

## Research Article

# Economic Factors Affecting Effective Provision of ART Services to People Living With HIV and Their Mitigation Strategies in Ndola District, Zambia: Healthcare Workers' Perspective

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## Abstract

**Background:** Zambia has adopted treatment of HIV patients with ART upon diagnosis. However, despite this fact, only 85.4% HIV patients are on ART. This study assessed economic factors affecting effective provision of ART services to people living with HIV and their mitigation strategies in Ndola district, Zambia from healthcare workers' perspective.

**Methodology:** A descriptive cross section study comprising 66 randomly selected healthcare workers working in ART centres in the government health facilities in Ndola District on the Copperbelt province, Zambia was conducted from August to October, 2013. Data was collected using standard questionnaires. Ethical clearance was sort and obtained from University of Limpopo, Medunsa Campus Ethics Committee and Tropical Diseases Research Centre. Data was entered and analyzed using SPSS version 20.0 statistical software. Univariate statistics were performed. **Results:** Economic factors affecting effective provision of ART included HIV-stigma, non-disclose of patient's HIV status, defaulting from treatment, poverty, congestion in ART clinics, long waiting time for patients to be attended to, lack of privacy in ART centres and inadequate trained staffs in HIV/AIDS management skills. Suggested mitigation strategies included couple counseling before initiating of ART, allowing support persons to collect the ARVs drugs, follow-up on defaulting HIV/AIDS patients by community health workers, provision of health education on safer sex negotiation skills to HIV/AIDS and training of all front line healthcare providers in HIV/AIDS and ART management. **Conclusion:** HIV-stigma, poverty, congestions and poor staffing levels in Art clinics affect effective ART provisions in Ndola district while basic strategies like couple counseling, tracking of defaulting patients, safer sex education and compulsory training of front line healthcare workers in ART skills may suffice.

**Keywords:** ART, Economic factors, Healthcare workers, Mitigation strategies, Zambia.

## Background

Globally by the year 2017, a record total of 21.7 million were commenced on ART and AIDS related deaths reduced to less than 1 million dying each year. By the end of the same year, of the total 36.9 million people living with HIV/AIDS worldwide, the majority (53%) where from Eastern and Southern Africa regions where approximately 12.9 million HIV patients from this same region of which Zambia is part were accessing ART (UNAIDS, 2018). In Zambia, even though the trends for HIV prevalence been reducing from 14 % in 2007 to 13 % in 2014 and 12.3 in 2016 among adults aged 15–49 years old with 2016 HIV prevalence of

14.9% among females and 9.5% among males, the prevalence is viewed by government as still unacceptably high. And among these people living with HIV (PLHIV) and know their HIV status, 85.4% are currently on free Antiretroviral therapy (ART) (Central Statistical Office (CSO, Ministry of Health (MOH) Zambia and ICF International, 2014; Zambia Population-Based HIV Impact Assessment [ZAMPHIA], 2016). The Copperbelt province has the third highest HIV prevalence of about 14.2% among adults aged 15 and 59 years old (ZAMPHIA, 2016). Zambia has adopted treatment of HIV patients with ART upon diagnosis however, despite this fact, only 85.4% are accessing ART (Avert-Zambia, 2017; ZAMPHIA, 2016). The main reasons why not every person with HIV is not on free ART are not known. Therefore, we assessed economic factors affecting effective provision of ART services to people living with HIV and their mitigation strategies in Ndola district, Zambia from healthcare workers' perspective.

## **Methodology**

### **Study area and population**

The study was conducted in Ndola district of Zambia and with a population of 455,194 (CSO, 2010). Administratively, the District Health Office (DHO) has divided it into Northern, Central and Southern zones and has 8 ART centres with a total of 80 ART healthcare workers (according to their work schedules). The study was conducted at Ndola Teaching Hospital (NTH), New Masala, Lubuto and Chifubu ART centres.

### **Study design**

This was a cross sectional survey employing quantitative methods for data collection.

### **Sample size and sampling**

Epi info software version 7 was used to calculate the sample size from the total population (Centre for Disease Control [CDC], 2011, [www.cdc.gov/epiinfo](http://www.cdc.gov/epiinfo)). Therefore, sample size constituted 66 ART health workers after considering 10% non-response rate at 95% confidence level. Simple random sampling technique with the help of random sampling tables was utilised to select both participants and the four ART centres. To minimise selecting more participants from some ART centres, we divided the total number of healthcare workers per ART centre by sum total population for all ART health workers (80) and multiplied it by the sum total sample size (66).

### **Data collection**

Data was collected between August and September, 2013 using a standard pre tested questionnaire.

### **Ethical considerations**

This was sought and granted by both University of Limpopo, Medunsa campus Ethics Committee, Project No: MREC/H/146/2012: PG and Tropical Disease Research Centre Ethics Review Committee No: TDRC/ERC/04/08/2013. Authorisation to conduct the survey was equally sought from both NTH management and Ndola DHO. Informed consent was obtained from each participant. Confidentiality and anonymity were adhered to.

### **Data analysis**

We first manually screened all questionnaires for completeness before being numbered and participants responses to open questions were coded before being entered into Microsoft excel and analysed using IBM SPSS version 20 software. Descriptive statistics were performed.

## **Definitions**

### **Economy**

The careful use of money, time, products, manpower, space, materials and infrastructure so that nothing is wasted.

### **Effective**

Being successful in producing intended or desired results of rendered ART services.

### **Factors affecting**

Elements or situations that influences the results of ART service provision.

### **Healthcare workers Perspective**

Wise and reasonable ways all formally trained healthcare professionals working in ART centres like doctors, nurses, laboratory technologists, pharmacists and psychosocial counselors view and think about ART provision in the district.

### **Mitigation strategies**

Identified actions, plans and steps needed to reduce the risks and severity of HIV on PLHIV.

## **Results**

A total of 66 participants were enrolled in this study at 100% response rate. To contextualize the study, univariate analysis of participant's demographic characteristics showed that about two-thirds (66.2%) of them were females. More than half (56.1%) of the participants were aged between 25 and 39 years old and most of them (54.5%) were nurses by profession. Majority (76.2%) of the participants had been working in ART centers for more than 1 year and most (60.6%) of them were formerly trained in ART management.

The analysis of ART healthcare workers perceptions on economic factors affecting effective provision of HIV/AIDS services to people living with HIV (PLHIV) in Ndola district identified ten (10) of them as main factors. These factors included stigmatization of HIV/AIDS patients on ART (51.5%), non-disclose of their HIV status to their sex partner or families (68.2%) and defaulting from treatment (57.6%). Others included patients lack of money to buy HIV/AIDS treatment related drugs (78.8%), congestion in ART clinics (100%), long waiting time before being attended to (60%) and inadequate privacy in ART centres providing ART services (74.2%) and inadequate trained staffs in HIV/AIDS skills to provide ART services (73.8). Interestingly, 73.8% of ART healthcare workers perceived frequently treatment patients on ART for other sexually transmitted diseases (STIs), which they attributed to patients reluctance to collect and use condoms as a factor also affecting effective provision of ART services in the district.

Table 1 summarises ART Healthcare workers views on the mitigation strategies to ineffective provision of HIV/AIDS services to PLHIV in Ndola district. The majority (60.6%) healthcare workers suggested that there must be provision of couple counseling before initiating the patient on ART. Similarly, most (95.5%) of them indicated that support persons should be allowed to collect the ARVs drugs when the patient is unable to do so. Equally, 92.3% of them indicated that there should be follow-up on defaulting HIV/AIDS patients by community health workers. Interestingly, the majority (93.9%) of ART healthcare workers advised that there should be provision of health education on safer sex negotiation skills to patients with HIV/AIDS. Additionally, 92.3% of them suggested that all front line healthcare service providers should be trained in HIV/AIDS and ART management skills.

**Table 1. Mitigation strategies to ineffective provision of HIV/AIDS services to people living with HIV/AIDS in Ndola district: ART Healthcare workers views (n=66)**

Variable	Frequency	Percentage (%)
Should there be provision of couple counseling before initiating the patient on ART?		
Always	40	60.6
Sometimes	26	39.4
Never	0	0
<b>Total</b>	<b>66</b>	<b>100</b>
Should HIV patients be coming with treatment support person before initiating them on ARVs?		
Always	11	16.7
Sometimes	42	63.6
Never	13	19.7
<b>Total</b>	<b>66</b>	<b>100</b>
Should there be provision of continuous adherence counseling to patients with HIV/AIDS at each review date?		
Always	39	59.1
Sometimes	27	40.9
Never	0	0
<b>Total</b>	<b>66</b>	<b>100</b>
Should support persons be allowed to collect the ARVs drugs when the patient is unable?		
Always	63	95.5
Sometimes	3	4.5
Never	0	0
<b>Total</b>	<b>66</b>	<b>100</b>
Is there need to develop defaulter tracking system data base at ART clinic?		
Always	47	71.2
Sometimes	19	28.8
Never	0	0
<b>Total</b>	<b>66</b>	<b>100</b>
Should there be follow-up on defaulting HIV/AIDS patients by community health workers?		
Always	60	90.9
Sometimes	4	6.1
Never	2	3
<b>Total</b>	<b>66</b>	<b>100</b>
Should there be provision of health education on safer sex negotiation skills to patients with HIV/AIDS?		
Always	62	93.9
Sometimes	3	4.5
Never	1	1.5
<b>Total</b>	<b>66</b>	<b>100</b>
Should there be introduction of government social grants for HIV/AIDS patients on ART?		
Always	31	47.0

Sometimes	29	43.9
Never	6	9.1
<b>Total</b>	<b>66</b>	<b>100</b>
Should patients on ART should be provided with nutritional supplements like milk, beans, maize meal, cooking oil among others?		
Always	20	30.3
Sometimes	41	62.1
Never	5	7.6
<b>Total</b>	<b>66</b>	<b>100</b>
Should there all front line health care service providers should be trained in HIV/AIDS and ART management skills.		
Always	60	92.3
Sometimes	5	7.7
Never	0	0
<b>Total</b>	<b>65</b>	<b>100</b>
Should there be creation of support groups for patients with HIV/AIDS?		
Always	51	77.3
Sometimes	13	19.7
Never	2	3
<b>Total</b>	<b>66</b>	<b>100</b>
Should there be provision of revolving funds for patients suffering from HIV/AIDS?		
Always	33	50
Sometimes	30	45.5
Never	3	4.5
<b>Total</b>	<b>66</b>	<b>100</b>

## Discussion

The United Nations' specific Sustainable Development Goal (SDG) 3.3 is aimed at ending the epidemics of AIDS and other diseases by the year 2030 (UN, 2016). Economic factors that can affect effective provision of ART services to HIV/AIDS patients can either be patient or health facility related. Whereas health facility factors entail inadequacies in health workers, health services being rendered and the physical health infrastructures, patient related factors may be any situation or circumstances that the affected persons may be faced with at individual, family or community levels (Sanjobo *et al.*, 2008).

Healthcare workers in Zambia are the front liners in the provision of ART services to HIV/AIDS patients and therefore have evidence based information on economic factors affecting effective provision of ART services and their possible mitigation strategies in the district. This view is similar to that held by Hogan and Palmer who states that the more time one has in rendering a services, the better the insight in understanding the phenomenon (Hogan and Palmer, 2005). Our study assessed economic factors affecting effective provision of ART services to people living with HIV and their mitigation strategies in Ndola district, Zambia from healthcare workers' Perspective.

The study participants were mainly nurses and females. This finding is a common finding in most health settings in Zambia whereby the majority of the healthcare workers in Zambia are

nurses, while doctors are so few such that some districts do not have a single medical doctor. This is because about 64.7% of all health workers in Zambia are females and majority of them nurses whose majority are equally females (MOH/NAC, 2010). Interestingly, most (94%) of the healthcare workers are trained in ART. Additionally, they had worked in these ART centres for one year or more meaning they had acquired much needed experience rendering a service that leads to proficiency and had more insight in possible economic factors affecting effecting implementation of ART services and could confidently provide evidence based mitigation strategies to many economic factors impeding ART provision in the district. This is in line with what Hogan and Palmer alluded to that the more experience one has in rendering ART services, the better the insight in understanding the phenomenon and the more trust the clients have in the service provider (Hogan and Palmer, 2005).

This study has shown that irrespective of the number of years ART services have been offered in Zambia, HIV-stigma remains a common problem in the district. This is similar to recent finding by Hargreaves and others in their study on individual and community-level risk factors for HIV stigma in 21 Zambian and South African communities: analysis of data from the HPTNo71 (PopART) study which reviewed that HIV-stigma remained unacceptably high in both countries and may act as a barrier to HIV prevention and treatment (Hargreaves *et al.*, 2018).

Equally, Network of Zambians living with HIV/AIDS (NZP+) and Global network of people living with HIV/AIDS (GNP+), 2012 and MOH, 2005 reported that HIV-related stigma was so prevalent and ongoing part of lives of PLHIV in Zambia, be it at workplace, places of worship, health facilities and local communities. This is because HIV patients easily loose self-esteem, feels powerless and weak to protect themselves from their discriminators and as such they would hide their conditions and shun ART services. Furthermore, poverty levels were also perceived as a factor impeding effective provision of ART services. This perception is consistence with the finding by the NZP+ and GNP+, 2012 who reported that poverty was very evident among PLHIV and was as high as 83.8% in large town/cities in Zambia.

Poverty increases the vulnerability of people and as such, they may continue indulging themselves into unsafe sex practices. This could have led to ART patient's inability to negotiate safe sex, their reluctance and refusal to collect and use condoms which could have led to acquisition of other sexually transmitted diseases as perceived by ART healthcare workers in Ndola district. Additionally, congestion in ART clinics comprises confidentiality and privacy of ART patients and as such patients may choose to default from their appointments and treatments (Sanjobo *et al.*, 2008).

On the contrary, basic mitigation strategies against perceived factors affecting effective provision of free ART services by ART healthcare workers such as provision of couple counseling before initiating the patient on ART, allowing support persons to collect the ARVs drugs when the patient is unable to do so, developing defaulter tracking system and follow-up on defaulting HIV/AIDS patients by HIV trained community health workers, provision of health education on safer sex and sex negotiation skills to patients with HIV and training of all front line healthcare providers in HIV/AIDS and ART management could suffice.

Overall, these recommendations are very much consistence with similar findings found by different studies so far conducted both locally and elsewhere (Farquhar *et al.*, 2004; MOH,



2005; Semrau *et al.*, 2005; Kumar *et al.*, 2006; Sanjobo *et al.*, 2008; Kaplin and Hsu, 2009; Uzochukwu *et al.*, 2009; Igwegbe *et al.*, 2010; USAID, 2010; Gallant *et al.*, 2011).

### Conclusion

Overall, our study has shown that HIV-stigma, poverty, congestions and poor staffing levels in Art clinics affect effective ART provisions in Ndola district while basic strategies like couple counseling, tracking of defaulting patients, safer sex education and compulsory training of front line healthcare workers in ART skills may suffice.

### Authors' contributions

EK conceived the study, prepared the protocol, collected data, analysed and interpreted finding, drafted and revised manuscript. PKK supervised conceptualization of the study, protocol preparation, data interpretation and discussion. NM supervised data analysis, interpretation of findings and proof read the manuscript. NMS participated in the conceptualization of the study and protocol preparation.

### Conflict of interest

None

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