

Socio-Demographic Characteristics of HIV-Infected Patients at Kenyatta National Hospital (KNH) Comprehensive Care Centre (CCC), Nairobi Kenya

Anne Wanja Kibera¹, Mary Wangari Kuria², Donald A. Kokonya³

¹Department of Psychiatry, School of Medicine, College of Health Sciences, University of Nairobi, GPO, Nairobi, Kenya

²Department of Psychiatry, School of Medicine, College of Health Sciences, University of Nairobi, GPO, Nairobi, Kenya

³Department of Mental Health, School of Medicine, Masinde Muliro University of Science and Technology, Kakamega, Kenya

***Corresponding Author:** Anne Wanja Kibera, Department of Psychiatry, School of Medicine, College of Health Sciences, University of Nairobi, GPO, Nairobi, Kenya

ABSTRACT

The Global human immunodeficiency virus (HIV) epidemic entered its fourth decade with approximately 34 million people living with HIV (PLHIV). The years ago to date, the antiretroviral therapy (ART) programs were been scaled up significantly in the Sub-Saharan Africa. Since the first diagnosis of HIV in Kenya in year 1981, care and treatment efforts for the PLHIV had rapidly expanded and 5.3 million people were accessible to ART. Kenya initiated national campaigns to increase HIV testing and counselling, including Voluntary Counseling and Testing (VCT), provider initiated testing and counseling (PITC), outreach testing and counseling, home-based testing and counseling as well as integration of HIC Testing and Counseling (HTC) into antenatal care, sexually transmitted infections (STI) and sexual and reproductive health services. Not much information is available on socio-demographic and clinical aspects of the PLHIV attending the CCC.

Objective: To determine the socio-demographic characteristics of HIV-infected patients at the Kenyatta National Hospital Comprehensive Care Centre, Nairobi, Kenya

Design: This was a descriptive cross-sectional quantitative study.

Settings: The Kenyatta National Hospital Comprehensive Care Centre, Nairobi, Kenya.

Methods: This study was conducted on two hundred and seventy two (N=272) participants (Cochran's formula), comprising 139 males and 133 females aged 18 years and above. The study participants were physically able, literate and they could communicate clearly in English, Kiswahili or both languages, they voluntarily consented to partake the study and they had been attending the CCC for 3 months from August to October 2014 at the Kenyatta National Hospital (KNH), Nairobi, Kenya. Consideration for attrition was pegged at 20% of the study population. Systematic, proportionate probability and purposive population sampling techniques were used to sample the study population. Eligible study participants were adequately informed about the study objectives, benefits and harms prior to voluntarily signing the consent forms, followed by administration of the questionnaires by the researcher. Socio-demographic characteristics were captured on locally designed instrument. Fully completed questionnaires were entered into excel sheets on the computer on the day data was collected by the researcher and later analyzed using the Statistical Package for Social Sciences (SPSS) Version 20.

Results: More than half (51.1%) were male compared to (48.9%) females. The age distribution showed half (50%) of participants were adults aged 33 years and above who constituted (55.9%) of the study population and of whom, 36.3% were aged 32-22 years and (7.7%) were aged 18-21 years. This finding showed that HIV infections in Kenya were predominantly among the resourceful newly married, young educated adults. Gender distribution difference was insignificant (2.2%) in the numbers by sex it was at (2%). The youngest participant was 18 years old implying that the mode of transmission in this population was sexual and or any other but unlikely to be mother to child.

This argument held when considering the fact that the largest population (56%) attending the HIV and AIDS clinic was above 33 years of age in which the age-HIV-infection relationship was directly proportional. Single marital status had a prevalence rate of 36.8% and the separated had a prevalence of 8.1%. The married were the majority (45.6%) and the combined married and cohabiting constituted over half (51.8%). This findings suggested that the likely form of HIV transmission in Kenya was sexual. The married and cohabiting (51.8.6%) outnumbered those in all single relationships combined who accounted for (48.2%). The small difference (3.4%) between the partnered and those not partnered implies that HIV infection in Kenya had no bias in terms of marital status. Those with secondary and college levels of education constituted (70%) compared to those with primary and university education both categories stood at (13%) and only (1.8%) had no education. These challenged the notion that high standard education was key to the prevention and control of HIV infections and brings out the element of health education being more important than literacy. Having income accounted for 89.7% compared to 10.3% who did not have any formal income. Those earning less than US\$ 200 were at the highest risk of HIV infection, at a prevalence rate of 68.7% with an inverse relationship between HIV-infections and level of income. Being a Christian (84.5%) was a risk factor compared to Muslim (4.4%). This is a contrast in that Catholics are an avowed faith against condoms use, implying a possibility that their abstinence programme alongside the Muslims might be taking root. Those in rented residences (62.5%) were at the highest risk of HIV infections followed distantly by those in owner-occupier residences at 18.1%

Conclusion: *This study showed that as many women as men were equally vulnerable to HIV infections. Risk factors for HIV infections were being young adults, older and partnered, poverty, married or cohabiting couples, a contrast with the notion that marriage was a protective institution against HIV infections. These findings suggested that HIV transmission in Kenya was sexual. Prevention messages focused on casual partnerships despite low level of knowledge among couples. The notion that high standard education was key to the prevention and control of HIV infections was challenged in this study. The high prevalence rate of HIV was attributed to low level of sexual health education and condom use. Low risk factors for HIV infections were associated with low level of education. As such, policy makers should review HIV programmes in Kenya and consider the contribution of socio-demographic factors done so that gaps in the prevention and control of HIV in Kenya could be sealed to reduce the negative impact of HIV infections.*

Keywords: *human immunodeficiency virus, acquired immune deficiency syndrome; people living with human immunodeficiency virus, transmission, anti-retroviral treatment*

INTRODUCTION

Since the first documented outbreak of the HIV epidemic in Kenya in the year 1981, care and treatment efforts for the PLHIV rapidly expanded and 5.3 million people were receiving anti-retroviral treatment (ART), which had reduced morbidity and mortality among the PLHIV who were able to live longer (UNAIDS, 2010). The Global HIV epidemic entered its fourth decade with approximately 34 million people estimated to be PLHIV (UNAIDS, 2011). Studies had demonstrated the efficacy of ART as an intervention to reduce the likelihood of HIV transmission and AIDS disease (Cohen *et al.*, 2011). Over the past decade, the ART programmes had been scaled up significantly in the Sub-Saharan Africa (UNAIDS, 2013). In the year 2012, 68% of the PLHIV in the region had access to ART under the auspices of the World Health Organizations (WHO & UNAIDS, 2013). The WHO's 2013 guidelines on ART eligibly qualified more people for treatment by expanding treatment initiation to those whose CD4 counts were 500 or less, thereby contributing to reduction of ART coverage to 39% in the year 2013

(UNAIDS, 2013). Surveys conducted in different populations among Sub Saharan African countries highlighted the need for comprehensive and effective services for PLHIV (UNAIDS, 2010). Kenya initiated national campaigns to increase uptake of HIV testing including HIV testing and counseling (HTC), provider initiated testing and counseling (PCT), outreach testing and counseling, home-based testing (HBT) and counseling as well as integration of HTC into antenatal care, sexually transmitted infections (STI) and sexual and reproductive health services by the Kenya National AIDS Control Council (NACC, 2011). By the year 2010, the voluntary counseling and testing (VCT) sites in Kenya were over 4,000 in number and evenly distributed. In the year 2008, approximately 860,000 people in Kenya were being voluntarily tested annually for HIV. By the year 2013, the number had increased to 6.4 million (NACC, 2014). From the year 2009 to 2013, the percentage of pregnant women tested for HIV increased from 68% to 92% and in 2010, the government started a campaign to promote partner testing, exclusive breastfeeding and the delivery of ART to children (IRIN, 2009

& Capital, 2010). The HIV departments within the Kenyan health facilities were usually better staffed and equipped than other non-HIV services departments (Odeny, *et al.* 2013). Out of the 47 Kenyan regional administrative (counties), Nairobi city had the highest numbers of HIV and AIDS cases at 199,100, followed by the rural Homabay (150,000), urban Kisumu (113,000), Siaya (100,400), Kisii (77,100), Mombasa (77,100) Migori (68,700), Nakuru (57,800), Kakamega (55,500), and Turkana (51,200) among others (Kenya Forum, July 2013). In Kenya, the number of people receiving ART increased over 12-fold from about 11,000 in the year 2003 to more than 138,000 patients in 2007 as a result of support from the President's Emergency Plan for AIDS Relief (PEPFAR) funds (Wools-Kaloustian, *et al.*, 2009). Treatment transformed HIV infections into chronic conditions; therefore, HIV management demanded a shift to a chronic disease service delivery model (Farmer & Shattuck, 2013). Counseling is the process by which an individual undergoes to enable him or her to make an informed choice about being tested for HIV; a preventive and care strategy for HIV infections (Hensen, *et al* 2011 & WHO, 2012). The sociodemographic characteristics of HIV and AIDS differ in different regions of the world depending on the variations in regional sexual practices, alcohol and substance abuse, beliefs, quality of health services among others (Avert, 2013). This study aimed at assessing the sociodemographic characteristics of HIV infected patients attending CCC services at the Kenyatta National Hospital, Nairobi, Kenya. Hasan *et al.*, (2013) reported that education positively and significantly ($p = <0.01$) contributed to awareness on HIV and AIDS. Educated people acquired more knowledge when exposed to sources of available information such as electronic media (Computer, internet), printed papers (Books, newspapers, posters, booklets). It may be inferred that higher educational levels offer some protection against HIV. Ramjee and Daniels (2013) in their study reported that young people growing up within income settings had little access to schooling and few prospects for their future, hence sex became a way of life to pass time due to a lack of recreational facilities. Young people, often perceived their risks of HIV and AIDS infections to be low even if they engaged in HIV and AIDS risky behaviours, lived in areas with high HIV prevalence rates or they were knowledgeable about HIV and AIDS (Dellar & Dlamini (2015). A possible explanation for the lowly perceived HIV and AIDS risks

was that youths would exhibit optimistic biases, tending to underestimate risks in general due to feelings of invulnerability (Pettifor *et al.*, (2014). An individual's perception of risk is what matters in their decision-making, not whether that perception is known to be correct or incorrect (Tarkang, 2014). Effective development of preventive and interventional messages for adolescents is paramount (Solomon, 2014).

Ramjee & Daniels (2013) stated that lack of resources was associated with earlier initiation of sexual activity and less frequent condom use which could result in HIV infections. According to findings by Umesh S. Joge *et.al* (2013), most of the affected population were from lower socioeconomic strata and the reproductive age group 15-44 years which increased the economic burden and affected the overall development of the families, communities and the country while marital life itself became a risk factor for women who got infected by their HIV positive spouses. HIV and AIDS thrived more among the socially disadvantaged and the economically subservient groups such as the young, the female and unemployed. Religion could hamper the effective use of condoms for prevention against HIV infections (Anyebe *et al.*, 2013). The Roman Catholic Church opposes condom use in favour of "direct contact". This could have serious implications for spreading HIV (Tarkang, 2014). Gender inequality was created and perpetuated in part by social norms that demanded culturally appropriate roles and conduct for men and women (Ramjee & Daniels 2013). Hierarchical gender roles such as notions of male sexual entitlement, and the institutionalized economic inequalities keep money, land, and other resources out of women's reach, causing women to be financially dependent on men (Adebayo *et al.*, 2015). According to Anyebe *et al.*, (2013), socio-demographic attributes of the Idoma, Nigeria PLWHA revealed that young, married females of low socioeconomic status and educational groups were most infected by HIV; the most affected being those within the productive age range of 25 to 44 years. Young females and farmers with low educational status and low income are more afflicted by HIV/AIDS. Tarkang *et al.* (2014) observed that a higher percentage of the males in that study was married compared to the females. This implied a higher rate of infection among married males, or that married males report for treatment at a greater rate than married females. It could suggest that marriage was possibly not a

protective factor against contracting HIV infections among males. The greater rate of extramarital sex among males compared to females and unprotected sex could have explained this finding. Health care providers including clinical psychologists were involved in client counselling according to Okoronkwo et al., (2013). He further suggested that nurses ought to have intensified their efforts on patient education and counselling to help the patients resiliently accept their conditions and adapt positively to the challenges of the illness and long-term use of anti-retroviral drugs. Eguchi et al., 2014 in his study stated that health promotion authorities ought to carefully consider the target population ages when implementing interventions to reduce prejudice toward HIV infected colleagues in the workplace. Perkins et al., (2013) reported that unemployed women had a higher number of children and longer periods of residency, which might have been more embedded within limited social and sexual networks. Embedded states had been shown to be a significant driver of HIV infections that could have suggested that HIV-prevention knowledge was relatively lacking irrespective of HIV status (Perkins et al., (2013). Therefore, targeted and concentrated HIV-prevention education initiatives were needed for African American women residing in Washington, DC, regardless of their HIV status (Perkins et al., (2013). Socioeconomic and sexual identity characteristics of HIV infected women were more likely to be married or living with a stable partner and more likely to have children, primary or lower level of education and less likely to have high school or higher level of education than men (Arredondo, 2015). The MSM were particularly at risk and prevention strategies ought to have continued to target this group, focusing on risk reduction, particularly greater use of condoms and HIV testing for earlier diagnosis and linkage to care and treatment. Identifying factors contributing to both vulnerability and risk will help guide both prevention and treatment efforts (Ramjee & Daniels, 2013). The exposure to “Western culture” influence which had been aided by mass media entertainment products, such as sex films, video clubs, private channels, internet and advertising was perceived as portraying sexual behavior as a normal and recreational activity without restrictions (Mohamed and Mahfouz, 2013). Sudan was a relatively conservative and highly religious society where sexuality was not openly discussed, and a disease such as HIV and

AIDS was surrounded by myths and taboos and even it ignored in official circles (Mohamed and Mahfouz, 2013). It was difficult and it required sensitivity to get people to talk openly about the disease (Szaflarski, 2013). Women were significantly more likely to have been infected by a stable partner, by a partner with military/police background or imprisonment background (Arredondo, 2015), while the HIV epidemic among men was linked mainly to sexual risk behavior, the epidemic among women was mainly linked to social and economic vulnerability and marginalization.

METHODS

This was a descriptive cross-sectional quantitative study, conducted on two hundred and seventy two (N=272) participants (Cochran’s formula), comprising 139 males and 133 females aged 18 years and above, having been approved by the Kenyatta National Hospital Ethical and Research Committee (ERC). The study participants were not physically ill, they were literate and they could communicate clearly in English, Kiswahili or both languages, voluntarily consenting to partake the study including the disabled PLHIV and having been attending the CCC during a 3-month period from August to October 2014 at the Kenyatta National Hospital (KNH), Nairobi, Kenya. The other inclusion criterion was factoring in 20% of the target to cater for the attrition of the study population. Systematic, proportionate probability and purposive population sampling techniques were used to sample the study population. Eligible study participants were adequately informed about the study objectives, benefits and harms prior to voluntarily signing the consent forms, followed by administration of the questionnaires by the researcher. Socio-demographic characteristics were captured on locally designed instrument. Fully completed questionnaires were entered into excel sheets on the computer on the same day data was collected by the researcher and later analyzed using the Statistical Package for Social Sciences (SPSS) Version 20.

RESULTS

The two hundred and seventy two (272) study participants were recruited to participate in this study, giving a response and questionnaire return rate of 100%. The baseline data from the study participants provided information about the socio-demographic characteristics of the HIV-infected patients attending the CCC at the KNH, Nairobi, Kenya. The study sought to

Socio-Demographic Characteristics of HIV-Infected Patients at Kenyatta National Hospital (KNH) Comprehensive Care Centre (CCC), Nairobi Kenya

identify the socio-demographic characteristics of the participants (Table 1).

Table1. Socio-demographic characteristics (N=272)

Characteristic	Category	n	%
Gender	Male	139	51.1
	Female	133	48.9
Age (years)	18-21	21	7.7
	22-25	24	8.8
	25-29	30	11
	30-33	45	16.5
	>33	152	55.9
Marital status	Married	124	45.6
	Cohabiting	17	6.2
	Single	100	36.8
	Divorced	5	1.8
	Separated	22	8.1
	Widowed	4	1.5
Level of education	None	5	1.8
	Primary	37	13.6
	Secondary	102	37.5
	College	91	33.5
	University	37	13.6
Employment	Employed	116	42.6
	Self-	128	47.1
	Retired	7	2.6
	Never	17	6.2
	Laid off	4	1.5
Income bracket (KShs/month)	10-100	104	39.4
	100-200	75	28.4
	200-300	34	12.9
	30,000-	20	7.6
	40,000-	12	4.5
	>50,000	19	7.2
Religion	Catholic	104	38.2
	Protestant	126	46.3
	Muslim	12	4.4
	Other	30	11.0
Housing	Own	49	18.1
	Rented	174	64.2
	Friends	13	4.8
	Parents	28	10.3
	Other	7	2.6

Slightly more than half (51.1%) of the HIV-infected patients were male compared to 48.9% females who participated in this study the differences in the proportion (2%) was small. The age distribution of the participants showed that more than half (50%) of the HIV-infected participants were adults aged 33 years and above they constituted 55.9% of the study population, of whom 16.5% were aged 30-33 years, 11% were aged 25-29 years, 8.8% were aged, 22-25 years and 7.7% were aged 18-21 years. This finding showed that the victims of HIV infections in Kenya were young adults who were in their prime age of marital and occupational debut, resourceful and having completed their studies at university level. The HIV and AIDS-related morbidities and mortalities in this situation were likely to generate a large population of young, immature and early school-going children. The gender distribution of the HIV-infected patients at the KNH CCC did not reflect a wide difference (2.2%) in the numbers by sex and it was as close as that of age differences (2%). The youngest HIV-infected person participating in this study was 18 years old, implying that the clinic predominantly served adults and it was an indication that the prevention of mother to child transmission of HIV had been effective and the mode of transmission in this population was likely to be sexual and or any other but unlikely to be mother to child. This argument held when considering the fact that the largest population (56%) attending the HIV and AIDS clinic was above 33 years of age in which the age-HIV-infection relationship was directly proportional. The single marital status had a prevalence rate of 36.8% and the separated with had a prevalence of 8.1%. The married were the majority (45.6%) of the HIV-infected clinic attendants and the combined married and cohabiting constituted over half (51.8%) of the HIV-infected people attending the specialized clinic at the KNH. This, once again, this finding suggested that the likely form of HIV transmission in Kenya was sexual. The married and cohabiting (51.8.6%) outnumbered those in all single relationships combined who accounted for 48.2% of the HIV-infected people attending the specialized clinic at KNH. But the small difference (3.4%) between the partnered and those not partnered implies that HIV infection is Kenya had no bias in terms of marital status. Those with secondary and college levels of education constituted 70% of all the HIV-infected people seeking comprehensive health

care at the KNH compared to those with primary and university education both of which categories had a joint comprised 13% in the study population and a paltry 1.8% of those with no education. These findings challenged the notion that high standard education was key to the prevention and control of HIV infections and brings out the element of health education being more important than literacy (Hargreaves et al., 2008). This study clearly demonstrated that having income whatever the level of socio-economic status was a risk factor for HIV infection. Having income accounted for 89.7% of all the HIV-infected people at the KNH compared to 10.3% who did not have any formal income, among them, those who had never been employed, the retired and those who had been laid off employment. Among those with regular income, those earning less than US\$ 200 were at the highest risk of HIV infection, standing at a prevalence rate of 68.7% and there was an inverse relationship between HIV-infections and level of income. Being a Christian (84.5%) was a risk factor compared to Muslim (4.4%) with Protestants (46.3%) slightly surpassing the Catholics (38.2%). This is a contrast in that Catholics are an avowed faith against use of condoms, implying a possibility that their abstinence programme alongside the Muslims might be taking root. In terms of housing, those in rented residences (62.5%) were at the highest risk of HIV infections followed distantly by those in owner-occupier residences at 18.1% (Table 1).

DISCUSSION

In this study, young adults and older partners were found to be more at risk of HIV infections compared to the unpaired and young according to the Human Rights Watch, (HRW, 2010). The married in this study were more predisposed to HIV infections, a contrast with the notion that marriage was a protective institution against HIV infections as opposed to singlehood (Li, et al., 2012). But these findings confirmed the findings of yet another study that reported that the married in Kenya were at the highest risk of HIV infections with a prevalence of 46%, quite a disturbing finding in two aspects namely the infected patient will infect their married partners and secondly, that the infect would transmit HIV infections to their offsprings (Khan, & Sharma, 2012). It was reported that the married and in stable relationships accounted for the highest percentage of new HIV and AIDS infections in Kenya (Kemei, et. al., 2013). On

the contrary, this study dispelled the perception that the single were more predisposed to HIV and AIDS, pouring cold water on the widely held notion that being married was a sexual restriction to multiplicity of partnerships, thereby locking HIV infections outside the marital institutions (Anglewicz, et al., 2010). This study also showed that either more men were living with HIV or they were infected more than women if the participation in this study was anything to go by (Grant & Soler-Hampejsek, 2014). Again, these findings would have been contradicting the belief that most of the PLHIV were women (Barros, et. al., 2011). This study could not establish if the large number (51.1%) of men included men having sex with men (Sanders, 2012). In Kenya, HIV prevalence among men who had sex with men (MSM) were almost three times (X3) higher than in the general population (UNAIDS, 2013). HIV among couples had been associated with ignorance of self or partners' HIV status (R, et. al., 2008). This study found out that the married and cohabiting couples were at higher risk for HIV transmission and acquisition (Li, et al., 2012). Culture played a big role in sexual relationships, more so in marriages where women not able to practice safer sex even when they knew the risks (Santana, 2006). Surprisingly, prevention messages often ignored couples, focusing on casual partnerships despite the lack of knowledge among the HIV affected couples of the risks of transmission among their partnerships or through prenatal transmission. (Kim, et. al., 2011). The HIV prevalence among young women in Kenya had almost halved since the year 2003, showing that progress had been made with regard to female gender according to the National AIDS Control Council (NACC, 2014) of Kenya. It had been shown that women and girls in Kenya faced discrimination in terms of access to education, employment and healthcare thereby consigning the female gender into vulnerability to HIV (Jewkes, 2010). These findings also showed that young women were at risk of HIV infections because young women found it harder to negotiate condom use with older partners who had greater power in the relationships and would use gifts or money to encourage girls to have unprotected sex (UNAIDS & UNESCO, 2013). The high prevalence rate of HIV was attributed to lack of sexual health education and low levels of condom use (Ryan, et. al., 2009). Gender inequality had also been identified as a key driver of HIV infections among women (Ryan, et. al., 2009).

In our study, the level of education that each participant had attained at the time of this study indicated that over two thirds (2/3) of the study respondents had at least secondary education. The Kenya AIDS Indicator Survey (KAIS, 2012) reported almost no difference in HIV prevalence between those who had completed primary school education (6%) and those who had completed secondary school education (5.8%). In fact, the lowest HIV prevalence was found among people without any schooling, making illiteracy a protective factor for HIV infections (3.6%). Moreover, HIV prevalence rate was higher among women than men across all education levels according to the Kenya AIDS Indicator Survey (KAIS, 2012). These findings demonstrated that the study participants were similar in their socioeconomic status (SES) to the nationally representative samples in various countries according to the Kenya National Bureau of Statistics (KNBS, 2010), with low education and income levels. Poverty served as a major cause of the rapid spread of HIV infection in numerous ways (Greener, 2004). For example, the need for economic survival forced some men and women to become commercial sex workers to generate income, thus exposing themselves to increased chances of HIV infections (Gillespie, 2005). The distribution of the study participants' religious affiliations indicated that most (84.5%) of the participants were Christians (Kagimu, 2012). The church focused mainly on creating awareness about HIV and AIDS disease, its nature, modes of transmission, and its social and spiritual consequence (Lagarde, 2000). However, there was very little evidence that this knowledge had been translated into behavioral change (Fox, 2010). The main reasons for lack of behavioral change had been shown to be the African traditional customs and practices that promote the spread of HIV infections (Pennington, 2001). These African practices included; use of alcohol, women/spousal sharing, women inheritance that did not entail testing for HIV, non-circumcision for men, polygamy and ritual cleansings (Kawango, 2010). Secondly, promiscuity had been increasing among Africans, especially the youth (Pettifor, 2011).

CONCLUSION

This study showed that as many women as men were equally vulnerable to HIV infections in marriage or partnerships, a finding that challenged conventional wisdom that being

single was a risk factor for HIV infections than in partnerships or marriages. Being sexually active was found to be a risk factor for HIV in this study and so to being 33 years of age and above. However, the study confirmed established views that the young were more at risk of HIV infections than the old. People with secondary and college educational levels were found to be at higher risk of HIV infections than those at the university level of education and those with no formal education, though the secondary and college levels of education study participants were the majority in this study. Low income and Christianity were found to be risk factors for HIV infections but this finding was also in conformity with the large numbers of the study participants in those categories. A similar trend for similar reasons was observed when the status of residence was assessed. Arising from this study, it was found necessary for the HIV programmes in Kenya to be reviewed and further and deeper interrogation of the contribution of socio-demographic factors done so that gaps in the prevention and control of HIV in Kenya could be sealed to reduce the negative impact of HIV infections.

REFERENCES

- [1] Adebayo AM, Ilesanmi OS, Alele FO. Risky sexual behavior and associated factors among married people receiving antiretroviral therapy in a tertiary hospital in Ondo State, Nigeria. *J HIV Hum Reprod* [serial online] 2015 [cited 2017 Feb 23];3:29-33. Available from: <http://www.j-hhr.org/text.asp?2015/3/2/29/186338>
- [2] Anglewicz P, et al. (2010). HIV risks among currently married couples in rural Malawi: What do spouses know about each other? *AIDS & Behavior*. 2010;14(1):103–112. [PMC free article] [PubMed]
- [3] Anyebe, Emmanuel, E., Joseph M. Hellandendu & John E. Gyong. (2013). *Socio-demographic profile of people living with HIV/AIDS (PLWHA) in Idoma land, Benue state, Northcentral Nigeria: Implications for HIV/AIDS control*.
- [4] Avert (2013). *HIV and AIDS in sub-Saharan Africa regional overview*. Retrieved from <http://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/>
- [5] B. R., M. J. K., O. A., & Wand E.P. (2008). *HIV transmission risk behavior among HIV-infected adults in Uganda, results of a nationally representative survey* (pp.617-624).
- [6] Barros, C., Schraiber L.B., & França-Junior, I. (2011). *Association between intimate partner violence against women and HIV infection*. *Rev Saúde Pública*. (pp.365-72)

- [7] Bautista-Arredondo, et al. (2015). *A tale of two epidemics: gender differences in socio-demographic characteristics and sexual behaviours among HIV positive individuals in Mexico City*. International Journal for Equity in Health 14:147.
- [8] Byamugisha, R., Astrom, A. N., Ndeezi, G., Karamagi, C. A., Tylleskar, T., & Tumwine, J. K. (2011). *Male partner antenatal attendance and HIV testing in eastern Uganda: a randomized facility-based intervention trial*. J Int AIDS Soc. 2011;14:43. [PMC free article] [PubMed]
- [9] Chemaitelly, H. C. I., Shelton, J., Hallett, T. B., & Abu-Raddad, L. J. (2012). *Distinct HIV discordancy patterns by epidemic size in stable sexual partnerships in sub-Saharan Africa*. Sex Transm Infect 88: 51–57 [PMC free article] [PubMed]
- [10] Chinyere, M., Aguocha, Richard U. Uwakwe, Chukwuma, B. Duru, Kevin C. Diwe, Justine K. Aguocha, Okezie O. Enwere, and Emmanuel O. Olose. (2015). *Prevalence and Socio-demographic Determinants of Depression among Patients Attending HIV/AIDS Clinic in a Teaching Hospital in Imo State, Nigeria*. American Journal of Medical Sciences and Medicine, vol. 3, no. 6 (2015): 106-112. doi: 10.12691/ajmsm-3-6-4.
- [11] Chirawu, P., Langhaug, L., Mavhu, W., Pascoe, S., Dirawo, J., & Cowan, F. (2010). *Acceptability and challenges of implementing voluntary counseling and testing (VCT) in rural Zimbabwe: evidence from the RegaiDziveShiri Project*. AIDS Care. 2010;22:81–88. [PubMed]
- [12] Citizen Publishers. (2015). *Nairobi Top in HIV Aids Prevalence*
- [13] Cohen, M. S., Chen, Y. Q., McCauley, M., Gamble, T., Hosseinipour, M. C., et al. (2011). *Prevention of HIV-1 infection with early antiretroviral therapy*. N Engl J Med 365: 493–505 [PMC free article] [PubMed]
- [14] Cooke, G. S., Tanser, F. C., Barnighausen, T. W., Newell, & M. L. (2010). *Population uptake of antiretroviral treatment through primary care in rural South Africa*. BMC Public Health. 2010;10:585. [PMC free article] [PubMed]
- [15] Dellar RC, Dlamini S, Karim QA (2015). *Adolescent girls and young women: key populations for HIV epidemic control*. J Int AIDS Soc. 2015:19408. <http://dx.doi.org/10.7448/IAS.18.2.19408>. [PMC free article] [PubMed]
- [16] Eguchi, H., Wada, K., Smith, D. R. (2014). *Sociodemographic Factors and Prejudice toward HIV and Hepatitis B/C Status in a Working-Age Population: Results from a National, Cross-Sectional Study in Japan*. PLoS ONE 9(5): e96645. doi:10.1371/journal.pone.0096645
- [17] Elvis Enowbeyond Tarkang et al., (2014). The Pan African Medical Journal - ISSN 1937-8688.
- [18] Enowbeyond, E., Tarkang. (2014). *Factors associated with perception of risk of contracting HIV among secondary school female learners in Mbonge subdivision of rural Cameroon*. Panafrican Medical Journal
- [19] Ferguson, L., Grant, A. D., Watson-Jones, D., Kahawita, T., Ong'ech, J. O., & Ross, D. A. (2012). *Linking women who test HIV-positive in pregnancy-related services to long-term HIV care and treatment services: a systematic review*. Trop Med Int Health. 2012;17:564–580. [PubMed]
- [20] Fox, A. M. (2010). *The Social Determinants of HIV Serostatus in Sub-Saharan Africa: An Inverse Relationship Between Poverty and HIV?* Public Health Reports, 125(Suppl 4), 16–24.
- [21] Gillespie, S. R., & Kadiyala, S. (2005). *HIV/AIDS and food and nutrition security: from evidence to action*. Food policy review no. 7. Washington DC: International Food Policy Research Institute
- [22] Govindasamy, D., van Schaik, N., Kranzer, K., Wood, R., Mathews, C., & Bekker, L. G. (2011). *Linkage to HIV care from a mobile testing unit in South Africa by different CD4 count strata*. J Acquir Immune Defic Syndr. 2011;58:344–352. [PMC free article] [PubMed]
- [23] Grant, M. J., & Soler-Hampejsek, E. (2014). *HIV Risk Perceptions, the Transition to Marriage, and Divorce in Southern Malawi*. Studies in Family Planning, 45(3), 315–337. <http://doi.org/10.1111/j.1728-4465.2014.00394.x>
- [24] Greener, R. (2004). *The impact of HIV/AIDS on poverty and inequality*. Chapter 5. In: Haacker M., Editor (Ed.), *the macroeconomics of HIV/AIDS*. Washington DC: International Monetary Fund; 2004.
- [25] Hargreaves JR, Bonell CP, Boler T, Boccia D, Birdthistle I, Fletcher A, et al. Systematic review exploring time trends in the association between educational attainment and risk of HIV infection in sub-Saharan Africa. AIDS. 2008;22(3):403–14. [PubMed]
- [26] Hasnain, (2005). *Cultural approach to HIV/AIDS harm reduction in Muslim countries*. Harm Reduction Journal, (Vol.2, Number 1, pp. 23)
- [27] Hatcher, A. M., Turan, J. M., Leslie, H. H., Kanya, L.W., Kwen, Z., Johnson, M. O., Shade, S. B., Bukusi, E. A., Doyen, A., & Cohen, C. R. (2011). *Predictors of linkage to care following community-based HIV counseling and testing in rural Kenya*. AIDS Behav. 2011;16:1295–1307. [PMC free article] [PubMed]
- [28] Human Rights Watch (2010). *I am not dead, but I am not living: Barriers to Fistula prevention and treatment in Kenya*
- [29] Ijeoma, Okoronkwo, Uchenna, Okeke, Anthonia, Chinweuba, & Peace, Iheanacho. (2013).

- Nonadherence Factors and Sociodemographic Characteristics of HIV-Infected Adults Receiving Antiretroviral Therapy in NnamdiAzikiwe University Teaching Hospital, Nnewi, Nigeria*
- [30] IOM (2010). *Integrated biological and behavioral surveillance survey among migrant female sex workers in Nairobi, Kenya*
- [31] Jewkes, R.K. et al. (2010). *Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: a cohort study*. The Lancet 376:41-48
- [32] Kagimu, M., Kaye, S., Ainomugisha, D., Lutalo, I., Walakira, Y., Guwatudde, D., & Rwabukwali, C. (2012). *Evidence-based monitoring and evaluation of the faith-based approach to HIV prevention among Christian and Muslim youth in Wakiso district in Uganda*. African Health Sciences. 2012;12(2):119–128. <http://dx.doi.org/10.4314/ahs.v12i2.7> . [PMC free article] [PubMed]
- [33] Kawango, E., Agot, Ann Vander Stoep, Melissa Tracy, Billy A. Obare, Elizabeth A. Bukusi, Jeckoniah O. Ndinya-Achola, Stephen Moses, & Noel S. Weiss. (2010). *Widow inheritance and HIV prevalence in Bondo district, Kenya: baseline results from a prospective cohort study*. PloS ONE 5(11):e14028. Doi:10.1371/journal.pone.0014028, November 17, 2010
- [34] Kemei, T. (2013). *HIV infections highest among married couples young adult men*. Journal of Urban health 83(4):575-585,
- [35] Kenya Forum (2013). *Counties most hit by HIV/AIDS in Kenya*. Retrieved from: <http://www.kenyaforum.net/2013/07/29/counties-most-hit-by-hiv-aids-in-kenya/>
- [36] Kenya HIV County Profiles - National AIDS Control Council (NACC) www.nacc.or.ke/images/documents/KenyaCountyProfiles.pdf
- [37] Kenya National Bureau of Statistics (KNBS) and ICF Macro (2010). *Kenya Demographic and Health Survey 2008–09*. In: Macro I, editor. Calverton, Maryland: KNBS and ICF Macro.
- [38] Khan, & Sharma, (2012). *Socio-demographic and clinical profile of people living with HIV/Aids*. Asian Journal of Medical Science, (Vol. 3 No.2)
- [39] Kim, A.A., P. Cherutich, P., Dadabhai, S., Mureithi, P., Mugo, N., Mugo, N., Bunnell, R., Hightower, A., & Mermin, J. (2011). *Factor Associated with HIV infection in married or cohabitating couples in Kenya: Results from a Nationally Representative Study*.
- [40] Lagarde, E., Enel, C., Seck, K., Gueye-Ndiaye, A., Piau, J. P., Pison, G., Delaunay, V., Ndoeye, I., & Mboup, S. (2000). *Religion and protective behaviours towards AIDS in rural Senegal*. AIDS. 2000, 14: 2027-2033. 10.1097/ 00002030-200009080-00019.
- [41] Li, L., Liang, L.-J., Lee, S.-J., & Farmer, S. C. (2012). *HIV Status and Gender: A Brief Report from Heterosexual Couples in Thailand*. Women & Health, 52(5), 472–484. <http://doi.org/10.1080/03630242.2012.687442>
- [42] Macpherson, P., Lalloo, D. G., Choko, A. T., Mann, G. H., Squire, S. B., Mwale, D., Manda, E., Makombe, S. D., Desmond, N., Heyderman, R., & Corbett, E. L. (2012). *Suboptimal patterns of provider initiated HIV testing and counselling, antiretroviral therapy eligibility assessment and referral in primary health clinic attendees in Blantyre, Malawi*. Trop Med Int Health. 2012;17:507–517. [PMC free article] [PubMed]
- [43] Medley, A., Ackers, M., Amolloh, M., Owuor, P., Muttai, H., Audi, B., Sewe, M., & Laserson, K. (2012). *Early uptake of HIV clinical care after testing HIV-positive during home-based testing and counseling in western Kenya*. AIDS Behav. 2012;17:224–234. [PubMed]
- [44] Mohamed, B. A. & Mahfouz M. S., (2013). *Factors Associated with HIV/AIDS in Sudan*. Hindawi Publishing Corporation, BioMed Research International. Volume 2013, Article ID 971203, 6 pages. <http://dx.doi.org/10.1155/2013/971203>
- [45] Moore, B. M., Alex-Hart, B. A., & George, I. O. (2011). *Utilization of health care services by pregnant mothers during delivery: a community based study in Nigeria*. East Afr J Public Health. 2011;8:49–51. [PubMed]
- [46] National AIDS and STI Control Programme (2012). *Kenya AIDS Indicator Survey 2012*
- [47] National AIDS Control Council (2014). *Kenya AIDS response progress report 2014: Progress towards Zero* – <http://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/overview#sthash.2pQOwfwe.dpuf>
- [48] National AIDS Control Council of Kenya (2014). *Kenya AIDS response progress report 2014: progress towards zero*
- [49] Nglazi, M. D., van Schaik, N., Kranzer, K., Lawn, S. D., Wood, R., & Bekker, L. G. (2012). *An incentivized HIV counseling and testing program targeting hard-to-reach unemployed men in Cape Town, South Africa*. J Acquir Immune Defic Syndr. 2012;59:e28–e34. [PMC free article] [PubMed]
- [50] Obure, C. D., Vassall, A., Michaels, C., Terris-Prestholt, F., Mayhew, S., Stackpool-Moore, L., & Warren, C. (2012). *Integra Research Team Watts C. Optimising the cost and delivery of HIV counselling and testing services in Kenya and Swaziland*. Sex Transm Infect. 2012;88:498–503. [PMC free article] [PubMed]
- [51] Odeny, T. A., Penner, J., Lewis-Kulzer, J., et al. (2013). *Integration of HIV care with primary health care services: effect on patient satisfaction*

- and stigma in rural Kenya. *AIDS Res Treat*. 2013;2013:10. [PMC free article] [PubMed]
- [52] Pennington, J. (2001). *HIV and AIDS in Nigeria; Celebrations for world AIDS 2001*. Retrieved from www.avert.org
- [53] Perkins et al, (2013). *Sociodemographic and HIV among African American women in Washington, DC*. Publisher and licensee Dove Medical Press Ltd.
- [54] Perry N. Halkitis, & Rafael, Perez Figueroa. (2013). *Sociodemographic Characteristics Explain Differences in Unprotected Sexual Behaviour among Young HIV-Negative Gay, Bisexual, and Other YMSM in New York City*
- [55] Pettifor, A. E., Levandowski, B.A., Mcphail, C., et al. (2011). *A tale of two countries: Rethinking sexual risk for HIV among young people in South Africa and the United States*. *J Adolesc Health*. 2011;49:237–43. [PMC free article] [PubMed]
- [56] Ramjee& Daniels (2013): *Women and HIV in Sub-Saharan Africa*. *AIDS Research and Therapy*.
- [57] Ryan, C., Huebner, D., Diaz, R. M., & Jorge Sanchez. (2009). *Family Rejection as a Predictor of Negative Health Outcomes in White and Latino Lesbian, Gay, and Bisexual Young Adults*. *Pediatrics*. 2009; 123: (1) 346 -352. PubMed
- [58] Sanders, E. J. et al. (2012). *High HIV-1 incidence, correlates of HIV-1 acquisition, and high viral loads following seroconversion among men who have sex with men in Coastal Kenya*. *AIDS* 26, online edition. DOI: 10/1097/ QAD.0b013e 32835b0f81, 2012.
- [59] Santana, M.C. et al (2006). *Masculine gender role associated with increased sexual risk and intimate partner violence perpetration among*
- [60] Szaflarski, M. *Curr HIV/AIDS Rep* (2013). *Spirituality and Religion among HIV-Infected Individuals*.10: 324. doi:10.1007/s11904-013-0175-7
- [61] Tabana, H., Doherty, T., Swanevelde, S., Lombard, C., Jackson, D., Zembe, W., &Naik, R. (2012). *Knowledge of HIV status prior to a community HIV counseling and testing intervention in a rural district of South Africa: results of a community based survey*. *BMC Infect Dis*. **2012**;12:73. [PMC free article] [PubMed]
- [62] Topp, S.M., Chipukuma, J.M., Chiko, M.M., Wamulume, C. S., Bolton-Moore, C., & Reid, S. E., (2011). *Opt-out provider-initiated HIV testing and counselling in primary care outpatient clinics in Zambia*. *Bull World Health Organ*. 2011;89:328–35A. [PMC free article] [PubMed]
- [63] Tuller, D. M., Bangsberg, D. R., Senkungu, J., Ware, N. C., Emenyonu, N., et al. (2010). *Transportation costs impede sustained adherence and access to HAART in a clinic population in southwestern Uganda: a qualitative study*. *AIDS Behav* 14: (pp.778–784) [PMC free article] [PubMed]
- [64] UN Joint Programme on HIV/AIDS (UNAIDS) (2010). *UNAIDS report on the global AIDS epidemic*.
- [65] UN Joint Programme on HIV/AIDS (UNAIDS) (2011). *UNAIDS data tables 2011*
- [66] UNAIDS & UNESCO (2013). *Young people today - time to act now*
- [67] UNAIDS (2013). *Access to Antiretroviral Therapy in Africa: Status report on progress towards the 2015*
- [68] UNAIDS (2014). *The Gap report 2014*
- [69] Wachira, J., Kimaiyo, S., Ndege, S., Mamlin, J., &Braitstein, P. (2012). *What is the impact of home-based HIV counseling and testing on the clinical status of newly enrolled adults in a large HIV care program in western Kenya?* *Clin Infect Dis*. **2012**;54:275–281. [PubMed]
- [70] Walensky, R. P., & Bassett, I. V. (2011). *HIV self-testing and the missing linkage*. *PLoS Med*. 2011;8:e1001101. [PMC free article] [PubMed]
- [71] World Health Organization (WHO, 2010). *Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings*. Geneva: WHO

Citation: Anne W, Mary W, Donald A. *Socio-Demographic Characteristics of HIV-Infected Patients at Kenyatta National Hospital (KNH) Comprehensive Care Centre (CCC), Nairobi Kenya*. *International Journal of Research Studies in Medical and Health Sciences*. 2017;2(8):1-10.

Copyright: © 2017 Anne W. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.