

Patients' experiences of treatment migration from ART triple pill to fixed-dose combination therapy in Ngaka Modiri Molema District, North West Province, South Africa

Lerato Patience Matlawe¹, Ofhani Prudence Musekwa², Thendo Gertie Makhado³, Lufuno Makhado⁴

¹Ditsobotla District, Department of Health, North West Province, South Africa

²Department of Psychology, Faculty of Health Sciences, University of Venda, South Africa

³Department of Advanced Nursing Sciences, Faculty of Health Sciences, University of Venda, South Africa

⁴Office of the Executive Dean, Faculty of Health Sciences, University of Venda, South Africa

Abstract

Introduction: Migration of people living with human immunodeficiency virus (PLWH) from triple pill therapy to a fixed-dose combination (FDC) was initiated to the public sector of South Africa to help with adherence to treatment as it would reduce the pill burden significantly. PLWH experiences regarding the transition from triple pill therapy to FDC in antiretroviral therapy (ART) remain unknown.

Material and methods: This study explores and describes the experiences of PLWH regarding migration from triple pill therapy to FDC. The study was conducted in Community Health Centres (CHC) in Ngaka Modiri Molema District in the North West province, South Africa. A qualitative exploratory descriptive design was used and the target population comprised all PLWH who have been on ART for more than a year on the triple pill and are currently on FDC. A purposive sampling technique was used and the sample size was determined by data saturation ($n = 15$). Data collection was done using unstructured interviews, using audiotapes and field notes. Data analysis was done using ATLAS.ti and followed the notice-collect-think (NCT) analysis.

Results: Results were discussed based on three themes: challenges experienced through the triple pill, factors influencing intake of FDC and other factors that negatively influence the triple pill and FDC intake.

Conclusions: These findings provide insight into why patients do not adhere to ART. A focus on treatment education would promote knowledge among patients, increase responsibility, and enhance adherence. Support groups and treatment buddies must be emphasized in the provision of support for clients, even if community health workers can be involved.

HIV AIDS Rev 2023; 22, 2: 150-159

DOI: <https://doi.org/10.5114/hivar.2023.127262>

Key words: antiretroviral therapy, experiences, fixed-dose combination, people living with human immunodeficiency virus, triple pill.

Address for correspondence: Lufuno Makhado, University of Venda, South Africa, e-mail: lufuno.makhado@univen.ac.za

Article history:
Received: 22.05.2021
Received in revised form: 12.07.2021
Accepted: 19.07.2021
Available online: 29.03.2023

International Journal
of HIV-Related Problems

**HIV & AIDS
Review**

Introduction

The transitioning of people living with human immunodeficiency virus (PLWH) from triple pill therapy to fixed-dose combination (FDC) therapy has reduced the pill burden and increased adherence in PLWH. One of the early problems that PLWH had was the high pill burden associated with triple pill therapy when first introduced into routine treatment and care in 1996 [1, 2]. The association of lowered adherence with increased pill burden and poorer outcomes has been recognized for some time, in terms of the number of pills to be taken and the frequency at which they have to be taken [3]. To reduce the pill burden, various strategies have been developed over time to produce once-daily dose regimens, combining several different drugs into fewer tablets, FDCs, which can be taken once a day and improve adherence [1, 2].

An estimated 23.3 million of the 37.9 million PLWH globally were on antiretroviral therapy (ART), thus more than three times as many as in 2010 [4]. Although the burden of the epidemic continues to vary considerably among countries and regions, sub-Saharan Africa remains most severely affected by HIV with nearly 1 in every 25 adults living with HIV [5] and accounting for nearly 71% of the PLWH worldwide. In South Africa, about 7.8 million are living with HIV [6]. The literature reveals several barriers that may affect treatment outcomes in PLWH after initiation of treatment. The most common barriers to treatment include stigma, the mental status of PLWH, the support system, provider-HIV patient relationship, accessibility of health care facilities, discrimination, education, cultural beliefs, knowledge about the disease and the number of pills taken per day [7-11]. Moreover, there is an emphasis that among all the mentioned barriers pill burden is seen as by far the major factor that increases non-adherence in many PLWH [12, 13]. Furthermore, studies explain that to reduce pill burden, various strategies have been developed over time to produce once-daily dose regimens, combining several different drugs into fewer tablets: FDCs [1, 14, 15]. This trend has culminated in single-pill combinations, in which all components of an ART regimen, typically three or more medications from two different drug classes, are formulated into one pill taken once daily [16]. Furthermore, for the benefits of ART to be attained at the individual and population levels, patients must maintain high levels of adherence to all components of the regimen [16].

By March 2013, most HIV patients in South Africa had been migrated from triple therapy to fixed-dose combination therapy as a strategy designed and developed to increase adherence and decrease pill burden [17]. Treatment adherence has been the subject of intensive investigation among PLWH for many years, and strategies to increase adherence have also been developed. But since the introduction of the fixed-dose combination pill in 1996 [1], the experiences of patients have not been investigated regarding the migration from triple pill therapy to one pill FDC. This explains why the literature on this topic is limited. However, it had been revealed

that patients who receive ART as a single pill per day are significantly more likely to adhere to therapy than those receiving multiple pills [18]. Furthermore, the author added that receiving a single pill per day has been significantly associated with a lower risk of hospitalization when compared with patients receiving multiple pills per day. Although this study could not assess nor establish causality, it did show that receiving ART as a single pill per day was associated with potential clinical and economic benefits [18]. However, patient perceptions in this regard were not considered or reported.

Given the magnitude of the problem, several potential factors affect HIV patients' adherence to treatment as well as available measures to curb or reduce poor adherence to treatment. The factors causing non-adherence in PLWH include side effects, stigma, psychological factors, lack of resources (transport, health care facilities, and food shortages), discrimination, religion, disclosure, and pill burden to name a few [9, 19]. Other factors such as housing and shelter are also important because patients focus on their health and maintenance, and failure to have decent shelter exposes patients, making them vulnerable and results in them not adhering to their treatment or even stopping taking it altogether [20]. As these barriers may affect individuals differently, they all cause non-adherence to medication in one way or another, decreasing successful treatment outcomes, reducing survival chances and increasing mortality related to the disease. In this case, some studies emphasise that these factors warranted the development of measures to promote adherence among HIV patients [11, 21].

Measures put in place to encourage and increase adherence in people taking ART include continuous adherence counselling, pill counts, and follow-up appointments [14]. In addition, to improve adherence, strategies are specifically designed to achieve ART adherence. ART readiness is another strategy that improves adherence [22, 23]. Recently in South Africa, the government introduced fixed-dose combinations to reduce pill burden aimed at increased adherence. This was intended to simplify complex regimens and schedules that the HIV patients had to follow previously [15]. However, there is a need to investigate the impact of these strategies and ascertain whether they are indeed increasing the levels of adherence among PLWH. The focus of this current study is mainly on the movement of patients from triple pill to FDC.

The use of single-pill therapy proved to increase adherence as compared to multiple pill therapy. As adherence increases, viral suppression increases, and quality of life improves [16, 18]. This further confirmed and emphasized that the effectiveness of FDCs in resource-limited countries was evident partly through the improved adherence observed with a single pill [24-26]. The use of combined single pill ART regimens generated lower health costs for non-AIDS patients [1]. Although health care costs seemed similar across all regimes, the use of a single drug showed that it could lower health care costs in the long term, thereby also increasing the patients' quality of life. Furthermore, there is an evident dearth in the literature on PLWH regarding their experiences around migration from triple pill to FDC anti-

retroviral therapy, and this was identified as a gap in the literature. This study seeks to explore and describe the experiences thereof and bridge the knowledge gap identified.

As stated above, migration of HIV patients from triple pill therapy to FDC was a strategy that was introduced by the national Department of Health in South Africa to PLWH, most specifically to the public sector, to help them adhere better to treatment as it would reduce their pill burden significantly [16, 17]. This meets the aim of treatment which is to provide therapy to people needing it and ensuring they remain on lifelong treatment, thereby reducing the viral load and increasing their life expectancy. In addition, it also reduces the risk of transmission by at least 96% [5]. Since the movement of HIV patients from triple pill therapy to FDC in 2013, adherence to treatment of PLWH and taking treatment increased, with fewer side effects reported. However, HIV patients' experiences regarding their movement from triple pill therapy to FDC in ART remains unknown. The purpose of this study was to explore and describe the experiences of HIV positive health care users regarding their migration from triple pill therapy to FDC. The research question for this study was "What are the experiences of HIV positive health care users regarding their migration from triple pill therapy to FDC?"

Material and methods

Research method

A qualitative, phenomenological approach was used for this study. This is a strategy that allows the researcher to identify the essence of human experiences about a phenomenon as described by participants in a study [27-29]. The exploratory-descriptive design was employed in this study to successfully fulfil the purpose of the study, to explore and understand the experiences of HIV patients as they migrated from triple pill therapy to FDC. The phenomenological, exploratory-descriptive study design was chosen because of the ability to examine lived human experiences through the description that is provided by the people involved. The focus herein was based on the lived experiences of an individual, what is important about the experience and what changes could be made [27]. In this current study, preconceived beliefs and ideas about the proposed investigations were set aside and the perspectives of the patients were privileged throughout. Thus, the researchers explored and described the lived experiences of patients as they migrated from triple pill therapy to FDC, and how the participants experienced this significant transition.

Context and setting

The study was conducted in three major Community Health Centres (CHC) of Ngaka Modiri Molema District, North West province, South Africa. These three major health centres serve as referral facilities for all the neighbouring Primary Health Care facilities and health posts in their respective local areas.

Sampling strategy and recruitment

The study population included all patients who have been on ART for one year; that is, HIV patients who have been on triple pill therapy and are currently on mono pill (FDC) therapy in Ngaka Modiri Molema District. Prospective participants were identified from the Three Integrated Electronic Registers (TIER.NET) system in their respective health facilities. TIER.NET is an electronic data system designed to monitor patients and facilitate the production of monthly and quarterly cohort reports that enhance patient and facility management, also known as an electronic implementation of a paper-based register system [30]. The study only included HIV patients who have been on ART for at least one year in each therapy: those who have been on triple pill therapy and currently have converted to FDC. The participants who were sampled willingly participated in the study.

Purposive sampling was used for this study to identify HIV patients who met the inclusion criteria, i.e., HIV patients who were previously on triple pill therapy but are currently on FDC and available for the study. The sample size in this study was 15 HIV patients and data saturation was reached at participant 9. All the participants were Setswana speaking and the semi-structured interview guide was used which translated from English to Setswana and back-translated from Setswana to English to ascertain that the meaning remained the same and the quality of the findings was not lost during translation. Before data collection, the researcher explained the study to the participants to attain consent with understanding. Participants understood the aim, benefits, risks and the right of withdrawal from the study at any given point of the study. These are some of the measures taken to ensure the trustworthiness of the study and ethical considerations pertaining to the researchers and participants.

Data collection

Once the informed consent had been signed, semi-structured interviews were conducted with each participant using an interview guide. Interviews were conducted for about 40-60 minutes. Audio-tape recording, observations and field notes were strategies used to record data during interviews for documentation. Participants were interviewed in the facilities where they received their health care services and outreach was done for those who could not be reached using tracing methods.

Data analysis

The transcribed data were translated into English and back-translated to ascertain whether the meaning remained the same. Data were analysed using ATLAS.ti and followed the basic steps of notice-collect-think (NCT) analysis [31-33]. These basic steps enabled the researcher to work in a systematic manner instead of declaring the software to be the method itself [31]. The researcher noticed aspects of the data that led to labelling and begin coding what was noticed [31-33]. This

coding was divided into descriptive-level and conceptual-level analysis. The descriptive-level analysis consisted of two stages of coding: 1st stage coding involves reading the transcripts and field notes to notice patterns of the data, then writing notes, marking segments and attaching the first preliminary code; while 2nd level coding serves to validate the code list, and if the code list was developed usefully, then not many new codes will be added at this stage. This leads to the conceptual level analysis. The researcher then linked data using the network, views functions, exploring developed ideas further and integrating all findings in writing and graphic representations [31-33]. Thus, categories and themes were developed. A co-coder assisted in validation of codes and themes.

Techniques to enhance reliability

To provide trustworthiness of the qualitative analysis, the researcher ensured credibility, transferability, dependability, and confirmability accordingly [34]. To endure credibility the researcher and a co-coder independently read and coded the transcribed individual interviews and compared data codes obtained from all participants ($n = 15$) with raw data and wrote memos about codes and their definitions. The information obtained helped the researcher to describe the true meaning of the information presented. Transferability was enforced by providing and following a clear methodical path and sharing the results of the study with context experts. In addition, a detailed description of the information was provided to ensure the transferability of the information. Confirmability was achieved by using a peer debriefer who reviewed and asked questions about the study so that the study resonated with other people other than the researcher. Dependability was achieved by triangulation of methods; this was done by examining evidence from semi-structured interviews, field notes and observations and using the evidence to build comprehensible reasoning towards the themes.

Ethical considerations

The study ethical clearance was approved by the North-West University Ethics Committee (ethics number: NWU-000033-13-A9) and permission to conduct the study was provided by the North West Province Department of Health. Participating in this study was voluntary. Privacy, confidentiality and anonymity were maintained always.

Results

Participants

Participants in this study were HIV patients who had been on the ART triple pill and had converted to FDC, i.e. had been taking FDC for at least one year before the study commenced. The majority of the participants were female ($n = 13$) and 2 were male. These participants were aged

23-56 years; the majority of the participants were unemployed ($n = 10$), three worked as domestic workers, one as a shop assistant and one as a community health care worker. The majority had high school education with up to matric certificate ($n = 10$) and others never went to school ($n = 5$).

The experiences regarding the conversion of PLWH from triple pill to FDC were identified during interviews and the following themes emerged: challenges of the triple pill, factors influencing FDC and other factors. These findings were concretised by direct quotations from participants. The outline of themes and sub-themes is summarised in Table 1.

Challenges experienced through triple pill

Participants in this study revealed that they experienced some challenges during the period they were taking the triple pill. To continue with their daily lives as normal they had to adapt, which was challenging in itself. These challenges are specified in the subthemes: non-adherence, pill burden and more side effects.

Poor adherence

In any chronic disease, there should be treatment adherence such that the desired outcome of relief and healing is attained. In HIV management, the aim of providing treatment to PLWH is to suppress the viral load, thereby increasing life expectancy. Poor adherence to treatment is one of the common challenges faced by many South Africans who live with HIV; this may be because of several factors.

In this instance, participants expressed that during the triple pill intake their poor adherence was based on severe

Table 1. Themes and subthemes based on the experiences of HIV positive health care users regarding their migration from triple pill therapy to FDC

Themes/Sub-themes
Challenges experienced through triple pill
Poor adherence
Pill burden
More side effects
Factors influencing FDC intake
Improved adherence
Reduced pill burden
Reduced side effects
Other factors that negatively influenced the intake of triple and FDC
Forgetfulness and lack of disclosure
Stigmatization
Lack of knowledge about treatment
Poor economic status

ral factors that eventually overpowered their willingness to faithfully take their medication. Participants verbalised that lack of financial support was one of the factors that inhibited them from adhering to their treatment correctly, i.e. lack of money for food, as they were informed that for their treatment to work well they needed to eat before taking the medication. Additionally, the lack of transport fare to the health facility is another mitigating factor as mobile clinics sometimes do not reach their communities. All these factors promote poor adherence for some participants. One participant verbalised it in this way:

“Mmh, when I was taking the triple pill, to be honest, it is not only one day. I would stay many years not taking them, just putting them aside. [ARVs],...others get the grant [social grant] and they are not even taking their treatment correctly, so they get sick, ...we don't get the grant and at the end, I don't see why I should take the treatment.” (Participant 7, female, 23 years old)

Another participant added:

“I started collecting my treatment from the pharmacy (private), then I had financial constraints I was then referred [to] a hospital [geographically closer] and then to the community health centre here in my location where I'm currently collecting my treatment, way better than before when I missed some days.” (Participant 4, female, 45 years old)

In contrast, other participants indicated that even with the triple pill they did not have any challenges adhering to ARVs, as they said they decided to take the treatment because they did not want to die. One respondent mentioned that:

“No, it doesn't (discourage me taking many tablets) because I want to live for a very long time.” (Participant 6, female, 40 years old)

Pill burden

Participants in this study have had their fair share of challenges on pill burden. While other participants felt the tablets were too many because they were taking treatment for other illnesses, others simply said they even got confused on how to take them because there were so many. Pill burden in this study influenced non-adherence in some of the participants. One participant stated:

“...there were many [tablets], [for] this one [HIV] they were 3, plus these other ones [for other chronic illnesses], it would be a handful. So sometimes I would only take these 3 and the others [for other chronic illnesses] I would take later in the day. It was a handful...I thought that it was not a life.” (Participant 5, female, 48 years old)

“Yes I was able to take them (treatment) regularly, it was just they (tablets) were too many. But it was helping me (I did not get sick easily).” (Participant 3, female, 42 years old)

More side effects

Participants in this study indicated that they had experienced more side effects particularly when they were still

taking a triple pill. While other participants suffered minor effects, some suffered more permanent physical effects.

“When I was taking the triple pill I discovered that I was developing a mass on the back...others would develop a big tummy and I developed something like a hunchback.” (Participant 4, female, 45 years old)

Among the 15 respondents who were interviewed in this study, about 13 respondents reported having experienced side effects and others even reported deformity that was attributed to one of the treatments given (stavudine). While many could not cope with the side effects, many mentioned that this made them want to quit their treatment. One respondent mentioned:

“I said I was psychotic. I would not eat sometimes, no appetite, I would get tired and I felt I was suffering and thought maybe I would just die and rest. I would tell my sister that and she would discourage me from the thought and would sometimes crush my tablets just so that I could take them, and even then I would vomit them sometimes.” (Participant 3, female, 42 years old)

Other participants mentioned that they had quit their treatment at some point in their lives and others just did not adhere to their treatment correctly because of the side effects they mentioned.

Factors influencing FDC intake

With the introduction of FDC, the intention was to reduce the pill burden, thereby improving adherence and saving the government the high costs of treatment. As many factors may influence FDC intake, the following subthemes were captured from the interviews that were conducted with participants in this study, i.e. improved adherence, reduced pill burden and reduced side effects.

Improved adherence

Participants in this study indicated that since they converted from triple pill to FDC they had seen life as being simpler and they adhered better to treatment without confusing treatment and forgetting. While other participants miss a dose due to forgetfulness, others mentioned that they got more confused on which tablets to take in the morning and which at night.

“Since I started on the FDC I no longer experience problems because every day at 7 I would know it was time to take my treatment and would drink it. I'm no longer confused, and I don't forget, because it's only one tablet...” (Participant 8, female, 38 years old)

The other participant mentioned:

“At first [it] was a bit difficult because one would forget to take the treatment in the morning. Now I feel that this FDC that one takes only once a day at night is better...” (Participant 9, female, 32 years old)

Reduced pill burden

Many participants with other illnesses were happy with the introduction of FDC; they mentioned that it had reduced

their pill burden effectively as they could take another treatment in the morning and only one tablet at night. They indicated that using FDC had given them a sense of relief from taking too many tablets at once. They also mentioned that this made their lives much easier. On the other hand, participants who only suffered the HIV infection also mentioned that taking three tablets twice a day was a burden. Now that they had been moved to the FDC pill they felt relieved that the number of tablets had been reduced. One participant mentioned:

“I can say for me the triple pill was difficult because I would forget ...and I would sometimes take only two tablets and skip the other tablet on that day. But this one tablet is simple because even when you travel you can simply take only one tablet ...even in whatever you do at that time it does not disturb you.” (Participant 1, female, 35 years old)

The other participant indicated the following:

“Now that I take my hypertensive treatment in the morning and take this one at night, I no longer take many tablets at the same time.” (Participant 11, female, 52 years old)

Reduced side effects

Most of the participants mentioned that they experienced side effects while they were taking the triple pill. Most of them mentioned that since they were moved to FDC they had seen fewer side effects. Some explained that even with FDC they did experience some side effects, but most participants said the side effects did not last for a very long time and they felt that the side effects that they experienced with FDC were much more adaptable in their day-to-day lives.

A participant mentioned that:

“When I was taking a triple pill, I had nausea every day and every night when I took them. But this one (FDC) is fine, I don't experience nausea anymore.” (Participant 6, female, 40 years old)

Participants further mentioned that there are different side effects and they just vary among people as others are still experiencing side effects with FDC, while some who are still on the triple pill are not experiencing them.

“Ever since I started this one [FDC] at night treatment I started experiencing itchiness, and my tummy is now round and stiff. It's not that I feel bloated, the tummy just seems bigger, round and stiff as if I'm pregnant.” (Participant 8, female, 38 years old)

It should also be noted that there are PLWH who never experienced side-effects in both triple pill and FDC. This was verbalised by one participant who stated the following:

When I was taking a triple pill, I did not experience side effects. Even with the FDC, I have no side effects. (Participant 5, male, 48 years old)

Each treatment prescribed by the medical practitioner or bought over the counter (un-prescribed) has caused side effects and adverse effects. Although respondents still highlighted that they had experienced side effects particularly at the start of the new treatment and right after the movement to FDC, some mentioned that they still had some side

effects while others said that they experienced side effects for only a short period. About three participants said they experienced the same side effects as those they had had before, yet some said they experienced entirely different side effects:

“According to me [sic], I felt it would be easier for me because with the triple pill I had a problem as I already mentioned before about the deformity (hunchback). This one [FDC] I don't have problems and it never gave me problems.” (Participant 4, female, 45 years old)

For patients who were on stavudine based regimens, switching to the mono pill was a huge relief, not only because it reduced the pill burden, but also because they were switched to drugs believed to have fewer and milder side effects, such as a combined pill used as first-line therapy containing tenofovir, emtricitabine and efavirenz.

Other factors

Many other factors influence the intake of triple pills and FDC in PLWH. These factors mostly influence the intake negatively as they hinder the participants from taking their treatment regularly. The following subthemes showed the challenge to be true, that is, lack of disclosure, stigmatization, lack of knowledge about treatment and poor economic status.

Forgetfulness and lack of disclosure

Most of the participants mentioned that at the beginning when they commenced their treatment it was very difficult for them to take it because they were forgetful and had not told anyone about their HIV status. On the other hand, some participants who disclosed their HIV status reported having lost support, especially from their immediate family members, who would remind them to take their treatment when they felt demoralised and too sick to take treatment.

“The one thing that affected me when I was taking ARVs [triple pill] before, I think I had problems because sometimes I would forget them [ARVs]...by that time I did not have the mind to set the alarm as a reminder ...and I had not disclosed to anyone at home, I could not ask anyone to remind me to take my treatment.” (Participant 6, female, 40 years old)

One participant said she feared her parents would not cope with her condition, simply because they were also on chronic medication themselves and she felt the news would complicate their condition.

“I felt like I would hurt my parents, you know (by disclosing). They are people who are diabetic and also taking hypertension treatment, so I was scared they would not understand. I simply could not complicate their already complex lives.” (Participant 1, female, 35 years old)

Even with the burden of being diagnosed with chronic illness themselves, most participants felt that letting their friends and family know about their condition would give them the burden as well. Whilst they also thought that letting them know about their condition would provide a strong

support system, it emerged that a significant number were uncomfortable with disclosure of their status and consequently they simply lived with their condition. When you have support, you tend to adhere better and continue with treatment than when there is no support at all. That means that secrecy influences forgetfulness and overall adherence.

Stigmatization

Participants in the study indicated that stigmatization also played a role in them accepting their status and adhering to their treatment. Others mentioned that it was difficult for them to socialise while others stated that taking their treatment while on a social visit, whether friends or family, was a challenge. Eleven of the respondents felt that stigma, especially attached to PLWH, is also a major contributor to non-adherence to their treatment.

“With other people, it was a bit difficult when you take this treatment [ARVs] because others [friends, relatives and community members] would laugh at you. So now with the triple pill one had to hide when taking them... when you have visited other relatives, they discriminate us [PLWH].” (Participant 2, female, 56 years old)

Another participant said:

“...having a child who will be born with a virus... How will my child be perceived by other children?...they would mock or not play with my child in the fear that they will be infected. Just like me when I first found that I was living with the virus many people would not want to be close to me because they feared that I would infect them.” (Participant 6, female, 40 years old)

Lack of knowledge about the treatment

Some of the participants in this study showed knowledge and understanding about the disease progress and treatment, including the purpose of their treatment. This makes it easy for them to take their treatment regularly to reach the desired results, which are viral load suppression and extension of their life expectancy.

Most participants did not understand their disease progression; all they highlighted was that they do take their routine blood samples and are told that they are fine without any interpretation of the results so that they understand. One of the participants mentioned that when she took triple pill therapy, she understood that she was protected by her treatment throughout the day and night as she took two doses in a day. But now that she takes only one tablet during the night, she does not understand how the treatment works and what protects her during the day, as she presumes this single tablet only works at night.

“I take it with this FDC, it's much simpler, only because you only take it once, in the evening, I don't know about others, but I only take it at night...when I look at it, you take it at night, what about during the day, when you get sick during the day what are you going to do, it might be that it only works during the night but what about during the day.” (Participant 2, female, 56 years old)

It is important for every patient who is taking chronic treatment or even any treatment for a short period to know their treatment and how it works as well as what the intended result of taking such treatment is. In HIV care and management, the latter is no different and treatment is set to reduce the viral replication, thereby suppressing it, reducing the incidence of opportunistic infections and thereby reducing mortality, leading to an increase in life expectancy.

In this study, most participants stated that they took their treatment because they wanted to live a longer life. Most of them were not able to explain how taking their treatment would make them live longer although they believed it would. What they verbalised was that they were told that their virus was low and that means that they were taking the treatment correctly without skipping doses.

Like in every chronic illness, PLWH need to take treatment to remain healthy. Antiretroviral drugs work by suppressing the viral load, thereby preventing the occurrence of opportunistic infection, thus increasing the life expectancy to that of a person with no chronic illness.

Poor socio-economic status

Participants mentioned that living in poor socio-economic conditions has had a negative impact on them whether they were taking the triple pill or FDC. These conditions have made them poorly adhere to their treatment. Some participants mentioned that they find it hard to eat a well-balanced diet due to a lack of funds. Consequently, these patients sometimes do not strictly adhere to their treatment.

“For things like vegetables and fruits daily, they should be there at all times, and you would find that at times I can't afford them, so that is how I thought life will be difficult when I started (ARVs)...I also depended on my parents' pension money, I was also receiving something from where my late husband was working.” (Participant 1, female, 35 years old)

The poor socio-economic status of a patient can predispose the patient to the harsh realities of life and deprive them of things essential to survival. This includes access to health care, provision of food and others. Many said that because they were not working, they lacked funds to buy food so that they could not take their treatment, not on an empty stomach. Others still felt that while they attempted to take it despite not having eaten, this made them experience side effects such as heartburn and dizziness more than when they had eaten something before taking treatment. Other participants said that they stayed far from the facilities where they received treatment, and it was at times difficult to travel to the facility to take their treatment, thereby leading to poor adherence to treatment. Others mentioned that now they were provided with a double supply sometimes for 3 months this arrangement made things easy for them. In this study, it was evident that a lack of funds, employment and other factors played a role in patients not adhering to their treatment correctly.

Discussion

The migration from triple pill to FDC was reported to have improved adherence and reduced pill burden. As this study showed, patients are more relieved with the migration. Gandhi and Gandhi [16] emphasize that for the benefits of ART to be achieved at the individual and population levels, patients must maintain high levels of adherence to all components of the regimen. Most PLWH in the study felt that the mono pill was easy and simple for them and that they do not forget, miss a dose or even confuse which one to take in the morning and at night [35], thus explaining why they adhere better to a mono pill. The migration also promoted the reduction of the pill burden.

To achieve the reduced pill burden, various strategies have been developed over time to produce once-daily dose regimens, combining several different drugs into fewer tablets: “fixed-dose combinations” which can be taken once a day, and this improves adherence [1, 2]. PLWH with co-morbidities also experienced a pill burden during the provision of the triple pill on top of the side effects experienced. While others indicated that they were more confused by which treatment was to be taken and when to take it, they would skip doses to reduce the number of tablets that were taken altogether. While side effects are one of the major contributors to non-adherence in any chronic illness that needs chronic drug therapy, Hornschuh *et al.* [35] also explained that antiretroviral drugs and other drugs can cause side effects that can be severe enough to make some people stop taking them. Beck *et al.* [1], Boruett *et al.* [14] and Marazzi *et al.* [15] explained that to reduce the pill burden, various strategies have been developed over time to produce once-daily dose regimens, combining several different drugs into one tablet (FDC). According to Gandhi and Gandhi [16], this trend has ended in single-pill combinations, in which all components of an ART regimen are formulated into one pill taken once daily. However, after the migration from the triple pill to FDC, PLWH started enjoying the reduced challenge of the pill burden and could happily manage also taking other co-morbid medications with ease. This was evident from this study as PLWH highlighted that they welcomed the movement to FDC, and mentioned that this had made their lives easier. PLWH mentioned that they now were taking their treatment correctly because they could manage their treatment as there were not so many tablets anymore. They mentioned that even if they took treatment for more than one chronic condition, they could manage their treatment because they only took FDC once a day and mostly during the night, while the other chronic treatment can be taken during the day or in the morning.

PLWH welcomed the simple treatment which is easy for them to adhere to. However, some of the PLWH stated that they had blood samples taken that they thought was just routine monitoring every year. When they received their results, they were told they were virally suppressed and were eligible for the FDC pill. Others stated that they were just moved based on their previous blood monitoring results. This provides evidence that while there was preparation for

this migration to FDC, there was little or no education and prior counselling when the patients were migrated to FDC.

Although there is much relief and compliance among PLWH, they still encounter social challenges in terms of fear of disclosure and stigma from the family members and society at large. Inability or fear to tell other people about their health status might increase the stress and anxiety in one's life. This non-disclosure in many of the PLWH in this study proved to be a serious factor that also influenced non-adherence. Some PLWH mentioned that they feared to disclose to friends and family simply because they feared how they would react. This affects how they take their ART as they have to hide from family and friends when it is time to take them. On the other hand, this prevents and undermines the provision of support from anyone who could be in a good position to remind them when it is time to take treatment. Most studies indicate that adherence to ART can be aided through the use of family and social support [35-41]. Hornschuh *et al.* [34] reported that PLWH mentioned different reminder methods during ART treatment including alarms, medication charts, family members, and friends. However, to receive such reminders from family and friends, one must disclose to a trusted person who would be able to remind one to take the daily ART [35].

Additionally, some PLWH feel that there is still a stigma around them. The study findings revealed that stigmatisation makes them not adhere to their ART correctly. PLWH mentioned that when they visit their relatives, they do not take treatment because they tend to laugh at them and, as a result, they do not like visiting other people. The stigma attached to PLWH can be brought by both family members of the affected person and the society around them [39-44]. It is based on this reason that many PLWH may not disclose to family, friends and other community members in fear of being stigmatised and isolated.

Although PLWH stated being well inclined towards FDC, other challenges still prevail. Thus, besides the South African ART programmes' provision of ART free of charge in government institutions, factors such as unemployment, transport cost, lack of food and loss of earnings still inhibit proper and desired adherence to ART. These factors should be taken into consideration as they are of major concern given the potential abilities to hinder adherence in PLWH [45, 46]. Furthermore, Azia *et al.* [45], Woodgate *et al.* [41], Chop *et al.* [46] and Ntshakala *et al.* [47] indicated that due to the financial constraints experienced by most PLWH, they ended up missing clinical appointments and/or their doses either because they were unable to raise enough money for transport fares or because they were not able to buy food and eat properly to enable them to take their medication as prescribed. PLWH with a higher income have less difficulty adhering to the treatment as compared to those of low-income levels. This reveals the need for support dedicated to patients in low-income communities for better outcomes.

The movement of patients from triple pill to FDC has experienced challenges as revealed in this study as well as the positive reception by PLWH. However, even though

the medical approaches and strategies are doing well in the promotion of adherence and reduction of pill burden, much still needs to be done to decrease or mitigate the social factors impacting PLWH's adherence to ART.

Strengths and limitations of the study

The qualitative approach employed in this study ensured that the researchers could explore the lived experiences of PLWH regarding the migration from the triple pill to FDC. The design allowed for the significance and meaning of the experiences to be explored through the rich contextual description of those experiences. During data collection, enough time was spent with PLWH; thus there was a prolonged engagement which allowed the researchers to collect dense and rich information concerning the lived experience of PLWH regarding their migration to FDC. The limitations included the fact that the study was conducted in one sub-district and the findings cannot be generalised to other sub-districts. The results are limited and applicable to the context where the study was conducted.

Conclusions

The study identified many challenges during the provision of the triple pill, such as poor adherence, negative side effects and pill burden. The majority of the participants showed exceptional acceptance of FDC, reporting that it simplified their day-to-day living and felt unburdened by the migration. However, a few participants claimed that their experience remained unchanged regardless of the migration, and challenges still occurred.

The experiences of PLWH in this study provided some insight on why most patients do not adhere to ART, and this has the potential to enlighten the Department of Health on specific factors requiring attention among PLWH. This could also help achieve the 95-95-95 strategies targeted by 2030. This study recommends that the screening process of PLWH should include their socioeconomic status to determine social relief program eligibility. In addition, ongoing counselling for individuals on ART should be inclusive of lifestyle, treatment, and personal care during treatment education.

Acknowledgements

We wish to thank the North West Department of Health and the Ditsobotla Sub-District for permitting this study. We are also grateful to North-West University for approving the study. We would like to convey our deepest gratitude to all PLWH in the selected CHC facilities at Ditsobotla Sub-district for sharing their experiences in this study.

Funding statement

This study was financially supported by the National Research Foundation (NRF, Thuthuka grant-TTK1606011-67061).

Conflict of interest

The authors declare no conflict of interest.

References

1. Beck EJ, Mandalia S, Sangha R, et al. Lower healthcare costs associated with the use of a single-pill ARV regimen in the UK, 2004-2008. *PLoS One* 2012; 7: e47376.
2. Schaefer KL. The importance of treatment adherence in HIV. *Am J Manag Care* 2013; 19 (12 Suppl): S231-S237.
3. Ojeabu WA. Pharmacist's intervention on pill burden effects on the health-related quality of life of elderly diabetic patients in a tertiary hospital in Southwestern Nigeria. *Int J Diabetes Metab* 2019; 25: 148-154.
4. UNAIDS. Global HIV & AIDS statistics – 2020 fact sheet. 2020. <https://www.unaids.org/en/resources/fact-sheet>.
5. World Health Organization. Global Health Observatory (GHO) data. 2020. https://www.who.int/health-topics/hiv-aids#tab=tab_3
6. Statistics South Africa [StatsSA]. Mid-year population estimates 2020, statistical release. Pretoria. 2020. p0302.
7. Li L, Wu Z, Wu S, Jia M, Lieber E, Lu Y. Impacts of HIV/AIDS stigma on family identity and interactions in china. *Families, Systems & Health* 2008; 26: 431.
8. Zeng C, Li X, Qiao S, Yang X, Shen Z, Zhou Y. Anticipated stigma and medication adherence among people living with HIV: the mechanistic roles of medication support and ART self-efficacy. *AIDS Care* 2020; 32: 1014-1022.
9. Musumari PM, Feldman MD, Techasrivichien T, Wouters E, Ono-Kihara M, Kihara M. "If I have nothing to eat, I get angry and push the pills bottle away from me": a qualitative study of patient determinants of adherence to antiretroviral therapy in the Democratic Republic of Congo. *AIDS Care* 2013; 25: 1271-1277.
10. Brinkley-Rubinstein L, Chadwick C, Graci M. The connection between serious life events, anti-retroviral adherence, and mental health among HIV-positive individuals in the Western Cape, South Africa. *AIDS Care* 2013; 25: 1581-1585.
11. Penn C, Watermeyer J, Evans M. Why don't patients take their drugs? The role of communication, context and culture in patient adherence and the work of the pharmacist in HIV/AIDS. *Patient Educ Couns* 2011; 83: 310-318.
12. Piacenti FJ. An update and review of antiretroviral therapy. *Pharmacotherapy* 2006; 26: 1111-1133.
13. Safira N, Lubis R, Fahdhy M. Factors affecting adherence to antiretroviral therapy. *KnE Life Sciences* 2018; 4: 60-70. doi: <https://doi.org/10.18502/kls.v4i4.2264>.
14. Boruett P, Kagai D, Njogo S, et al. Facility-level intervention to improve attendance and adherence among patients on anti-retroviral treatment in Kenya – a quasi-experimental study using time series analysis. *BMC Health Serv Res* 2013; 13: 242. doi: 10.1186/1472-6963-13-242.
15. Marazzi MC, Bartolo M, Gialloreti LE, et al. Improving adherence to highly active anti-retroviral therapy in Africa: the DREAM programme in Mozambique. *Health Educ Res* 2006; 21: 34-42.
16. Gandhi M, Gandhi RT. Single-pill combination regimens for treatment of HIV-1 infection. *N Engl J Med* 2014; 371: 248-259.
17. Davies NE. Fixed-dose combination for adults accessing antiretroviral therapy: advice document. *Southern African Journal of HIV Medicine* 2013; 14: 41-43.
18. Sax PE, Meyers JL, Mugavero M, Davis KL. Adherence to antiretroviral treatment and correlation with risk of hospitalization among commercially insured HIV patients in the United States. *PLoS One* 2012; 7: e31591. doi: 10.1371/journal.pone.0031591.
19. Rao D, Kekwaletswe TC, Hosek S, Martinez J, Rodriguez F. Stigma and social barriers to medication adherence with urban youth living with HIV. *AIDS Care* 2007; 19: 28-33.

20. Kidder DP, Wolitski RJ, Campsmith ML, Nakamura GV. Health status, health care use, medication use, and medication adherence among homeless and housed people living with HIV/AIDS. *Am J Public Health* 2007; 97: 2238-2245.
21. Li MJ, Murray JK, Suwanteerangkul J, Wiwatanadate P. Stigma, social support, and treatment adherence among HIV-positive patients in Chiang Mai, Thailand. *AIDS Educ Prev* 2014; 26: 471-483.
22. Enriquez M, McKinsey DS. Strategies to improve HIV treatment adherence in developed countries: clinical management at the individual level. *HIV/AIDS (Auckl)* 2011; 3: 45-51.
23. Wagner GJ, Linnemayr S, Ghosh-Dastidar B, Currier JS, Hoffman R, Schneider S. Supporting Treatment Adherence Readiness through Training (START) for patients with HIV on antiretroviral therapy: study protocol for a randomized controlled trial. *Trials* 2016; 17: 162. doi: 10.1186/s13063-016-1287-3.
24. Mills EJ, Nachega JB, Buchan I, et al. Adherence to antiretroviral therapy in sub-Saharan Africa and North America: a meta-analysis. *JAMA* 2006; 296: 679-690.
25. Calmy A, Pinoges L, Szumilin E, Zachariah R, Ford N, Ferradini L. Generic fixed-dose combination antiretroviral treatment in resource-poor settings: multicentric observational cohort. *AIDS* 2006; 20: 1163-1169.
26. Duse AG, Morar A, Landman I, et al. Short-term effectiveness and safety of HAART in the form of a generic fixed-dose combination of stavudine, lamivudine and nevirapine (Triviro) in HIV-1-infected adults in Zimbabwe. *Southern African Journal of HIV Medicine* 2008; 9: 51-56.
27. Creswell JW, Creswell JD. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage Publications; 2017.
28. Brink H, Van der Walt C, Van Rensburg G. *Fundamentals of Research Methodology for Health Care Professionals*. Cape Town: Juta and Company Ltd; 2012.
29. Grove SK, Gray JR. *Understanding Nursing Research E-Book: Building an Evidence-Based Practice*. Elsevier Health Sciences; 2018.
30. Osler M, Hilderbrand K, Hennessey C, et al. A three-tier framework for monitoring antiretroviral therapy in high HIV burden settings. *J Int AIDS Soc* 2014; 17: 18908. doi: 10.7448/IAS.17.1.18908.
31. Friese S. *Qualitative data analysis with ATLAS*. Sage; 2019.
32. Meno FO, Makhado L, Matsipane M. Factors inhibiting implementation of integrated management of childhood illnesses (IMCI) in primary health care (PHC) facilities in Mafikeng sub-district. *International Journal of Africa Nursing Sciences* 2019; 11: 100161. doi: <https://doi.org/10.1016/j.ijans.2019.100161>.
33. Makhado L, Davhana-Maselesele M, Lebeso RT, Maputle SM. Factors facilitating trained NIMART nurses' adherence to treatment guidelines: a vital matter in the management of TB/HIV treatment in South Africa. *BMC Nurs* 2020; 19: 77. doi: 10.1186/s12912-020-00470-6.
34. Morrow SL. Quality and trustworthiness in qualitative research in counseling psychology. *J Couns Psychol* 2005; 52: 250-260.
35. Hornschuh S, Dietrich JJ, Tshabalala C, Laher F. Antiretroviral treatment adherence: knowledge and experiences among adolescents and young adults in Soweto, South Africa. *AIDS Res Treat* 2017; 2017: 5192516. doi: 10.1155/2017/5192516.
36. Mwangome M, Geubbels E, Klatser P, Dieleman M. Perceptions on diabetes care provision among health providers in rural Tanzania: a qualitative study. *Health Policy Plan* 2017; 32: 418-429.
37. Lazuardi E, Newman CE, Anintya I, et al. Increasing HIV treatment access, uptake and use among men who have sex with men in urban Indonesia: evidence from a qualitative study in three cities. *Health Policy Plan* 2020; 35: 16-25.
38. Bogart LM, Mosepele M, Phaladze N, et al. A social network analysis of HIV treatment partners and patient viral suppression in Botswana. *J Acquir Immune Defic Syndr* 2018; 78: 183-192.
39. Rivera-Díaz M, Varas-Díaz N, Padilla M, de los Angeles Vargas-Cancel M, Serrano N. Family interaction and social stigmatization of people living with HIV and AIDS in Puerto Rico. *Glob Soc Work* 2017; 7: 3-26.
40. Ibrahim K, Kombong R, Sriati A. The difference of perceived HIV stigma between people living with HIV infection and their families. *Nurse Media Journal of Nursing* 2019; 9: 117-127.
41. Woodgate RL, Zurba M, Tennent P, Cochrane C, Payne M, Mignone J. "People try and label me as someone I'm not": the social ecology of Indigenous people living with HIV, stigma, and discrimination in Manitoba, Canada. *Soc Sci Med* 2017; 194: 17-24.
42. Turan B, Hatcher AM, Weiser SD, Johnson MO, Rice WS, Turan JM. Framing mechanisms linking HIV-related stigma, adherence to treatment, and health outcomes. *Am J Public Health* 2017; 107: 863-869.
43. Ismail SM, Eisa AA, Ibrahim F. HIV-infected people in Sudan moving toward chronic poverty: possible interventions. *J Assoc Nurses AIDS Care* 2016; 27: 30-43.
44. Idemudia ES, Olasupo MO, Modibo MW. Stigma and chronic illness: a comparative study of people living with HIV and/or AIDS and people living with hypertension in Limpopo Province, South Africa. *Curationis* 2018; 41: e1-e5. doi: 10.4102/curationis.v41i1.1879.
45. Azia IN, Mukumbang FC, van Wyk B. Barriers to adherence to antiretroviral treatment in a regional hospital in Vredenburg, Western Cape, South Africa. *South Afr J HIV Med* 2016; 17: 476. doi: 10.4102/sajhivmed.v17i1.476.
46. Chop E, Duggaraju A, Malley A, et al. Food insecurity, sexual risk behavior, and adherence to antiretroviral therapy among women living with HIV: a systematic review. *Health Care Women Int* 2017; 38: 927-944.
47. Ntshakala TT, Mavundla TR, Dolamo BL. Quality of life domains relevant to people living with HIV and AIDS who are on antiretroviral therapy in Swaziland. *Curationis* 2012; 35: 87. doi: 10.4102/curationis.v35i1.87.