

Original Research Article

USE OF LONG-LASTING INSECTICIDAL-BEDNETS AMONG PEOPLE LIVING WITH HIV/AIDS ACCESSING CARE IN A TERTIARY HEALTH FACILITY IN SOUTHWEST, NIGERIA

ABSTRACT

Co-infection of HIV with certain diseases like pulmonary tuberculosis and malaria increases the morbidity and mortality of people living with HIV/AIDS. HIV-malaria co-infection has been regarded as having synergistic effect on the patient. The former increases the patient's vulnerability to parasitic and microbial infections, due to compromised immunity, while malaria on its part, further lowers an already diminished immunity by negatively impacting CD4 lymphocytes. In a nutshell, HIV-malaria co-infection is a collaboration that must not be allowed to take place in persons living with HIV/AIDS. And one way to do this is to encourage HIV infected persons to sleep under long-lasting insecticidal-nets (LLIN). In this retrospective study, covering a decade at a tertiary health facility in southwest, Nigeria, requisite data on 303 confirmed HIV positive subjects were retrieved and reviewed. Two hundred and twenty-one (73%) of the subjects were females, while 82 (27%) were males. The mean age of the subject was 41.7 while 42 was the modal age. Ten (3.3%) of the subjects fell within 16-25 years age-bracket, 74 (24.42%) fell within 26-35 age-bracket, while, 118 (38.94%), 71 (23.43%), 26 (8.58%) and 4 (1.32%) respectively fell within 36-45, 46-55, 56-65 and 66-75 age-brackets. Only 6 (2%) of the cases were new HIV infections, whereas, 70 (26%) had been infected for upwards of 9 years and had been on HAART (highly active anti-retroviral therapy) ever since then. About half 147 (48.5%) of the subjects didn't disclose at enrolment into the free treatment scheme, if they used LLIN or did not use it. However, out of the remaining 156 who did make a disclosure, 148 (94.9%) used LLIN, while 8 (5.1%) did not. The study also revealed that male subjects were likelier than the females to use LLIN.

Keywords: Malaria, insecticide-treated net, Ekiti, PLWHAA, HAART

INTRODUCTION

Long-lasting insecticidal-nets (LLIN) are bednets that have been impregnated with an insecticide designed to repel and kill mosquitoes as well as other

33 insects. They offer a form of personal protection that has been shown to reduce
34 illness, severe disease and death due to malaria in endemic regions ¹

35 Although the numbers of cases and deaths attributed to malaria have witnessed
36 a decline recently, the disease still presents a huge health and economic burden
37 to people living in Sub-Sahara Africa (SSA) which is also the region most
38 affected by HIV pandemic ²

39 Malaria and HIV/AIDS are leading causes of morbidity and mortality in SSA.

40 These two diseases are highly endemic in Nigeria³. As a devastating public
41 health problem, malaria in combination with HIV/AIDS are responsible for
42 more than two million deaths annually ⁴. Malaria infects about three hundred
43 million people yearly resulting in about one million deaths. Generally, children
44 below five years of age, pregnant women, non-immune visitors and People
45 living with HIV/AIDS (PLWHA) are at greatest risk of severe illness.⁵ On the
46 other hand, about 30 million people are infected with HIV in Africa, resulting in
47 more than three million deaths⁴.

48 Nigeria accounts for 25% of all malaria cases in the World Health Organization,
49 African Region. This disease is endemic in all the six geopolitical zones of the
50 country with 90% of the total population at risk of stable malaria ⁶

51 HIV and malaria infections are thought to have synergistic effect. While HIV
52 increases the risk of malaria by increasing the proportion of severe cases, case

53 fatality and antimalarial resistance; malaria on the other hand brings about a
54 rapid decline in CD4⁺ T-cells count and elevation of HIV viral load resulting in
55 increasing immunosuppression³. The risk of severe anaemia is also higher in
56 HIV person co-infected with malaria⁷

57 The use of LLIN is one of the global strategies to practically and effectively
58 reduce the burden of malaria among the people living with HIV/AIDS.⁸ Long-
59 lasting insecticidal-nets do not only prevent mosquito bite but also kills
60 mosquitoes thereby reducing vector density with resultant reduction in the
61 incidence of malaria.⁸

62 Long-lasting insecticidal-nets offer 70% protection when compared with no
63 nets. They have also been found to reduce clinical malaria by 50% and reduce
64 mortality in children by 15-30% when overall population coverage is up to
65 70%⁷

66 Over the years, there has been free donation of LLIN (by NGOs and
67 development partners) in all the 36 states of the country and the federal capital
68 territory. However, LLIN utilization is generally low in some parts of the
69 country and thus requires strict monitoring in order to beat down the morbidity
70 and mortality arising from these dual menaces of HIV and malaria⁹. Hence, this
71 study was conducted to assess the usage of LLIN among PLWHA accessing
72 treatment, care and support in a tertiary health facility in Ekiti State, Nigeria.

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75 MATERIALS AND METHOD

76 STUDY POPULATION

77 The study population comprised 303 confirmed HIV positive subjects who were
78 all on highly active anti-retroviral therapy at a tertiary health facility in
79 southwest, Nigeria. Data of patients who had a confirmed diagnosis of HIV and
80 were on HAART were consecutively sampled for the study.

81 DATA MINING

82 Being a retrospective study of HIV positive persons assessing care in a tertiary
83 health facility over the past decade (2008-2017, the requisite data (other than
84 their names) about the subjects were manually obtained (February-March, 2018)
85 through the health information management department of the hospital.

86 Data Analysis

87 Data obtained were subjected to statistical analysis using Ms-Word and online
88 statistical calculator

89 RESULT

90 The subjects comprised 221 (73%) females and 82 (27%) males (Table 1)

91 Table 1: Subjects' Gender Distribution

Male	82 (27)
Female	221 (73)
Total	303 (100)

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93 Ten (3.3%) of the subjects fell within the 16-25 years age-bracket, 74 (24.42%)
94 fell within the 26-35 age-bracket, while 118 (38.94%), 71 (23.43%), 26 (8.58%)
95 and 4 (1.32%) respectively fell within the 36-45, 46-55, 56-65 and 66-75 age-
96 brackets. The mean and modal ages of the subjects respectively were, 41.7 and
97 42. (Table 2)

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102 Table 2: Subjects' Age Distribution

Age-bracket	Frequency
16-25	10
26-35	74
36-45	118
46-55	71
56-65	26
66-75	4
Total	303

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104 Six (approx 2%) of the cases were new HIV infections. The length of infection
 105 of the remaining subjects were; 2, 3, 4, 5, 6, 7, 8, 9 and 10years, with the
 106 following frequencies respectively; 5, 3, 6, 4, 28, 68, 66, 79 and 34. (Table 3)

107 Table 3: Length of Infection

Length of Year	Frequency
≤1	6
2	5
3	3
4	6
5	4
6	28
7	68
8	66
9	79
10	34

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109 About half, 147 (48.5%) of the subjects did not disclose at enrolment into the
 110 free treatment scheme, if they used or did not use LLIN (Insecticide-treated

nets). Out of the remaining 156 who made a disclosure at enrolment as regards use of LLIN, 148 (94.9%) used LLIN (that is always slept under LLIN mosquito-net), while 8 (5.1%) were not using LLIN (Table 4). Among those who were not using LLIN, 7 (87.5%) were females while 1 (12.5%) was a male.

Table 4: Use of LLIN

	Yes	No
Didn't supply data on use of LLIN		147
Used LLIN	148	8
Total		303

DISCUSSION AND CONCLUSION

The synergistic effect of HIV and malaria parasitemia co-infection on a patient could be debilitating. HIV ruins CD4 lymphocytes and lowers immunity, while malaria parasitemia ruins the erythrocytes, aside its other many pathological effects on the patient (13). Each being a kind of killer-disease on its own right, HIV-malaria co-infection is one that efforts must be made to prevent.

And one safe, simple yet affordable mean to achieve this among PLWHA is to encourage and monitor the use of LLIN among them. Gamble et al (10) reported that the use of LLIN during pregnancy was able to reduce placenta malaria by 23% and foetal death by 32%. It has actually been estimated that twenty-three million pregnancies are unprotected by LLIN in sub-Saharan Africa (11-12). Demographic analysis of this present study further confirms that which many studies have shown that women disproportionately bear the brunt and burden of HIV/AIDS, particularly in Africa (14). As in other similar studies, in this present study, 73% of the subjects were females- mostly in their reproductive and economic ages.

The outcome of this study reveals that an outstanding majority 95% used LLIN. This is very similar to the findings of Cohee et al (15) in Rakai, Uganda. In their study on the use of LLIN distributed free to PLWHAA, they recorded 91% utilisation rate among the PLWHA. In a study conducted in in Bahir City, Northwets, Ethiopia, Yibeltal et al (16) reported a 76.8% utilisation rate of

LLIN among the surveyed PLWHA. They equally reported the excuses given by those who didn't use LLIN as; not knowing where to obtain LLIN (41.7%), the high cost of LLIN (33.3%) and being not worried about mosquito bites (65.3%). In a similar survey in three sites in Kilifi, Kisii and Kisumu, Kenya, Obinna et al also reported that majority (76.9%) of the PLWHA surveyed used LLIN (16)

Furthermore, the findings of this study show that gender is a predictor of who is likelier or not to use LLIN among the study population, as 87.5% of those that did not use LLIN among the subjects were females. Garley et al in a post-campaign survey (after universal distribution of free LLIN) in Kano State, Nigeria, also discovered that 57.2% of the females and 48.8% of the males used LLIN. After controlling for covariates, they came to the conclusion that females were likelier to use LLIN than their male counterparts (17).

Judging from the outcome of this study, it can be concluded that the efforts of health educators are yielding positive results, as 95% of the subjects regularly slept under LLIN. It is therefore suggested that the current advocacy campaign to ensure that PLWHA access proper care should be sustained

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