Patients experiences on the adverse effects associated with antiretroviral treatment in Piet Retief, Mpumalanga Province, South Africa

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Abstract

This study made use of primary data. This qualitative study draws on 20 individuals, in-depth, face-to-face interviews (individual) with both males and females patients between the ages 15-49 years enrolled at Piet Retief Wellness Centre for antiretroviral treatment (ART) between the period 2010 and 2017 were used to obtain information from patients who have defaulted treatment and those who have not defaulted treatment.

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ABSTRACT

The management of Antiretroviral Treatment (ART) adverse effects is key to the success of HIV and AIDS treatment as this impact on the quality of life for those living with the disease. Patients' non-adherence to antiretroviral treatment remains a public health challenge in most developing countries, including South Africa. Although the Government avails all efforts to ensure ART availability in hospitals around the country, non-adherence to ART is still a major concern.

Objectives: The objective of this study was to explore the experiences of patients on the side effects of ART on the individual and its effect on the uptake as predicted by the Health Belief Model.

Methods:

This qualitative study draws on 20 individuals, in-depth, face-to-face interviews (individual) with both males and females patients between the ages 15-49 years enrolled at Piet Retief Wellness Centre for ART between the period 2010 and 2017 were used to obtain information from patients who have defaulted treatment and those who have not defaulted treatment.

Results: The results of the study highlight several side effects that were experienced by patients on ART resulting to non-adherence. Both defaulted and non-defaulted patients experienced side effects such as rash, headaches, diarrhoea and loss of appetite. Further, the demand for certain type of food such as meat, eggs and vegetables increased drastically as patients got initiated into treatment.

Conclusion: The availability of ART in hospitals around the country is not good enough to ensure medication adherence. Interventions that will support people on ART to be consistent in ART uptake, especially the unemployed should be developed and strengthened.

Key Words: Defaulters, Food preferences, HIV and AIDS, Non-defaulters, Side effects, Wellness Centre.

1.1 INTRODUCTION

Globally, non-adherence to antiretroviral treatment (ART) has been recognized as a major challenge for patients receiving treatment for HIV and AIDS (UNAIDS, 2016). Adherence can be defined as the extent to which the behaviour of an individual changes with the given rules from the health provider (Sabate, 2003). In order for HIV positive patients to fully benefit from ART, medication adherence level of at least 95% and above is required (WHO, 2016). The benefits of adhering to ART therefore include suppression of the viral load, increase of the CD4 cells count and it minimizes resistance ART drugs which result in improved quality of life for the infected person (WHO, 2016).

The availability of ART in South African public and private health institutions has improved accessibility to treatment. Following UNAIDS (2014) recommendation requiring the administration of ART to be scaled up in local clinics in the Sub-Saharan African countries, a tremendous increase in the number of patients on ART, from an estimate of almost 100 000 people in 2003 to 3.9 million in 2009 was attained (Ayalu et al., 2011). As far as South Africa is concerned, in 2016 the number of people on treatment was about 4.4 million , resulting into the largest treatment programme in the whole world (UNAIDS,2017).

Despite these advantages, a growing body of literature in South Africa shows that adult retention in ART is deteriorating over calendar time, with patients who started ART more recently being more likely to default than those who initiated ART in earlier years (NDH, 2013). Further, a report from 32 studies conducted in South Africa on ART non-adherence discovered that at two years of treatment, 38% of Patients had defaulted from treatment (Rosen et al.,2007). In support of this, Fox and Rosen (2010) made an analysis of 33 studies around in South Africa which also revealed an overall non-adherence rate 28%. This means that only 72% of patients faithfully adhered to ART. In addition to this, a systematic review of South African ART cohorts published between 2008 and 2013 found that approximately only two-thirds of patients who initiated ART remained in care four years later, (Erasmus, 2014). Within this context, the South African AIDS Council (2012) has recommended that any barriers preventing patients from accessing ART-related services such as testing, treatment and care needs to be removed by the government through the Department of Health to ensure that patients benefit from this life saving treatment.

The high levels of patients non-adherence to ART in South Africa underscored the need for more studies to be conducted to ascertain the various challenges faced by patients and in essence affecting ART uptake. Various studies conducted around the World have revealed that ART side effects is one of the factors that negatively affect ART adherence (e.g. Afolabi, et al., 2009; Elul et al., 2013; Groh et al., 2011; Kip et al., 2009; Mahlangu et al., 2008; Penn et al., 2011; Sanjobo et al., 2008; Skodval et al., 2011).These studies

found that side effects such as diarrhoea, rash, headaches, bodily pain, energy levels decline and body shaping effects was discovered to be associated with ART non-adherence.

Further, a study that was conducted by Ayalu et al. (2011) in Africa with the aim of identifying the medication side effects associated with ART revealed that ART side effects act as a barrier to ART adherence. Symptoms such as skin rash, vomiting and dizziness were identified to be barriers to ART adherence. Further, Bhengu et al. (2008) conducted a study on the side effects experienced by HIV infected individuals who were on ART therapy in KwaZulu-Natal Province, South Africa. The study found that from the all patients that were interviewed, they had experienced one or more of the following medication side effects, fatigue and tiredness, rashes, headaches and insomnia. Other side effects reported included sadness, disturbing dreams, numbness and pain. This study concluded that side effects are associated with ART non-adherence. The aim of this study therefore is to investigate patients experiences on ART adverse effects and its influence on the uptake of ART. Specifically, this study examines patients' experiences with regard to the bodily changes (side effects) and changes in their lifestyles (food preferences) resulting from being on ART.

1.2 METHODS

This study was conducted among male and female patients enrolled for ART at Piet Retief Wellness Centre in Mpumalanga between 2010 and 2014, of the age groups 15-49. ART defaulters and non-defaulters constituted participants in this study. ART defaulters were defined as those patients enrolled on ART and have missed their hospital date for refill purposes within the last 30 days of the assigned appointment date; ART non-defaulters were defined as those who have never missed their appointment for refill purposes. Contact was made with the Piet Retief Wellness Centre to help identify and recruit potential participants, because the Wellness Centre holds the records of all Patients currently on ART, included both defaulters and non-defaulters. The Wellness Centre Staff contacted Patients whom they knew have defaulted as those who had not defaulted ART and informed them about the study. Interested ART patients were then contacted by the researcher to arrange an interview. The study was restricted to only patients enrolled into ART, since they had the experience of side effects due to ART use and would be able to provide meaningful information on their perspectives of the adverse effects influencing ART non-adherence.

This study draws on qualitative data derived from 20 in-depth individual interviews with ART defaulters and non-defaulters. Due to the complex and sensitive nature of study, qualitative methodology was used to collect information on the various ART adverse effects influencing the uptake of ART influenced by patients enrolled on ART. Prior to the interviews, permission was obtained from University Authorities, the National Department of Health as well as the Wellness Centre. Informed consent was obtained from all from all patients prior to the interviews, explaining that all responses would be kept confidential and the researcher would ensure participants anonymity. The interviews collected detailed information inclusive of participants demographics, adverse effects experiences and reasons for defaulting ART.

The questions asked during the interviews seek to tap more information on patients' experiences while on ART from initiation stage to date in terms of; bodily strength, weaknesses, likelihood to prefer certain types of food, challenges in accessing ART in a timely way, ART emotional effects and ART side effects. The aim of these questions was to collect data that will enable us to understand the reasons why HIV and AIDS infected Patients default from antiretroviral treatment and establish the contribution made by the HBM in explaining why patients choose not to engage in health seeking behaviours which is the uptake of ART in this context. We sought to measure the following aspects of the HBM with these questions: perceived barrier and perceived threat (impact of ART on bodily strength, ART emotional effects, ART side effects), likelihood to prefer certain types of food due to ART (perceived barriers).

The duration of each interview was 40 minutes. All interviews were conducted in Isizulu, transcribed and translated into English. Participants quotes were transcribed word for word and presented as complete sentences. The interviews were tape recorded with the permission of the participants. The recorded interviews were transcribed by the researcher and analysed using NVIVO software which involved identifying emerging themes on the data. Themes refer to recurrent ideas or topics that are detected in the material and that

usually arise more than one occasion in that particular data set (Cresswell,2009). Some parts of the transcribed interviews are presented as direct quotes to support the theme. The study's ethical approval was obtained from the University of Northwest, Mafikeng, South Africa.

1.3 RESULTS

Participants of the study involved both patients who defaulters ART as well as those who have not defaulted ART. The following themes emerged from the in-depth interviews;

Table 3-1: Themes and sub-themes from the in-depth interviews on Patients' experiences of ART adverse effects

Theme	Sub-theme
Patients experiences of ART from the time of initiation to date	- Impact of ART on bodily strength - Impact of ART on bodily weaknesses - Likelihood to prefer certain types of food due to ART.

Two themes emerged from the discussions with the respondents: (i) Side effects from

ART uptake (ii) Food preferences resulting from ART usage.

1.3.1 Perspectives on ART side effects on the body of the patients

With regard to the side effects experienced by respondents as a result of ART, generally all respondents (both defaulters and non-defaulters) had experienced some side effects. The respondents reported that upon being initiated to ART, their energy levels declined, they experienced dizziness, they had rash, bad dreams and they experienced severe headaches as well. This question on the perspectives of patients on ART side effects was aiming at testing the perceived barrier component of the HBM (the potential negative consequences that may result from being on ART) for those patients who have already defaulted. The quote below illustrates some of the experiences of ART patients:

I had quite a number of side effects from ART. Firstly, my energy levels declined drastically and I became sleepy every day after taking the treatment even though I was taking my medication in the morning. My body felt tired most of the time. I also had diarrhoea which I believe largely contributed to my weight loss. I also had rash all over the body and severe headaches. I was in pain, my body limbs were aching and I could not walk properly. This is one of the reasons why I defaulted initially as I could not bear being sickly every day. I could not even afford to buy painkillers as I am unemployed. At the hospital they warned me that I might experience different forms of side effects, but I did not think it would be this terrible. After I got introduced again into ART, I was able to tolerate the side effects. My energy levels went up and I think the treatment works because when I started taking the treatment, my CD4 count was 84 and now my CD4 count is 700. (Interviewer 1: Defaulter, Male, 60 Years, Unemployed and Rural resident)When I started taking ARVs, my energy levels declined and even my body weight went down for about a month. I became very weak. I could not walk more than two steps without feeling very tired. I felt very sleepy all the time. My whole body ached. There was no part on my body that did not ache. I was in total pain and as I such I stopped treatment.Although at the hospital they had advised us not to stop our treatment when we experience any side effects, I did not think it was going to be so serious. I was hoping that once I stop taking my ARVs I will become much better. However, I became even more sick and when I went to the hospital again, they gave me counselling and I was re-introduced to ART. (Interviewer 6: Defaulter, Female, 49 Years, Employed, Urban Resident)

The quotes from these patients show that side effects from ART are one of the factors affecting patients' adherence to ART. In fact, these patients reported that the reason why they defaulted treatment is because they could not tolerate the side effects anymore. Both patients (defaulter 1 and 6) had multiple side effects ranging from decline in energy levels, bodily pain, feeling sleepy, rash all over the body and severe headaches among others. To make matters worse, defaulter 1 is unemployed and as such, he did not have money to buy painkillers to try and manage these side effects. This finding therefore supports the perceived barrier component of the HBM and in this case, side effects as experienced by this patient act as a barrier to ART adherence.

Interviews with patients who have experienced side effects and have not defaulted revealed that where patients are employed and receiving a salary, they are in a better position to manage side effects as they are able to purchase pain killers and antibiotics for managing pain The following is some of the narratives received from some of the patients who have not defaulted treatment:

When I started the treatment, I developed side effects such as insomnia, rash, terrible headaches and my energy levels went down for a month. I could not cook and do household chores by myself, all I wanted to do was to sleep throughout the time. However, some of the side effects were manageable as I could go to my pharmacist and request for painkillers and medication to help me sleep. Then I continued with the medication, after a month, my energy levels went back to normal and I was able to do basic household chores like cleaning the house, washing clothes and cooking which I could not do when my energy levels was down. I felt like my life is getting back to normal. (Interviewer 5: Non-defaulter, Female, 22, Employed, rural residence)My sister, when I started the treatment my energy level dropped a lot, I lost appetite for food and I had a terrible rash. I was weak and could not see properly. Since my salary is too little because I work as a house helper, my daughter who is working was able to buy medication for me to help cure the side effects. The hospital staff also did warn us that side effects will be part of the treatment but we should not stop when we experience these symptoms. As times went on, all these side effects stopped, from about 6 months after I had started taking the treatment. (Non-defaulter 2, Male, 46 Years, Employed, rural residence)

The quotes from these patients show that employed and unemployed patients manage ART side effects differently. In addition to the adverse effects, the study further investigated changes in food preferences experienced by patients who were on ART. The following is what patients revealed with regard to the changes experienced in terms of food preferences;

1.3.2 Perspectives of Patients on the changes in food preferences resulting from ART uptake

With regard to food preferences experienced by respondents as a result of ART, generally all respondents experienced some preferences for certain food types. However, the main challenge for most respondents, particularly the unemployed, was the lack of finances to purchase the food that they preferred. Based on the narratives from the interviews of both defaulted and non-defaulted respondents, being on ART resulted in certain food preferences which they could sometimes not afford to buy, as the majority of the respondents are unemployed. The following are some of the narratives from the respondents who have defaulted ART:

My child, what happened is that I grew to like food more, and most of the food which I could not afford. I began to eat many plates of food a day yet I did not have enough money to buy adequate food because I was the only one working in this house. I wish I could have pizza, apples, sour-milk and red meat but the money that I earn is too little, it only allows me to buy the basics. Most of the time, the pills make me crave food that I cannot afford. Just yesterday, I was counting that I have more than a month not eating an apple. (Defaulter 9: Female, 42 years, Employed, Rural Resident)My child, since I started taking treatment, I now love to eat meat and green vegetables very much. I began to love food and I still do even now. The problem is that I do not have enough food and my heart sometimes sinks when I cannot get the food that I like." The grant money that I receive is too little to cover all my food requirements. (Defaulter 1: Male, 60, Unemployed, Rural)ARV's make me very hungry, I eat more now that I am on treatment and sometimes I do not have food in this house which was one of the reasons I defaulted. There is no ways you can put those pills in your mouth if you have not eaten anything, they make you very dizzy and you lose a lot of energy.

After being introduced into ART, l began to like chicken meat a lot and I also liked butternut. But I did not have enough money to buy chicken and butternut everyday as I am not employed. I also liked to have avocadoes with every meal. I made sure that I always have it because we have them in my area. I also liked grilled beef. But unfortunately, since I am unemployed, I could not afford all the food that I like right now that I am on treatment. (Defaulter 2: Female, 46 years, Unemployed, Urban Resident).Yes, that definitely happens that you lose your appetite for most food types and start preferring to like certain food. I like spinach so much, meat and tin fish. If I do not get the food that crave on that particular day, I end up not eating anything and this becomes a challenge because ARV's make people to be very hungry. Sometimes you cook certain types of food (different from the one you prefer eating), and then you feel like you don't want to eat anymore. (Defaulter 8: Male, 35 Years, Employed, Urban Residence)

Non-defaulters have also reported serious challenges with regard to food preferences as financially, they are not in a position to meet these food demand. The following are some of the narratives from non-defaulters:

When you start taking treatment, you feel like you can eat meat every day. You turn to have less appetite for other things such as potatoes and beans. My food preferences right now is meat, chicken and eggs. Since I am unemployed, I cannot afford to have meat every day in my meals. Most of the time I borrow money from my neighbour to buy food and when she wants it back, I would offer to clean for her or wash her clothes as a way of paying back her money. This makes life hard for me. I hardly have access to this kind of food. Being on ARVs when one is not employed is the hardest thing ever. (Non-defaulter 3: Female, 46 Years, Unemployed, rural residence)

Although Respondent 3 has not defaulted ART, it is a bit worrying that she is not employed and she has not yet reached the age for getting paid the old age grant. As such, she literally has no source of income. Her food preference is meat, eggs and chicken, which is very expensive to have daily in her meals. Unavailability of adequate food resulting from being unemployed act as a barrier to ART adherence. The HMB perceived barrier component (the potential negative consequences that may result from being on ART) is supported by this finding.

When I started taking treatment, I started to like beans but I did not have money to buy them as I am not working and I only depend on my child's grant. I hated food with fats and sweet. (Non-defaulter 9: Female, 29 Years, Unemployed, Rural resident).Yes, I did have food preferences. I started to like eggs meat and spinach. My favourite was eggs though. Although I am unemployed, two of my children are receiving the child's grant which is the only source of income in this house. The grant is too little to support me to buy the food that I need for the whole month. (Non-Defaulter 4, Female, 41 Years, Unemployed, Rural Resident)

1.4 Discussion

Findings and Interpretations

This study set out with the aim of investigating patients experiences on the adverse effects associated with antiretroviral treatment in Piet Retief, Mpumalanga Province, South Africa. This study was conducted among male and female patients enrolled for ART at Piet Retief Wellness Centre in Mpumalanga between 2010 and 2014, of the age groups 15-49. The investigation was conducted under the following themes; the perspectives of patients on ART side effects as well as perspectives of patients on food preferences resulting from ART usage. According to the National Strategic Plan 2017-2022 goal 3, government has vowed to reach all key and vulnerable populations with customized and targeted interventions to ensure ART adherence for all people. As long as patients are defaulting from ART, this indicates that there is a need for an intervention in terms of finances to meet the escalating food and transport demand for people on ART to ensure that adherence is for a lifetime.

With regard to patients' perspectives on the adverse effects resulting from ART usage, the current study found that all patients had experienced adverse effects ranging from diarrhoea, decline in energy levels, bodily pain, feeling sleepy, rash all over the body and severe headaches among others. These findings are similar to that of other studies conducted around the world where side effects such as diarrhoea, rash, headaches and

body shaping effects was discovered to be associated with ART non-adherence (e.g. Afolabi, et al., 2009; Elul et al., 2013; Groh et al., 2011; Kip et al., 2009; Mahlangu et al., 2008; Penn et al., 2011; Sanjobo et al., 2008; Skodval et al., 2011).

In the present study, patients revealed that they defaulted partly due to the side effects that were unbearable. This shows that side effects contributed to patients defaulting ART. In terms of the HBM, this is a perceived barrier to patient not taking their medication. The influx of more than one side effect on the patients when they started their ARV's hugely contributed to ART default.

The study findings also revealed that employed and unemployed patients manage ART side effects differently. Where patients are employed and receiving a salary, they are in a better position to manage these side effects as they are able to purchase painkillers and antibiotics for managing pain. However, for the unemployed who is experiencing these side effects, as the pain experienced become unbearable, they default. For the defaulted patients, the component of the HMB that is tested is perceived threat (the perception of the seriousness associated with leaving a disease untreated, which is defaulting ART). This means that side effects in the form of headaches, rash, declining body energy and other side effects are a threat to patients' adherence to ART.

Where a patients is unemployed and get to experience these side effects, it becomes even more challenging for these as finances is needed for these patients to get pain medication and antibiotics to deal with these ailments. Therefore, in terms of the HBM, this finding supports the perceived barrier component of the HBM. On the other hand, for those patients who have not defaulted from treatment, their report shows that they have also experienced side effects,

The results of the study support findings from other studies conducted from other parts of the world that revealed that adverse side effects from ART such as diarrhoea, rash and headaches is associated with ART non-adherence (e.g**.** Afolabi et al., 2009; Elul et al., 2013; Groh et al., 2011; Kip et al., 2009; Mahlangu et al., 2008; Penn et al., 2011; Sanjobo et al., 2008; Skodval et al., 2011).

On this same note, a study that was conducted by Ayalu &Sibhatu (2011) in Africa with the aim of identifying the medication side effects associated with ART revealed that ART adverse effects contributes to ART non-adherence. Symptoms such as skin rash, vomiting and dizziness were identified to be contributory factors to ART non-adherence. Further, Bhengu et al. (2008) conducted a study on the side effects experienced by HIV infected individuals who were on ART therapy in KwaZulu-Natal Province, South Africa. The study found that from the all patients that were interviewed, they had experienced one or more of the following medication side effects; fatigue and tiredness, rashes, headaches and insomnia. Other side effects reported included sadness, disturbing dreams, numbness and pain. This study concluded that medication side effects are associated ART non-adherence.

In addition to the adverse effects, the study further investigated changes in food preferences experienced by patients who were on ART. All patients who were on ART had preferences for food and its demand generally increased. Mostly, patients preferred to have meat, chicken, eggs and vegetables in their diet which pose a great challenge for all patients particularly due to the high food prices. This situation is even worse for those patients who are currently unemployed and have no source of income. The inability to access the food preferred by the patient can de-motivate them to remain in ART.

The findings of the study show that patients on ART have food preferences, and in the majority of cases it is expensive food which they cannot afford. Further, the findings show that when patients are unable to get their preferred food, they tend to default. According to the study participants, ARV's intake increases the demand for food as it makes patients to be hungry and as such one cannot take them on an empty stomach. In addition to higher demand for food, ARV's also increase the preference for certain type of food which might be not even be affordable to patients. For example, most patients often crave chicken, beef and butternut. With escalating food prices currently, it is a given that when these patients cannot access food adequately, the chances of defaulting ART becomes high. Unavailability of food resulting from being unemployed contribute to ART default . This finding of the study is similar to the findings of other studies

that concluded that the in availability of food is one of the reasons why patients default ART (E.g. Bezabhe et al., 2014; Nyanzi-Wakholi et al., 2009; Penn et al., 2011; Rasmussen et al., 2013; Skovdal et al., 2011; Talam, et al., 2008).

The results from the study have shown that unmet need for food preferences on ART patients and unmet high demand for food in unemployed patients contribute to high default rates. This is based on the fact that ARVs require one to have eaten food before you take them. On an empty stomach, they result in unmanageable side effects such as nausea, dizziness, terrible headaches and other condition. Further, the study findings showed that financial challenges resulting from unemployment strongly contribute to ART non-adherence. All patients interviewed during the study, both employed and unemployed reported finances as a barrier to ART adherence. This is caused by the fact that most of the patients are involved in informal employment receiving the basic minimum wage (forestry, domestic worker, security guards, and petrol attendants). The issue of finances is even worse to the unemployed who are not on grant and who do not even have a single family member who is employed. The study produced results which corroborates the findings of a great deal of the previous work in this field (E.g Bezabhe et al., 2014; Nyanzi-Wakholi, et al., 2009; Penn et al., 2011; Rasmussen et al., 2013; Skovdal et al., 2011; Talam, et al., 2008).

1.6 Relevance of the findings: Implications for Policy Makers

Based on the study findings and in terms of policy, interventions that will support people on ART in wellness centres around the country should be developed and strengthened. Such interventions in terms of finances to meet the escalating food and transport demand for people on ART to ensure that adherence is for a lifetime. There is also a need to undertake further research on socio-demographic and psychosocial factors affecting patients' adherence to ART utilizing the quasi-experimental research design and survival analysis, focusing on all wellness centres in South Africa.

1.7 Strengths and weaknesses of the study

This study provides some interesting insights on the side effects experienced by patients who are on antiretroviral treatment. Not only did the study looked at the different types of side effects, but also the changes in life styles in terms of food preferences of patients on ART was also investigated. It is important, however, to note some of the limitations of the study. The study findings cannot be generalized to the entire population because of the relatively small sample size. Further, the study was conducted within a province in South Africa which is mainly rural in nature, as such the findings cannot be generalized to urban population in South Africa.

1.8 Differences in Results and Conclusions in relation to other Studies

This finding of the study is similar to the findings of other studies that concluded that the in availability of food is one of the reasons why patients default ART (E.g. Bezabhe et al., 2014; Nyanzi-Wakholi et al., 2009; Penn et al., 2011; Rasmussen et al., 2013; Skovdal et al., 2011; Talam, et al., 2008). Unemployment was mentioned as one of the reasons for high non-adherence to ART (Grierson et al. 2000). According to these researchers, poverty increased the levels of non-adherence to patients on ART. This therefore means that where an individual patient does not have the means to buy food as per the treatment demand, the likelihood of non-adherence for such a patient were escalated.

1.9 Unanswered Questions and Future Research

Further studies have to be conducted around all wellness centres around South Africa to investigate how unemployed ART patients cope with managing side effects as well as well as food preferences changing due to ART uptake. In addition to this, pilot studies on the possibility of financial social support for unemployed patients and those in informal employment sectors in terms of small grant provision needs to be conducted throughout the country. Financial challenges resulting from unemployment strongly contribute to ART non-adherence.

1.10 Conclusion

In conclusion therefore, the findings from the qualitative analysis revealed that adverse effects from ART negatively affect ART uptake and unmet need for food preferences negatively affect the uptake of ART. Interventions aiming at dealing with these issues as have to be developed and put in place to ensure success in the administration of ART in Mpumalanga province of South Africa. Although antiretroviral therapy is readily available in health care facilities around South Africa, patients on ART are still defaulting medication due to the onset of adverse effects and changes in lifestyles resulting from food preferences brought by ART uptake. The study findings suggest that interventions should be put in place in the form of financial support to ensure that patients have access to pain relieving medication to assist in managing side effects. Further, changes in food preferences calls for interventions to be put in place to ensure that patients on ART have adequate food supply so as to ensure that treatment default is not as a result of lack of food supply.

1.11 Acknowledgements

We thank all the patients who participated in this research, as well as the Piet Retief Wellness Centre Staff who assisted in identifying the study participants.

1.12 Informed Consent

Written informed consent was obtained from all participants of the study. The participants signed an informed consent form as their willingness to participate in the study. All ethics committees approved the informed consent form.

1.13 Ethical Approval

The following process was followed to obtain ethical approval before conducting the study:

We submitted the research protocol to the National Health Research database and obtained the provincial approval from the Mpumalanga Provincial government approval to conduct research at Piet Retief Hospital Wellness Centre, ethics number (**MP_2017 RP48_681)**

We submitted the research protocol and obtained approval from the Research Ethics Committee of the North-West University, ethics number**(NWU-00335-17-A9)**

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1.15 Conflict of Interest

None declared

REFERENCES

Afolabi, L., Ijadunola K. T., Fatusi A. O., & Olasode, O. A. (2009). Determinants of adherence to antiretroviral drugs among people living with HIV/AIDS in Ife-Ijesa zone of Osun State, Nigeria. *African Journal of Primary Health Care Family Medicine, 1* , 6–11.

Ayalu, A.,& Sibhatu, B. (2011). Determinants of adherence to ARV therapy among HIV infected patients in Africa. *AIDS Research and Treatment.12,1-8,* doi: 10.1155/2012/574656.

Bezabhe, W. M., Chalmers, L., Bereznicki, L. R., Peterson, G. M., Bimirew, M. A., & Kassie, D. M. (2014). Barriers and facilitators of adherence to antiretroviral drug therapy and retention in care among adult HIV-positive patients: a qualitative study from Ethiopia.*PLoS ONE,9* , e97353. doi: 10.1371/journal.pone.0097353.

Bhengu, B. R., Ncama, B. P., McInerney, P. A., Corless, I. B., Wantland, D. J., &

McGibbon, C.A. (2008). Social support and medication adherence in HIV disease in

KwaZulu-Natal, South Africa. *International Journal of Nursing Studies* , *45* (12), 1757-1763.

doi: 10.1016/j.ijnurstu.2008.06.006.Epub 2008 Jul 24.

Elul, B., Basinga, P., Nuwagaba-Biribonwoha, H., Saito, S., Horowitz, D., Nash, D. Asimwe, A. (2013). High levels of adherence and viral suppression in a nationally representative sample of HIV-infected adults on antiretroviral therapy for 6, 12 and 18 months in Rwanda. *PLoS ONE,8* , e53586. doi: 10.1371/journal.pone.0053586.

Cresswell,J.W.(2009).Research design: qualitative, quantitative and mixed method approaches. Sage Publications.

Erasmus V., Liu, X., Wu, Q., & Richardus, J. H. (2014). Behavioural and psychosocial

interventions for HIV prevention in floating populations in China over the past decade: A

systematic literature review and meta-analysis. *PLoS ONE,9* (6), e101006. Retrieved

from https://doi.org/10.1371/journal.pone.0101006.

Fox, M. P., & Rosen, S. (2010). Patient retention in antiretroviral therapy programs up to three years on treatment in sub-Saharan Africa 2007–2009: Systematic review. *Tropical Medicine & International Health* , *15,* 1–15.

Grierson,J.,Pitts,M., Whyte, M., Misson,S., Hughes,T., Saxton,P. and Thomas,M. (2000). *HIV futures II: The health and well being of people with HIV/AIDS in Australia.* Monograph Series No. 17, Melbourne: La Trobe University.

Groh, K., Audet, C. M., Baptista, A., Sidat, M., Vergara, A., Vermund, S. H., &Moon, T. D. (2011). Barriers to antiretroviral therapy adherence in rural Mozambique. *BMC Public Health,11* , 650. doi: 10.1186/1471-2458-11-650. (Hayes,2012).

Kip, E., Ehlers, V. J., & Van der Wal, D. M. (2009). Patients' adherence to anti-retroviral therapy in Botswana. *Journal of Nursing Scholarship,41* , 149–157. doi:10.1111/j.1547-5069.2009.01266.

Mahlangu, N. (2008). Self-reported adverse effects as barriers to adherence to antiretroviral therapy in HIV-infected patients in Pretoria. *South African Family Practice* , *50* , 49–49b.

Nyanzi-Wakholi, B., Lara, A. M., Watera, C., Munderi, P., Gilks, C., & Grosskurth, H. (2009). The role of HIV testing, counselling, and treatment in coping with HIV/AIDS in Uganda: A qualitative analysis.*AIDS Care* , *21* , 903–908. doi: 10.1080/09540120802657498.

Penn, C.,Watermeyer, J., & Evans, M. (2011). 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 Education Counsel* , *83* (3), 310-318: doi: 10.10161j.pec.2011.02.018.Epub2011.

Rasmussen, D. N., Da Silva, D., Rodkjaer, L., Oliveira, I., Medina, C., Barfod, T.,Wejse, C. (2013). Barriers and facilitators to antiretroviral therapy adherence among patients with HIV in Bissau, Guinea-Bissau: A qualitative study. *African Journal of AIDS Research* , *12* , 1–8. doi: 10.2989/16085906.2013.815405.

Sanjobo, N., Frich, J. C., & Fretheim, A. (2008). Barriers and facilitators to patients' adherence to antiretroviral treatment in Zambia: A qualitative study. *African Journal of Primary Health Care and Family Medicine HIV/AIDS* , *5* , 136–143.

Skovdal, M., Campbell, C., Nhongo, K., Nyamukapa, C., & Gregson, S. (2011). Contextual and psychosocial influences on antiretroviral therapy adherence in rural Zimbabwe: Towards a systematic framework for programme planners. *International Journal of Health Planning Manage, 26* , 296–318. doi: 10.1002/hpm.1082.

South African National AIDS Council. (2012). *National Strategic Plan on HIV, STIs and TB2012-2016* . Pretoria. Retrieved from www.sanac.org.za.

Talam, N. C., Gatongi, P., Rotich, J., & Kimaivo, S. (2008). Factors affecting antiretroviral drug adherence among HIV/AIDS adult patients attending HIV/AIDS clinic at Moi Teaching and Referral Hospital, Eldoret, Kenya. *East African Journal of Public Health* , *5* , 74–78.

UNAIDS. (2014). 90-90-90. An ambitious treatment target to help end the AIDS epidemic. Geneva: UNAIDS.

UNAIDS.(2016). Global AIDS update: Enormous gains, persistent challenges. Geneva:UNAIDS.

UNAIDS.(2017).Ending AIDS: Progress towards the 90-90-90 targets. Geneva: UNAIDS

World Health Organization.(2016). Global update on HIV treatment retention. Results, impacts and opportunities. Geneva: World Health Organization.