

Full Length Research Paper

# Socio-economic implications of *Simulium damnosum* complex infestation in some rural communities in Odeda Local Government Area of Ogun State, Nigeria

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*Simulium damnosum sensu lato* constitutes serious public health hazard and socio-economic problem in many areas of West Africa. The present study was carried out to document the socio-economic implications of black fly infestation in some rural communities of Odeda Local Government. Structured questionnaires were administered to thirty randomly selected people aged 18 years and above in three selected communities. All the respondents agreed that black fly is a problem in their communities and 63 (70%) out of 90 respondents attributed body itching/ swelling to black fly bite. Majority of the respondents (60%) lost 14 working days in a year due to illness caused by black fly bites. Those who lost between 7 and 14 days in a year due to black fly bites constituted (37.8%). While in the sick bed, each to 46 (51.1%) respondents had at least one person detailed to stay with them and the majority of them up to \$100 in treating the ailment. The results emphasize the need to break man/fly contact considering the fact that most of the affected people are subsistence farmers with low incomes.

**Key words:** Socio-economic implications, *Simulium damnosum* complex, Nigeria.

## INTRODUCTION

*Simulium damnosum* Theobald complex (Diptera: Simuliidae) is of public health hazard and socio-economic problem of considerable magnitude in many riverine communities in West Africa (WHO, 1994; Adewale et al., 1997). The insect transmits Onchocerciasis which is the world second leading cause of blindness (WHO, 1995).

Apart from the disease transmission, the painful bites of the insect in many riverine areas are intolerable nuisance and could sometimes lead to blood loss and serve as portal for viruses, bacteria, protozoa and nematodes which the flies may carry on their bodies or exist in the environment (Ubachukwu, 2004; Usip et al., 2006). This could consequently culminate in low

productivity, sickness and abandonment of the infested areas which all have implications on socio-economic well-being of the human population in such communities.

Moreover, reports showed that black fly bites have also accounted for reduced tourism and deaths in wild and domestic animals in some endemic communities in America (Currie and Adler, 2008). Therefore, studies on socio-economic importance of the black flies in the infested communities are imperative in documenting the impact of the flies on the socio-economic development and in designing the effective measures in stemming the problem. However, information on socio-economic implications of *S. damnosum* s.l bites is relatively scanty. It is against this background that this study was conducted to provide information on the socio-economic implications of *S. damnosum* s.l in some infested communities in Odeda Local Government Area of Ogun State,

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**Table 1.** Demographic data of the respondents in the study area.

Parameters	Frequency	Percentage
<b>Sex</b>		
Male	52	57.8
Female	38	42.2
<b>Age</b>		
18-30	11	12.2
31-40	28	31.2
41-50	20	22.2
50 and above	31	34.4
<b>Educational level</b>		
No formal education	51	56.7
Primary education	24	26.7
Secondary education	12	13.3
Post secondary education	3	3.3
<b>Occupation</b>		
Farming	78	86.7
Fishing	1	1.1
Artisans	10	11.1
Others	1	1.1

No of respondents are 90.

Southwestern Nigeria.

## MATERIALS AND METHODS

Sequel to the reports of intense biting of black flies by the residents of communities around Oyan River during the wet season in 2008, a questionnaire survey was conducted in Odo-Erin, Mologede and Obete all located in Odeda Local Government, Ogun State, Nigeria. Odeda Local Government is one of the Onchocerciasis endemic areas in Ogun State. Entomological studies around the study area showed high biting density of *S. damnosum* s.l. mostly during the wet season (Oluwole et al., 2009). The control of Onchocerciasis in the area has been mainly on chemotherapy (Ivermectin distribution) and no vector control has been instituted in the area. The three communities are proximal to Oyan River (7° 14' N, 3° 13' E) which has many rocky substrata to support the breeding of *S. damnosum* s.l.

The residents of communities were mobilized for the study and structured questionnaires were administered to thirty randomly selected people aged 18 years and above in each of the three communities. The information sourced with questionnaires include demographic data, social and economic implications of the black flies bite in the communities and the costs of treatment of ailments associated with the black flies bite. The responses of the participants were pooled and expressed in percentage.

## RESULTS AND DISCUSSION

The demographic data of the respondents are presented in Table 1. Of the 90 respondents, 52 (57.8%) were males. The majority of the respondents were 31 years

and above. Most of the participants were also farmers (86.7%) with no formal education (56.7%). All the respondents agreed that the black flies are problem in their communities and they adversely reduced their productivity at work. This response is consistent with the earlier observations that black fly nuisance is a serious problem in the infested communities as more time will be spent by the affected individuals in driving the flies away from their body, therefore, diverting their attention from the work and consequently lead to low productivity (Ubachukwu, 2004; Okolo et al., 2004). Itching/ swollen skin and skin pigmentation are the common effects of black flies bite in the study communities (Table 2). The ferocious bites by the black flies may lead to indiscriminate and uncontrollable itching and swelling of skin, which most often cause public embarrassment to the affected people. The skin pigmentation usually constitutes a marriage stigma and lowers the social and economic status of the affected individuals (Okolo et al., 2004). Such observation has also been reported by Currie and Adler (2008).

The majority of the respondents (60%) lost 14 days and others (37.8%) lost between 7 and 14 days, respectively, due to illness as a result of black fly bites (Table 2). The daily work loss of 7 days and above in a year is of huge economic loss on the affected individuals in these communities, as the majority of them are farmers and they depend mostly on their farm produce for feeding and social responsibilities. Furthermore, the intense bite of the flies in the study area occurred mostly in the wet season when most of the farmers usually engage in active farming activities therefore, incapacitating the affected individuals from engaging in productive venture. While at the sick bed, 46 (51.1%) respondents had at least one person detailed to stay with them therefore, turning such family member unproductive during the period of his/ her stay. Six to ten thousand naira (about \$100) was usually spent annually by most of the respondents in treating ailments associated with black fly bites (Table 2) is of great burden on these subsistence farmers whose annual gain were not up to \$200. The colossal expenditure on the treatment of the avoidable ailment caused by black flies bite may force many people to abandon the fertile riverine farms because of the black flies nuisance. All these reduce human resources in the affected areas and indirectly depreciate economy of the nation (Nwoke, 1990; Amazigo et al., 1993; Okolo et al., 2004).

In conclusion, the present study has generated preliminary information on socio-economic implications of *S. damnosum* S.L., in which can be complemented through large scale studies. Apart from transmitting Onchocerciasis, the socio-economic impacts of the *S. damnosum* S.L, constitute a great burden on the affected individuals and the economic development of the nation. We therefore, recommend the launching of vector control project aimed at reducing the fly population mostly during the wet season in the black fly infested areas and this could

**Table 2.** Socio-economic costs of black fly bite in the study area.

<b>Parameters</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Do you consider blackfly a problem</b>		
Yes	90	100
No	0	0
<b>Observable effect of black fly bite</b>		
Swollen skin/itching	63	70
Craw-craw	11	12.2
Unknown	16	17.8
<b>Does black fly bite reduce your productivity</b>		
Yes	90	100
No	0	0
<b>Have you fallen ill due to black fly bite</b>		
Yes	90	100
No	0	0
<b>For how long did you stay away from the work</b>		
1 day	0	0
2-6 days	2	2.22
7-14 days	34	37.8
14 days and above	54	60
<b>Have you ever been admitted at the Hospital because of black fly bite</b>		
Yes	22	24.4
No	68	75.6
<b>Were any of your family members detailed to stay with you when you were sick</b>		
Yes	46	51.1
No	44	48.9
<b>Can you estimate the cost of your treatment because of black fly bite in a year</b>		
Less than #1000	4	4.4
#2,000- #5000	17	18.9
#6000- #10,000	63	70
#11,000 and above	6	6.7
<b>Who paid for your treatment</b>		
Self	77	85.6
Free treatment	0	0
Family/friends	13	14.4

be complemented with the use of fly repellent and adoption of personal protection measures by the people in such areas.

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