

Original Research Article**USE OF INSECTICIDE-TREATED 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. In fact, 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 marriage 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 Insecticide-treated nets (ITN). 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 ITN or did not use it. However, out of the remaining 156 who did make a disclosure, 148 (94.9%) used ITN, while 8 (5.1%) did not. The study also revealed that male subjects were likely than the females to use ITN.

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

INTRODUCTION

Insecticide treated nets are bednets (ITN) that have been impregnated with an insecticide designed to repel and kill mosquitoes as well as other insects. They

33 offer a form of personal protection that has been shown to reduce illness, severe
34 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 five
42 million deaths annually ⁴. Malaria infects about three hundred million people
43 yearly resulting in two million deaths. Generally, children below five years of
44 age, pregnant women, non-immune visitors and People living with HIV/AIDS
45 (PLWHA) are at greatest risk of severe illness.⁵ On the other hand, about 30
46 million people are infected with HIV in Africa, resulting in more than three
47 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 immunosuppression ³. The risk of severe anaemia is also higher in
 56 HIV person co-infected with malaria ⁷

57 The use of ITN is one of the global strategies to practically and effectively
 58 reduce the burden of malaria among the people living with HIV/AIDS.⁸
 59 Insecticide treated 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 Insecticide treated bednets have been shown to be twice as effective as
 63 untreated bednets and offer over 70% protection when compared with no nets.
 64 They have also been found to reduce clinical malaria by 50% and all cause
 65 mortality in children by 15-30% when overall population coverage is up to
 66 70%⁷

67 Over the years, there have been nationwide free donations of ITN. However,
 68 ITN utilization is generally low in some parts of the country and thus requires
 69 strict monitoring in order to beat down the morbidity and mortality arising from
 70 these dual menaces of HIV and malaria ⁹. Hence, this study was conducted to
 71 assess the usage of ITN among PLWHA accessing treatment, care and support
 72 in a tertiary health facility in Ekiti State, Nigeria.

73 MATERIALS AND METHOD

74 STUDY POPULATION

75 The study population comprised 303 confirmed HIV positive subjects who were
76 all on highly active anti-retroviral therapy at a tertiary health facility in
77 southwest, Nigeria.

78 DATA MINING

79 Being a retrospective study of HIV positive persons assessing care in a tertiary
80 health facility over the past decade, the requisite data (other than their names)
81 about the subjects were obtained through the health information management
82 department of the hospital.

83 Data Analysis

84 Data obtained were subjected to statistical analysis using Ms-Word and online
85 statistical calculator

86 RESULT

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

88 Table 1: Subjects' Gender Distribution

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

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

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99 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

100

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

104 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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106 About half, 147 (48.5%) of the subjects did not disclose at enrolment into the
 107 free treatment scheme, if they used or did not use ITN (Insecticide-treated nets).
 108 Out of the remaining 156 who made a disclosure at enrolment as regards use of
 109 ITN, 148 (94.9%) used ITN (that is always slept under ITN mosquito-net),
 110 while 8 (5.1%) were not using ITN (Table 4). Among those who were not using
 111 ITN, 7 (87.5%) were females while 1 (12.5%) was a male.

112

113 Table 4: Use of ITN

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

114

115 DISCUSSION AND CONCLUSION

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

121 And one safe, simple yet affordable mean to achieve this among PLWHA is to
 122 encourage and monitor the use of ITN among them. Gamble et al (10) reported
 123 that the use of ITN during pregnancy was able to reduce placenta malaria by
 124 23% and foetal death by 32%. It has actually been estimated that twenty-three
 125 million pregnancies are unprotected by ITN in sub-Saharan Africa (11-12).
 126 Demographic analysis of this present study further confirms that which many
 127 studies have discovered that women disproportionately bear the brunt and
 128 burden of HIV/AIDS, particularly in Africa (14). As in other similar studies, in
 129 this present study, 73% of the subjects were females- mostly in their
 130 reproductive and economic ages.

131 The outcome of this study reveals that an outstanding majority 95% used ITN.
 132 This is very similar to the findings of Cohee et al (15) in Rakai, Uganda. In their
 133 study on the use of ITN distributed free to PLWHAA, they recorded 91%
 134 utilisation rate among the PLWHA. In a study conducted in in Bahir City,
 135 Northwets, Ethiopia, Yibeltal et al (16) reported a 76.8% utilisation rate of ITN
 136 among the surveyed PLWHA. They equally reported the excuses given by those
 137 who didn't use ITN as; not knowing where to obtain ITN (41.7%), the high cost
 138 of ITN (33.3%) and being not worried about mosquito bites (65.3%). In a
 139 similar survey in three sites in Kilifi, Kisii and Kisumu, Kenya, Obinna et al also
 140 reported that majority (76.9%) of the PLWHA surveyed used ITN (16)

Furthermore, the findings of this study show that gender is a predictor of who is likelier or not to use ITN among the study population, as 87.5% of those that did not use ITN among the subjects were females. Garley et al in a post-campaign survey (after universal distribution of free ITN) in Kano State, Nigeria, also discovered that 57.2% of the females and 48.8% of the males used ITN. After controlling for covariates, they came to the conclusion that females were likelier to use ITN 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 ITN. It is therefore suggested that the current advocacy campaign to ensure that PLWHA access proper care should be sustained

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