# Achievements and Implications of Positive Health Dignity and Prevention Model among People Living With HIV: A Systematic Evaluation of HAF II Project in Kogi State, Nigeria

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# Abstract

**Background:** Positive Health, Dignity and Prevention (PHDP) is the next stage in the HIV response, where people living with HIV (PLHIV) are at the centre and services offered in an environment that is supportive to meet all their needs and their families. It is believed that these strategies would contribute to the well-being and development of all Nigerians. This paper therefore presents achievements and implications of PHDP model among people living with HIV in Kogi State, Nigeria.

**Methods:** This intervention was carried out by six civil society organizations engaged by Kogi State Agency for the Control of AIDS and PHDP model which is the minimum package for PLHIV interventions under the continuum of care was used for this intervention activities. A total of 44,190 PLHIV were the estimated sample size for this intervention and selection of participants was done using purposive sampling. The data collected were entered into DHIS2 platform and this was exported into Microsoft excel and analyzed using same.

**Results:** A total of 63 community dialogues were held and 910 community influencers attended these meetings. Furthermore, 10 income generating activities were conducted for 46 PLHIV. A total of 47,909 persons were reached with a minimum of one care. A total of 18,871 PLHIV were provided with adherence support between 2014 and 2015, 69.7% of which was in the year 2015. A total of 30,228 male and 18,422 female condoms were distributed during this intervention. The total of condoms distributed is only 23.3% of the required condoms. A total of 1,394 pregnant women were refereed for antenatal care services

**Conclusion:** This project successfully increased access to and understanding of individuals living with HIV to make choices that address their needs and allow them to live healthy lives free from stigma and discrimination. However, condoms which are part of most national HIV, STI and reproductive health programmes, were not consistently distributed nor promoted proactively enough in this intervention.

**Keywords:** HAF II project, People living with HIV, Positive health dignity and prevention, Systematic evaluation

# I. Background

Comparing the preventive efforts of different government bodies and international organizations to the current prevalence of HIV and AIDS globally, it could be said that the burden of HIV and AIDS is still high [1]. Of no doubt, there have been gains in the battle against HIV and AIDS over the years but new infections still do exist, and there are still gaps in the different aspects of success story [1]. Currently, 36.7 million adults and children live with HIV globally out of which 6.5 million are from the Western and Central Africa region; there are also 2.1 million new infections globally out of which 410, 000 is also from the Western and central Africa region [1]. The Nigerian story is not different to the global picture. With an estimated population of 160 million [2], Nigeria has the second largest number of people living with HIV and AIDS worldwide, and this represents 9% of the global burden of the disease [3]. Similarly, to the reports around the world, the most recent sentinel

surveillance report show that the national HIV prevalence has declined over the years, from 5.8% in 2001 to 4.1% in 2010 [4]. Among the states, HIV prevalence ranged from 1.0% in Kebbi to 12.6% in Benue [4].

Kogi State has HIV prevalence rate of 1.4% [5] and factors fueling the spread in the state include: worsening poverty levels (Kogi State is one of the States with lowest per capita income in the country), having multiple concurrent sexual partners, marital infidelity, high unprotected sexual activities, particularly among youths, ignorance, low risk perception [2;4-5]; and most especially the belief that AIDS has a cure. Kogi State people have been reported to boasts of a high number of unorthodox medical practitioners that lay claim to having the cure for AIDS, and unfortunately, most people still believe this [6]. Other factors fuelling the spread of HIV and AIDS are negative cultural practices like serial monogamy and female genital mutilation as well as patronage of quacks for medical attention [2;4-5]. According to the Nigeria National Agency for the Control of AIDS [5] validated data, Kogi State performance of certain ART output indicators show that during the reporting period of 2014 only 132,693 PLHIV cumulatively enrolled into HIV Care since inception with 114, 390 PLHIV being female representing 86% and only 4,406 out of 29,941 PLHIV newly enrolled into ART are receiving treatment representing 18.4% [5;7]. Kogi State's response to HIV and AIDS in its multi-faceted and multi-sectoral approach focuses on the reduction of new HIV infections by 50% reduction of the HIV prevalence rate every five years. Even with achievements towards control of HIV/AIDS such as the drop in the HIV prevalence rate by 61.1% from 5.8% [8] to 1.4% [7], there still exist capacity gaps that reduce the effectiveness in planning, budgeting, coordination and delivery of HIV and AIDS related services as well as monitoring and evaluation of the response most especially at the three senatorial districts of Kogi State [5].

Kogi State Agency for the control of AIDS vision is therefore to institutionalize the multi-sectoral response to the HIV and AIDS epidemics in the state so as to achieve effective control of the disease by reducing the number of new infections, mitigating the impact of the infection, sustaining the systematization in HIV and AIDS treatment, care and support for adults and children infected and affected by the epidemic. It is believed that these strategies would contribute to the well-being and development of all Nigerians, with special emphasis on the demographic constitution in Kogi State [9]. This paper therefore presents achievements and implications of positive health dignity and prevention (PHDP) model among people living with HIV.

### II. Methodology

# 2.1 Study Design

This was an intervention project carried out among people living with HIV in Kogi State, Nigeria. Six civil society organizations (CSOs) namely Public Private Sector Development Initiative (PPSDI), Total Child Care Initiative (TCCI), Lift Up Care Foundation (LUCAF), Kogi Women Empowerment Network (KOWEN), Dual Communication Initiatives (DCI) and Confluence Against AIDS (CONFAIDS) were engaged by Kogi State Agency for the Control of AIDS under HIV and AIDS Funds (HAF) II project and trained to provide sustainable home based care among PLHIV. This eighteen months project was carried out between the year 2013 and 2015.

#### 2.2 Study Area

The study was carried out in 9 out of 21 Local Government Areas (LGAs) in Kogi State. The State is situated in the North Central geo-political Zone of Nigeria and has its headquarters in Lokoja. (It has a land mass of 30,354.74 square kilometers and a population of over 3 million people. The State economy is agrarian in nature with majority of people practicing farming and other ancillary trades. The State has three major ethnic groups namely: Igalas, the Ebiras and the Yorubas (Okun). The state is located between latitude  $6^{\circ} 30^{''}$ N and  $8^{\circ} 50'$  N and longitude  $5^{\circ} 51^{''}$ E and  $8^{\circ} 00'$ E. The State shares borders with the following seven states: Enugu in the South East; Benue in the East, Nasarawa in the North East; Ondo in the South West; Edo in the East, Anambra in the South; and Ekiti in the South-West KSRR, 2010 – 2015).

#### 2.3 Study Population

People living with HIV in 9 local government areas in Kogi State. The LGAs are Adavi, Dekina, Idah, Igalamela/Odolu, Kabba/Bunu, Kogi, Lokoja, Okene and Olamaboro local government areas.

### 2.4 Sample size and sampling technique

A total of 44,190 were estimated sample size for this intervention and selection of participants was done using purposive sampling. This implies that participants were selected because they are HIV positive.

#### **2.5 Description of Intervention**

The intervention involves supporting HIV-positive people to learn and practice how to live healthily and minimize the risks of spreading the virus to others. Positive health dignity and prevention model which is the minimum package for PLHIV interventions under the continuum of care were used for this intervention. Programmatic components of Positive Health, Dignity and Prevention fall under the following eight (8) thematic areas namely Empowerment of people living with HIV and networks of PLHIV. Health promotion and access and Gender equality. Others are Human rights, Prevention of new infections, sexual and reproductive health and rights, social and economic support including measuring impact. The primary goals of PHDP are to improve the dignity, quality, and length of life of people living with HIV. If achieved, this will, in turn, have beneficial effects on their partners, families, and communities, including reducing the likelihood of new infections. Positive Health, Dignity and Prevention is not just a new name for the concept of HIV prevention for and by people living with HIV, formerly known as 'positive prevention'. Rather, Positive Health, Dignity and Prevention is built upon a broader foundation that includes improving and maintaining the dignity of the individual living with HIV; supports and enhances the individual's physical, mental, emotional and sexual health; and, which, in turn, among other benefits, creates an enabling environment that will reduce the likelihood of new HIV infections. Positive Health, Dignity and Prevention encompasses the full range of health and social justice issues for people living with HIV, and espouses the fundamental principles that responsibility for HIV prevention should be shared and that policies and programmes for people living with HIV should be designed and implemented with the meaningful involvement of people living with HIV. By linking the social, health, and prevention needs of the person living with HIV within a human rights framework, Positive Health, Dignity and Prevention results in a more efficient use of resources, with outcomes that are more responsive to the needs of people living with HIV and more beneficial for their partners, families, and communities. The specific activities carried out under this intervention are described below.

# 2.5.1 Community Dialogue

Community dialogues were conducted for members and stakeholders of the target communities which included health workers and community leaders, women leaders, youth leaders and members of PLHIV support groups. Town hall meetings were held among community dwellers in each of the LGAs and were attended by diverse drivers of change in the communities including community influencers. Awareness was created to the relevant key stakeholders in the community on the take off of the HAF II project in other to enhance massive participation. The participants were sensitized on the imperative of embracing this project as their own and collaboration. The relevance of involving the participants in decisions and plans to prevent new HIV infections and develop collective care and support services for those who are either infected or affected was also at the front burner of the meeting.

# 2.5.2 Strengthen referral and linkage system

The CSOs in collaboration with medical personnel's working in the state hospitals in the study area concluded plans earlier at the beginning of the project to enable PLHIV have access to medical attention in their respective facilities most especially whenever they are referred for services under HAF II project.

# 2.5.3 Home visit to provide counseling support based on identified needs of PLHIV

Counselling support was provided by trained volunteers on a wide-range of issues (psycho-social support, disclosure of HIV status, treatment education and adherence, positive living and positive prevention, nutrition, sexual and reproductive health issues such as family planning and pregnancy, discordant couples, home based care) through one-to-one counselling or couple/family counselling. Children and adolescents living with HIV were also provided with counselling services on HIV status disclosure, ART adherence, personal hygiene, eating healthy and hygienic food, coping with emotions etc.

# 2.5.4 PLHIV Support Group

Support group was formed for PLHIV with the aimed of providing a platform for them to share their concerns and learn from each other. Regular support group meetings were organized by trained volunteers and information on various themes are provided to build capacity of PLHIV to live quality life. Monitoring and evaluation officers of the implementing CSOs monitored support group meeting by attending the meeting to encourage regular meeting attendance of support group members, share experience and encourage proper adherence alongside the normal health talk during support group meeting.

# 2.5.5 Condom Promotion

Several condom messaging, sensitization and demonstrations were carried out at individual volunteer cohort level and special sessions at least twice in a month. Project monitoring team re-enforcing the activities of volunteers by organizing special sessions with cohort group members to carry out comprehensive condom promotion

# 2.5.6 Training session

People living with HIV and their caregivers in the family were trained on basic infection control practices at home, management of general ailments and monitoring of infections, and identification of signs and symptoms of health issues requiring immediate medical care. Participants were provided with information about the nearest available health care facilities and importance of good health seeking behaviour. They were also provided with sessions on positive health dignity and prevention (PHDP) in Nigeria, HIV prevention at the community setting, basic facts about HIV/AIDS, HIV related stigma and discrimination, management of sexually transmitted infections (STIs). Each training session was attended by not less than 20 participants and each participant were mandated to step down the knowledge to not less than 10 colleagues which are mostly PLHIV and/or their relatives.

# 2.6 Monthly Project Performance Monitoring

Project monitoring team monitored this project in collaboration with service support organization to ensure proper documentation by trained volunteers and to ascertain that the project is being implemented in line with the approved work plan. Monthly data reports were promptly retrieved from volunteers, analyzed and properly documented, copies of the completed monthly summary sheet are made available to the social welfare officer in each of the LGAs in the study area for proper documentation as stipulated by the national guideline on project report flow chart.

# 2.7 Data Management and Analysis

The data of this project were entered into DHIS2 platform from the data reporting tools by each of the organization after which it was exported into Microsoft excel and analyzed using same.

# III. Results

The findings are presented based on the levels of intervention: Enrollment pattern, Structural and socioeconomic, and positive health dignity and prevention. The overall target population reached during this intervention was 55,542 given a target reached of 125.7%.

# **3.1 Enrollment pattern of clients**

In 2014, a total of 89 clients voluntarily withdrawn from services and 38 clients were transferred out to receive adequate medical services in another health care facility. A total of 296 persons died during this intervention given a death rate of 0.5% (Table 1).

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Enrollment Pattern	Year			
	2014 n (%)	2015 n (%)	Total	
Clients enrolled	20,727 (37.3)	34,815 (62.7)	55,542	
No of clients who died	293 (99.0)	3 (1.0)	296	
Clients voluntary withdrawn from services	89 (63.6)	51 (36.4)	140	
No of clients transferred out	38 (100.0)	0 (0.0)	38	
No of clients who completed referrals	14 (24.6)	43 (75.4)	57	

Table 1: Enrollment pattern of clients

# 3.2 Structural and Socio-economic Intervention

A total of 63 community dialogues were held and 910 community influencers attended these meetings. Most (65.1%) of the community dialogues were held in 2015. Furthermore, 10 income generating activities were conducted for 46 PLHIV. Among these, 60.0% were held in 2015 (Table 2).

 Table 2: Structural and Socio-Economic intervention

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Structural and Socio-Economic intervention	2014 n (%)	2015 n (%)	Total		
No. of community dialogue held	22 (34.9)	41 (65.1)	63		
Influencers participating in comm. dialogue	373 (41.0)	537 (59.0)	910		
Number of IGA held	4 (40.0)	6 (60.0)	10		
Number of individuals referred for income generation activities (IGAs)	15 (32.6)	31 (67.4)	46		
Number of persons that benefitted from IGA	15 (32.6)	31 (67.4)	46		

# **3.3 Positive Health Dignity and Prevention (PHDP)**

A total of 47,909 persons were reached with a minimum of one care. A total of 18,871 PLHIV were provided with adherence support between 2014 and 2015, 69.7% of which was in the year 2015. A total of 30,228 male and 18,422 female condoms were distributed during this intervention. The total of condoms distributed is only 23.3% of the required condoms. A total of 5,277 persons were referred for ART. A total of

276 persons were referred for STI while 280 persons reported they were currently receiving STI treatment. A total of 1,394 pregnant women were referred for antenatal care services (Table 3).

Variable	2014 n (%)	2015 n (%)	Total
Persons reached with a minimum of one care	18,748 (39.1)	29,161 (60.9)	47,909
Persons provided with adherence support	5725 (30.3)	13,146 (69.7)	18,871
Persons provided with home based care services	2310 (6.3)	34,361 (93.7)	36,671
No of condoms (male and female) required	47,104 (22.6)	161,704 (77.4)	208,808
No of female condoms distributed	10,226 (55.5)	8,196 (44.5)	18,422
No of male condoms distributed	8110 (26.8)	22,118 (73.2)	30,228
No of lubricants distributed	0 (0.0)	32 (100.0)	32
No of persons referred for ART	428 (8.1)	4,849 (91.9)	5,277
No of persons currently receiving STI services	107 (38.2)	173 (61.8)	280
No of persons referred for STI	138 (50.0)	138 (50.0)	276
No of persons going for STI follow-up	97 (36.2)	171(63.8)	268
Pregnant persons referred for antenatal care service	90 (6.5)	1,304 (93.5)	1,394

Table 1.	Positive Health	Dignity and	Prevention	(PHDP)
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# IV. Discussion

Prevention among PLHIV is very crucial in order to achieve genuine preventive measures in the general population. People living with HIV are prone to both internal and external stigmatization, undue judgment and maltreatment in the community; and untold psycho-social trauma; all these work as negative forces against preventive efforts [10-11]. The project supports the prevention needs of people living with HIV in a broad range of clinical and biomedical interventions, counseling, psychosocial and social services, community and social interventions, and advocacy through community dialogue. Few of the participants died during this intervention. Approximately 180,000 people died from AIDS-related illnesses in Nigeria in 2015 [12]. Since 2005, the reduction in the number of annual AIDS-related deaths has been minimal, indicative of the fact that only half (51%) of those living with HIV in Nigeria are accessing antiretroviral treatment (ART) [13]. Few participants benefitted from income generating activities. Poverty and access to health care are two key challenges facing PLHIV particularly during the economic crisis. Their efforts to improve their situation can be blocked by the lack of employment opportunities due to widespread stigma and discrimination, on the basis of gender and HIV status. Capacity building to improve employment opportunities for PLHIV is a direct means to empower PLHIV and address their needs. Many pregnant women were referred for antenatal care service during this project to reduce mother to child transmission of HIV. A third (32%) of all cases of mother to child transmission (MTCT) of HIV in the world happen in Nigeria. In 2013, just 30% of pregnant women living with HIV received antiretroviral treatment. As a result, MTCT is high at 26.5% [14]. Despite yearly increases, the number of pregnant women visiting health facilities remains low, as does the number of health facilities providing PMTCT services. In early 2015, the telecommunications company Etisalat started rolling out SMS messages to its subscribers about PMTCT and where people could seek HIV services. It is hoped that largescale communications like this will encourage women to come forward for testing to prevent their babies being born with HIV [15].

Many participants were referred for ART in this project. Antiretroviral treatment provision in Nigeria is low, with 51% of all people living with HIV receiving treatment in 2014. This figure includes children. When considered in isolation, only 12% of children living with HIV are receiving ART. Only 30% of pregnant women living with HIV are on ART [12]. Certain weaknesses in the system exist, which mean many people who receive a positive HIV diagnosis are not referred on to treatment, or not retained in treatment for very long. Even when ART can be accessed, drug supplies are known to run out and lead to stock-outs [5]. It was also noted in this study that most of the participants were not on ART. A strong body of evidence is emerging showing the potential impacts of treatment on prevention. By reducing viral load through effective ART the level of infectiousness is also reduced and therefore the risk of HIV transmission is lowered – making ART potentially the best prevention strategy currently available [16]. What this means for people living with HIV is that access to effective treatment is important not just for their own health but also in reducing the risk of HIV transmission to their sexual partners [16].

The results of a study carried out by Wamalwa [17] in Kenya revealed that most PLHIV (87%) approved of condoms as an effective way to prevent HIV transmission. PLHIVs approval of condoms as an effective HIV prevention tool is a key step in fostering consistent and correct use among this population. It is however disappointing to note in this intervention that only few condoms were distributed during this intervention while compared with the number of condom required. Laboratory studies show that condoms provide an impermeable barrier to particles the size of sperm and STI pathogens, including HIV [18-

19]. Condoms, when used consistently and correctly, are highly effective in preventing the sexual transmission of HIV.

### V. Implications For Programming

Positive prevention is centered on the efforts of people who know they are living with HIV to learn and practice ways to promote their own health and prevent disease. Although successful positive prevention will also reduce HIV transmission, positive prevention is not exclusively about preventing HIV. Positive prevention is inextricably linked with access to treatment, care and support. Positive prevention is about preventing illness and promoting good health among people who know they are HIV-positive. This includes preventing new infections (such as hepatitis, gonorrhea, or infection with a different strain of HIV), reducing drug-related harm, promoting healthy living, and enhancing the quality of life generally. Positive prevention is effective only when positive people take action to care for themselves. But everyone has a role to play in making positive prevention work. People who know they are living with HIV need support and acceptance to be open about their status, so they can actively seek health services and talk about prevention with others. They need protection from violence and the threat of violence. They need social services to ensure they do not need to resort to unsafe practices for survival. And they need to be able to use health care services to keep them strong. Positive prevention means promoting healthy living and empowering people living with HIV to continue to take responsibility for their own health and lives. A human rights approach combating stigma and discrimination is essential to the success of positive prevention. Positive prevention also requires addressing social vulnerabilities such as poverty and gender-based violence. Everyone has a role to play in supporting positive prevention efforts to make it a success. Providing antiretroviral treatment for all people living with HIV does not only benefit those already living with HIV, it also dramatically reduces the chance of onwards HIV transmission to others. In a country such as Nigeria, where so many people are not on treatment, it is hard to tackle the HIV epidemic. Considerable commitment, funding and resources need to be mobilised to expand access to treatment as a prevention method.

#### VI. Conclusion

This project successfully increased access to and understanding of individuals living with HIV to make choices that address their needs and allow them to live healthy lives free from stigma and discrimination. However, condoms which are part of most national HIV, STI and reproductive health programmes, were not consistently distributed nor promoted proactively enough in this intervention. Administrative barriers that prevent programmes and organizations from providing sufficient quantities of condoms for distribution need to be removed. Condom promotion and distribution should be systematically integrated in community outreach and service delivery, and in broader health service provision.

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#### References

- [1]. UNAIDS (2016). Prevention Gap Report
- [2]. National Population Commission (NPC) [Nigeria] and ICF International. 2014. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International.
- [3]. UNAIDS (2014) 'Fast Track Strategy'
- [4]. Nigeria Federal Ministry of Health (2013). National HIV & AIDS and Reproductive Health Survey 2012, (NARHS Plus II)
- [5]. Nigeria National Agency for the Control of AIDS (2014). Country Progress Report 2014
- [6]. Kogi State Agency for the Control of AIDS (KOSACA). 2011. KOSACA Preliminary MARP Survey
- [7]. Federal Ministry of Health (FMoH). 2012. National AIDS and Reproductive Health Survey 2012
- [8]. Nigeria Federal Ministry of Health (2010). HIV Integrated Biological and Behavioural Surveillance Survey (IBBSS)
- [9]. Kogi State Ministry of Health. 2010. Strategic Health Development Plan 2010-2015
- [10]. Bang on, T. and Supattra, S. (2016) Societal awareness of stigma and discrimination against persons living with Human Immunodeficiency Virus (HIV) (PLHIV): Experience of clinicians, PLHIV, general population, and persons who are vulnerable to HIV. Journal of AIDS and HIV Research8:4, 25-37. Online publication date: 31-May-2016.
- [11]. Shokunbi, W. A., Ajuwon, A.J. and Ojelade, O.A. 2014.Prevention of HIV and AIDS: A baseline gender comparison of knowledge, attitude and confidence to negotiate safer sex among tertiary students of the University of Ibadan, Nigeria. Journal of Medical Women of Association
- [12]. UNIAIDS (2016). 'Prevention Gap Report'
- [13]. NACA (2015). 'Integrated Biological and Behavioural Surveillance Survey 2014'
- [14]. NACA (2015). 'End of Term Desk Review Report of the 2010-2015 National HIV/AIDS Strategic Plan'
- [15]. UNAIDS (2015). 'UNAIDS and Etisalat join together to stop mother-to-child-transmission of HIV in Nigeria'
- [16]. World Health Organization. 2009. Antiretroviral Treatment for HIV Prevention Consultation, 2-4 November 2009.
- http://www.who.int/hiv/ events/artprevention/en/index.html
- [17]. Wamalwa Emmanuel, Neyole Edward, Poipoi Moses, Ringera William, Otomu Geoffrey, Bitok Monicah, and Mbaluka Rosemary. Condom Use Determinants and Practices Among People Living with HIV in Kisii County, Kenya. Open AIDS Journal. 2015; 9: 104–111.
- [18]. Carey RF et al. Effectiveness of latex condoms as a barrier to human immunodeficiency virus-sized particles under conditions of simulated use. Sex Transm Dis 1992;19:230-4.
- [19]. WHO/UNAIDS. 2001. Information note on Effectiveness of Condoms in Preventing Sexually Transmitted Infections including HIV.