding dolutegravir treatment

It was evident from majority of the participants' references, in this paper that patients who are on dolutegravir treatment had no knowledge of their actual current treatment regimen. It was also evident that, despite the fact that they were aware of their previous regimen being changed, they did not know the significant reason for changing their previous treatment, some patients pointed out that they did not ask for reasons for change of treatment and only believed that nurses knew better. The only thing that mattered to most participants was that treatment was well tolerated. There is currently no literature available to support the lack of knowledge of patients regarding dolutegravir. This may be due to lack of research in this area. Regardless there is an indication that there is a gap in awareness, knowledge of dolutegravir interactions and how to adjust dose when needed among South African healthcare workers [26]. Furthermore, authors' indicate that healthcare workers need to be better educated to ensure that patients receive the best care possible. Nonetheless, the implications of healthcare workers not having sufficient knowledge about dolutegravir leave patients exposed to lack of knowledge or having incorrect information about their treatment and further puts them in a position where they are unable to make informed decisions about their health.

Side effects to previous regimen

The findings from this study showed that most participants had experience on taking another type of ART treatment prior to being switched to dolutegravir based regimen. The findings further outlined that majority of participants had experienced unpleasant side effects on their previous regimen with the common ones being nightmares, dizziness, and rash. These findings are supported by studies which [27, 28] indicated

that the most frequently reported side effects of EFV regimen were central nervous system (CNS) symptoms which include headache, nightmares, and dizziness. furthermore it has been indicated that dermatological effects such as rash were also commonly reported [28]. Even though dolutegravir based regimen is the drug of choice for first and second line treatment for HIV, EFV is also still recommended by WHO as the first line of treatment. Therefore, it may be safe to say that if a patient is responding well to EFV based regimen, switching to dolutegravir based regimen may be delayed.

Side effects to Dolutegravir based regimen

Positive remarks about dolutegravir based regimen were voiced by majority of participants, however, a small number particularly patients who had dolutegravir based regimen as their only ART treatment, had experienced side effects such as dizziness, vomiting and insomnia. There is still ongoing controversy whether dolutegravir based regimen is well tolerated in real life situations [29]. Two studies revealed that PLWHA discontinued dolutegravir based regimen due to neuropsychological side effects [29,30]. The authors further reported that neuropsychological effects were more evident in patients who had history of mental illness. Based on findings of this paper, dolutegravir is a new drug and nurses are to observe patients on the mentioned side effects. Although side effects to dolutegravir are debatable, studies have shown that it has high efficacy and is robust in suppression of HI virus compared to other non DTG regimens [31 32, 33] As a result, the benefits of dolutegravir outweigh its risks.

Work and alcohol related issues

Work related issues which included late knock off times from work and working far from home also led to participants not taking their treatment accordingly. Although these issues were expected, surprisingly patient factors were the only obstacles to adherence, and none was reported to be related to dolutegravir itself. Another unanticipated finding although revealed by a small number of participants was the issue of non-adherence to dolutegravir treatment mainly due to alcohol use. Participants further revealed that places selling alcohol such as taverns were vastly available and therefore contributed to them skipping their treatment doses. Nevertheless, these findings have not previously been described in literature. In support of the findings of this paper,[33] one study indicates that patients who had high adherence to DTG had a significant viral load suppression compared to those with low adherence profile [33]. Therefore, challenges of non-adherence pose a threat to the progress made in the management of HIV and also increase likelihood of DTG resistance. To address these challenges, it is therefore necessary to develop a full picture of patient factors that lead to non-adherence and additional studies are needed to address the phenomena deeply.

Emphasis is also needed for professional nurses to scale up interventions to increase adherence to DTG treatment.

CONCLUSION

The aim of the study was to explore and describe the perceptions of patients initiated on dolutegravir in Limpopo Province. The study has shown great acceptance to new treatment, dolutegravir by participants. The findings further suggested that the benefits of the new treatment were appetite stimulation and physical strength. Most importantly, treatment was well tolerated which influenced adherence to treatment. The new understanding of the study findings should help improve the adherence as most participants reported that they did not experience the side effects and were happy with the treatment.

This paper has also shown a disturbing lack of knowledge about the new treatment, even though they were aware of its benefits. This calls for proper intervention to provide sufficient health education for patients to be equipped with relevant information. The previous non-dolutegravir based regimen was less accepted by most participants due to undesired side effects. Although dolutegravir based regimen also had side effects experienced by a small group, they were minor and did not result in treatment being discontinued. The study appears to be the first to be conducted in Limpopo province and it is hoped that it will bring new insight. Lastly, the findings pointed a degree of non-adherence to dolutegravir based regimen and mostly the indications for non-adherence were patient related. More broadly, research is needed to further explore patient related factors that lead to non-adherence. This could be a fruitful area of interest for further studies to ensure that the target to end AIDS by 2030 is feasible.

DECLARATION

Funding

No funding was obtained for this study.

Conflict of interest

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

Ethics approval

Ethical approval was granted by the North West University Health Research Ethics Committee (NWU-HREC) and the Limpopo Department of Health granted permission to conduct study in the selected clinics. Furthermore, approval was given by the Sekhukhune district.

Consent to participate

Informed consent was obtained from each participant prior to data collection. Participants were made aware of their rights to refuse to be part of the study without any punishment, option to pause during an interview session when they feel overwhelmed as well as their rights to withdraw from the study. Permission was also sought from the participants to use audio recording as a tool for collecting data.

Consent for publication

Not applicable

Availability of data and material

Not applicable

Code availability

Not applicable

Authors, contributions

ZRS, BJM & SSMP contributed on the conceptualization of the paper until it is ready for publication.

Acknowledgement

The author would like to thank all the participants of this study, the Department of Health in Limpopo province and all the operational managers of the selected clinics for allowing the researcher to conduct the study. Lastly, the researcher would like to acknowledge the research assistant for her role in the study.

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SECTION 3: CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

3.1 Introduction

The study sought to explore and describe perceptions of PLWHA regarding the use of dolutegravir based regimen in Limpopo Province. The study adopted article format which consisted of three sections. Section one was overview of the study. Section two namely manuscript which followed the AIDS and behaviour journal guidelines and lastly section three which includes summary of the study findings, limitations, and recommendations.

3.2 Conclusion of the findings

Data was collected form PLWHA who were on dolutegravir based regimen for at least 6 months using face to face individual interviews. Furthermore, data was transcribed, analyzed and co-coded. Four themes emerged from the data and therefore conclusion of the study which will be discussed below was drawn.

Conclusion relating to acceptance of new treatment, dolutegravir.

The results of this study identified the first theme named acceptance of new treatment, dolutegravir which further had two sub themes, benefits to new treatment, dolutegravir and persistent adherence to new treatment. It was identified that dolutegravir based regimen was highly accepted by majority of the participants. Furthermore, benefits that dolutegravir had, were well acknowledged by participants. The most common benefits were appetite stimulation, enhanced physical strength, giving birth to HIV free children and experiencing no side effects to treatment. The findings of this study support the idea that dolutegravir is an effective drug that shows high viral suppression. Furthermore, the findings of this study complement those previous studies that showed acceptability of dolutegravir by patients. Participants also pointed out that the lack of side effects experienced lead to persistent adherence to treatment because it was well tolerated.

Conclusion relating to level of knowledge regarding the new treatment, dolutegravir.

The second theme that emerged from the analyzed data was level of knowledge about the new treatment and gave rise to two sub themes: insight to importance of taking new treatment and lack of knowledge regarding new treatment. The second major finding of the study was the lack of adequate knowledge to the actual treatment, dolutegravir. It was further showed that participants were rather aware of the benefits of the treatment and that it was well tolerated but none had sufficient knowledge of what the actual treatment does and who meets the eligibility criteria for such treatment. Reasons for lack of knowledge were outlined

to be both patient and nurse factors. It was evident that some patients never asked about the treatment and why they are switched, and nurses also did not give adequate knowledge to the participants. Taking all that into account, there is a need for emphasize of health education about dolutegravir so that patients are well equipped with the relevant knowledge about the treatment. This will further ensure that patients' rights to participate in decision making concerning their health care is maintained. Looking at the brighter side, most participants were aware of the importance of taking treatment accordingly.

Conclusion for the burden of taking ART treatment

The findings of the study also showed that majority of participants were experienced treatment patients and were previously on a non dolutegravir based regimen prior to being switched. Most of them experienced unpleasant side effects to their previous regimen compared to dolutegravir based regimen. The most common side effects identified were nightmares, dizziness, and rash. The least findings which was not surprising was the fact that a small number of participants have experienced side effects to dolutegravir, however these were people who had dolutegravir based regimen as their only ART treatment exposure Furthermore, the side effects did not lead to discontinuation of treatment.

Conclusion on reasons for non adherence to dolutegravir

Reasons for non adherence to dolutegravir emerged as the forth theme. The results revealed issues of non adherence to dolutegravir. Factors that lead to non adherence were namely alcohol use and work related issues and no participant pointed out that dolutegravir was the cause of non adherence.

3.3 Limitations

The study was conducted in three selected clinics in Limpopo province, Sekhukhune district, Ephraim Mogale sub- district. Not all clinics in the district were able to be selected. Reason for not being reached was strike, other clinics had specific dates for PLWHA which was different from what the researcher had initially on calendar and lastly, one was far from reach. Therefore, the findings are contextualised to the specific selected settings and cannot be generalized to the entire Limpopo province. However, the researcher gave a full and detailed description of the study method which gives the reader a choice to generalize the findings of the study to other settings. Notwithstanding the fact that the study's limitation was also the researcher not being able to identify if the participants were being fully truthful or not, Trustworthiness was maintained to ensure that participants gave their real life perceptions regarding the use of dolutegravir based regimen.

3.4 Recommendations

The recommendations were made based on the study findings and were as follows:

Nursing education

The study recommends including of dolutegravir knowledge into the new nursing curriculum (R171) in South Africa to ensure that nurses are equipped with adequate information from foundation phase of the profession.

Nursing practice

Proper intervention through the development of professional training such as in-service and workshop trainings that is continuous in order for nurses to be equipped with necessary knowledge to give proper health education to patients about dolutegravir is recommended. This will further empower patients to be involved in decision making concerning their health.

To develop patient friendly pamphlets about dolutegravir in order for patients to have relevant and adequate information about their treatment.

Nursing research

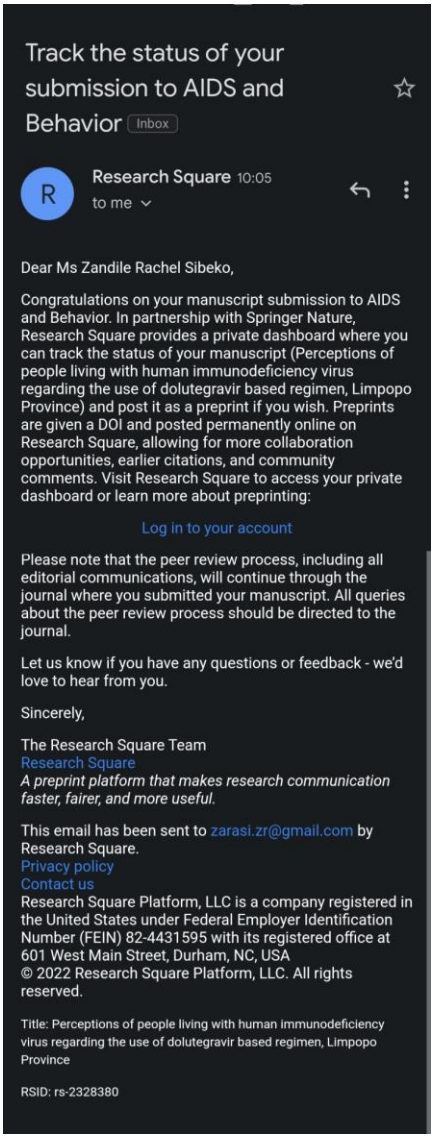
Recommends further research to explore perceptions of PLWHA regarding the use of dolutegravir in another setting.

Future research to focus on patient factors that lead to non adherence to dolutegravir based regimen is recommended.

3.5 Conclusion

This study aimed to explore and describe perceptions of PLWHA regarding the use of dolutegravir based regimen in Limpopo Province. The research method used assisted the researcher to achieve the objective of the study. It was evident from the findings that dolutegravir based regimen was well accepted and participants' voiced perceptions, were consistent with those of previous studies. The study consisted of three sections namely, the overview of the study, manuscript that was written according to the AIDS and behaviour journal and conclusions, limitations, and recommendations.

Annexure A: Proof of submitted manuscript.



Track the status of your submission to AIDS and Behavior Inbox

Research Square 10:05
to me

Dear Ms Zandile Rachel Sibeko,

Congratulations on your manuscript submission to AIDS and Behavior. In partnership with Springer Nature, Research Square provides a private dashboard where you can track the status of your manuscript (Perceptions of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen, Limpopo Province) and post it as a preprint if you wish. Preprints are given a DOI and posted permanently online on Research Square, allowing for more collaboration opportunities, earlier citations, and community comments. Visit Research Square to access your private dashboard or learn more about preprinting:

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Please note that the peer review process, including all editorial communications, will continue through the journal where you submitted your manuscript. All queries about the peer review process should be directed to the journal.

Let us know if you have any questions or feedback - we'd love to hear from you.

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Title: Perceptions of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen, Limpopo Province

RSID: rs-2328380

Annexure B: NWU-HREC approval letter

Private Bag X1290, Potchefstroom
South Africa 2520

Tel: 086 016 9698
Web: http://www.nwu.ac.za/

North-West University Health Research Ethics Committee (NWU-HREC)

Tel: 018 299-1206
Email: Ethics-HRECApply@nwu.ac.za (for human studies)

19 July 2022

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the North-West University Health Research Ethics Committee (NWU-HREC) on 19/07/2022, the NWU-HREC hereby approves your study as indicated below. This implies that the NWU-HREC grants its permission that, provided the general and specific conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: Perceptions of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen, Limpopo province
Principal Investigator/Study Supervisor/Researcher: Mr BJ Molato
Student: ZR Sibeko - 39637646

Ethics number:

N	W	U	-	0	0	0	2	1	-	2	2	-	A	1
Institution				Study Number						Year			Status	

Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation

Application Type: Single study
Commencement date: 19/07/2022
Expiry date: 31/07/2023

Risk: Medium

Approval of the study is provided for a year, after which continuation of the study is dependent on receipt and review of a six-monthly monitoring report and the concomitant issuing of a letter of continuation. Monitoring reports are due at the end of February and July annually until completion of the study.

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- *The principal investigator/study supervisor/researcher must report in the prescribed format to the NWU-HREC:*
  - *Annually on the monitoring of the study, whereby a letter of continuation will be provided annually, and upon completion of the study; and*
  - *without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.*
- *The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the principal investigator/study supervisor/researcher must apply for approval of these amendments at the NWU-HREC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.*
- *Annually a number of studies may be randomly selected for active monitoring.*
- *The date of approval indicates the first date that the study may be started.*
- *In the interest of ethical responsibility, the NWU-HREC reserves the right to:*
  - *request access to any information or data at any time during the course or after completion of the study;*

- *to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;*
- *withdraw or postpone approval if:*
  - *any unethical principles or practices of the study are revealed or suspected;*
  - *it becomes apparent that any relevant information was withheld from the NWU-HREC or that information has been false or misrepresented;*
  - *submission of the annual monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and/or*
  - *new institutional rules, national legislation or international conventions deem it necessary.*
- *NWU-HREC can be contacted for further information via Ethics-HRECApply@nwu.ac.za or 018 299 1206*

Special conditions of the research approval due to the COVID-19 pandemic:

Please note: Due to the nature of the study i.e. (face-to-face collection of qualitative data via semi-structured interviews with people living with HIV), this study will be able to proceed during the current alert level, following receipt of the approval letter. No additional COVID-19 restrictions have been placed on the study other than that indicated under the COVID-19 risk mitigation strategy as indicated in the application. The researcher must, however, ensure that before proceeding with the study that all research team members have reviewed the North-West University COVID-19 Occupational Health and Safety Standard Operating Procedure.

Special in process conditions of the research for approval (if applicable):

a. Please provide the NWU-HREC with copies of the goodwill permission letters from the managers of the clinics to be included in the study, granting access to the facilities.

As the study progresses the aforementioned conditions should be submitted to Ethics-HRECProcess@nwu.ac.za with a cover letter with a specific subject title indicating "Outstanding documents for approval: NWU-XXXXX-XX-XX." The letter should include the title of the approved study, the names of the researchers involved, that the documents are being submitted as part of the conditions of the approval set by the NWU-HREC, the nature of the document i.e. which condition is being fulfilled and any further explanation to clarify the submission.

The *e-mail*, to which you attach the documents that you send, should have a *specific subject line* indicating the nature of the submission e.g. "Outstanding documents for approval: NWU-XXXXX-XX-XX". The e-mail should indicate the nature of the document being sent. This submission will be handled via the expedited process.

The NWU-HREC would like to remain at your service and wishes you well with your study. Please do not hesitate to contact the NWU-HREC for any further enquiries or requests for assistance.

Yours sincerely,

Digitally signed by Prof Petra Bester
Date: 2022.07.20 15:30:51 +02'00'

Chairperson NWU-HREC

Current details:(23239522) G:\My Drive\9. Research and Postgraduate Education\9.1.5.4 Templates\9.1.5.4.2_NWU-HREC_EAL.docm
20 August 2019
File Reference: 9.1.5.4.2

Annexure C: Permission letter from Limpopo DoH

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
HEALTH

Ref : LP_2022-05-005
Enquires : Ms PF Mahlokwane
Tel : 015-293 6028
Email : Phoebe.Mahlokwane@dhsd.limpopo.gov.za

ZR SIBEKO

PERMISSION TO CONDUCT RESEARCH IN DEPARTMENTAL FACILITIES

Your Study Topic as indicated below;

Perceptions of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen, Limpopo province

1. Permission to conduct research study as per your research proposal is hereby Granted
2. Kindly note the following:
   a. Present this letter of permission to the office of District Executive Manager a week before the study is conducted.
   b. This permission is for **Sekhukhune PHC facilities Only**.
   c. In the course of your study, there should be no action that disrupts the routine services, or incur any cost on the Department.
   d. After completion of study, it is mandatory that the findings should be submitted to the Department to serve as a resource.
   e. The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
   f. The approval is only valid for a 1-year period.
   g. If the proposal has been amended, a new approval should be sought from the Department of Health
   h. Kindly note that, the Department can withdraw the approval at any time.

Your cooperation will be highly appreciated

Head of Department 06/06/2022 **Date**

pp

Private Bag X9302, Polokwane
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Annexure D: Recruitment material

NWU | NuMiQ

Invitation TO PARTICIPATE IN RESEARCH

INVITATION

Topic: Perceptions of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen, Limpopo province.

You are invited to take part in the above mentioned research study conducted by Ms Zandile Rachel Sibeko from the North-West University, Mafikeng campus

WHY IS THIS RESEARCH STUDY NEEDED?

Dolutegravir based regimen has recently been introduced as one of the new antiretroviral therapy drugs for the management of HIV/AIDS. Its great benefits such as rapid suppression of viral load, high tolerability and economic cost friendly to name a few had made it to be the recommended drug of choice as first and second line treatment by World Health Organisation. However, literature points of that there are studies which have showed that certain side effects of dolutegravir based regimen has lead to its discontinuation to other patients.

The truth of the matter is, there is still death or no adequate literature to fully understand the dynamic of the new drug, particularly from the patients' perspective. Therefore this study aims at exploring and give descriptive of the perception of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen in Limpopo province.

WOULD THIS STUDY BE A GOOD FIT FOR ME?

This study might be a good fit for you if:

- You are on DTG based regimen for a minimum period of six months or more.
- Are willing to volunteer and participate in the research study.

WHAT WOULD HAPPEN IF I TOOK PART IN THE STUDY?

If you decide to participate in the research study, you will be required to do the following:

- Be willing to participate and answer questions asked in semi-structured individual interview sessions which will be conducted face to face. NB: COVID-19 protocols will be observed.
- Be willing to spend at least 45 minutes to an hour in semi structured individual interview session.
- Be willing to sign a written informed consent form as a proof that your participation is voluntary.

BENEFITS OF THE STUDY

Direct benefits research study includes:

- There will be no direct benefits for participating in this study.

Indirect benefits

- The knowledge acquired during this research process will enhance the nursing practice by providing nurses with an in depth knowledge on DTG based regimen from your perceptions to ensure better management and to develop and enhance policies and strategies regarding the use of DTG based regimen treatment.

DECLINE TO PARTICIPATE/ PRIVACY

- Your participation is solely voluntarily and you are free to decline participation from this study.
- You are free to withdraw from this study at any time should you wish to do so with no penalties to you.
- Should you wish to take part in this study, your personal information will not be made available to any unauthorised personnel, only the research team which consist of the researcher and supervisors will have access to the information.

COST

- There will be no reimbursement made for participation.

FUNDING

The research study will be self-funded by the researcher.

PROJECT DATE: 2021 – 2022

THE RESEARCHER

Ms Zandile Rachel Sibeko is primarily the investigator of this research study. She is conducting this research as requirements for her Master's degree. She is a research nurse at Aurum health institute

CONTACT DETAILS

Ms Zandile Rachel Sibeko

E-mail: Zarasi.zr@gmail.com

Tel: 068 529 1877/ 083 554 8882

Alternatively, you can contact my supervisor: Mr B.J Molato at 082 742 6401

Co-supervisor: Prof S.S Moloko at 072 783 1843

Annexure E: NWU-HREC stamped informed consent

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South Africa 2520
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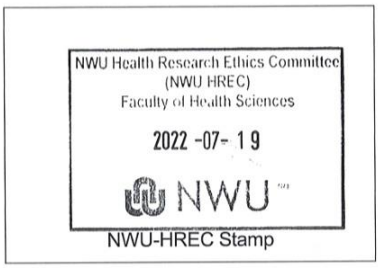

NWU-HREC Stamp

Informed consent documentation for people on Dolutegravir based regimen

TITLE OF THE RESEARCH STUDY: Perceptions of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen, Limpopo province

ETHICS REFERENCE NUMBERS: NWU-00021-22-A1

PRINCIPAL INVESTIGATOR: Mr. B.J Molato & Prof S.S Moloko-Phiri

POST GRADUATE STUDENT: Ms Z.R Sibeko

ADDRESS: 1442 Tanzania Street Cosmo City EXT 2, Randburg, 2189

CONTACT NUMBER: 0685291877

You are being invited to take part in a research study that forms part of my requirements for a master's degree in nursing. Please take some time to read the information

presented here, which will explain the details of this study. Please ask the researcher or person explaining the research to you any questions about any part of this study that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research is about and how you might be involved. Also, your participation is entirely voluntary, and you are free to say no to participating. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part now.

This study has been approved by the NWU-Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NW-00021-22-A1) and will be conducted according to the ethical guidelines and principles of Ethics in Health Research: Principles, Processes and Structures (DoH, 2015) and other international ethical guidelines applicable to this study. It might be necessary for the research ethics committee members or other relevant people to inspect the research records.

What is this research study all about?

- *I plan to get in-depth knowledge through exploring and describing perceptions of people living with immunodeficiency virus regarding the use of dolutegravir (DTG) based regimen in Limpopo province.*
- *This study will be conducted at the selected clinics in Limpopo province, Ephraim Mogale sub-district and will be done by experienced health researchers trained in conducting research individual interviews. The number of participants who will be included in this study will be determined by data saturation.*

Why have you been invited to participate?

You have been invited to be part of this research because you have been on the dolutegravir based regimen for a minimum period of six months

- *You will unfortunately not be able to take part in this research if you have not been initiated and been on DTG based regimen*
- *If you are on DTG based regimen for less than six months.*

What will be expected of you?

- *You will be expected to sit for an individual interview session of about 45 minutes to an hour answering questions as detail as you can about DTG based regimen*

Will you gain anything from taking part in this research?

- *There will be no direct gains for you in the study.*

Are there risks involved in you taking part in this research and what will be done to prevent them?

The risks to you in this study are *psychological risks due to reliving of the experience of you being HIV infected, Covid-19 spread, risks of exhaustion* but will be limited by *ensuring that counselling is available if you feel like you might need it. Covid-19 precautions will be taken into account to ensure that the spread of infection is minimized. The researcher will also ensure that breaks are taken during individual interview sessions to prevent exhaustion.*

- *There are more gains for you in joining this study than there are risks.*

How will we protect your confidentiality and who will see your findings?

- *The anonymity of your findings will be protected by assigning you a coded number when identifying you instead of using your real names. Your privacy will be respected by ensuring that responses are not traced back to you as the participant. Your results will be kept confidential by the research team. Only the researchers and supervisors will be able to look at your findings. Field notes will be kept in a lockable cupboard in the researcher's office. Recorded data will be transcribed and then deleted from the recorder. The transcribed data will be store in a password protected computer. Transcribed data will also be store in a USB as backup in case the computer crashes. Data will be stored for a period of five years in the research director's office. Field notes will be permanently destroyed by shredding or burning.*

What will happen with the findings or samples?

- *The findings will only be used for the purpose of this study.*

How will you know about the results of this research?

- We will give you the results of this research through A written report of the findings and recommendations to the selected clinics where the study was conducted to bring light to health care workers about the perceptions of PLWHIV regarding the use of DTG based regimen.

- You will not be directly informed about the findings of the study, however user friendly pamphlets will be made available at the selected clinics to ensure that knowledge is well disseminated.

Will you be paid to take part in this study and are there any costs for you?

This study is self funded. The researcher is responsible for all the funds for this study in order to meet the requirements of her Masters of Nursing Science.

No you will not be paid to take part in the study because the study is not funded.

There will be no travel expenses for you as the study will be conducted at the clinic where you collected your treatment. Therefore, you will only be recruited when you are already at the clinic for your care.

Mini refreshments will be served after every interview sessions

There will thus be no costs involved for you, if you do take part in this study.

Is there anything else that you should know or do?

- You can contact ZR Sibeko at 0685291877 if you have any further questions or have any problems.
- You can also contact the NWU-Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 1206 or carolien.vanzyl@nwu.ac.za if you have any concerns that were not answered about the research or if you have complaints about the research.
- You will receive a copy of this information and consent form for your own purposes.

Declaration by participant

By signing below, I..... agree to take part in the research study titled: Perceptions of people living with human immunodeficiency virus regarding the use of dolutegravir based regimen, Limpopo province

I declare that:

- I have read this information/it was explained to me by a trusted person in a language with which I am fluent and comfortable.
- The research was clearly explained to me.
- I have had a chance to ask questions to both the person obtaining the consent from me, as well as the researcher and all my questions have been answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be handled in a negative way if I do so.
- I may be asked to leave the study before it has finished, if the researcher feels it is in the best interest, or if I do not follow the study plan, as agreed to.

Signed at (*place*) ..... On (*date*) ..... 20....

.....	.....
Signature of participant	Signature of witness

Declaration by person obtaining consent

I *(name)* ..... declare that:

- I clearly and in detail explained the information in this document to

  .....
- I did/did not use an interpreter.
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I gave him/her time to discuss it with others if he/she wished to do so.

Signed at (*place*) ..... On (*date*) ..... 20....

.....
Signature of person obtaining consent

Declaration by researcher

I *(name)* ..... declare that:

- I had it explained by ..... who I trained for this purpose
- I did/did not use an interpreter

- I encouraged him/her to ask questions and took adequate time to answer them

  or I was available should he/she want to ask any further questions
- The informed consent was obtained by an independent person.
- I am satisfied that he/she adequately understands all aspects of the research, as described above.
- I am satisfied that he/she had time to discuss it with others if he/she wished to do so.

Signed at (*place*) ..... on (*date*) ..... 20....

.....

Signature of researcher

Current details: (23239522) G:\My Drive\9. Research and Postgraduate Education\9.1.5.6 Forms\HREC\9.1.5.6_NWU-HREC_ICF_Template_Feb2019.docm 7 February 2019

File reference: 9.1.5.6

Annexure F: **interview schedule questions**

Name of the student: Zandile Rachel Sibeko student number: 39637646

Interview schedule

Main research question

- What are the perceptions of PLWHIV on the use of dolutegravir regimen in Limpopo Province?

Semi-structured interview questions

- What is your understanding of the dolutegravir based regimen treatment?
- How long have you been in this regimen?
- What kind of experiences have you had while on this regimen?
- If you were once on a different regimen and switched to dolutegravir based regimen, how can you compare your previous regimen to your current regimen?
- Have you had any adverse effects while on the dolutegravir regimen?

Annexure G: Example of an interview

Transcript

Participant: A **Date: 02/08/2022**

Time: 11:03- 11:23am (19min 23sec)

Participant A will be represented by "A"

Interviewer will be represented by "I"

I: As I have explained, I am Zandile Rachel Sibeko. I am a student as North West University doing research to know what are perceptions of people taking HIV treatment with dolutegravir as part of their treatment. So the treatment you are taking has the dolutegravir and still new. I therefore want to know from patients' perceptive what are your perceptions about these medication. This study has already been approved by the North West University and the Limpopo department of health. Firstly, thank you for agreeing to be part of this study. Your participation is voluntary and you have rights to say no to participate. If you decide in the middle of the interview that you are withdrawing, you are still within your rights to do so. Secondly, thank you for agreeing that I record this interview and that is solely for the purpose of capturing your perceptions exactly as you say them. I will also expect at least 45 minutes of your time for this interview but that will depend on our conversation and your perceptions about this medication you are taking. There is no right or wrong answer and answer the way you understand. If you don't understand my questions please say so and I'll try to simplify the questions. Do you have questions so far before I can start?

A: no, you may start. I don't have questions.

I: okay, thank you. May I know what do you know about the treatment you are taking and what are your perceptions of this treatment you are taking that has dolutegravir? What can you tell me about them?

A: uhmm, according to me, the medication treats me good and does not give me problem. They are just okay. I'm not sure if it's because I am used to them or what, but according to me they are very good to me

I: so when you say the medication treats you good, what do you mean?

A: when I say they treat me good I mean when I started taking medication for HIV, I was taking a different kind of HIV treatment, I'm just not sure of their name but it was orange-ish in colour. Those pills I used to take at first, Eeeh, they were very strong. They would make me have scary dreams but with time when I changed to this pills that I am now taking, those scary dreams I am no longer experiencing. You understand. You also find my body itching but with this new pills, my body does not itch. I am just fine.

I: clears throat. From what you said, I heard you say that at first you had other treatment you were taking which are orange-ish in colour. How many pills was it? Was it the one with one pill or more than one pill?

A: no. it was those in a container.

I: you were taking one pill per day?

A: you take one pill per day at the same time.

I: so on that one pill that you were taking, when did you start those, even though you don't know their name?

A: I started them in 2015 towards December.

I: I also heard you mentioning that your previous regimen treatment was not treating you well because they were giving you scary dreams and body itching, when did those problems start? Was it at the beginning of treatment or you experienced them throughout taking that treatment?

A: No, I only experienced that when I was starting treatment. Sometimes if I had a sudden trip and skipped one day from taking pills, then the following day when I would take treatment I would continue experiencing those side effects. Sometimes you will feel your body feeling hot. The way I understood, it did not want you to skip taking the treatment.

I: Okay.

A: But this one does not have any problems.

I: we will come to your current treatment, I just want to understand more about your old treatment and how it treated you.

A: Okay

I: then, when you were having those scary dreams, increased body heat and your body being itchy when you had skipped your treatment, when you now resumed them, were you then feeling better?

A: If I take at least ten days taking treatment without skipping them, my body will then adjust and I would stop experiencing those side effects. I won't be dreaming, and there won't be anything I feel.

I: what were your reasons of skipping treatment?

A: if I receive a sudden call that I am needed urgently maybe by family or a job since I am job hunting and they say you have an interview. When you get to marble hall you take more time than expected and you get transport to go home late…. We drinking treatment at a specific and same time, and I drink mine at 8 at night. So at times I would get back home at past 8 or to 9 and then. According to what I told myself, if I missed time to take my treatment then I won't take it until the following day

I: Okay. And then…uhmm. Was that the only reason why you would skip your treatment or you had other reasons that contribute to you skipping treatment?

A: most of the time that was the reason that was a problem to me, the one of suddenly going somewhere. When I am home I would make sure I take my pills because I want to save my life. I want to drink them correctly the way nurses instruct us, like following the procedure. You shouldn't find yourself skipping treatment.

I: how did they end up changing you from your previous pills to these current ones with dolutegravir?

A: I think it was because…. Isn't they check us blood each and every year. I think when they were checking my blood results they realized that this person is in a stage where he qualifies for these pills.

I: so I hear you talking about bloods, can you explain to me if you have any idea why they check your blood every year?

A: Eeeh, I think they check blood for viral load when you are in treatment. When you are like this (hands movement) it means you are taking your treatment well and if it is like this it means you have a tendency of skipping or totally you are not taking your treatment. They can tell if you are taking your treatment well by checking your blood results that they collect.

I: so, I hear you spoke about viral load, what is viral load? Do you have any idea?

A: I don't have an idea what is viral load but the way I understand it can be… let's say immune system, to check if it's okay. Sometimes the immune system as I have explained that if you are not taking your treatment well it goes down.

I: so you saying they check viral load and if it's below they may change you to this current treatment. Do you have an idea of when it is below which ranges will they change you?

A: I wouldn't really know below how because I have not gotten there.

I: but since they also changed you does that mean…… (Participant interject)

A: I think it went down a bit.

I: Okay, thank you. Let's focus on the treatment you are currently taking. When did they change you to these ones?

-A: I started taking these ones this year.

I: when this year?

A: Eeeh, which month are we in now, August?

I: Yes.

A: Let' say around February

I: when you started taking your currently treatment, did they give you any problem?

A: No these ones did not that's why I said they started treating me good from the beginning. When they changed me to these ones, I thought I would experience side effects like my previous treatment until I get used to them but when I took them at night, I did not have a problem. The following day again I did not have any problem then I figured these ones are better than my previous ones.

I: when you say better, in other works you are saying that your current ones are good compared to your previous treatment?

A: yes they are.

I: what makes you say that these ones are good compared to your old ones? Tell me more

A: aaah, Isn't it the body also changes and have some strength, I am no longer weak and have power. Meaning that medication that I am taking now, at least it gives me strength and does its job well in my body.

I: Is it safe for me to safe your previous treatment was then not giving you strength?

A: No. I did not even understand my previous treatment. I was just drinking them because I wanted to live, but I never really understood them.

I: so the ones you are currently taking, do you understand them?

A: yes I understand them.

I: Tell me more about what you understand.

A: These ones are given to people who have low viral load and it's very good.

I: how are you taking your current treatment?

A: I drink one tablet at 8pm every night.

I: I heard you mentioned that on your previous treatment, if it happened that you skip them you will experience side effects. On your current treatment, do you experience any side effects if you happen to skip taking your pills?

A: the thing is, I never skipped a lot while taking this current treatment. You know why I used to skip?

I: hmmmm.

A: because it was on early days of taking treatment and I was still not used to these things. I was even scared on first days as I was experiencing body sweat and body itch, so I was a bit scared of them.

I: have you skipped taking treatment on your current ones?

A: I have skipped but not too much, I wouldn't take more than two or three days.

I: May you please tell me more about your reasons of skipping taking your treatment?

A: Eeeh, mostly when I skip, to be honest with you, let me not hid anything. Honestly I skip due to taking alcohol. So when I'm at a drinking place, I can't take a pill and go with it while in my pocket. The reason

why the pills has to remain in its container is so that it is not exposed to air. So if I am going to take it and put it in my pocket, then it will be exposed to air and will not work effectively as it had if it was in a container.

I: I heard you speaking about taking alcohol. So when taking these pills after having alcohol, do you experience any side effects thereafter?

A: Not at all. It's just that alcohol burns inside your stomach making it seem like you are not taking your treatment well. Even the skin changes sometimes. It's just that I am now used to taking alcohol. I am able though to limit time and tell my friends that I will come by eight, let me drink my pills first. Only those who know, isn't you cannot tell everyone your business. Only friends that I trust know

I: does that mean your HIV status you haven't disclosed to everyone around you? You only told those you trust?

A: At home they know, even when I'm not around I ask one of my family member to come to the clinic and collect treatment on my behalf.

I: in other words they support you that why they are able to come to the clinic to collect treatment on your behalf?

A: yes

I: Alright. May we please finish the alcohol topic? You mentioned that when you drink alcohol you sometimes unable to take your medication. How often do you drink? Please explain drinking pattern?

A: In a month, I only drink on the last weekend of the month only. I'll then drink on the other month.

I: is there anything you want to tell me about your treatment?

A: Not really.

I: Okay. Is there anything you want to tell me that you haven't said about your perceptions about this treatment?

I: Eeeh, I'm not sure if I'll be deviating from this interview but I want to know about HIV treatment for kids, as you can see I am also here to collect treatment for a child. So the child is young it seems she is unable to swallow pills since they are big and they are a lot as she is getting two containers, taking two

from one container and one from the other container. These pills are big and of the size of adult pills. So I'm trying to wonder if it's not possible for children's pills to differ from these of adults' pills.

A: uhmm, I'll try to answer you as much as I can to my understanding. In research we conduct studies to make peoples' lives easier, so this is a research of interest so that in future we may be able to have research that deals with bringing solutions to such problems. You are also giving me ideas to look into it. Unfortunately for now, these are the only available treatment for children and at the end of the day the child has to take treatment. Maybe the clinic sisters may also help with this matter but I think crushing the pills might also be something you can do.

A: someone once told me about crushing the pills, but crushing them is something I don't really trust. If you were to crush it on this table, some of the treatment will remain and you can collect it all.

I: the other option, mind you these pills you will drink them with water so they will eventually dissolve with water. You can use a teaspoon to pour a small amount of water into a glass and put the pills to dissolve and give it to the child.

A: What I do know is put the pills in her pap and allows her to swallow them with her food.

I: that is also fine because all we want is for her to take her treatment. Any other thing you want us to discuss before we wrap up?

I: I heard that they will bring us other pills, I don't know but I heard that you will have to take one pill once a month instead of taking them every night.

A: so far I have no knowledge about that kind of pills, what I know or have read is that there might be a breakthrough of ARV injections that you have once a year but is not yet available in South Africa. That might help a lot to avoid taking treatment all the time. But so far this is what we have, I'm sure if that development come you will also know as patients.

A: but again an injection might be a challenge. Some peoples' body doesn't go along with injections.

I: Yes, it will also have its problems.

A: we will see. Most of the people don't have injections. As you can see now during vaccine, most people have not been vaccinated especially us who drink this treatment we are forced to have this vaccine.

I: have you been vaccinated?

A: yes I have with Johnson and booster. I don't know if there is still more vaccine we need to get or not.

I: when you say you are forced to vaccinate, what do you mean?

A: We heard at the beginning of corona conversations that people who are HIV are at risk. It's not really a forced; you just do it to protect yourself

I: okay. Is there anything you would like to share about this treatment you are taking?

A: no. I think I have said it all.

I: Okay. Thank you for your time with me and to share your perceptions regarding the use of dolutegravir.

A: Thank you.

Annexure H: Proof of language edit certificate

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UNIBESITI YA BOKONE-BOPHIRIMA

Office: 0183892082

FACULTY OF EDUCATION Cell: 0789175805

Date: 28/11/2022

TO WHOM IT MAY CONCERN

CERTIFICATE OF EDITING

I, Sifiso Sibanda, confirm and certify that I have read and edited the entire dissertation: *Perceptions of people living with human immunodeficiency virus regarding the use of a dolutegravir-based regimen, Limpopo Province, by* ZR Sibeko, Student number: 39637646 submitted in fulfilment of the requirements for the degree *Master of Nursing Science with Community Nursing (MNSc)* at the North-West University, which was supervised and co-supervised by Mr. BJ Molato and Prof SS Moloko-Phiri of the North-West University.

I hold a PhD in Language and Literature with English and am qualified to edit academic work of such nature for cohesion and coherence.

The views and research procedures detailed and expressed in the dissertation remain those of the researcher/s.

Yours sincerely

Sifiso Sibanda

(PhD, MA, BA Honours, B.Ed., D.Ed. – English)

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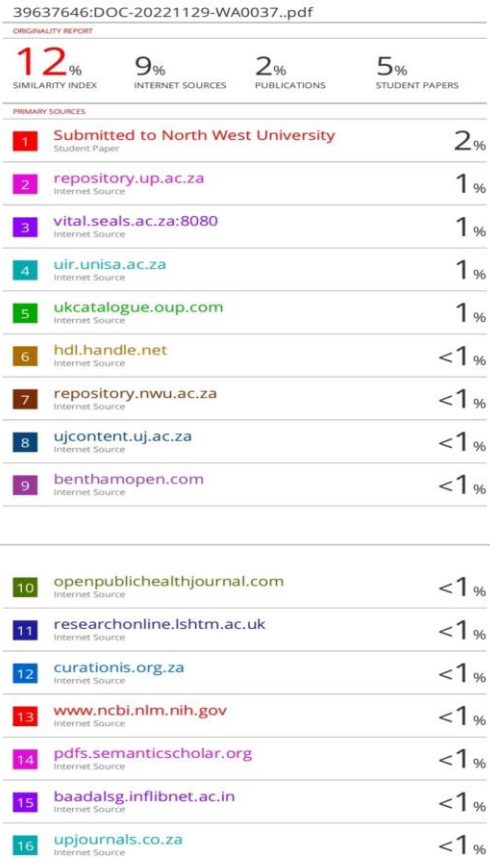
Annexure I: Proof of Turn-it-in



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